CHAPTER 3

BASE YEAR AND FUTURE EMISSIONS

INTRODUCTION

This chapter summarizes emissions occurring in the Basin during the base years 1987, 1990, and 1993, and projected emissions in the years 2000, 2006, 2010. More detailed emission data analyses are presented in Appendix III of the 1997 AQMP. Additional emission inventories for other interim years (i.e., 1997, 1999, 2002, 2003, 2005, 2007, 2008) are also developed. These inventory years are selected to comply with federal and state Clean Air Act requirements. Under the federal and state Clean Air Acts, the District is required to report the Basin's emission reduction progress for nonattainment pollutants. The base year to measure the Basin's progress is 1990 for both the federal and state Clean Air Acts. A 1987 and a 1990 emission inventory were reconstructed to reflect the most recent inventory methodologies. Adopted air quality rules and regulations have current and future compliance dates. The 1993 base year emissions inventory reflects adopted air regulations with current compliance dates; whereas future baseline emissions inventories are based on adopted air regulations with both current and future compliance dates. A list of District rules and regulations that are part of the base year and future-year baseline emissions inventories is presented in Appendix III. Some of these rules have not been approved by U.S. EPA, however the District is committed to implement these rules that are incorporated in the 1997 AQMP baseline emissions inventories.

The emissions inventory is divided into four major classifications: point, area, off-road, and on-road sources. The 1993 base year point source emissions are based principally on reported data from facilities. The area source and off-road emissions are estimated jointly by ARB and the District. The on-road emissions are calculated using the ARB EMFAC7G emission factors and the transportation activity data provided by SCAG. The 1987 and 1990 inventories were reconstructed/backcasted based on the same general methodology as the 1993 inventory so as to reflect current knowledge. For example, EMFAC7G was applied to the 1987 and 1990 vehicle activity data to backcast 1987 and 1990 on-road mobile emissions. This approach provides a more consistent basis for evaluation of emission reduction progress.

The future emission forecasts are based on demographic and economic growth projections provided by the Southern California Association of Governments (SCAG). The California Energy Commission (CEC) energy forecasts for the petroleum industry and gas appliance-related categories incorporating energy efficiency standards are also used to refine emission projections. In addition, emission reductions resulting from ARB and District regulations adopted by September 30, 1996 are included in the emission forecasts. The rules and regulations adopted beginning in 1996 are treated as baseline adjustment measures to account for their emissions impacts.

EMISSIONS INVENTORIES

Baseline emissions data presented in this chapter are based on average annual day emissions (i.e., total annual emissions divided by 365 days) and seasonally adjusted planning inventory emissions. The 1997 AQMP uses annual average day emissions to estimate the cost-effectiveness of a control measure, to rank control measure implementation, and to perform PM_{10} modeling and analysis. The planning inventory emissions developed to capture the emission levels during the poor air quality season are used to report emission reduction progress as required by the federal and state Clean Air Acts. Three planning inventories are prepared for the 1997 AQMP: an ozone inventory for summer volatile organic compounds (VOC) and oxides of nitrogen (NO_X) emissions; a carbon monoxide (CO) inventory for winter CO emissions; and a nitrogen dioxide (NO_2) inventory for winter NO_X emissions. In addition, the most recent U.S. EPA VOC definition (i.e., exclusion of acetone, ethane, and PERC) is applied for the purpose of AQMP inventory development.

Detailed descriptions of the base year and future baseline emission inventories are presented in Appendix III - Base Year and Future Year Emission Inventories.

Stationary Sources

Stationary sources can be divided into two major subcategories: point and area sources. Point sources are generally large emitters with one or more emission sources at a permitted facility with an identified location (e.g., power plants, refinery boilers). Area sources generally consist of many small emission sources (e.g., residential water heaters, architectural coatings) which are distributed across the region. Their emissions over a given area may be calculated using socioeconomic data. For 1987, reported data is used for point sources emitting more than 8 tons/year of any one of the criteria air contaminants and the District's permit system data base is relied upon to estimate emissions for smaller sources; for 1990 and 1993, reported data is used for facilities with emissions greater than or equal to 2 tons/year.

Area source emissions were jointly developed by the ARB and the District for a total of more than 200 categories. Several special studies were conducted to improve the area source inventory. ARB has recently completed a statewide inventory for degreasing operations identifying solvent cleaning emissions not previously inventoried. In addition, the most recent source test data for restaurant operations (e.g., charbroiler and deep fryers) was used for the 1997 Plan.

Finally, significant progress has been made since the adoption of the 1994 AQMP to improve PM_{10} fugitive dust and ammonia emission inventories. The following sections summarize the progress and the results for a variety of projects related to emission inventory improvement.

Fugitive Dust and Ammonia Inventory Updates

As part of the 1994 AQMP process, it was recognized that the fugitive dust and ammonia inventories should be reviewed and revised, if necessary, prior to the development of the 1997 AQMP. Since that time, the District has participated in a number of fugitive dust and ammonia emission projects, as well as following projects by other sponsors. Based on the results of these studies and more recent activity level information, the District has prepared updated 1993 fugitive dust and ammonia emission inventories.

