Appendix H
Air Quality Modeling Data

EXPLANATION OF CHANGES MADE TO DEFAULT SETTINGS IN URBEMIS 2002

Project Number: 10659-00
Project Name: West Roseville Specific Plan EIR
Analysis Scenario: WRSP

The following pages include the printed results of the air pollutant emissions modeling for one of the land use components of the proposed project. The air emissions modeling was conducted using the URBEMIS 2002 for Windows computer program developed for the Yolo-Solano Air Quality Management District in May 2003. URBEMIS 2002 is programmed with EMFAC 2002 emission factors developed by the California Air Resources Board.

As part of this analysis, changes have been made to several of the default values programmed into URBEMIS 2002. These changes were made to more accurately reflect the nature of the proposed land use. Each of these changes are discussed below.

Vehicle Trip Rates

The default vehicle trip rate values were changed to be consistent with the traffic impact analysis prepared for the project.

Vehicle Fleet Mix

URBEMIS 2002 is programmed with the following state-wide average vehicle fleet mix:

State-Wide Vehicle Type	Total	
Automobiles	54.4%	
Light-Duty Trucks <3,750 pounds	15.3%	
Light-Duty Trucks 3,751-5,750 pounds	16.4%	
Medium-Duty Trucks 5,751-8,500 pounds	7.3%	
Light-Heavy-Duty Trucks 8,501-10,000 pounds	1.1%	
Light-Heavy-Duty Trucks 10,001-14,000 pounds	0.3%	
Medium-Heavy-Duty Trucks 14,001-33,000 pounds	1.0%	10.50% Total Trucks
Heavy-Heavy-Duty Trucks 33,001-60,000 pounds	0.8%	
Line-Haul Vehicles	0.0%	
Urban Buses	0.2%	
Motorcycles	1.6%	
School Buses	0.1%	
Motor Homes	1.5%	

However, this state-wide average fleet mix is not appropriate for the majority of land use analyses. The project land use assessed in this analysis is identified below along with the total percentage of trucks (medium and heavy) that are expected for this land use. The following vehicle mix was calculated based on the percentage of trucks associated with this land use. The percentage of trucks for each land use were determined from the 3rd, 4th, 5th, and 6th Editions of the ITE Trip Generation manual.

ITE Code	Project Land Use:	Truck %	ADT	Truck #
210	Single Family Residential	0.44%	52,794	232
230	Multi-Family Residential	0.88%	11,986	105
250	Age Restricted Residential	0.88%	2,376	21
820	Retail	2.10%	24,851	522
710	Office	1.84%	1,064	20
110	Industrial	8.00%	9,518	761
560	Church	0.44%	681	3
730	Public/Quasi Public	1.20%	1,545	19
520	Elementary School	0.44%	1,920	8
520	Middle School	0.44%	900	4
530	High School	0.44%	2,160	10
410	Parks	0.44%	546	2
		Project Totals:	110,341	1,707
		Project Truck %:	1.55%	

Vehicle Type	Total	
Automobiles	59.84%	
Light-Duty Trucks <3,750 pounds	16.83%	
Light-Duty Trucks 3,751-5,750 pounds	18.04%	
Medium-Duty Trucks 5,751-8,500 pounds	1.08%	
Light-Heavy-Duty Trucks 8,501-10,000 pounds	0.16%	
Light-Heavy-Duty Trucks 10,001-14,000 pounds	0.04%	
Medium-Heavy-Duty Trucks 14,001-33,000 pounds	0.15%	1.55% Total Trucks
Heavy-Heavy-Duty Trucks 33,001-60,000 pounds	0.12%	
Line-Haul Vehicles	0.00%	
Urban Buses	0.22%	
Motorcycles	1.76%	
School Buses	0.11%	
Motor Homes	1.65%	

URBEMIS 2002 For Windows 7.4.2

File Name: C:\Program Files\URBEMIS 2002 For Windows\Projects2k2\West Roseville - WRSP.urb
Project Name: 10659-00 West Roseville Specific Plan - WRSP
Project Location: Lower Sacramento Valley Air Basin
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)	429.67	174.95	114.39	1.32	0.37
TOTALS (lbs/day, mitigated)	429.61	174.14	114.07	1.32	0.37

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
TOTALS (lbs/day,unmitigated)	356.69	231.35	3,034.44	3.99	749.38
TOTALS (lbs/day, mitigated)	334.99	210.39	2,760.63	3.63	680.83

SUM OF AREA AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
TOTALS (lbs/day,unmitigated)	786.36	406.30	3,148.83	5.31	749.75
TOTALS (lbs/day, mitigated)	764.60	384.54	2,874.70	4.94	681.20

URBEMIS 2002 For Windows 7.4.2

File Name: C:\Program Files\URBEMIS 2002 For Windows\Projects2k2\West Roseville - WRSP.urb
Project Name: 10659-00 West Roseville Specific Plan - WRSP
Project Location: Lower Sacramento Valley Air Basin
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)	7,231.56	313.20	10,523.09	22.28	1,520.89
TOTALS (lbs/day, mitigated)	7,231.50	312.40	10,522.77	22.28	1,520.89

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
TOTALS (lbs/day,unmitigated)	294.66	325.13	3,135.80	3.99	749.38
TOTALS (lbs/day, mitigated)	269.33	295.65	2,853.90	3.62	680.83

SUM OF AREA AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
TOTALS (lbs/day;unmitigated)	7,526.23	638.34	13,658.89	26.26	2,270.27
TOTALS (lbs/day, mitigated)	7,500.83	608.05	13,376.67	25.90	2,201.72

URBEMIS 2002 For Windows 7.4.2

File Name: C:\Program Files\URBEMIS 2002 For Windows\Projects2k2\West Roseville - WRSP.urb
Project Name: 10659-00 West Roseville Specific Plan - WRSP
Project Location: Lower Sacramento Valley Air Basin
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	13.38	173.98	73.69	-	0.33
Wood Stoves	425.80	66.79	3,411.93	11.13	556.60
Fireplaces	6,379.97	72.44	7,037.47	11.14	963.96
Landscaping - No winter emissions					
Consumer Prdcts	412.42	-	-	-	-
TOTALS(lbs/day,unmitigated)	7,231.56	313.20	10,523.09	22.28	1,520.89

UNMITIGATED OPERATIONAL EMISSIONS

	ROG	NOx	CO	SO2	PM10
Single Family Residential	151.37	172.98	1,667.57	2.17	406.45
Multi-Family Residential	34.64	39.27	378.60	0.49	92.28
Age Restricted Residentia	7.06	7.78	75.05	0.10	18.29
Elementary School	5.64	4.55	44.41	0.05	9.94
Middle School	2.62	2.25	21.75	0.03	5.01
High School	5.87	5.58	52.94	0.07	12.61
Church	1.48	1.55	14.89	0.02	3.37
Parks	1.32	1.32	12.61	0.02	2.94
Retail	51.27	51.73	505.91	0.58	109.45
Office	2.77	3.15	29.96	0.04	7.27
Public/Quasi Public	3.27	3.17	31.51	0.04	6.64
Industrial	27.37	31.79	300.60	0.40	75.13
TOTAL EMISSIONS (lbs/day)	294.66	325.13	3,135.80	3.99	749.38

Includes correction for passby trips.
Includes a double counting reduction for internal trips.

OPERATIONAL (Vehicle) EMISSION ESTIMATES

Analysis Year: 2020 Temperature (F): 50 Season: Winter

EMFAC Version: EMFAC2002 (9/2002)

Summary of Land Uses:

Unit Type	Trip Rate	Size	Total Trips
Single Family Residential	9.00 trips / dwelling units	5,866.00	52,794.00
Multi-Family Residential	6.50 trips / dwelling units	1,844.00	11,986.00
Age Restricted Residentia	3.30 trips / dwelling units	720.00	2,376.00
Elementary School	0.80 trips / students	2,400.00	1,920.00
Middle School	0.90 trips / students	1,000.00	900.00
High School	1.20 trips / students	1,800.00	2,160.00
Church	9.30 trips / 1000 sq. ft.	73.20	680.76
Parks	2.20 trips / acres	248.40	546.48
Retail	35.00 trips / 1000 sq. ft.	710.00	24,850.00
Office	17.70 trips / 1000 sq. ft.	60.10	1,063.77
Public/Quasi Public	25.00 trips / 1000 sq. ft.	61.80	1,545.00
Industrial	7.60 trips / 1000 sq. ft.	1,252.40	9,518.24

Vehicle Assumptions:

Fleet Mix:

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	59.84	0.40	99.40	0.20
Light Truck < 3,750 lbs	16.83	0.70	98.00	1.30
Light Truck 3,751- 5,750	18.04	0.60	98.80	0.60
Med Truck 5,751- 8,500	1.08	0.00	98.60	1.40
Lite-Heavy 8,501-10,000	0.16	0.00	81.80	18.20
Lite-Heavy 10,001-14,000	0.04	0.00	66.70	33.30
Med-Heavy 14,001-33,000	0.15	0.00	20.00	80.00
Heavy-Heavy 33,001-60,000	0.12	0.00	0.00	100.00
Line Haul > 60,000 lbs	0.00	0.00	0.00	100.00
Urban Bus	0.22	0.00	50.00	50.00
Motorcycle	1.76	50.00	50.00	0.00
School Bus	0.11	0.00	0.00	100.00
Motor Home	1.65	0.00	93.30	6.70

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	9.7	3.8	4.6	7.8	4.5	4.5
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	27.3	21.2	51.5			
% of Trips - Commercial (by land use)						
Elementary School				20.0	10.0	70.0
Middle School				20.0	10.0	70.0
High School				10.0	5.0	85.0
Church				3.0	1.5	95.5

Parks	5.0	2.5	92.5
Retail	2.0	1.0	97.0
Office	35.0	17.5	47.5
Public/Quasi Public	10.0	5.0	85.0
Industrial	50.0	25.0	25.0

MITIGATED OPERATIONAL EMISSIONS

	ROG	NOx	CO	SO2	PM10
Single Family Residential	138.78	158.00	1,524.13	1.98	370.96
Multi-Family Residential	31.68	35.55	343.56	0.44	83.30
Age Restricted Residentia	6.36	6.72	65.55	0.08	15.56
Elementary School	5.24	4.13	40.37	0.05	9.04
Middle School	2.43	2.05	19.77	0.02	4.55
High School	5.39	5.05	47.86	0.06	11.40
Church	1.34	1.39	13.40	0.02	3.04
Parks	1.21	1.19	11.36	0.01	2.65
Retail	46.15	46.53	455.09	0.52	98.47
Office	2.54	2.88	27.43	0.04	6.66
Public/Quasi Public	2.96	2.87	28.48	0.03	6.01
Industrial	25.26	29.28	276.90	0.37	69.22
TOTAL EMISSIONS (lbs/day)	269.33	295.65	2,853.90	3.62	680.83

OPERATIONAL (Vehicle) EMISSION ESTIMATES

Analysis Year: 2020 Temperature (F): 50 Season: Winter

EMFAC Version: EMFAC2002 (9/2002)

Summary of Land Uses:

Unit Type	Trip Rate	Size	Total Trips
Single Family Residential	9.00 trips / dwelling units	5,866.00	52,794.00
Multi-Family Residential	6.50 trips / dwelling units	1,844.00	11,986.00
Age Restricted Residentia	3.30 trips / dwelling units	720.00	2,376.00
Elementary School	0.80 trips / students	2,400.00	1,920.00
Middle School	0.90 trips / students	1,000.00	900.00
High School	1.20 trips / students	1,800.00	2,160.00
Church	9.30 trips / 1000 sq. ft.	73.20	680.76
Parks	2.20 trips / acres	248.40	546.48
Retail	35.00 trips / 1000 sq. ft.	710.00	24,850.00
Office	17.70 trips / 1000 sq. ft.	60.10	1,063.77
Public/Quasi Public	25.00 trips / 1000 sq. ft.	61.80	1,545.00
Industrial	7.60 trips / 1000 sq. ft.	1,252.40	9,518.24

Vehicle Assumptions:

Fleet Mix:

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	59.84	0.40	99.40	0.20
Light Truck < 3,750 lbs	16.83	0.70	98.00	1.30
Light Truck 3,751- 5,750	18.04	0.60	98.80	0.60
Med Truck 5,751- 8,500	1.08	0.00	98.60	1.40
Lite-Heavy 8,501-10,000	0.16	0.00	81.80	18.20
Lite-Heavy 10,001-14,000	0.04	0.00	66.70	33.30
Med-Heavy 14,001-33,000	0.15	0.00	20.00	80.00
Heavy-Heavy 33,001-60,000	0.12	0.00	0.00	100.00
Line Haul > 60,000 lbs	0.00	0.00	0.00	100.00
Urban Bus	0.22	0.00	50.00	50.00
Motorcycle	1.76	50.00	50.00	0.00
School Bus	0.11	0.00	0.00	100.00
Motor Home	1.65	0.00	93.30	6.70

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	9.7	3.8	4.6	7.8	4.5	4.5
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	27.3	21.2	51.5			
% of Trips - Commercial (by land use)						
Elementary School				20.0	10.0	70.0
Middle School				20.0	10.0	70.0
High School				10.0	5.0	85.0
Church				3.0	1.5	95.5
Parks				5.0	2.5	92.5
Retail				2.0	1.0	97.0
Office				35.0	17.5	47.5

Public/Quasi Public	10.0	5.0	85.0
Industrial	50.0	25.0	25.0

ENVIRONMENTAL FACTORS APPLICABLE TO THE PROJECT

Pedestrian Environment

2.0	Side Walks/Paths: Most Destinations Covered
1.0	Street Trees Provide Shade: Moderate Coverage
3.0	Pedestrian Circulation Access: Most Destinations
3.0	Visually Interesting Uses: Moderate Number and Variety
1.0	Street System Enhances Safety: Some Streets
2.0	Pedestrian Safety from Crime: High Degree of Safety
1.0	Visually Interesting Walking Routes: Moderate Level

13.0 <- Pedestrian Environmental Credit
13.0 /19 = 0.7 <- Pedestrian Effectiveness Factor

Transit Service

12.0 Transit Service: 31-60 Minute Bus within 1/4 Mile

12.0 <- Transit Effectiveness Credit
13.0 <- Pedestrian Factor
25.0 <-Total
25.0 /110 = 0.2 <-Transit Effectiveness Factor

Bicycle Environment

3.0	Interconnected Bikeways: Moderate Coverage
2.0	Bike Routes Provide Paved Shoulders: Some Routes
0.5	Safe Vehicle Speed Limits: Few Destinations
2.0	Safe School Routes: Primary and Secondary Schools
2.0	Uses w/in Cycling Distance: Moderate Number and Variety
1.0	Bike Parking Ordinance: Requires Unprotected Bike Racks

10.5 <- Bike Environmental Credit
10.5 /20 = 0.5 <- Bike Effectiveness Factor

MITIGATION MEASURES SELECTED FOR THIS PROJECT
(All mitigation measures are printed, even if
the selected land uses do not constitute a mixed use.)

