FINAL
2003 AQMP APPENDIX V

MODELING AND ATTAINMENT DEMONSTRATIONS

AUGUST 2003

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT

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Table of Contents

CHAPTER 1 Modeling Overview

CHAPTER 2 Revision to the Federal PM10 Attainment Demonstration Plan and Visibility Assessment

CHAPTER 4 Revision to the Federal Carbon Monoxide Attainment Demonstration Plan

Hot Spot Analysis

The hot-spot analysis was performed using CAL3QHC. CAL3QHC is a model developed to predict the level of CO or other inert pollutant concentration emitted from motor vehicles at roadway intersections. CAL3QHC inputs include roadway geometry, receptor locations, meteorological conditions and vehicular emissions rate. A general description of the selection of the hot spot intersection, model input assumptions, and model application was presented in the 1992 CO Plan and is not repeated here.

The CAL3QHC model was applied to the four intersections listed in Table 4-7 to estimate the CO impacts from motor vehicles traveling at roadway intersections. CO concentrations were estimated for both the 1997 base year and for the year 2002 based on projected traffic volume and emission factors. The October 31-November 1, 1997 episode specific meteorological conditions for the grid cell hosting the intersection was used for the simulation. Tables 4-8, 4-9, and 4-10 show the model predicted and calculated CO concentration at the selected intersection in the years 1997 and 2002.

TABLE 4-7

Selected Intersections for the CAL3QHC
Hot Spot Modeling Analysis

Intersection	Receptor	Description
Long Beach Blvd. /Imperial Highway	Lynwood Air Monitoring Station	The Lynwood air monitoring stations consistently records the highest 8-hour CO concentrations in the Basin each year
Wilshire Blvd./ Veteran Ave.	No Air Monitoring	The most congested intersection in Los Angeles county. The average daily traffic volume is about 100,000 vehicles/day.
Highland Ave./ Sunset Blvd.	No Air Monitoring Station	One of the most congested intersections in the city of Los Angeles. The intersection study has been conducted and traffic data is available.
Century Blvd./ La Cienega Blvd.	No Air Monitoring Station	One of the most congested intersections in the city of Los Angeles. The intersection study has been conducted and traffic data is available.

TABLE 4 -8

Emissions Predicted by EMFAC2002 in Year 1997 and 2002

	Wilshire - Veteran		Sunset - Highland		La Cienega - Century		Long Beach - Imperial	
	AM	PM	AM	PM	AM	PM	AM	PM
a) EMFAC2002 Emission Variables (1997)								
Running Exhaust Emission Factor (g/mile)	11.57	11.96	13.31	12.72	11.82	11.66	11.92	11.93
Idling Emission Factor (g/min)	2.13	2.18	2.43	2.32	2.19	2.15	2.22.	2.18
b) EMFC2002 Emission Variables (2002)								
Running Exhaust Emission Factor (g/mile)	7.20	7.21	7.22	7.98	7.31	7.24	7.35	7.48
Idling Emission Factor (g/min)	1.24	1.24	1.25	1.30	1.27	1.25	1.28	1.28

TABLE 4-9

1997 1-Hour Average Carbon Monoxide Concentrations
Calculated from the CAL3QHC Model

	Morning*	Afternoon+	Peak++
Wilshire - Veteran	7.7	5.7	--
Sunset - Highland	6.9	7.3	--
La Cienega - Century	6.4	5.2	--
Long Beach - Imperial	5.1	5.2	2.2

* Morning : 7-8 a.m. for La Cienega - Century, 11-12 a.m. for Sunset - Highland, 8-9 for Wilshire-Veteran, and 7-8 a.m. for Long Beach - Imperial

\+ Afternoon : 3-4 p.m. for Sunset - Highland, 3-4 p.m. for Wilshire - Veteran, 4-5 p.m. for Long Beach - Imperial, and 6-7 p.m. for La Cienega - Century

++ Peak : 11-12 p.m. (concentration at the hour of the observed peak). Peak is only provided for the Long Beach/Imperial intersection since it is intersection associated with the regional peak at Lynwood.

TABLE 4-10

Year 2002 1-Hour Average Carbon Monoxide Concentrations
Calculated from the CAL3QHC Model

	Morning*	Afternoon+	Peak++
Wilshire-Veteran	4.6	3.5	--
Sunset-Highland	4.0	4.5	--
La Cienega-Century	3.7	3.1	--
Long Beach-Imperial	3.0	3.1	1.2

* Morning : 7-8 a.m. for, La Cienega - Century, 8-9 a.m. for Wilshire - Veteran, 7-8 a.m. for Long Beach - Imperial, and 8-9 a.m. for Sunset - Highland

\+ Afternoon : 3-4 p.m. for Sunset - Highland, 5-6 p.m. for Wilshire - Veteran, 4-5 p.m. and Long Beach - Imperial, and. 6-7 p.m. for and La Cienega - Century

++ Peak : 11-12 p.m. (concentration at the hour of the observed peak)). Peak is only provided for the Long Beach/Imperial intersection since it is intersection associated with the regional peak at Lynwood.

CARBON MONOXIDE CONTROL STRATEGY

Mobile sources, which are regulated primarily by ARB or U.S. EPA, produce the largest amount of carbon monoxide emissions in the Basin. The on-road motor vehicle control strategy is primarily based on adopted regulations, such as the 1990 ARB Low-Emission Vehicles and Clean Fuels (LEV/Clean Fuels) regulations, Phase 2 Reformulated Gasoline Program, oxygenated fuel regulation, and enhancements to the Inspection and Maintenance (I/M) or Smog Check program. The emission reduction resulting from these already adopted regulations are sufficient to demonstrate attainment in the year 2002, as discussed in a later section.

Contingency Measures

Section 187(a)(3) of the 1990 CAAA requires that adopted and enforceable contingency measures be included in the attainment plan submission. A deviation from the forecasted VMT of more than a given percentage will trigger implementation of contingency measures to offset either excess VMT or carbon monoxide emissions due to the additional VMT. According to the EPA General Preamble [Sect. 532(c)(1)], this percentage is 5 percent in 1994, 4 percent in 1995, and 3 percent for 1996 and subsequent years. The cumulative VMT growth cannot be greater than or equal to 5 percent above the VMT forecast used as the basis of the attainment demonstration.