Best Available Control Measure (BACM) Working Group

The District, through the cooperative efforts of the BACM Working Group, embarked on an accelerated program to correct previously identified fugitive dust inventory deficiencies. The BACM Working Group is an ongoing task force comprised of representatives from U.S. EPA Region IX, ARB, South Coast AQMD, San Joaquin Valley APCD, Great Basin APCD, Mojave Desert AQMD, Clark County Nevada, Washoe County Nevada, Maricopa County Arizona, Arizona Department of Environmental Quality, USDA Soil Conservation Service, Coachella Valley Association of Governments, and WESTAR (Western States Air Resource Council). The emission inventory projects included studies aimed at improving emission factors for such fugitive dust sources as paved roads and construction, as well as quantifying previously uninventoried sources. Emission factors for entrained paved road dust and construction were significantly lower than previous estimates based on these studies. Previously uninventoried sources, such as entrained leaf blower and unpaved shoulder dust, were generally found to be small contributors to the overall inventory.

PM_{10} Technical Enhancement Program (PTEP)

The results from three emission inventory projects from the District's PM_{10} Technical Enhancement Program (PTEP) have been used to revise the fugitive dust and ammonia inventories. The Fugitive Dust Integration project summarized previous inventory development and current and past emission factor studies. It also provided recommendations for the best available emission methodology, emission factors, and activity estimates for each fugitive dust category. These recommendations were used by District staff in the development of the fugitive dust inventory. A second PTEP project was the development of a Geographic Information System (GIS) to prepare spatially-resolved fugitive dust inventories. Spatially-resolved 1993 construction dust emissions have been prepared for the 1997 AQMP.

A separate PTEP project measured emissions from livestock waste at local dairies, since it was believed that current local dairy operations were significantly different than those used to derive previous emission estimates. Results from this study indicated that the emission factor for local dairy waste was approximately 70% less than the factor used in previous emission inventory estimates, since earlier studies were not based on local area conditions.

Updated 1993 Fugitive Dust and Ammonia Inventories

Activity levels for all sources were updated to the 1993 base year, which reflects the impact of the local economic activities as well as Rule 403 on construction emissions. Overall, updated emission factors and activity levels for several categories led to a 54% reduction in fugitive dust emission estimates. Figure 3-1 compares the changes in fugitive dust inventories between 1994 and the 1997 Plans.

FIGURE 3-1

1993 Fugitive Dust Inventory for the 1994 AQMP and the 1997 AQMP

The 1993 livestock waste ammonia inventory is approximately 50% less than the 1987 emission estimate used in previous plans. The reduction results from the reduced emission factor for dairy livestock waste and the 1993 animal population statistics, which showed a decrease in poultry from the 1987 levels. It should also be noted that previous ammonia emission estimates for wastewater treatment plants were overstated compared to the ammonia emissions reported in the AB 2588-required Air Toxics Inventory Report and from source testing. Based on this and other information, 1993 ammonia emission estimates for wastewater treatment plants are now calculated to be 100 times smaller than previous estimates.

Mobile Sources

Mobile sources consist of two subcategories: on-road and off-road sources. On-road vehicle emissions are calculated using socioeconomic data and transportation models provided by SCAG, spatial distribution data from Caltrans' Direct Travel Impact Model (DTIM), and emission factors (EMFAC7G) obtained from the ARB. The 1990 Census data is reflected in the SCAG socioeconomic data, and the 1991 origin and designation survey data is used in the SCAG transportation model. Major improvements made to EMFAC7G include:

- Redefining starts and redistributing starts by vehicle age;
- New start emissions methodology;
- Fuel corrections for diesel;
- High emitter adjustments;
- Driving cycle adjustments; and
- Implementation of adopted rules (e.g., enhanced inspection and maintenance program, 4.0 gram NO_x standards for heavy-duty diesel trucks and urban diesel buses, and 2.5 gram NO_x standard for heavy-duty gas trucks).

Based on the vehicle activity data and EMFAC, an upgraded DTIM model (i.e., DTIM2) is used to estimate on-road mobile emissions. Figure 3-2 compares the on-road emissions between EMFAC7F and EMFAC7G.

Emissions from off-road vehicle categories (e.g., trains, ships, utility engines) were developed primarily based on the estimated activity levels and emission factors. A special study was conducted by ARB to improve the emission estimates for pleasure craft. A separate study to inventory ship emissions was recently completed and the emission estimates from that study have been incorporated into the 1997 AQMP

Gridded Emissions

For air quality modeling purposes, the region is composed of the South Coast Air Basin, Coachella Valley, Antelope Valley, Ventura County (upwind area), and Mojave Desert. The modeling area is divided into a grid system composed of 5 km by 5 km grid cells defined by Universal Transverse Mercator (UTM) coordinates. Both stationary and mobile emissions are allocated to individual grid cells within this system. In general, the modeling emission data features episodic-day emissions. Seasonal variations in activity levels are taken into account in developing gridded stationary point and area source emissions. Variations in temperature, hours of operation, speed of motor vehicles, or other factors are considered in developing gridded motor vehicle emissions. Hence, "gridded" emissions data used for ozone modeling applications (Chapter 5) differ from the average annual day or planning inventory emission data in two respects: 1) the modeling region covers larger geographic areas than the Basin; and 2) emissions represent day-specific instead of average or seasonal conditions. In the 1997 AQMP, gridded inventories associated with four ozone and two PM_{10} episodes have been prepared for air quality modeling analyses. In addition, gridded emissions for 1995 were developed to calculate annual average PM_{10} concentrations.