Transit Infrastructure Measures

% Trips Reduced	Measure
15.0	Credit for Existing or Planned Community Transit Service
15.0	<- Totals

Pedestrian Enhancing Infrastructure Measures (Residential)

% Trips Reduced	Measure
2.0	Credit for Surrounding Pedestrian Environment
3.0	Mixed Use Project (Residential Oriented)
1.0	Provide Sidewalks and/or Pedestrian Paths
1.0	Provide Direct Pedestrian Connections
0.5	Provide Pedestrian Safety
0.5	Provide Street Lighting
0.5	Provide Pedestrian Signalization and Signage
8.5	<- Totals

Pedestrian Enhancing Infrastructure Measures (Non-Residential)

% Trips Reduced	Measure
2.0	Credit for Surrounding Pedestrian Environment
1.0	Provide Wide Sidewalks and Onsite Pedestrian Facilities
0.5	Provide Street Lighting
0.5	Project Provides Shade Trees to Shade Sidewalks
0.5	Provide Pedestrian Safety Designs/Infrastructure at Crossings
4.5	<- Totals

Bicycle Enhancing Infratructure Measures (Residential)

% Trips Reduced	Measure
7.0	Credit for Surrounding Bicycle Environment
2.0	Provide Bike Lanes/Paths Connecting to Bikeway System
9.0	<- Totals

Bike Enhancing Infrastructure Measures (Non-Residential)

% Trips Reduced	Measure
5.0	Credit for Surrounding Area Bike Environment
2.0	Provide Bike Lanes/Paths Connecting to Bikeway System
7.0	<- Totals

Operational Measures (Applying to Commute Trips)

% Trips Reduced	Measure
0.0	<- Totals

Operational Measures (Applying to Employee Non-Commute Trips)

% Trips Reduced	Measure
5.0	Many Frequently Needed Services Provided
5.0	<- Totals

Operational Measures (Applying to Customer Trips)

% Trips Reduced	Measure
0.0	<- Totals

Measures Reducing VMT (Non-Residential)

VMT Reduced	Measure
0.0	Park and Ride Lots
0.0	<- Totals

Measures Reducing VMT (Residential)

VMT Reduced	Measure
863.3	Park and Ride Lots
863.3	<- Totals

Total Percentage Trip Reduction
with Environmental Factors and Mitigation Measures

Travel Mode	Home-Work Trips	Home-Shop Trips	Home-Other Trips
Pedestrian	0.64	2.56	2.56
Transit	3.41	0.75	0.92
Bicycle	4.72	4.72	4.72
Totals	0.00	0.00	0.00

Travel Mode	Work Trips	Employee Trips	Customer Trips
Pedestrian	0.34	3.08	3.08
Transit	3.41	0.07	3.41
Bicycle	3.67	3.67	3.68
Other	0.00	0.32	0.00
Totals	0.00	0.00	0.00

Changes made to the default values for Land Use Trip Percentages

Changes made to the default values for Area

The area souce mitigation measure option switch changed from off to on.
The natural gas residential percentage changed from 60 to 100.
The amount of wood burned per year changed from 1.48 to 1.
The percentage of wood stoves changed from 35 to 10.
The fireplace cords of wood burned changed from 1.48 to 1.
The landscape year changed from 2004 to 2020.

Changes made to the default values for Operations

The pass by trips option switch changed from off to on.
The light auto percentage changed from 54.4 to 59.84.
The light truck < 3750 lbs percentage changed from 15.3 to 16.83.
The light truck 3751-5750 percentage changed from 16.4 to 18.04.
The med truck 5751-8500 percentage changed from 7.3 to 1.08.
The lite-heavy truck 8501-10000 percentage changed from 1.1 to 0.16.
The lite-heavy truck 10001-14000 percentage changed from 0.3 to 0.04.
The med-heavy truck 14001-33000 percentage changed from 1.0 to 0.15.
The heavy-heavy truck 33001-60000 percentage changed from 0.8 to 0.12.
The urban bus percentage changed from 0.2 to 0.22.
The motorcycle percentage changed from 1.6 to 1.76.
The school bus percentage changed from 0.1 to 0.11.
The motorhome percentage changed from 1.5 to 1.65.
The operational emission year changed from 2004 to 2020.
The operational winter temperature changed from 40 to 50.
The operational summer selection item changed from 7 to 6.
The double counting internal work trip limit changed from to 6610.6863.
The double counting shopping trip limit changed from to 3305.34315.
The double counting other trip limit changed from to 33268.22055.
The travel mode environment settings changed from both to: both
The default/nodefault travel setting changed from nodefault to: nodefault
 Side Walks/Paths: No Sidewalks
      changed to: Side Walks/Paths: Most Destinations Covered
Street Trees Provide Shade: No Coverage
      changed to:Street Trees Provide Shade: Moderate Coverage
Pedestrian Circulation Access: No Destinations
      changed to:Pedestrian Circulation Access: Most Destinations
Visually Interesting Uses: No Uses Within Walking Distance
      changed to:Visually Interesting Uses: Moderate Number and Variety
 Street System Enhances Safety: No Streets
      changed to: Street System Enhances Safety: Some Streets
Pedestrian Safety from Crime: No Degree of Safety
      changed to:Pedestrian Safety from Crime: High Degree of Safety
Visually Interesting Walking Routes: No Visual Interest
      changed to:Visually Interesting Walking Routes: Moderate Level
 Transit Service: Dial-A-Ride or No Transit Service
      changed to: Transit Service: 31-60 Minute Bus within 1/4 Mile
 Interconnected Bikeways: No Bikeway Coverage
      changed to: Interconnected Bikeways: Moderate Coverage
Bike Routes Provide Paved Shoulders: No Routes
      changed to:Bike Routes Provide Paved Shoulders: Some Routes
Safe Vehicle Speed Limits: No Routes Provided
      changed to:Safe Vehicle Speed Limits: Few Destinations
 Safe School Routes: No Schools
      changed to: Safe School Routes: Primary and Secondary Schools
Uses w/in Cycling Distance: No Uses w/in Cycling Distance
      changed to:Uses w/in Cycling Distance: Moderate Number and Variety
Bike Parking Ordinance: No Ordinance or Unenforceable
      changed to:Bike Parking Ordinance: Requires Unprotected Bike Racks
Mitigation measure Mixed Use Project (Residential Oriented):3
     has been changed from off to on.
Mitigation measure Provide Sidewalks and/or Pedestrian Paths:1
     has been changed from off to on.
Mitigation measure Provide Direct Pedestrian Connections:1
     has been changed from off to on.
Mitigation measure Provide Pedestrian Safety:0.5
     has been changed from off to on.
Mitigation measure Provide Street Lighting:0.5
     has been changed from off to on.
Mitigation measure Provide Pedestrian Signalization and Signage:0.5
     has been changed from off to on.
Mitigation measure Provide Wide Sidewalks and Onsite Pedestrian Facilities:1
     has been changed from off to on.
Mitigation measure Provide Street Lighting:0.5

has been changed from off to on.
Mitigation measure Project Provides Shade Trees to Shade Sidewalks:0.5
has been changed from off to on.
Mitigation measure Provide Pedestrian Safety Designs/Infrastructure at Crossings:0.5
has been changed from off to on.
Mitigation measure Provide Bike Lanes/Paths Connecting to Bikeway System:2
has been changed from off to on.
Mitigation measure Provide Bike Lanes/Paths Connecting to Bikeway System:2
has been changed from off to on.
Mitigation measure Many Frequently Needed Services Provided:5
has been changed from off to on.
Mitigation measure mitop6: Park and Ride Lots
has been changed from off to on.

URBEMIS 2002 For Windows 7.4.2

File Name: C:\Program Files\URBEMIS 2002 For Windows\Projects2k2\West Roseville - WRSP.urb
Project Name: 10659-00 West Roseville Specific Plan - WRSP
Project Location: Lower Sacramento Valley Air Basin
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	13.38	173.98	73.69	-	0.33
Wood Stoves - No summer emissions					
Fireplaces - No summer emissions					
Landscaping	3.87	0.97	40.70	1.32	0.04
Consumer Prdcts	412.42	-	-	-	-
TOTALS(lbs/day,unmitigated)	429.67	174.95	114.39	1.32	0.37

UNMITIGATED OPERATIONAL EMISSIONS

	ROG	NOx	CO	SO2	PM10
Single Family Residential	168.40	122.74	1,639.08	2.17	406.45
Multi-Family Residential	41.81	27.87	372.13	0.49	92.28
Age Restricted Residentia	10.76	5.52	73.77	0.10	18.29
Elementary School	20.44	3.26	41.51	0.05	9.94
Middle School	8.75	1.61	20.50	0.03	5.01
High School	16.74	3.99	49.86	0.07	12.61
Church	1.73	1.11	13.65	0.02	3.37
Parks	2.75	0.95	11.70	0.02	2.94
Retail	47.91	37.25	455.38	0.58	109.45
Office	2.75	2.24	29.19	0.04	7.27
Public/Quasi Public	3.16	2.29	28.48	0.04	6.64
Industrial	31.51	22.54	299.20	0.40	75.13
TOTAL EMISSIONS (lbs/day)	356.69	231.35	3,034.44	3.99	749.38

Includes correction for passby trips.
Includes a double counting reduction for internal trips.

OPERATIONAL (Vehicle) EMISSION ESTIMATES

Analysis Year: 2020 Temperature (F): 85 Season: Summer

EMFAC Version: EMFAC2002 (9/2002)

Summary of Land Uses:

Unit Type	Trip Rate	Size	Total Trips
Single Family Residential	9.00 trips / dwelling units	5,866.00	52,794.00
Multi-Family Residential	6.50 trips / dwelling units	1,844.00	11,986.00
Age Restricted Residentia	3.30 trips / dwelling units	720.00	2,376.00
Elementary School	0.80 trips / students	2,400.00	1,920.00
Middle School	0.90 trips / students	1,000.00	900.00
High School	1.20 trips / students	1,800.00	2,160.00
Church	9.30 trips / 1000 sq. ft.	73.20	680.76
Parks	2.20 trips / acres	248.40	546.48
Retail	35.00 trips / 1000 sq. ft.	710.00	24,850.00
Office	17.70 trips / 1000 sq. ft.	60.10	1,063.77
Public/Quasi Public	25.00 trips / 1000 sq. ft.	61.80	1,545.00
Industrial	7.60 trips / 1000 sq. ft.	1,252.40	9,518.24

Vehicle Assumptions:

Fleet Mix:

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	59.84	0.40	99.40	0.20
Light Truck < 3,750 lbs	16.83	0.70	98.00	1.30
Light Truck 3,751- 5,750	18.04	0.60	98.80	0.60
Med Truck 5,751- 8,500	1.08	0.00	98.60	1.40
Lite-Heavy 8,501-10,000	0.16	0.00	81.80	18.20
Lite-Heavy 10,001-14,000	0.04	0.00	66.70	33.30
Med-Heavy 14,001-33,000	0.15	0.00	20.00	80.00
Heavy-Heavy 33,001-60,000	0.12	0.00	0.00	100.00
Line Haul > 60,000 lbs	0.00	0.00	0.00	100.00
Urban Bus	0.22	0.00	50.00	50.00
Motorcycle	1.76	50.00	50.00	0.00
School Bus	0.11	0.00	0.00	100.00
Motor Home	1.65	0.00	93.30	6.70

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	9.7	3.8	4.6	7.8	4.5	4.5
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	27.3	21.2	51.5			
% of Trips - Commercial (by land use)						
Elementary School				20.0	10.0	70.0
Middle School				20.0	10.0	70.0
High School				10.0	5.0	85.0
Church				3.0	1.5	95.5

Parks	5.0	2.5	92.5
Retail	2.0	1.0	97.0
Office	35.0	17.5	47.5
Public/Quasi Public	10.0	5.0	85.0
Industrial	50.0	25.0	25.0

MITIGATED OPERATIONAL EMISSIONS

	ROG	NOx	CO	SO2	PM10
Single Family Residential	157.56	112.12	1,497.32	1.98	370.96
Multi-Family Residential	39.25	25.24	337.16	0.44	83.30
Age Restricted Residentia	10.15	4.77	63.95	0.08	15.56
Elementary School	20.10	2.96	37.76	0.05	9.04
Middle School	8.58	1.46	18.65	0.02	4.55
High School	16.34	3.61	45.10	0.06	11.40
Church	1.61	1.00	12.29	0.02	3.04
Parks	2.65	0.85	10.55	0.01	2.65
Retail	43.59	33.51	409.68	0.52	98.47
Office	2.55	2.05	26.74	0.04	6.66
Public/Quasi Public	2.90	2.07	25.76	0.03	6.01
Industrial	29.71	20.76	275.69	0.37	69.22
TOTAL EMISSIONS (lbs/day)	334.99	210.39	2,760.63	3.63	680.83

OPERATIONAL (Vehicle) EMISSION ESTIMATES

Analysis Year: 2020 Temperature (F): 85 Season: Summer

EMFAC Version: EMFAC2002 (9/2002)

Summary of Land Uses:

Unit Type	Trip Rate	Size	Total Trips
Single Family Residential	9.00 trips / dwelling units	5,866.00	52,794.00
Multi-Family Residential	6.50 trips / dwelling units	1,844.00	11,986.00
Age Restricted Residentia	3.30 trips / dwelling units	720.00	2,376.00
Elementary School	0.80 trips / students	2,400.00	1,920.00
Middle School	0.90 trips / students	1,000.00	900.00
High School	1.20 trips / students	1,800.00	2,160.00
Church	9.30 trips / 1000 sq. ft.	73.20	680.76
Parks	2.20 trips / acres	248.40	546.48
Retail	35.00 trips / 1000 sq. ft.	710.00	24,850.00
Office	17.70 trips / 1000 sq. ft.	60.10	1,063.77
Public/Quasi Public	25.00 trips / 1000 sq. ft.	61.80	1,545.00
Industrial	7.60 trips / 1000 sq. ft.	1,252.40	9,518.24

Vehicle Assumptions:

Fleet Mix:

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	59.84	0.40	99.40	0.20
Light Truck < 3,750 lbs	16.83	0.70	98.00	1.30
Light Truck 3,751- 5,750	18.04	0.60	98.80	0.60
Med Truck 5,751- 8,500	1.08	0.00	98.60	1.40
Lite-Heavy 8,501-10,000	0.16	0.00	81.80	18.20
Lite-Heavy 10,001-14,000	0.04	0.00	66.70	33.30
Med-Heavy 14,001-33,000	0.15	0.00	20.00	80.00
Heavy-Heavy 33,001-60,000	0.12	0.00	0.00	100.00
Line Haul > 60,000 lbs	0.00	0.00	0.00	100.00
Urban Bus	0.22	0.00	50.00	50.00
Motorcycle	1.76	50.00	50.00	0.00
School Bus	0.11	0.00	0.00	100.00
Motor Home	1.65	0.00	93.30	6.70

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	9.7	3.8	4.6	7.8	4.5	4.5
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	27.3	21.2	51.5			
% of Trips - Commercial (by land use)						
Elementary School				20.0	10.0	70.0
Middle School				20.0	10.0	70.0
High School				10.0	5.0	85.0
Church				3.0	1.5	95.5
Parks				5.0	2.5	92.5
Retail				2.0	1.0	97.0
Office				35.0	17.5	47.5

Public/Quasi Public	10.0	5.0	85.0
Industrial	50.0	25.0	25.0

ENVIRONMENTAL FACTORS APPLICABLE TO THE PROJECT

Pedestrian Environment

2.0	Side Walks/Paths: Most Destinations Covered
1.0	Street Trees Provide Shade: Moderate Coverage
3.0	Pedestrian Circulation Access: Most Destinations
3.0	Visually Interesting Uses: Moderate Number and Variety
1.0	Street System Enhances Safety: Some Streets
2.0	Pedestrian Safety from Crime: High Degree of Safety
1.0	Visually Interesting Walking Routes: Moderate Level

13.0 <- Pedestrian Environmental Credit
13.0 /19 = 0.7 <- Pedestrian Effectiveness Factor

Transit Service

12.0	Transit Service: 31-60 Minute Bus within 1/4 Mile

12.0 <- Transit Effectiveness Credit
13.0 <- Pedestrian Factor
25.0 <-Total
25.0 /110 = 0.2 <-Transit Effectiveness Factor

Bicycle Environment

3.0	Interconnected Bikeways: Moderate Coverage
2.0	Bike Routes Provide Paved Shoulders: Some Routes
0.5	Safe Vehicle Speed Limits: Few Destinations
2.0	Safe School Routes: Primary and Secondary Schools
2.0	Uses w/in Cycling Distance: Moderate Number and Variety
1.0	Bike Parking Ordinance: Requires Unprotected Bike Racks

10.5 <- Bike Environmental Credit
10.5 /20 = 0.5 <- Bike Effectiveness Factor

MITIGATION MEASURES SELECTED FOR THIS PROJECT
(All mitigation measures are printed, even if
the selected land uses do not constitute a mixed use.)

Transit Infrastructure Measures

% Trips Reduced	Measure
15.0	Credit for Existing or Planned Community Transit Service
15.0 <- Totals	

Pedestrian Enhancing Infrastructure Measures (Residential)

% Trips Reduced	Measure
2.0	Credit for Surrounding Pedestrian Environment
3.0	Mixed Use Project (Residential Oriented)
1.0	Provide Sidewalks and/or Pedestrian Paths
1.0	Provide Direct Pedestrian Connections
0.5	Provide Pedestrian Safety
0.5	Provide Street Lighting
0.5	Provide Pedestrian Signalization and Signage
8.5 <- Totals	

Pedestrian Enhancing Infrastructure Measures (Non-Residential)

% Trips Reduced	Measure
2.0	Credit for Surrounding Pedestrian Environment
1.0	Provide Wide Sidewalks and Onsite Pedestrian Facilities
0.5	Provide Street Lighting
0.5	Project Provides Shade Trees to Shade Sidewalks
0.5	Provide Pedestrian Safety Designs/Infrastructure at Crossings
4.5 <- Totals	

Bicycle Enhancing Infratructure Measures (Residential)

% Trips Reduced	Measure
7.0	Credit for Surrounding Bicycle Environment
2.0	Provide Bike Lanes/Paths Connecting to Bikeway System
9.0 <- Totals	

Bike Enhancing Infrastructure Measures (Non-Residential)

% Trips Reduced	Measure
5.0	Credit for Surrounding Area Bike Environment
2.0	Provide Bike Lanes/Paths Connecting to Bikeway System
7.0 <- Totals	

Operational Measures (Applying to Commute Trips)

% Trips Reduced	Measure
0.0 <- Totals	

Operational Measures (Applying to Employee Non-Commute Trips)

% Trips Reduced	Measure
5.0	Many Frequently Needed Services Provided
5.0 <- Totals	

Operational Measures (Applying to Customer Trips)

% Trips Reduced	Measure
0.0 <- Totals	

Measures Reducing VMT (Non-Residential)

VMT Reduced	Measure
0.0	Park and Ride Lots
0.0 <- Totals	

Measures Reducing VMT (Residential)

VMT Reduced	Measure
863.3	Park and Ride Lots
863.3 <- Totals	

Total Percentage Trip Reduction
with Environmental Factors and Mitigation Measures

Travel Mode	Home-Work Trips	Home-Shop Trips	Home-Other Trips
Pedestrian	0.64	2.56	2.56
Transit	3.41	0.75	0.92
Bicycle	4.72	4.72	4.72
Totals	0.00	0.00	0.00

Travel Mode	Work Trips	Employee Trips	Customer Trips
Pedestrian	0.34	3.08	3.08
Transit	3.41	0.07	3.41
Bicycle	3.67	3.67	3.68
Other	0.00	0.32	0.00
Totals	0.00	0.00	0.00

Changes made to the default values for Land Use Trip Percentages

Changes made to the default values for Area

The area souce mitigation measure option switch changed from off to on.
The natural gas residential percentage changed from 60 to 100.
The amount of wood burned per year changed from 1.48 to 1.
The percentage of wood stoves changed from 35 to 10.
The fireplace cords of wood burned changed from 1.48 to 1.
The landscape year changed from 2004 to 2020.

Changes made to the default values for Operations

The pass by trips option switch changed from off to on.
The light auto percentage changed from 54.4 to 59.84.
The light truck < 3750 lbs percentage changed from 15.3 to 16.83.
The light truck 3751-5750 percentage changed from 16.4 to 18.04.
The med truck 5751-8500 percentage changed from 7.3 to 1.08.
The lite-heavy truck 8501-10000 percentage changed from 1.1 to 0.16.
The lite-heavy truck 10001-14000 percentage changed from 0.3 to 0.04.
The med-heavy truck 14001-33000 percentage changed from 1.0 to 0.15.
The heavy-heavy truck 33001-60000 percentage changed from 0.8 to 0.12.
The urban bus percentage changed from 0.2 to 0.22.
The motorcycle percentage changed from 1.6 to 1.76.
The school bus percentage changed from 0.1 to 0.11.
The motorhome percentage changed from 1.5 to 1.65.
The operational emission year changed from 2004 to 2020.
The operational winter temperature changed from 40 to 50.
The operational summer selection item changed from 7 to 6.
The double counting internal work trip limit changed from to 6610.6863.
The double counting shopping trip limit changed from to 3305.34315.
The double counting other trip limit changed from to 33268.22055.
The travel mode environment settings changed from both to: both
The default/nodefault travel setting changed from nodefault to: nodefault
Side Walks/Paths: No Sidewalks
changed to: Side Walks/Paths: Most Destinations Covered
Street Trees Provide Shade: No Coverage
changed to:Street Trees Provide Shade: Moderate Coverage
Pedestrian Circulation Access: No Destinations
changed to:Pedestrian Circulation Access: Most Destinations
Visually Interesting Uses: No Uses Within Walking Distance
changed to:Visually Interesting Uses: Moderate Number and Variety
Street System Enhances Safety: No Streets
changed to: Street System Enhances Safety: Some Streets
Pedestrian Safety from Crime: No Degree of Safety
changed to:Pedestrian Safety from Crime: High Degree of Safety
Visually Interesting Walking Routes: No Visual Interest
changed to:Visually Interesting Walking Routes: Moderate Level
Transit Service: Dial-A-Ride or No Transit Service
changed to: Transit Service: 31-60 Minute Bus within 1/4 Mile
Interconnected Bikeways: No Bikeway Coverage
changed to: Interconnected Bikeways: Moderate Coverage
Bike Routes Provide Paved Shoulders: No Routes
changed to:Bike Routes Provide Paved Shoulders: Some Routes
Safe Vehicle Speed Limits: No Routes Provided
changed to:Safe Vehicle Speed Limits: Few Destinations
Safe School Routes: No Schools
changed to: Safe School Routes: Primary and Secondary Schools
Uses w/in Cycling Distance: No Uses w/in Cycling Distance
changed to:Uses w/in Cycling Distance: Moderate Number and Variety
Bike Parking Ordinance: No Ordinance or Unenforceable
changed to:Bike Parking Ordinance: Requires Unprotected Bike Racks
Mitigation measure Mixed Use Project (Residential Oriented):3
has been changed from off to on.
Mitigation measure Provide Sidewalks and/or Pedestrian Paths:1
has been changed from off to on.
Mitigation measure Provide Direct Pedestrian Connections:1
has been changed from off to on.
Mitigation measure Provide Pedestrian Safety:0.5
has been changed from off to on.
Mitigation measure Provide Street Lighting:0.5
has been changed from off to on.
Mitigation measure Provide Pedestrian Signalization and Signage:0.5
has been changed from off to on.
Mitigation measure Provide Wide Sidewalks and Onsite Pedestrian Facilities:1
has been changed from off to on.
Mitigation measure Provide Street Lighting:0.5

has been changed from off to on.
Mitigation measure Project Provides Shade Trees to Shade Sidewalks:0.5
has been changed from off to on.
Mitigation measure Provide Pedestrian Safety Designs/Infrastructure at Crossings:0.5
has been changed from off to on.
Mitigation measure Provide Bike Lanes/Paths Connecting to Bikeway System:2
has been changed from off to on.
Mitigation measure Provide Bike Lanes/Paths Connecting to Bikeway System:2
has been changed from off to on.
Mitigation measure Many Frequently Needed Services Provided:5
has been changed from off to on.
Mitigation measure mitop6: Park and Ride Lots
has been changed from off to on.

EXPLANATION OF CHANGES MADE TO DEFAULT SETTINGS IN URBEMIS 2002

Project Number: 10659-00
Project Name: West Roseville Specific Plan EIR
Analysis Scenario: Remainder Area

The following pages include the printed results of the air pollutant emissions modeling for one of the land use components of the proposed project. The air emissions modeling was conducted using the URBEMIS 2002 for Windows computer program developed for the Yolo-Solano Air Quality Management District in May 2003. URBEMIS 2002 is programmed with EMFAC 2002 emission factors developed by the California Air Resources Board.

As part of this analysis, changes have been made to several of the default values programmed into URBEMIS 2002. These changes were made to more accurately reflect the nature of the proposed land use. Each of these changes are discussed below.

Vehicle Trip Rates

The default vehicle trip rate values were changed to be consistent with the traffic impact analysis prepared for the project.

Vehicle Fleet Mix

URBEMIS 2002 is programmed with the following state-wide average vehicle fleet mix:

State-Wide Vehicle Type	Total	
Automobiles	54.4%	
Light-Duty Trucks <3,750 pounds	15.3%	
Light-Duty Trucks 3,751-5,750 pounds	16.4%	
Medium-Duty Trucks 5,751-8,500 pounds	7.3%	
Light-Heavy-Duty Trucks 8,501-10,000 pounds	1.1%	
Light-Heavy-Duty Trucks 10,001-14,000 pounds	0.3%	10.50% Total Trucks
Medium-Heavy-Duty Trucks 14,001-33,000 pounds	1.0%	
Heavy-Heavy-Duty Trucks 33,001-60,000 pounds	0.8%	
Line-Haul Vehicles	0.0%	
Urban Buses	0.2%	
Motorcycles	1.6%	
School Buses	0.1%	
Motor Homes	1.5%	

However, this state-wide average fleet mix is not appropriate for the majority of land use analyses. The project land use assessed in this analysis is identified below along with the total percentage of trucks (medium and heavy) that are expected for this land use. The following vehicle mix was calculated based on the percentage of trucks associated with this land use. The percentage of trucks for each land use were determined from the 3rd, 4th, 5th, and 6th Editions of the ITE Trip Generation manual.

ITE Code	Project Land Use:	Truck %	ADT	Truck #
210	Single Family Residential	0.44%	53,244	234
230	Multi-Family Residential	0.88%	9,666	85
820	Retail	2.10%	20,612	433
710	Office	1.84%	11,450	211
520	Elementary School	0.44%	1,920	8
520	Middle School	0.44%	900	4
410	Parks	0.44%	1,090	5
0			0	0
0			0	0
0			0	0
0			0	0
0			0	0
		Project Totals:	98,882	980
		Project Truck %:	0.99%	

Vehicle Type	Total	
Automobiles	60.18%	
Light-Duty Trucks <3,750 pounds	16.93%	
Light-Duty Trucks 3,751-5,750 pounds	18.14%	
Medium-Duty Trucks 5,751-8,500 pounds	0.69%	
Light-Heavy-Duty Trucks 8,501-10,000 pounds	0.10%	
Light-Heavy-Duty Trucks 10,001-14,000 pounds	0.03%	0.99% Total Trucks
Medium-Heavy-Duty Trucks 14,001-33,000 pounds	0.09%	
Heavy-Heavy-Duty Trucks 33,001-60,000 pounds	0.08%	
Line-Haul Vehicles	0.00%	
Urban Buses	0.22%	
Motorcycles	1.77%	
School Buses	0.11%	
Motor Homes	1.66%	

URBEMIS 2002 For Windows 7.4.2

File Name: C:\Program Files\URBEMIS 2002 For Windows\Projects2k2\West Roseville - Remainder Area.urb
Project Name: 10659-00 West Roseville Specific Plan - Remainder Area
Project Location: Lower Sacramento Valley Air Basin
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)	377.42	155.57	100.97	1.18	0.33
TOTALS (lbs/day, mitigated)	377.42	155.57	100.97	1.18	0.33

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
TOTALS (lbs/day,unmitigated)	307.53	208.01	2,730.49	3.59	674.22
TOTALS (lbs/day, mitigated)	288.12	189.36	2,486.49	3.27	613.33

SUM OF AREA AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
TOTALS (lbs/day,unmitigated)	684.96	363.58	2,831.47	4.77	674.55
TOTALS (lbs/day, mitigated)	665.54	344.92	2,587.46	4.45	613.65

URBEMIS 2002 For Windows 7.4.2

File Name: C:\Program Files\URBEMIS 2002 For Windows\Projects2k2\West Roseville - Remainder Area.urb
Project Name: 10659-00 West Roseville Specific Plan - Remainder Area
Project Location: Lower Sacramento Valley Air Basin
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)	6,350.71	276.98	9,241.90	19.56	1,335.61
TOTALS (lbs/day, mitigated)	6,350.71	276.98	9,241.90	19.56	1,335.61

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
TOTALS (lbs/day,unmitigated)	263.82	292.35	2,820.63	3.59	674.22
TOTALS (lbs/day, mitigated)	241.15	266.12	2,569.24	3.26	613.33

SUM OF AREA AND OPERATIONAL EMISSION ESTIMATES

	ROG	NOx	CO	SO2	PM10
TOTALS (lbs/day,unmitigated)	6,614.53	569.33	12,062.53	23.15	2,009.83
TOTALS (lbs/day, mitigated)	6,591.86	543.10	11,811.14	22.83	1,948.93

URBEMIS 2002 For Windows 7.4.2

File Name: C:\Program Files\URBEMIS 2002 For Windows\Projects2k2\West Roseville - Remainder Area.urb
Project Name: 10659-00 West Roseville Specific Plan - Remainder Area
Project Location: Lower Sacramento Valley Air Basin
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	11.89	154.71	65.52	-	0.29
Wood Stoves	373.92	58.65	2,996.27	9.78	488.79
Fireplaces	5,602.72	63.61	6,180.11	9.79	846.52
Landscaping - No winter emissions					
Consumer Prdcts	362.18	-	-	-	-
TOTALS(lbs/day,unmitigated)	6,350.71	276.98	9,241.90	19.56	1,335.61

UNMITIGATED OPERATIONAL EMISSIONS

	ROG	NOx	CO	SO2	PM10
Single Family Residential	152.66	174.45	1,681.79	2.18	409.92
Multi-Family Residential	27.93	31.67	305.30	0.40	74.41
Elementary School	5.64	4.55	44.41	0.05	9.94
Middle School	2.62	2.25	21.75	0.03	5.01
Parks	2.64	2.64	25.18	0.03	5.86
Retail	42.53	42.92	419.69	0.48	90.80
Office	29.80	33.88	322.52	0.42	78.29
TOTAL EMISSIONS (lbs/day)	263.82	292.35	2,820.63	3.59	674.22

Includes correction for passby trips.
Includes a double counting reduction for internal trips.

OPERATIONAL (Vehicle) EMISSION ESTIMATES

Analysis Year: 2020 Temperature (F): 50 Season: Winter

EMFAC Version: EMFAC2002 (9/2002)

Summary of Land Uses:

Unit Type	Trip Rate	Size	Total Trips
Single Family Residential	9.00 trips / dwelling units	5,916.00	53,244.00
Multi-Family Residential	6.50 trips / dwelling units	1,487.00	9,665.50
Elementary School	0.80 trips / students	2,400.00	1,920.00
Middle School	0.90 trips / students	1,000.00	900.00
Parks	2.20 trips / acres	496.00	1,091.20
Retail	35.00 trips / 1000 sq. ft.	589.00	20,615.00
Office	17.70 trips / 1000 sq. ft.	647.00	11,451.90

Vehicle Assumptions:

Fleet Mix:

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	59.84	0.40	99.40	0.20
Light Truck < 3,750 lbs	16.83	0.70	98.00	1.30
Light Truck 3,751- 5,750	18.04	0.60	98.80	0.60
Med Truck 5,751- 8,500	1.08	0.00	98.60	1.40
Lite-Heavy 8,501-10,000	0.16	0.00	81.80	18.20
Lite-Heavy 10,001-14,000	0.04	0.00	66.70	33.30
Med-Heavy 14,001-33,000	0.15	0.00	20.00	80.00
Heavy-Heavy 33,001-60,000	0.12	0.00	0.00	100.00
Line Haul > 60,000 lbs	0.00	0.00	0.00	100.00
Urban Bus	0.22	0.00	50.00	50.00
Motorcycle	1.76	50.00	50.00	0.00
School Bus	0.11	0.00	0.00	100.00
Motor Home	1.65	0.00	93.30	6.70

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	9.7	3.8	4.6	7.8	4.5	4.5
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	27.3	21.2	51.5			
% of Trips - Commercial (by land use)						
Elementary School				20.0	10.0	70.0
Middle School				20.0	10.0	70.0
Parks				5.0	2.5	92.5
Retail				2.0	1.0	97.0
Office				35.0	17.5	47.5

MITIGATED OPERATIONAL EMISSIONS

	ROG	NOx	CO	SO2	PM10
Single Family Residential	139.96	159.35	1,537.15	1.99	374.13
Multi-Family Residential	25.52	28.59	276.43	0.36	66.94
Elementary School	5.24	4.13	40.37	0.05	9.04
Middle School	2.43	2.05	19.77	0.02	4.55
Parks	2.41	2.38	22.69	0.03	5.29
Retail	38.29	38.60	377.53	0.43	81.68
Office	27.31	31.01	295.29	0.38	71.70
TOTAL EMISSIONS (lbs/day)	241.15	266.12	2,569.24	3.26	613.33

OPERATIONAL (Vehicle) EMISSION ESTIMATES

Analysis Year: 2020 Temperature (F): 50 Season: Winter

EMFAC Version: EMFAC2002 (9/2002)

Summary of Land Uses:

Unit Type	Trip Rate	Size	Total Trips
Single Family Residential	9.00 trips / dwelling units	5,916.00	53,244.00
Multi-Family Residential	6.50 trips / dwelling units	1,487.00	9,665.50
Elementary School	0.80 trips / students	2,400.00	1,920.00
Middle School	0.90 trips / students	1,000.00	900.00
Parks	2.20 trips / acres	496.00	1,091.20
Retail	35.00 trips / 1000 sq. ft.	589.00	20,615.00
Office	17.70 trips / 1000 sq. ft.	647.00	11,451.90

Vehicle Assumptions:

Fleet Mix:

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	59.84	0.40	99.40	0.20
Light Truck < 3,750 lbs	16.83	0.70	98.00	1.30
Light Truck 3,751- 5,750	18.04	0.60	98.80	0.60
Med Truck 5,751- 8,500	1.08	0.00	98.60	1.40
Lite-Heavy 8,501-10,000	0.16	0.00	81.80	18.20
Lite-Heavy 10,001-14,000	0.04	0.00	66.70	33.30
Med-Heavy 14,001-33,000	0.15	0.00	20.00	80.00
Heavy-Heavy 33,001-60,000	0.12	0.00	0.00	100.00
Line Haul > 60,000 lbs	0.00	0.00	0.00	100.00
Urban Bus	0.22	0.00	50.00	50.00
Motorcycle	1.76	50.00	50.00	0.00
School Bus	0.11	0.00	0.00	100.00
Motor Home	1.65	0.00	93.30	6.70

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	9.7	3.8	4.6	7.8	4.5	4.5
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	27.3	21.2	51.5			
% of Trips - Commercial (by land use)						
Elementary School				20.0	10.0	70.0
Middle School				20.0	10.0	70.0
Parks				5.0	2.5	92.5
Retail				2.0	1.0	97.0
Office				35.0	17.5	47.5

ENVIRONMENTAL FACTORS APPLICABLE TO THE PROJECT

Pedestrian Environment

2.0	Side Walks/Paths: Most Destinations Covered
1.0	Street Trees Provide Shade: Moderate Coverage
3.0	Pedestrian Circulation Access: Most Destinations
3.0	Visually Interesting Uses: Moderate Number and Variety
1.0	Street System Enhances Safety: Some Streets
2.0	Pedestrian Safety from Crime: High Degree of Safety
1.0	Visually Interesting Walking Routes: Moderate Level

13.0 <- Pedestrian Environmental Credit
13.0 /19 = 0.7 <- Pedestrian Effectiveness Factor

Transit Service

12.0 Transit Service: 31-60 Minute Bus within 1/4 Mile

12.0 <- Transit Effectiveness Credit
13.0 <- Pedestrian Factor
25.0 <-Total
25.0 /110 = 0.2 <-Transit Effectiveness Factor

Bicycle Environment

3.0	Interconnected Bikeways: Moderate Coverage
2.0	Bike Routes Provide Paved Shoulders: Some Routes
0.5	Safe Vehicle Speed Limits: Few Destinations
2.0	Safe School Routes: Primary and Secondary Schools
2.0	Uses w/in Cycling Distance: Moderate Number and Variety
1.0	Bike Parking Ordinance: Requires Unprotected Bike Racks

10.5 <- Bike Environmental Credit
10.5 /20 = 0.5 <- Bike Effectiveness Factor

MITIGATION MEASURES SELECTED FOR THIS PROJECT
(All mitigation measures are printed, even if
the selected land uses do not constitute a mixed use.)

Transit Infrastructure Measures

% Trips Reduced	Measure
15.0	Credit for Existing or Planned Community Transit Service
15.0	<- Totals

Pedestrian Enhancing Infrastructure Measures (Residential)

% Trips Reduced	Measure
2.0	Credit for Surrounding Pedestrian Environment
3.0	Mixed Use Project (Residential Oriented)
1.0	Provide Sidewalks and/or Pedestrian Paths
1.0	Provide Direct Pedestrian Connections
0.5	Provide Pedestrian Safety
0.5	Provide Street Lighting
0.5	Provide Pedestrian Signalization and Signage
8.5	<- Totals

Pedestrian Enhancing Infrastructure Measures (Non-Residential)

% Trips Reduced	Measure
2.0	Credit for Surrounding Pedestrian Environment
1.0	Provide Wide Sidewalks and Onsite Pedestrian Facilities
0.5	Provide Street Lighting
0.5	Project Provides Shade Trees to Shade Sidewalks
0.5	Provide Pedestrian Safety Designs/Infrastructure at Crossings
4.5	<- Totals

Bicycle Enhancing Infratructure Measures (Residential)

% Trips Reduced	Measure
7.0	Credit for Surrounding Bicycle Environment
2.0	Provide Bike Lanes/Paths Connecting to Bikeway System
9.0	<- Totals

Bike Enhancing Infrastructure Measures (Non-Residential)

% Trips Reduced	Measure
5.0	Credit for Surrounding Area Bike Environment
2.0	Provide Bike Lanes/Paths Connecting to Bikeway System
7.0	<- Totals

Operational Measures (Applying to Commute Trips)

% Trips Reduced	Measure
0.0	<- Totals

Operational Measures (Applying to Employee Non-Commute Trips)

% Trips Reduced	Measure
5.0	Many Frequently Needed Services Provided
5.0	<- Totals

Operational Measures (Applying to Customer Trips)

% Trips Reduced	Measure
0.0	<- Totals

Measures Reducing VMT (Non-Residential)

VMT Reduced	Measure
0.0	Park and Ride Lots
0.0	<- Totals

Measures Reducing VMT (Residential)

VMT Reduced	Measure
863.3	Park and Ride Lots
863.3	<- Totals

Total Percentage Trip Reduction
with Environmental Factors and Mitigation Measures

Travel Mode	Home-Work Trips	Home-Shop Trips	Home-Other Trips
Pedestrian	0.64	2.56	2.56
Transit	3.41	0.75	0.92
Bicycle	4.72	4.72	4.72
Totals	0.00	0.00	0.00

Travel Mode	Work Trips	Employee Trips	Customer Trips
Pedestrian	0.34	3.08	3.08
Transit	3.41	0.07	3.41
Bicycle	3.67	3.67	3.68
Other	0.00	0.29	0.00
Totals	0.00	0.00	0.00

Changes made to the default values for Land Use Trip Percentages

Changes made to the default values for Area

The area souce mitigation measure option switch changed from off to on.
The natural gas residential percentage changed from 60 to 100.
The amount of wood burned per year changed from 1.48 to 1.
The percentage of wood stoves changed from 35 to 10.
The fireplace cords of wood burned changed from 1.48 to 1.
The landscape year changed from 2004 to 2020.

Changes made to the default values for Operations

The pass by trips option switch changed from off to on.
The light auto percentage changed from 54.4 to 59.84.
The light truck < 3750 lbs percentage changed from 15.3 to 16.83.
The light truck 3751-5750 percentage changed from 16.4 to 18.04.
The med truck 5751-8500 percentage changed from 7.3 to 1.08.
The lite-heavy truck 8501-10000 percentage changed from 1.1 to 0.16.
The lite-heavy truck 10001-14000 percentage changed from 0.3 to 0.04.
The med-heavy truck 14001-33000 percentage changed from 1.0 to 0.15.
The heavy-heavy truck 33001-60000 percentage changed from 0.8 to 0.12.
The urban bus percentage changed from 0.2 to 0.22.
The motorcycle percentage changed from 1.6 to 1.76.
The school bus percentage changed from 0.1 to 0.11.
The motorhome percentage changed from 1.5 to 1.65.
The operational emission year changed from 2004 to 2020.
The operational winter temperature changed from 40 to 50.
The operational summer selection item changed from 7 to 6.
The double counting internal work trip limit changed from to 5039.025.
The double counting shopping trip limit changed from to 2519.5125.
The double counting other trip limit changed from to 28419.5625.
The travel mode environment settings changed from both to: both
The default/nodefault travel setting changed from nodefault to: nodefault
Side Walks/Paths: No Sidewalks
changed to: Side Walks/Paths: Most Destinations Covered
Street Trees Provide Shade: No Coverage
changed to:Street Trees Provide Shade: Moderate Coverage
Pedestrian Circulation Access: No Destinations
changed to:Pedestrian Circulation Access: Most Destinations
Visually Interesting Uses: No Uses Within Walking Distance
changed to:Visually Interesting Uses: Moderate Number and Variety
Street System Enhances Safety: No Streets
changed to: Street System Enhances Safety: Some Streets
Pedestrian Safety from Crime: No Degree of Safety
changed to:Pedestrian Safety from Crime: High Degree of Safety
Visually Interesting Walking Routes: No Visual Interest
changed to:Visually Interesting Walking Routes: Moderate Level
Transit Service: Dial-A-Ride or No Transit Service
changed to: Transit Service: 31-60 Minute Bus within 1/4 Mile
Interconnected Bikeways: No Bikeway Coverage
changed to: Interconnected Bikeways: Moderate Coverage
Bike Routes Provide Paved Shoulders: No Routes
changed to:Bike Routes Provide Paved Shoulders: Some Routes
Safe Vehicle Speed Limits: No Routes Provided
changed to:Safe Vehicle Speed Limits: Few Destinations
Safe School Routes: No Schools
changed to: Safe School Routes: Primary and Secondary Schools
Uses w/in Cycling Distance: No Uses w/in Cycling Distance
changed to:Uses w/in Cycling Distance: Moderate Number and Variety
Bike Parking Ordinance: No Ordinance or Unenforceable
changed to:Bike Parking Ordinance: Requires Unprotected Bike Racks
Mitigation measure Mixed Use Project (Residential Oriented):3
has been changed from off to on.
Mitigation measure Provide Sidewalks and/or Pedestrian Paths:1
has been changed from off to on.
Mitigation measure Provide Direct Pedestrian Connections:1
has been changed from off to on.
Mitigation measure Provide Pedestrian Safety:0.5
has been changed from off to on.
Mitigation measure Provide Street Lighting:0.5
has been changed from off to on.
Mitigation measure Provide Pedestrian Signalization and Signage:0.5
has been changed from off to on.
Mitigation measure Provide Wide Sidewalks and Onsite Pedestrian Facilities:1
has been changed from off to on.
Mitigation measure Provide Street Lighting:0.5

has been changed from off to on.
Mitigation measure Project Provides Shade Trees to Shade Sidewalks:0.5
has been changed from off to on.
Mitigation measure Provide Pedestrian Safety Designs/Infrastructure at Crossings:0.5
has been changed from off to on.
Mitigation measure Provide Bike Lanes/Paths Connecting to Bikeway System:2
has been changed from off to on.
Mitigation measure Provide Bike Lanes/Paths Connecting to Bikeway System:2
has been changed from off to on.
Mitigation measure Many Frequently Needed Services Provided:5
has been changed from off to on.
Mitigation measure mitop6: Park and Ride Lots
has been changed from off to on.

URBEMIS 2002 For Windows 7.4.2

File Name: C:\Program Files\URBEMIS 2002 For Windows\Projects2k2\West Roseville - Remainder Area.
Project Name: 10659-00 West Roseville Specific Plan - Remainder Area
Project Location: Lower Sacramento Valley Air Basin
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	11.89	154.71	65.52	-	0.29
Wood Stoves - No summer emissions					
Fireplaces - No summer emissions					
Landscaping	3.35	0.85	35.46	1.18	0.03
Consumer Prdcts	362.18	-	-	-	-
TOTALS(lbs/day,unmitigated)	377.42	155.57	100.97	1.18	0.33

UNMITIGATED OPERATIONAL EMISSIONS

	ROG	NOx	CO	SO2	PM10
Single Family Residential	169.83	123.78	1,653.05	2.19	409.92
Multi-Family Residential	33.71	22.47	300.08	0.40	74.41
Elementary School	20.44	3.26	41.51	0.05	9.94
Middle School	8.75	1.61	20.50	0.03	5.01
Parks	5.48	1.89	23.37	0.03	5.86
Retail	39.74	30.90	377.77	0.48	90.80
Office	29.58	24.09	314.21	0.42	78.29
TOTAL EMISSIONS (lbs/day)	307.53	208.01	2,730.49	3.59	674.22

Includes correction for passby trips.
Includes a double counting reduction for internal trips.

OPERATIONAL (Vehicle) EMISSION ESTIMATES

Analysis Year: 2020 Temperature (F): 85 Season: Summer

EMFAC Version: EMFAC2002 (9/2002)

Summary of Land Uses:

Unit Type	Trip Rate	Size	Total Trips
Single Family Residential	9.00 trips / dwelling units	5,916.00	53,244.00
Multi-Family Residential	6.50 trips / dwelling units	1,487.00	9,665.50
Elementary School	0.80 trips / students	2,400.00	1,920.00
Middle School	0.90 trips / students	1,000.00	900.00
Parks	2.20 trips / acres	496.00	1,091.20
Retail	35.00 trips / 1000 sq. ft.	589.00	20,615.00
Office	17.70 trips / 1000 sq. ft.	647.00	11,451.90

Vehicle Assumptions:

Fleet Mix:

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	59.84	0.40	99.40	0.20
Light Truck < 3,750 lbs	16.83	0.70	98.00	1.30
Light Truck 3,751- 5,750	18.04	0.60	98.80	0.60
Med Truck 5,751- 8,500	1.08	0.00	98.60	1.40
Lite-Heavy 8,501-10,000	0.16	0.00	81.80	18.20
Lite-Heavy 10,001-14,000	0.04	0.00	66.70	33.30
Med-Heavy 14,001-33,000	0.15	0.00	20.00	80.00
Heavy-Heavy 33,001-60,000	0.12	0.00	0.00	100.00
Line Haul > 60,000 lbs	0.00	0.00	0.00	100.00
Urban Bus	0.22	0.00	50.00	50.00
Motorcycle	1.76	50.00	50.00	0.00
School Bus	0.11	0.00	0.00	100.00
Motor Home	1.65	0.00	93.30	6.70

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	9.7	3.8	4.6	7.8	4.5	4.5
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	27.3	21.2	51.5			
% of Trips - Commercial (by land use)						
Elementary School				20.0	10.0	70.0
Middle School				20.0	10.0	70.0
Parks				5.0	2.5	92.5
Retail				2.0	1.0	97.0
Office				35.0	17.5	47.5

MITIGATED OPERATIONAL EMISSIONS

	ROG	NOx	CO	SO2	PM10
Single Family Residential	158.91	113.08	1,510.11	2.00	374.13
Multi-Family Residential	31.62	20.30	271.19	0.36	66.94
Elementary School	20.10	2.96	37.76	0.05	9.04
Middle School	8.58	1.46	18.65	0.02	4.55
Parks	5.28	1.70	21.07	0.03	5.29
Retail	36.16	27.80	339.86	0.43	81.68
Office	27.45	22.06	287.85	0.38	71.70
TOTAL EMISSIONS (lbs/day)	288.12	189.36	2,486.49	3.27	613.33

OPERATIONAL (Vehicle) EMISSION ESTIMATES

Analysis Year: 2020 Temperature (F): 85 Season: Summer

EMFAC Version: EMFAC2002 (9/2002)

Summary of Land Uses:

Unit Type	Trip Rate	Size	Total Trips
Single Family Residential	9.00 trips / dwelling units	5,916.00	53,244.00
Multi-Family Residential	6.50 trips / dwelling units	1,487.00	9,665.50
Elementary School	0.80 trips / students	2,400.00	1,920.00
Middle School	0.90 trips / students	1,000.00	900.00
Parks	2.20 trips / acres	496.00	1,091.20
Retail	35.00 trips / 1000 sq. ft.	589.00	20,615.00
Office	17.70 trips / 1000 sq. ft.	647.00	11,451.90

Vehicle Assumptions:

Fleet Mix:

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Auto	59.84	0.40	99.40	0.20
Light Truck < 3,750 lbs	16.83	0.70	98.00	1.30
Light Truck 3,751- 5,750	18.04	0.60	98.80	0.60
Med Truck 5,751- 8,500	1.08	0.00	98.60	1.40
Lite-Heavy 8,501-10,000	0.16	0.00	81.80	18.20
Lite-Heavy 10,001-14,000	0.04	0.00	66.70	33.30
Med-Heavy 14,001-33,000	0.15	0.00	20.00	80.00
Heavy-Heavy 33,001-60,000	0.12	0.00	0.00	100.00
Line Haul > 60,000 lbs	0.00	0.00	0.00	100.00
Urban Bus	0.22	0.00	50.00	50.00
Motorcycle	1.76	50.00	50.00	0.00
School Bus	0.11	0.00	0.00	100.00
Motor Home	1.65	0.00	93.30	6.70

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	9.7	3.8	4.6	7.8	4.5	4.5
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	27.3	21.2	51.5			
% of Trips - Commercial (by land use)						
Elementary School				20.0	10.0	70.0
Middle School				20.0	10.0	70.0
Parks				5.0	2.5	92.5
Retail				2.0	1.0	97.0
Office				35.0	17.5	47.5

ENVIRONMENTAL FACTORS APPLICABLE TO THE PROJECT

Pedestrian Environment

2.0	Side Walks/Paths: Most Destinations Covered
1.0	Street Trees Provide Shade: Moderate Coverage
3.0	Pedestrian Circulation Access: Most Destinations
3.0	Visually Interesting Uses: Moderate Number and Variety
1.0	Street System Enhances Safety: Some Streets
2.0	Pedestrian Safety from Crime: High Degree of Safety
1.0	Visually Interesting Walking Routes: Moderate Level

13.0 <- Pedestrian Environmental Credit
13.0 /19 = 0.7 <- Pedestrian Effectiveness Factor

Transit Service

12.0 Transit Service: 31-60 Minute Bus within 1/4 Mile

12.0 <- Transit Effectiveness Credit
13.0 <- Pedestrian Factor
25.0 <-Total
25.0 /110 = 0.2 <-Transit Effectiveness Factor

Bicycle Environment

3.0	Interconnected Bikeways: Moderate Coverage
2.0	Bike Routes Provide Paved Shoulders: Some Routes
0.5	Safe Vehicle Speed Limits: Few Destinations
2.0	Safe School Routes: Primary and Secondary Schools
2.0	Uses w/in Cycling Distance: Moderate Number and Variety
1.0	Bike Parking Ordinance: Requires Unprotected Bike Racks

10.5 <- Bike Environmental Credit
10.5 /20 = 0.5 <- Bike Effectiveness Factor

MITIGATION MEASURES SELECTED FOR THIS PROJECT
(All mitigation measures are printed, even if
the selected land uses do not constitute a mixed use.)

Transit Infrastructure Measures

% Trips Reduced	Measure
15.0	Credit for Existing or Planned Community Transit Service
15.0	<- Totals

Pedestrian Enhancing Infrastructure Measures (Residential)

% Trips Reduced	Measure
2.0	Credit for Surrounding Pedestrian Environment
3.0	Mixed Use Project (Residential Oriented)
1.0	Provide Sidewalks and/or Pedestrian Paths
1.0	Provide Direct Pedestrian Connections
0.5	Provide Pedestrian Safety
0.5	Provide Street Lighting
0.5	Provide Pedestrian Signalization and Signage
8.5	<- Totals

Pedestrian Enhancing Infrastructure Measures (Non-Residential)

% Trips Reduced	Measure
2.0	Credit for Surrounding Pedestrian Environment
1.0	Provide Wide Sidewalks and Onsite Pedestrian Facilities
0.5	Provide Street Lighting
0.5	Project Provides Shade Trees to Shade Sidewalks
0.5	Provide Pedestrian Safety Designs/Infrastructure at Crossings
4.5	<- Totals

Bicycle Enhancing Infratructure Measures (Residential)

% Trips Reduced	Measure
7.0	Credit for Surrounding Bicycle Environment
2.0	Provide Bike Lanes/Paths Connecting to Bikeway System
9.0	<- Totals

Bike Enhancing Infrastructure Measures (Non-Residential)

% Trips Reduced	Measure
5.0	Credit for Surrounding Area Bike Environment
2.0	Provide Bike Lanes/Paths Connecting to Bikeway System
7.0	<- Totals

Operational Measures (Applying to Commute Trips)

% Trips Reduced	Measure
0.0	<- Totals

Operational Measures (Applying to Employee Non-Commute Trips)

% Trips Reduced	Measure
5.0	Many Frequently Needed Services Provided
5.0	<- Totals

Operational Measures (Applying to Customer Trips)

% Trips Reduced	Measure
0.0	<- Totals

Measures Reducing VMT (Non-Residential)

VMT Reduced	Measure
0.0	Park and Ride Lots
0.0	<- Totals

Measures Reducing VMT (Residential)

VMT Reduced	Measure
863.3	Park and Ride Lots
863.3	<- Totals

Total Percentage Trip Reduction
with Environmental Factors and Mitigation Measures

Travel Mode	Home-Work Trips	Home-Shop Trips	Home-Other Trips
Pedestrian	0.64	2.56	2.56
Transit	3.41	0.75	0.92
Bicycle	4.72	4.72	4.72
Totals	0.00	0.00	0.00

Travel Mode	Work Trips	Employee Trips	Customer Trips
Pedestrian	0.34	3.08	3.08
Transit	3.41	0.07	3.41
Bicycle	3.67	3.67	3.68
Other	0.00	0.29	0.00
Totals	0.00	0.00	0.00

Changes made to the default values for Land Use Trip Percentages

Changes made to the default values for Area

The area souce mitigation measure option switch changed from off to on.
The natural gas residential percentage changed from 60 to 100.
The amount of wood burned per year changed from 1.48 to 1.
The percentage of wood stoves changed from 35 to 10.
The fireplace cords of wood burned changed from 1.48 to 1.
The landscape year changed from 2004 to 2020.

Changes made to the default values for Operations

The pass by trips option switch changed from off to on.
The light auto percentage changed from 54.4 to 59.84.
The light truck < 3750 lbs percentage changed from 15.3 to 16.83.
The light truck 3751-5750 percentage changed from 16.4 to 18.04.
The med truck 5751-8500 percentage changed from 7.3 to 1.08.
The lite-heavy truck 8501-10000 percentage changed from 1.1 to 0.16.
The lite-heavy truck 10001-14000 percentage changed from 0.3 to 0.04.
The med-heavy truck 14001-33000 percentage changed from 1.0 to 0.15.
The heavy-heavy truck 33001-60000 percentage changed from 0.8 to 0.12.
The urban bus percentage changed from 0.2 to 0.22.
The motorcycle percentage changed from 1.6 to 1.76.
The school bus percentage changed from 0.1 to 0.11.
The motorhome percentage changed from 1.5 to 1.65.
The operational emission year changed from 2004 to 2020.
The operational winter temperature changed from 40 to 50.
The operational summer selection item changed from 7 to 6.
The double counting internal work trip limit changed from to 5039.025.
The double counting shopping trip limit changed from to 2519.5125.
The double counting other trip limit changed from to 28419.5625.
The travel mode environment settings changed from both to: both
The default/nodefault travel setting changed from nodefault to: nodefault
Side Walks/Paths: No Sidewalks
changed to: Side Walks/Paths: Most Destinations Covered
Street Trees Provide Shade: No Coverage
changed to:Street Trees Provide Shade: Moderate Coverage
Pedestrian Circulation Access: No Destinations
changed to:Pedestrian Circulation Access: Most Destinations
Visually Interesting Uses: No Uses Within Walking Distance
changed to:Visually Interesting Uses: Moderate Number and Variety
Street System Enhances Safety: No Streets
changed to: Street System Enhances Safety: Some Streets
Pedestrian Safety from Crime: No Degree of Safety
changed to:Pedestrian Safety from Crime: High Degree of Safety
Visually Interesting Walking Routes: No Visual Interest
changed to:Visually Interesting Walking Routes: Moderate Level
Transit Service: Dial-A-Ride or No Transit Service
changed to: Transit Service: 31-60 Minute Bus within 1/4 Mile
Interconnected Bikeways: No Bikeway Coverage
changed to: Interconnected Bikeways: Moderate Coverage
Bike Routes Provide Paved Shoulders: No Routes
changed to:Bike Routes Provide Paved Shoulders: Some Routes
Safe Vehicle Speed Limits: No Routes Provided
changed to:Safe Vehicle Speed Limits: Few Destinations
Safe School Routes: No Schools
changed to: Safe School Routes: Primary and Secondary Schools
Uses w/in Cycling Distance: No Uses w/in Cycling Distance
changed to:Uses w/in Cycling Distance: Moderate Number and Variety
Bike Parking Ordinance: No Ordinance or Unenforceable
changed to:Bike Parking Ordinance: Requires Unprotected Bike Racks
Mitigation measure Mixed Use Project (Residential Oriented):3
has been changed from off to on.
Mitigation measure Provide Sidewalks and/or Pedestrian Paths:1
has been changed from off to on.
Mitigation measure Provide Direct Pedestrian Connections:1
has been changed from off to on.
Mitigation measure Provide Pedestrian Safety:0.5
has been changed from off to on.
Mitigation measure Provide Street Lighting:0.5
has been changed from off to on.
Mitigation measure Provide Pedestrian Signalization and Signage:0.5
has been changed from off to on.
Mitigation measure Provide Wide Sidewalks and Onsite Pedestrian Facilities:1
has been changed from off to on.
Mitigation measure Provide Street Lighting:0.5

has been changed from off to on.
Mitigation measure Project Provides Shade Trees to Shade Sidewalks:0.5
has been changed from off to on.
Mitigation measure Provide Pedestrian Safety Designs/Infrastructure at Crossings:0.5
has been changed from off to on.
Mitigation measure Provide Bike Lanes/Paths Connecting to Bikeway System:2
has been changed from off to on.
Mitigation measure Provide Bike Lanes/Paths Connecting to Bikeway System:2
has been changed from off to on.
Mitigation measure Many Frequently Needed Services Provided:5
has been changed from off to on.
Mitigation measure mitop6: Park and Ride Lots
has been changed from off to on.

URBEMIS 7G For Windows 5.1.0

File Name: C:\Urb7G5.1\Projects\WRSP 01-17-03.urb
Project Name: WRSP Total
Project Location: Sacramento County

SUMMARY REPORT
(Pounds/Day - Summer)

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	PM10	SOX
TOTALS(lbs/day,unmitigated)	131.18	773.93	164.94	181.17	70.77

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	PM10	SOX
TOTALS(lbs/day,unmitigated)	773.99	147.96	128.24	0.42	1.82

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	PM10
TOTALS (ppd, unmitigated)	1,409.72	1,725.01	8,609.30	714.60

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

Source	ROG	NOx	CO	PM10	SOX
Natural Gas	11.33	147.11	62.43	0.28	-
Wood Stoves	779.36	122.25	6,245.09	1,018.77	20.38
Fireplaces	11,677.69	132.59	12,881.15	1,764.40	20.40
Landscaping - No winter emissions					
Consumer Prdcts	754.88	-	-	-	-
TOTALS(lbs/day,unmitigated)	13,223.26	401.95	19,188.67	2,783.46	40.77

UNMITIGATED OPERATIONAL EMISSIONS

	ROG	NOx	CO	PM10
Single family housing	744.36	750.82	6,184.31	275.33
Apartments low rise	199.59	192.79	1,587.95	70.70
Condo/townhouse general	181.42	182.99	1,507.27	67.11
Retirement community	523.93	440.85	3,631.14	161.66
Elementary school	63.57	22.02	186.15	7.57
Junior high school	27.70	10.75	88.62	3.74
High school	54.34	25.56	196.30	9.00
Library	15.38	14.30	122.11	4.71
Place of worship (weekday	7.74	7.42	55.80	2.59
Parks	9.82	6.65	47.03	2.38
Regnl shop. center > 5700	184.58	166.26	1,471.77	53.03
Office park	16.21	17.50	141.55	6.38
General light industry	130.51	136.13	1,058.98	50.40
TOTAL EMISSIONS (lbs/day)	2,159.16	1,974.03	16,278.98	714.60

Includes correction for passby trips.
Includes a double counting reduction for internal trips.

OPERATIONAL (Vehicle) EMISSION ESTIMATES

Analysis Year: 2004 Temperature (F): 50 Season: Winter

EMFAC Version: EMFAC7G (10/96)

Summary of Land Uses:

Unit Type	Trip Rate	Size	Total Trips
Single family housing	9.00 trips / dwelling units	4,821.00	43,389.00
Apartments low rise	6.50 trips / dwelling units	1,714.00	11,141.00
Condo/townhouse general	9.00 trips / dwelling units	1,175.00	10,575.00
Retirement community	3.30 trips / dwelling units	7,720.00	25,476.00
Elementary school	0.80 trips / students	2,400.00	1,920.00
Junior high school	0.90 trips / students	1,000.00	900.00
High school	1.20 trips / students	1,800.00	2,160.00
Library	25.00 trips / 1000 sq. ft.	61.80	1,545.00
Place of worship (weekday	9.30 trips / 1000 sq. ft.	71.90	668.67
Parks	2.20 trips / Acres	248.00	545.60
Regnl shop. center > 5700	35.00 trips / 1000 sq. ft.	568.02	19,880.70
Office park	17.70 trips / 1000 sq. ft.	60.09	1,063.59
General light industry	7.60 trips / 1000 sq. ft.	1,001.88	7,614.29

Vehicle Assumptions:

Fleet Mix:

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Duty Autos	75.00	1.16	98.58	0.26
Light Duty Trucks	10.00	0.13	99.54	0.33
Medium Duty Trucks	3.00	1.44	98.56	-
Lite-Heavy Duty Trucks	1.00	19.56	40.00	40.44
Med.-Heavy Duty Trucks	1.00	19.56	40.00	40.44
Heavy-Heavy Trucks	5.00	-	-	100.00
Urban Buses	2.00	-	-	100.00
Motorcycles	3.00	100.00% all fuels		

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	9.7	3.8	4.6	7.8	4.5	4.5
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	27.3	21.2	51.5			
% of Trips - Commercial (by land use)						
Elementary school				20.0	10.0	70.0
Junior high school				20.0	10.0	70.0
High school				10.0	5.0	85.0
Library				5.0	2.5	92.5
Place of worship (weekday)				3.0	1.5	95.5
Parks				2.0	1.0	97.0
Regnl shop. center > 570000 sf				2.0	1.0	97.0
Office park				48.0	24.0	28.0
General light industry				50.0	25.0	25.0

Changes made to the default values for Construction

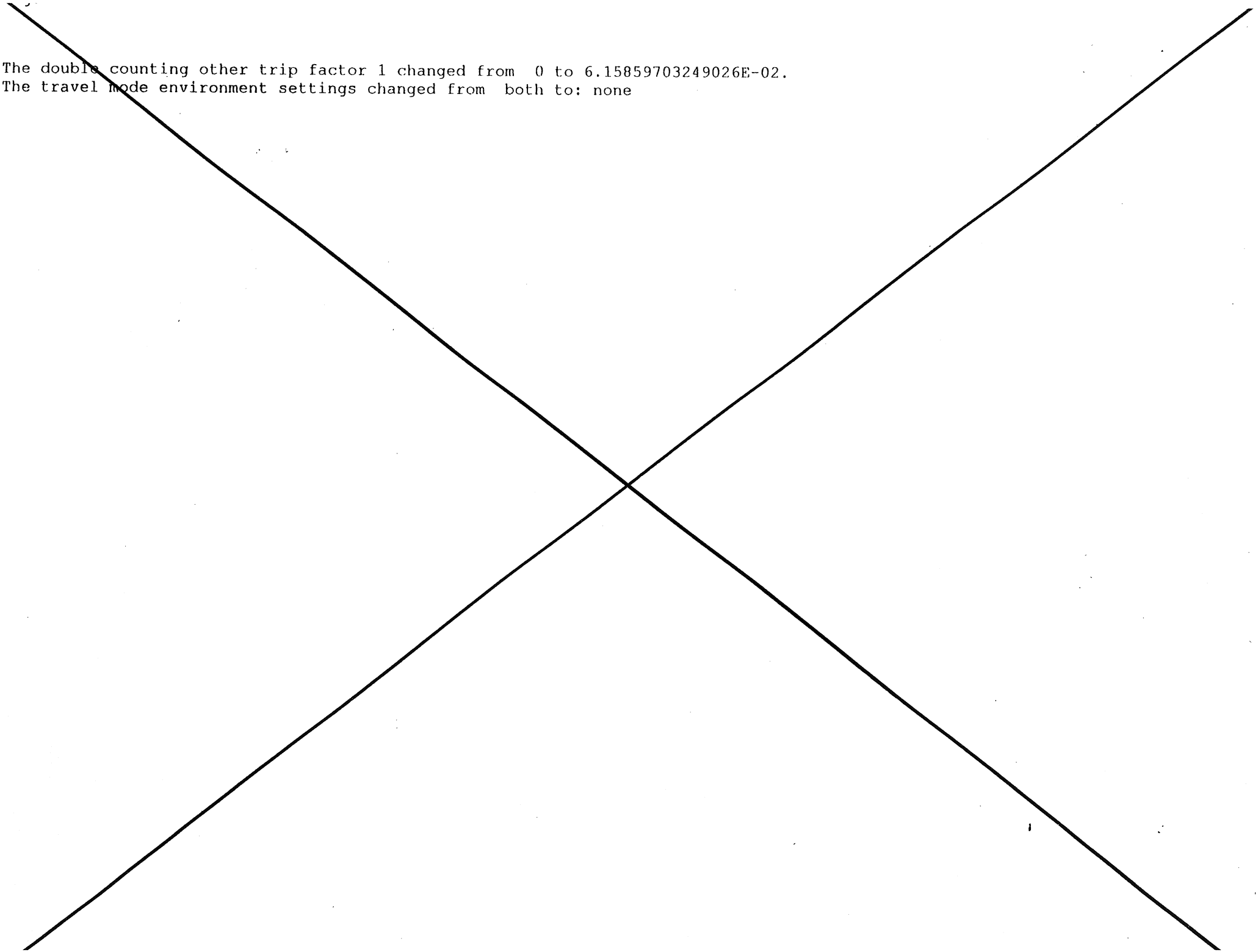
The asphalt option switch changed from off to on.
The construction year changed from 2000 to 2004.
The construction mitigation measure option switch changed from on to off.
The site grading max daily acreage estimate changed from to 10.
The site grading fork lift 50 HP total vehicles changed from to 2.
The site grading fork lift 175 HP total vehicles changed from to 2.
The site grading truck: off hwy total vehicles changed from to 2.
The site grading tracked loader total vehicles changed from to 4.
The site grading tracked tractor total vehicles changed from to 2.
The site grading scraper total vehicles changed from to 2.
The site grading wheeled dozer total vehicles changed from to 2.
The site grading wheeled loader total vehicles changed from to 4.
The site grading wheeled tractor total vehicles changed from to 2.
The site grading roller total vehicles changed from to 2.
The site grading motor grader total vehicles changed from to 4.
The site grading miscellaneous total vehicles changed from to 2.
The worker construction year changed from 2000 to 2004.
The asphalt acres to be paved changed from 1 to 600.
The asphalt total days of paving changed from 10 to 250.
The stationary equipment equipment units changed from 2 to 11.
The mobile diesel fork lift 50 HP total vehicles changed from to 2.
The mobile diesel fork lift 175 HP total vehicles changed from to 4.
The mobile diesel truck: off hwy total vehicles changed from to 4.
The mobile diesel tracked loader total vehicles changed from to 2.
The mobile diesel tracked tractor total vehicles changed from to 2.
The mobile diesel scraper total vehicles changed from to 2.
The mobile diesel wheeled dozer total vehicles changed from to 2.
The mobile diesel wheeled loader total vehicles changed from to 2.
The mobile diesel wheeled tractor total vehicles changed from to 2.
The mobile diesel roller total vehicles changed from to 2.
The mobile diesel motor grader total vehicles changed from to 2.
The mobile diesel miscellaneous total vehicles changed from to 2.
Changes made to the default values for Area

The landscape option switch changed from off to on.
The consumer products option switch changed from off to on.
The area souce mitigation measure option switch changed from on to off.
The amount of wood burned per year changed from 1.48 to 1.
The percentage of wood stoves changed from 35 to 10.
The fireplace cords of wood burned changed from 1.48 to 1.
The landscape year changed from 2000 to 2004.
Changes made to the default values for Operations

The double counting option switch changed from off to on.
The mitigation option switch changed from on to off.
The operational emission year changed from 2000 to 2004.
The operational winter temperature changed from 40 to 50.
The operational summer selection item changed from 7 to 6.

The double counting internal work trip limit changed from to 5603.50474.
The double counting work trip default changed from to 10.
The double counting work trip factor 1 changed from 0 to 6.18618114174054E-03.
The double counting work trip factor 2 changed from 0 to 1.54375660972326E-02.
The double counting shopping trip limit changed from to 2801.75237.
The double counting shopping trip default percentage changed from to 20.
The double counting shopping trip factor 1 changed from 0 to 6.18618114174054E-03.
The double counting shopping trip factor 2 changed from 0 to 1.54375660972326E-02.
The double counting other trip limit changed from to 27892.59389.
The double counting other trip default changed from to 20.

The double counting other trip factor 1 changed from 0 to 6.15859703249026E-02.
The travel mode environment settings changed from both to: none



URBEMIS 7G For Windows 5.1.0

File Name: C:\Urb7G5.1\Projects\10659 MOU-2.urb
Project Name: 10659 MOU Area
Project Location: Sacramento County

SUMMARY REPORT
(Pounds/Day - Summer)

CONSTRUCTION EMISSION ESTIMATES

	ROG	NOx	CO	PM10	SOX
TOTALS(lbs/day,unmitigated)	80.73	448.79	110.70	148.63	38.07

AREA SOURCE EMISSION ESTIMATES

	ROG	NOx	CO	PM10	SOX
TOTALS(lbs/day,unmitigated)	377.29	93.15	107.69	0.32	1.99

OPERATIONAL (VEHICLE) EMISSION ESTIMATES

	ROG	NOx	CO	PM10
TOTALS (ppd, unmitigated)	982.01	1,296.13	6,481.19	534.81

URBEMIS 7G For Windows 5.1.0

File Name: C:\Urb7G5.1\Projects\10659 MOU-2.urb
Project Name: 10659 MOU Area
Project Location: Sacramento County

DETAIL REPORT
(Pounds/Day - Winter)

Total Land Use Area to be Developed (Estimated): 1221 acres
Retail/Office/Institutional Square Footage: 1236000
Single Family Units: 5296 Multi-Family Units: 2107

CONSTRUCTION EMISSION ESTIMATES

Source	ROG	NOx	CO	PM10	SOX
Demolition	-	-	-	0.00	-
Site Grading	5.82	55.09	-	104.64	5.50
Const. Worker Trips	41.26	58.37	110.70	11.20	-
Stationary Equip	1.85	1.51	-	0.09	0.02
Mobile Equip. - Gas	0.00	0.00	-	0.00	0.00
Mobile Equip. - Diesel	30.75	333.82	-	32.70	32.54
Architectural Coatings	0.00	-	-	-	-
Asphalt Offgassing	1.05	-	-	-	-
TOTALS(lbs/day,unmitigated)	80.73	448.79	110.70	148.63	38.07

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

Source	ROG	NOx	CO	PM10	SOX
Natural Gas	7.08	92.26	39.00	0.18	-
Wood Stoves	373.92	58.65	2,996.27	488.79	9.78
Fireplaces	5,602.72	63.61	6,180.11	846.52	9.79
Landscaping - No winter emissions					
Consumer Prdcts	362.18	-	-	-	-
TOTALS(lbs/day,unmitigated)	6,345.90	214.52	9,215.38	1,335.49	19.56

UNMITIGATED OPERATIONAL EMISSIONS

	ROG	NOx	CO	PM10
Single family housing	809.83	814.90	6,707.92	298.93
Apartments low rise	171.56	165.25	1,360.26	60.62
Condo/townhouse general	94.81	95.40	785.29	35.00
Elementary school	63.63	22.12	186.88	7.60
Junior high school	27.74	10.80	88.97	3.76
Parks	19.72	13.41	94.87	4.81
Regnl shop. center > 5700	192.60	173.90	1,539.27	55.47
Office park	174.50	188.33	1,523.18	68.64
TOTAL EMISSIONS (lbs/day)	1,554.38	1,484.09	12,286.64	534.81

Includes correction for passby trips.
Includes a double counting reduction for internal trips.

OPERATIONAL (Vehicle) EMISSION ESTIMATES

Analysis Year: 2004 Temperature (F): 50 Season: Winter

EMFAC Version: EMFAC7G (10/96)

Summary of Land Uses:

Unit Type	Trip Rate	Size	Total Trips
Single family housing	9.00 trips / dwelling units	5,296.00	47,664.00
Apartments low rise	6.50 trips / dwelling units	1,487.00	9,665.50
Condo/townhouse general	9.00 trips / dwelling units	620.00	5,580.00
Elementary school	0.80 trips / students	2,400.00	1,920.00
Junior high school	0.90 trips / students	1,000.00	900.00
Parks	2.20 trips / Acres	496.00	1,091.20
Regnl shop. center > 5700	35.00 trips / 1000 sq. ft.	589.00	20,615.00
Office park	17.70 trips / 1000 sq. ft.	647.00	11,451.90

Vehicle Assumptions:

Fleet Mix:

Vehicle Type	Percent Type	Non-Catalyst	Catalyst	Diesel
Light Duty Autos	75.00	1.16	98.58	0.26
Light Duty Trucks	10.00	0.13	99.54	0.33
Medium Duty Trucks	3.00	1.44	98.56	-
Lite-Heavy Duty Trucks	1.00	19.56	40.00	40.44
Med.-Heavy Duty Trucks	1.00	19.56	40.00	40.44
Heavy-Heavy Trucks	5.00	-	-	100.00
Urban Buses	2.00	-	-	100.00
Motorcycles	3.00	100.00% all fuels		

Travel Conditions

	Residential			Commercial		
	Home-Work	Home-Shop	Home-Other	Commute	Non-Work	Customer
Urban Trip Length (miles)	9.7	3.8	4.6	7.8	4.5	4.5
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	27.3	21.2	51.5			

% of Trips - Commercial (by land use)

Elementary school	20.0	10.0	70.0
Junior high school	20.0	10.0	70.0
Parks	2.0	1.0	97.0
Regnl shop. center > 570000 sf	2.0	1.0	97.0
Office park	48.0	24.0	28.0

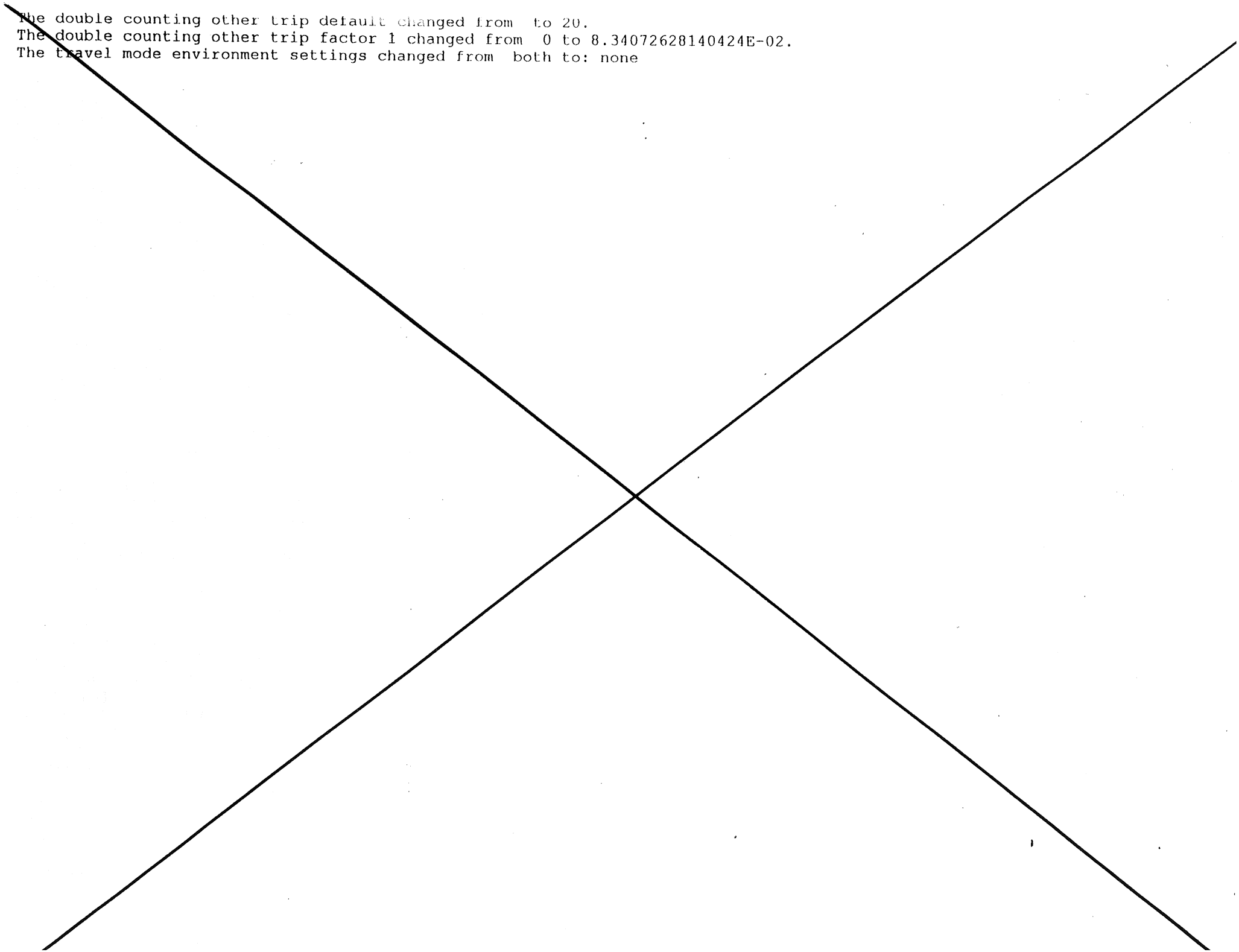
Changes made to the default values for Construction

The asphalt option switch changed from off to on.
The construction year changed from 2000 to 2004.
The construction mitigation measure option switch changed from on to off.
The site grading max daily acreage estimate changed from to 10.
The site grading tracked loader total vehicles changed from to 2.
The site grading wheeled loader total vehicles changed from to 2.
The site grading motor grader total vehicles changed from to 2.
The worker construction year changed from 2000 to 2004.
The asphalt acres to be paved changed from 1 to 24.
The asphalt total days of paving changed from 10 to 60.
The stationary equipment equipment units changed from 2 to 11.
The mobile diesel fork lift 50 HP total vehicles changed from to 2.
The mobile diesel fork lift 175 HP total vehicles changed from to 4.
The mobile diesel truck: off hwy total vehicles changed from to 4.
The mobile diesel tracked loader total vehicles changed from to 2.
The mobile diesel tracked tractor total vehicles changed from to 2.
The mobile diesel scraper total vehicles changed from to 2.
The mobile diesel wheeled dozer total vehicles changed from to 2.
The mobile diesel wheeled loader total vehicles changed from to 2.
The mobile diesel wheeled tractor total vehicles changed from to 2.
The mobile diesel roller total vehicles changed from to 2.
The mobile diesel motor grader total vehicles changed from to 2.
The mobile diesel miscellaneous total vehicles changed from to 2.
Changes made to the default values for Area

The landscape option switch changed from off to on.
The consumer products option switch changed from off to on.
The area souce mitigation measure option switch changed from on to off.
The amount of wood burned per year changed from 1.48 to 1.
The percentage of wood stoves changed from 35 to 10.
The fireplace cords of wood burned changed from 1.48 to 1.
The landscape year changed from 2000 to 2004.
Changes made to the default values for Operations

The double counting option switch changed from off to on.
The mitigation option switch changed from on to off.
The operational emission year changed from 2000 to 2004.
The operational winter temperature changed from 40 to 50.
The operational summer selection item changed from 7 to 6.
The double counting internal work trip limit changed from to 6495.036.
The double counting work trip default changed from to 10.
The double counting work trip factor 1 changed from 0 to 1.03244120522338E-02.
The double counting work trip factor 2 changed from 0 to 1.80527487554929E-02.
The double counting shopping trip limit changed from to 3247.518.
The double counting shopping trip default percentage changed from to 20.
The double counting shopping trip factor 1 changed from 0 to 1.03244120522338E-02.
The double counting shopping trip factor 2 changed from 0 to 1.80527487554929E-02.
The double counting other trip limit changed from to 26235.546.

The double counting other trip default changed from to 20.
The double counting other trip factor 1 changed from 0 to 8.34072628140424E-02.
The travel mode environment settings changed from both to: none



SIMPLIFIED CALINE4 CARBON MONOXIDE ANALYSIS

Project Number: 10659-00
Project Title: WRSP EIR

Background Information

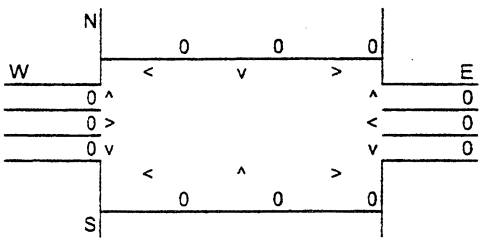
Nearest Air Monitoring Station measuring CO:	None
Background 1-hour CO Concentration (ppm):	3.1
Background 8-hour CO Concentration (ppm):	2.2
Persistence Factor:	0.7
Analysis Year:	2003
Modeling Conditions:	Existing Plus Project Plus SOI

Roadway Data

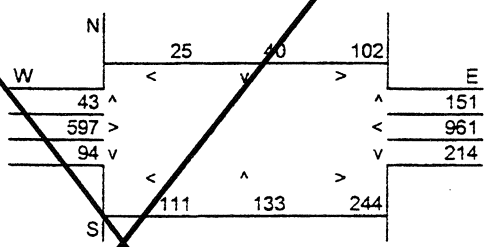
Intersection: Woodcreek Oaks/Pleasant Grove
Analysis Condition: Existing Plus Project Plus SOI

		Roadway Type	No. of Lanes	Average Speed A.M.	Average Speed P.M.
North-South Roadway:	Woodcreek Oaks	At Grade	2	30	30
East-West Roadway:	Pleasant Grove	At Grade	2	30	30

A.M. Peak Hour Traffic Volumes



P.M. Peak Hour Traffic Volumes



Highest Traffic Volumes (Vehicles per Hour)

N-S Road:	0	N-S Road:	836
E-W Road:	0	E-W Road:	2,269

Roadway CO Contributions and Concentrations

Emissions = (A x B x C) / 100,000[1]

Roadway	A_1 Reference CO Concentrations 50 Feet	A_2 Reference CO Concentrations 100 Feet	A_3 Reference CO Concentrations 300 Feet	B Traffic Volume	C Emission Factors[1]	Estimated CO Concentrations 50 Feet	Estimated CO Concentrations 100 Feet	Estimated CO Concentrations 300 Feet
A.M. Peak Traffic Hour								
North-South Road	5.7	4.0	1.7	0	5.88	0.00	0.00	0.00
East-West Road	2.2	1.7	1.0	0	5.88	0.00	0.00	0.00
P.M. Peak Traffic Hour								
North-South Road	2.2	1.7	1.0	836	5.88	0.11	0.08	0.05
East-West Road	5.7	4.0	1.7	2,269	5.88	0.76	0.53	0.23

[1] Methodology and emission factors from Bay Area Air Quality Management District *BAAQMD CEQA Guidelines* (1996).

Total Roadway CO Concentrations

Peak Hour Emissions = North-South Concentration + East-West Concentration + Background 1-hour Concentration[2]
8-Hour Emissions = ((Highest Peak Hour Concentration - Background 1-hour Concentration) x Persistence Factor) + Background 8-hour Concentra

	A.M. Peak Hour	P.M. Peak Hour	8-Hour
50 Feet from Roadway Edge	3.1	4.0	2.8
100 Feet from Roadway Edge	3.1	3.8	2.7
300 Feet from Roadway Edge	3.1	3.4	2.4

[2] Methodology from Bay Area Air Quality Management District *BAAQMD CEQA Guidelines* (1996).

SIMPLIFIED CALINE4 CARBON MONOXIDE ANALYSIS

Project Number: 10659-00
Project Title: WRSP EIR

Background Information

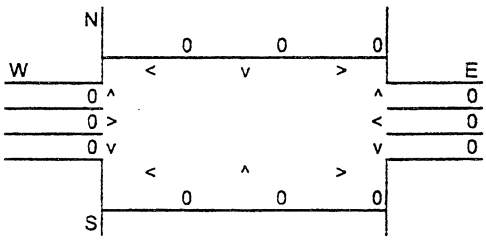
Nearest Air Monitoring Station measuring CO:	None
Background 1-hour CO Concentration (ppm):	3.2
Background 8-hour CO Concentration (ppm):	2.4
Persistence Factor:	0.7
Analysis Year:	2003
Modeling Conditions:	Existing Plus Project

Roadway Data

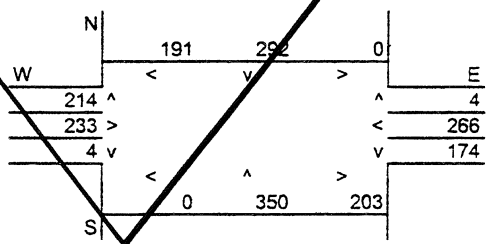
Intersection: Riverside/Douglas
Analysis Condition: Existing Plus Project

		Roadway Type	No. of Lanes	Average Speed A.M.	Average Speed P.M.
North-South Roadway:	Riverside	At Grade	2	30	30
East-West Roadway:	Douglas	At Grade	2	30	30

A.M. Peak Hour Traffic Volumes



P.M. Peak Hour Traffic Volumes



Highest Traffic Volumes (Vehicles per Hour)

N-S Road:	0	N-S Road:	1,051
E-W Road:	0	E-W Road:	908

Roadway CO Contributions and Concentrations

Emissions = (A x B x C) / 100,000[1]

Roadway	A_1 Reference CO Concentrations 50 Feet	A_2 Reference CO Concentrations 100 Feet	A_3 Reference CO Concentrations 300 Feet	B Traffic Volume	C Emission Factors[1]	Estimated CO Concentrations 50 Feet	Estimated CO Concentrations 100 Feet	Estimated CO Concentrations 300 Feet
A.M. Peak Traffic Hour								
North-South Road	5.7	4.0	1.7	0	5.88	0.00	0.00	0.00
East-West Road	2.2	1.7	1.0	0	5.88	0.00	0.00	0.00
P.M. Peak Traffic Hour								
North-South Road	5.7	4.0	1.7	1,051	5.88	0.35	0.25	0.11
East-West Road	2.2	1.7	1.0	908	5.88	0.12	0.09	0.05

[1] Methodology and emission factors from Bay Area Air Quality Management District *BAAQMD CEQA Guidelines* (1996).

Total Roadway CO Concentrations

Peak Hour Emissions = North-South Concentration + East-West Concentration + Background 1-hour Concentration[2]
8-Hour Emissions = ((Highest Peak Hour Concentration - Background 1-hour Concentration) x Persistence Factor) + Background 8-hour Concentra

	A.M. Peak Hour	P.M. Peak Hour	8-Hour
50 Feet from Roadway Edge	3.2	3.7	2.7
100 Feet from Roadway Edge	3.2	3.5	2.6
300 Feet from Roadway Edge	3.2	3.4	2.5

[2] Methodology from Bay Area Air Quality Management District *BAAQMD CEQA Guidelines* (1996).

SIMPLIFIED CALINE4 CARBON MONOXIDE ANALYSIS

Project Number: 10659-00
Project Title: WRSP EIR

Background Information

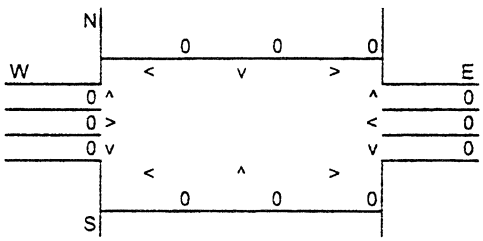
Nearest Air Monitoring Station measuring CO:	None
Background 1-hour CO Concentration (ppm):	3.2
Background 8-hour CO Concentration (ppm):	2.4
Persistence Factor:	0.7
Analysis Year:	2010
Modeling Conditions:	Cumulative No Project With Kaiser

Roadway Data

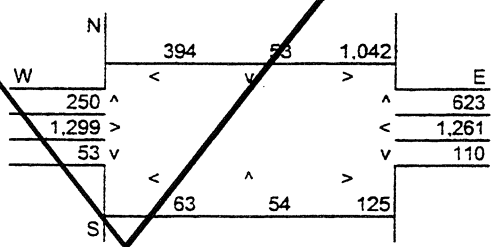
Intersection: Harding Blvd/Douglas
Analysis Condition: Cumulative No Project Plus Kaiser

		Roadway Type	No. of Lanes	Average Speed A.M.	Average Speed P.M.
North-South Roadway:	Harding Blvd	At Grade	2	30	30
East-West Roadway:	Douglas	At Grade	4	30	30

A.M. Peak Hour Traffic Volumes



P.M. Peak Hour Traffic Volumes



Highest Traffic Volumes (Vehicles per Hour)

N-S Road:	0	N-S Road:	2,416
E-W Road:	0	E-W Road:	4,460

Roadway CO Contributions and Concentrations

Emissions = (A x B x C) / 100,000[1]

Roadway	A_1 Reference CO Concentrations 50 Feet	A_2 100 Feet	A_3 300 Feet	B Traffic Volume	C Emission Factors[1]	Estimated CO Concentrations 50 Feet	100 Feet	300 Feet
A.M. Peak Traffic Hour								
North-South Road	5.7	4.0	1.7	0	3.77	0.00	0.00	0.00
East-West Road	2.2	1.7	1.1	0	3.77	0.00	0.00	0.00
P.M. Peak Traffic Hour								
North-South Road	2.2	1.7	1.0	2,416	3.77	0.20	0.15	0.09
East-West Road	5.4	3.8	1.6	4,460	3.77	0.91	0.64	0.27

[1] Methodology and emission factors from Bay Area Air Quality Management District *BAAQMD CEQA Guidelines* (1996).

Total Roadway CO Concentrations

Peak Hour Emissions = North-South Concentration + East-West Concentration + Background 1-hour Concentration[2]
8-Hour Emissions = ((Highest Peak Hour Concentration - Background 1-hour Concentration) x Persistence Factor) + Background 8-hour Concentra

	A.M. Peak Hour	P.M. Peak Hour	8-Hour
50 Feet from Roadway Edge	3.2	4.3	3.1
100 Feet from Roadway Edge	3.2	4.0	2.9
300 Feet from Roadway Edge	3.2	3.6	2.6

[2] Methodology from Bay Area Air Quality Management District *BAAQMD CEQA Guidelines* (1996).

SIMPLIFIED CALINE4 CARBON MONOXIDE ANALYSIS

Project Number: 10659-00
Project Title: WRSP EIR

Background Information

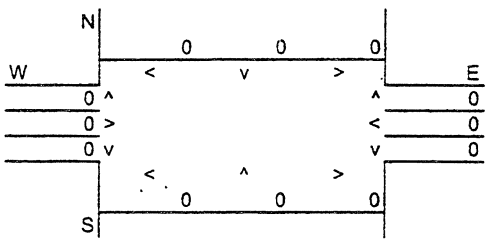
Nearest Air Monitoring Station measuring CO:	None
Background 1-hour CO Concentration (ppm):	3.2
Background 8-hour CO Concentration (ppm):	2.4
Persistence Factor:	0.7
Analysis Year:	2010
Modeling Conditions:	Cumulative Plus Project With Kaiser

Roadway Data

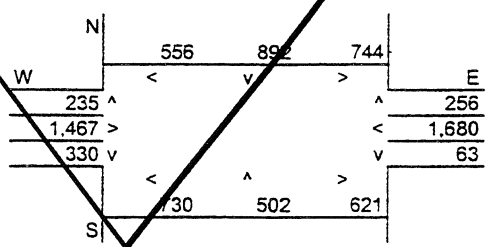
Intersection: Foothills/Blue Oaks
Analysis Condition: Cumulative Plus Project Plus Kaiser

		Roadway Type	No. of Lanes	Average Speed A.M.	Average Speed P.M.
North-South Roadway:	Foothills	At Grade	4	30	30
East-West Roadway:	Blue Oaks Blvd	At Grade	6	30	30

A.M. Peak Hour Traffic Volumes



P.M. Peak Hour Traffic Volumes



Highest Traffic Volumes (Vehicles per Hour)

N-S Road:	0	N-S Road:	3,185
E-W Road:	0	E-W Road:	4,998

Roadway CO Contributions and Concentrations

Emissions = (A x B x C) / 100,000[1]

Roadway	A_1 Reference CO Concentrations 50 Feet	A_2 100 Feet	A_3 300 Feet	B Traffic Volume	C Emission Factors[1]	Estimated CO Concentrations 50 Feet	100 Feet	300 Feet
A.M. Peak Traffic Hour								
North-South Road	5.4	3.8	1.6	0	3.77	0.00	0.00	0.00
East-West Road	2.0	1.7	1.1	0	3.77	0.00	0.00	0.00
P.M. Peak Traffic Hour								
North-South Road	2.2	1.7	1.1	3,185	3.77	0.26	0.20	0.13
East-West Road	4.9	3.5	1.6	4,998	3.77	0.92	0.66	0.30

[1] Methodology and emission factors from Bay Area Air Quality Management District *BAAQMD CEQA Guidelines* (1996).

Total Roadway CO Concentrations

Peak Hour Emissions = North-South Concentration + East-West Concentration + Background 1-hour Concentration[2]
8-Hour Emissions = ((Highest Peak Hour Concentration - Background 1-hour Concentration) x Persistence Factor) + Background 8-hour Concentra

	A.M. Peak Hour	P.M. Peak Hour	8-Hour
50 Feet from Roadway Edge	3.2	4.4	3.2
100 Feet from Roadway Edge	3.2	4.1	3.0
300 Feet from Roadway Edge	3.2	3.6	2.7

[2] Methodology from Bay Area Air Quality Management District *BAAQMD CEQA Guidelines* (1996).

SIMPLIFIED CALINE4 CARBON MONOXIDE ANALYSIS

Project Number: 10659-00
Project Title: WRSP EIR

Background Information

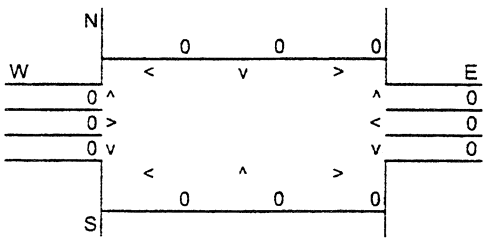
Nearest Air Monitoring Station measuring CO:	None
Background 1-hour CO Concentration (ppm):	3.2
Background 8-hour CO Concentration (ppm):	2.4
Persistence Factor:	0.7
Analysis Year:	2010
Modeling Conditions:	Cumulative Plus Project With Kaiser

Roadway Data

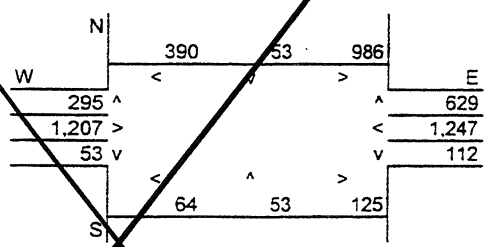
Intersection: Harding/Douglas
Analysis Condition: Cumulative No Project Plus Kaiser

		Roadway Type	No. of Lanes	Average Speed A.M.	Average Speed P.M.
North-South Roadway:	Harding Blvd	At Grade	2	30	30
East-West Roadway:	Douglas	At Grade	4	30	30

A.M. Peak Hour Traffic Volumes



P.M. Peak Hour Traffic Volumes



Highest Traffic Volumes (Vehicles per Hour)

N-S Road:	0	N-S Road:	2,406
E-W Road:	0	E-W Road:	4,306

Roadway CO Contributions and Concentrations

Emissions = (A x B x C) / 100,000[1]

Roadway	A_1 Reference CO Concentrations 50 Feet	A_2 Reference CO Concentrations 100 Feet	A_3 Reference CO Concentrations 300 Feet	B Traffic Volume	C Emission Factors[1]	Estimated CO Concentrations 50 Feet	Estimated CO Concentrations 100 Feet	Estimated CO Concentrations 300 Feet
A.M. Peak Traffic Hour								
North-South Road	5.7	4.0	1.7	0	3.77	0.00	0.00	0.00
East-West Road	2.2	1.7	1.1	0	3.77	0.00	0.00	0.00
P.M. Peak Traffic Hour								
North-South Road	2.2	1.7	1.0	2,406	3.77	0.20	0.15	0.09
East-West Road	5.4	3.8	1.6	4,306	3.77	0.88	0.62	0.26

[1] Methodology and emission factors from Bay Area Air Quality Management District *BAAQMD CEQA Guidelines* (1996).

Total Roadway CO Concentrations

Peak Hour Emissions = North-South Concentration + East-West Concentration + Background 1-hour Concentration[2]
8-Hour Emissions = ((Highest Peak Hour Concentration - Background 1-hour Concentration) x Persistence Factor) + Background 8-hour Concentra

	A.M. Peak Hour	P.M. Peak Hour	8-Hour
50 Feet from Roadway Edge	3.2	4.3	3.1
100 Feet from Roadway Edge	3.2	4.0	2.9
300 Feet from Roadway Edge	3.2	3.6	2.6

[2] Methodology from Bay Area Air Quality Management District *BAAQMD CEQA Guidelines* (1996).

SIMPLIFIED CALINE4 CARBON MONOXIDE ANALYSIS

Project Number: 10659-00
Project Title: WRSP EIR

Background Information

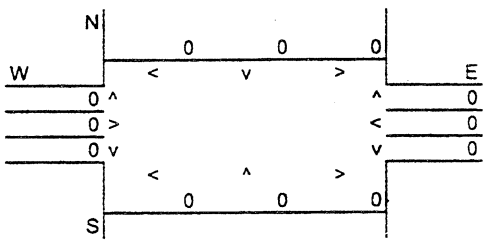
Nearest Air Monitoring Station measuring CO:	None
Background 1-hour CO Concentration (ppm):	3.2
Background 8-hour CO Concentration (ppm):	2.4
Persistence Factor:	0.7
Analysis Year:	2010
Modeling Conditions:	Cumulative Plus Project Plus SOI Plus Kaiser

Roadway Data

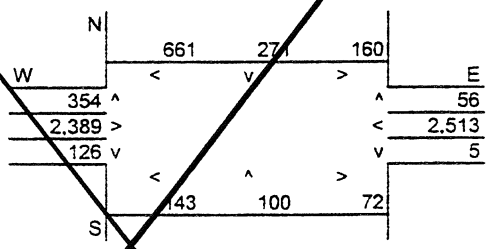
Intersection: Vernon St/ Cirby Wy
Analysis Condition: Cumulative Plus Project Plus SOI Plus Kaiser

		Roadway Type	No. of Lanes	Average Speed A.M.	Average Speed P.M.
North-South Roadway:	Vernon St	At Grade	2	30	30
East-West Roadway:	Cirby	At Grade	6	30	30

A.M. Peak Hour Traffic Volumes



P.M. Peak Hour Traffic Volumes



Highest Traffic Volumes (Vehicles per Hour)

N-S Road:	0	N-S Road:	1,602
E-W Road:	0	E-W Road:	6,186

Roadway CO Contributions and Concentrations

Emissions = (A x B x C) / 100,000[1]

Roadway	A_1 Reference CO Concentrations 50 Feet	A_2 Reference CO Concentrations 100 Feet	A_3 Reference CO Concentrations 300 Feet	B Traffic Volume	C Emission Factors[1]	Estimated CO Concentrations 50 Feet	Estimated CO Concentrations 100 Feet	Estimated CO Concentrations 300 Feet
A.M. Peak Traffic Hour								
North-South Road	5.7	4.0	1.7	0	3.77	0.00	0.00	0.00
East-West Road	2.0	1.7	1.1	0	3.77	0.00	0.00	0.00
P.M. Peak Traffic Hour								
North-South Road	2.2	1.7	1.0	1,602	3.77	0.13	0.10	0.06
East-West Road	4.9	3.5	1.6	6,186	3.77	1.14	0.82	0.37

[1] Methodology and emission factors from Bay Area Air Quality Management District *BAAQMD CEQA Guidelines* (1996).

Total Roadway CO Concentrations

Peak Hour Emissions = North-South Concentration + East-West Concentration + Background 1-hour Concentration[2]
8-Hour Emissions = ((Highest Peak Hour Concentration - Background 1-hour Concentration) x Persistence Factor) + Background 8-hour Concentra

	A.M. Peak Hour	P.M. Peak Hour	8-Hour
50 Feet from Roadway Edge	3.2	4.5	3.3
100 Feet from Roadway Edge	3.2	4.1	3.0
300 Feet from Roadway Edge	3.2	3.6	2.7

[2] Methodology from Bay Area Air Quality Management District *BAAQMD CEQA Guidelines* (1996).

SIMPLIFIED CALINE4 CARBON MONOXIDE ANALYSIS

Project Number: 10659-00
Project Title: WRSP EIR

Background Information

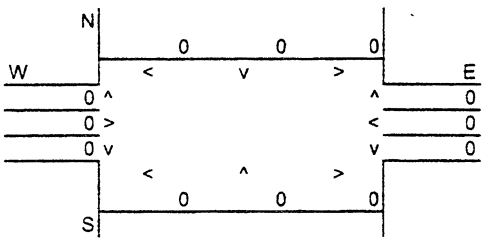
Nearest Air Monitoring Station measuring CO:	None
Background 1-hour CO Concentration (ppm):	3.2
Background 8-hour CO Concentration (ppm):	2.4
Persistence Factor:	0.7
Analysis Year:	2010
Modeling Conditions:	Cumulative Plus Project Plus SOI Plus Kaiser

Roadway Data

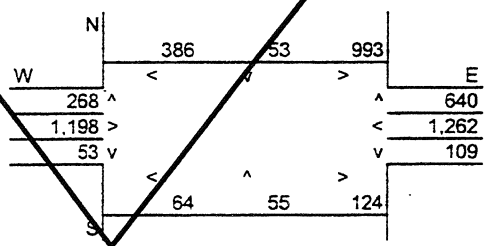
Intersection: Harding/Douglas
Analysis Condition: Cumulative Plus Project Plus SOI Plus Kaiser

		Roadway Type	No. of Lanes	Average Speed A.M.	Average Speed P.M.
North-South Roadway:	Harding	At Grade	2	30	30
East-West Roadway:	Douglas	At Grade	4	30	30

A.M. Peak Hour Traffic Volumes



P.M. Peak Hour Traffic Volumes



Highest Traffic Volumes (Vehicles per Hour)

N-S Road:	0	N-S Road:	2,395
E-W Road:	0	E-W Road:	4,326

Roadway CO Contributions and Concentrations

Emissions = (A x B x C) / 100,000[1]

Roadway	A_1 Reference CO Concentrations 50 Feet	A_2 Reference CO Concentrations 100 Feet	A_3 Reference CO Concentrations 300 Feet	B Traffic Volume	C Emission Factors[1]	Estimated CO Concentrations 50 Feet	Estimated CO Concentrations 100 Feet	Estimated CO Concentrations 300 Feet
A.M. Peak Traffic Hour								
North-South Road	5.7	4.0	1.7	0	3.77	0.00	0.00	0.00
East-West Road	2.2	1.7	1.1	0	3.77	0.00	0.00	0.00
P.M. Peak Traffic Hour								
North-South Road	2.2	1.7	1.0	2,395	3.77	0.20	0.15	0.09
East-West Road	5.4	3.8	1.6	4,326	3.77	0.88	0.62	0.26

[1] Methodology and emission factors from Bay Area Air Quality Management District *BAAQMD CEQA Guidelines* (1996).

Total Roadway CO Concentrations

Peak Hour Emissions = North-South Concentration + East-West Concentration + Background 1-hour Concentration[2]
8-Hour Emissions = ((Highest Peak Hour Concentration - Background 1-hour Concentration) x Persistence Factor) + Background 8-hour Concentra

	A.M. Peak Hour	P.M. Peak Hour	8-Hour
50 Feet from Roadway Edge	3.2	4.3	3.1
100 Feet from Roadway Edge	3.2	4.0	2.9
300 Feet from Roadway Edge	3.2	3.6	2.6

[2] Methodology from Bay Area Air Quality Management District *BAAQMD CEQA Guidelines* (1996).

SIMPLIFIED CALINE4 CARBON MONOXIDE ANALYSIS

Project Number: 10659-00
Project Title: WRSP EIR

Background Information

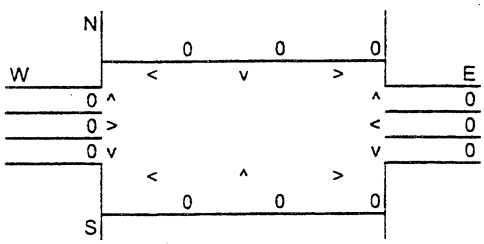
Nearest Air Monitoring Station measuring CO:	None
Background 1-hour CO Concentration (ppm):	3.2
Background 8-hour CO Concentration (ppm):	2.4
Persistence Factor:	0.7
Analysis Year:	2010
Modeling Conditions:	Cumulative Plus Project Plus SOI Plus Kaiser

Roadway Data

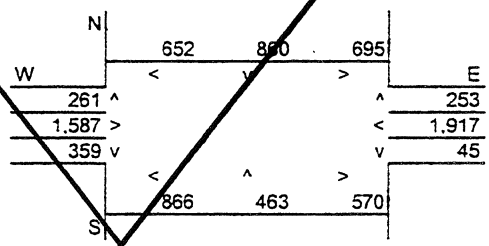
Intersection: Foothills/Blue Oaks
Analysis Condition: Cumulative Plus Project Plus SOI Plus Kaiser

		Roadway Type	No. of Lanes	Average Speed A.M.	Average Speed P.M.
North-South Roadway:	Foothills	At Grade	4	30	30
East-West Roadway:	Blue Oaks	At Grade	6	30	30

A.M. Peak Hour Traffic Volumes



P.M. Peak Hour Traffic Volumes



Highest Traffic Volumes (Vehicles per Hour)

N-S Road:	0	N-S Road:	3,184
E-W Road:	0	E-W Road:	5,642

Roadway CO Contributions and Concentrations

Emissions = (A x B x C) / 100,000[1]

Roadway	A_1 Reference CO Concentrations 50 Feet	A_2 Reference CO Concentrations 100 Feet	A_3 Reference CO Concentrations 300 Feet	B Traffic Volume	C Emission Factors[1]	Estimated CO Concentrations 50 Feet	Estimated CO Concentrations 100 Feet	Estimated CO Concentrations 300 Feet
A.M. Peak Traffic Hour								
North-South Road	5.4	3.8	1.6	0	3.77	0.00	0.00	0.00
East-West Road	2.0	1.7	1.1	0	3.77	0.00	0.00	0.00
P.M. Peak Traffic Hour								
North-South Road	2.2	1.7	1.1	3,184	3.77	0.26	0.20	0.13
East-West Road	4.9	3.5	1.6	5,642	3.77	1.04	0.74	0.34

[1] Methodology and emission factors from Bay Area Air Quality Management District *BAAQMD CEQA Guidelines* (1996).

Total Roadway CO Concentrations

Peak Hour Emissions = North-South Concentration + East-West Concentration + Background 1-hour Concentration[2]
8-Hour Emissions = ((Highest Peak Hour Concentration - Background 1-hour Concentration) x Persistence Factor) + Background 8-hour Concentra

	A.M. Peak Hour	P.M. Peak Hour	8-Hour
50 Feet from Roadway Edge	3.2	4.5	3.3
100 Feet from Roadway Edge	3.2	4.1	3.0
300 Feet from Roadway Edge	3.2	3.7	2.7

[2] Methodology from Bay Area Air Quality Management District *BAAQMD CEQA Guidelines* (1996).

SIMPLIFIED CALINE4 CARBON MONOXIDE ANALYSIS

Project Number: 10659-00
Project Title: WRSP EIR

Background Information

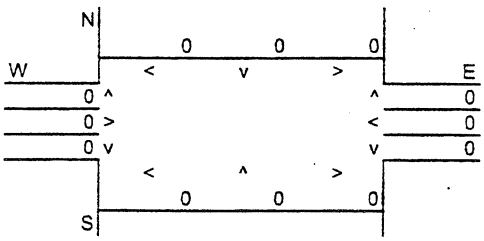
Nearest Air Monitoring Station measuring CO:	None
Background 1-hour CO Concentration (ppm):	3.2
Background 8-hour CO Concentration (ppm):	2.4
Persistence Factor:	0.7
Analysis Year:	2010
Modeling Conditions:	Cumulative Plus Project Plus SOI Plus Kaiser

Roadway Data

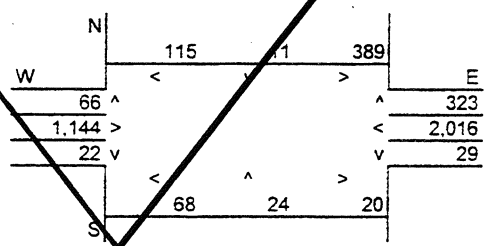
Intersection: Diamond Creek/Blue Oaks
Analysis Condition: Cumulative Plus Project Plus SOI Plus Kaiser

		Roadway Type	No. of Lanes	Average Speed A.M.	Average Speed P.M.
North-South Roadway:	Diamond Creek	At Grade	2	30	30
East-West Roadway:	Blue Oaks Blvd	At Grade	4	30	30

A.M. Peak Hour Traffic Volumes



P.M. Peak Hour Traffic Volumes



Highest Traffic Volumes (Vehicles per Hour)

N-S Road:	0	N-S Road:	928
E-W Road:	0	E-W Road:	3,921

Roadway CO Contributions and Concentrations

Emissions = (A x B x C) / 100,000[1]

Roadway	A_1 Reference CO Concentrations 50 Feet	A_2 Reference CO Concentrations 100 Feet	A_3 Reference CO Concentrations 300 Feet	B Traffic Volume	C Emission Factors[1]	Estimated CO Concentrations 50 Feet	Estimated CO Concentrations 100 Feet	Estimated CO Concentrations 300 Feet
A.M. Peak Traffic Hour								
North-South Road	5.7	4.0	1.7	0	3.77	0.00	0.00	0.00
East-West Road	2.2	1.7	1.1	0	3.77	0.00	0.00	0.00
P.M. Peak Traffic Hour								
North-South Road	2.2	1.7	1.0	928	3.77	0.08	0.06	0.03
East-West Road	5.4	3.8	1.6	3,921	3.77	0.80	0.56	0.24

[1] Methodology and emission factors from Bay Area Air Quality Management District *BAAQMD CEQA Guidelines* (1996).

Total Roadway CO Concentrations

Peak Hour Emissions = North-South Concentration + East-West Concentration + Background 1-hour Concentration[2]
8-Hour Emissions = ((Highest Peak Hour Concentration - Background 1-hour Concentration) x Persistence Factor) + Background 8-hour Concentra

	A.M. Peak Hour	P.M. Peak Hour	8-Hour
50 Feet from Roadway Edge	3.2	4.1	3.0
100 Feet from Roadway Edge	3.2	3.8	2.8
300 Feet from Roadway Edge	3.2	3.5	2.6

[2] Methodology from Bay Area Air Quality Management District *BAAQMD CEQA Guidelines* (1996).