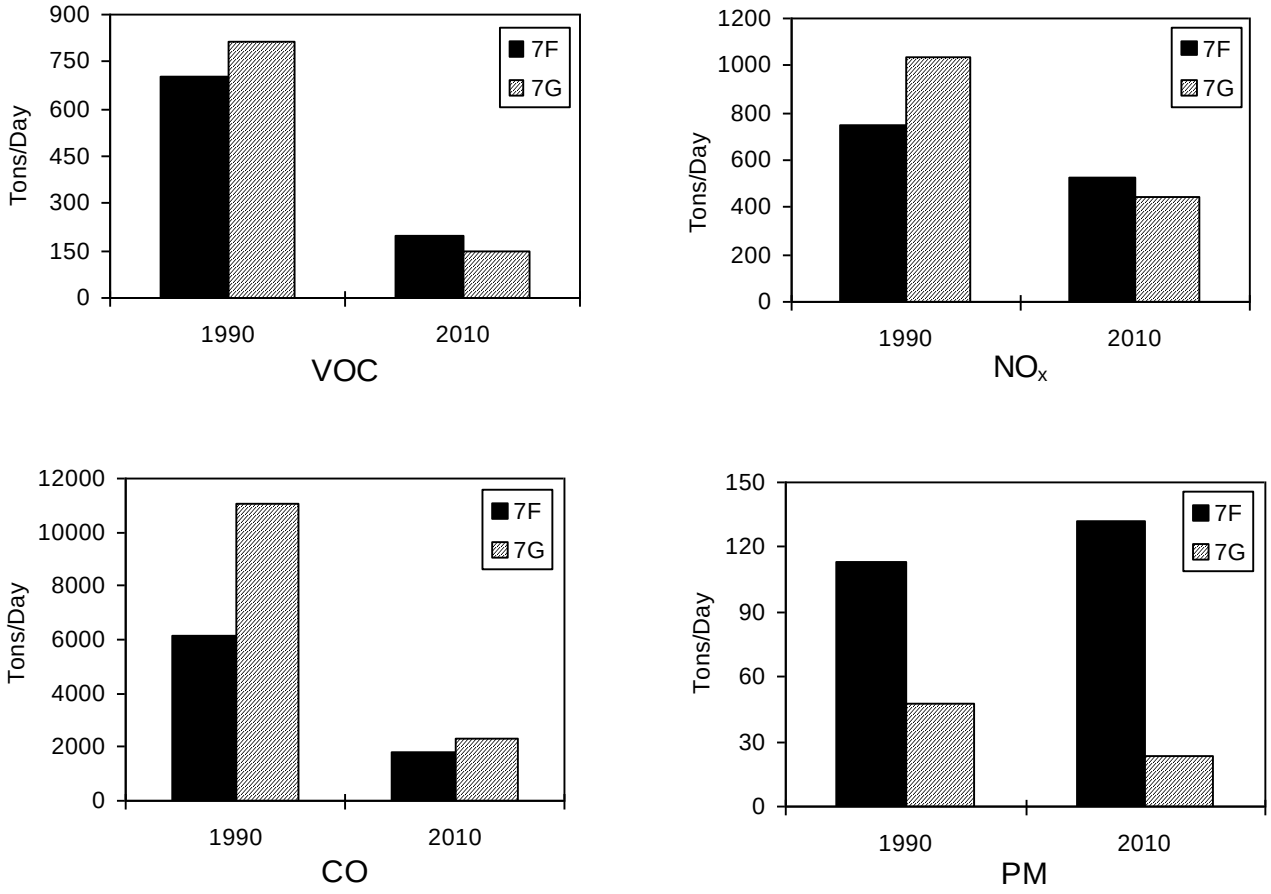


FIGURE 3-2

Comparison of Emissions Between EMFAC7F and EMFAC7G
(From information provided by the California Air Resources Board - December 1995 Release)

BASE YEAR EMISSIONS

Reconstructed 1987 and 1990 Emission Inventories

The federal and state Clean Air Acts have specified the 1987 and 1990 emission inventories, respectively, as the baseline for measuring emission reduction progress. Therefore, inventories for both years have been revised since the adoption of the 1994 AQMP to reflect improvements in emissions estimates and inventory methodology; this provides a consistent basis for emission trend analysis. Most noticeably, a significant change in methodology has been made to on-road and PM_{10} categories. Tables 3-1 and 3-2 present the reconstructed 1987 and 1990 emissions by major source category for the criteria pollutants VOC, NO_x, SO_x, CO, and PM_{10}.

1993 Emission Inventory

Table 3-3 shows the 1993 emission inventory. Figure 3-3 characterizes relative contributions by stationary and mobile source categories. Stationary sources are subdivided into point (e.g., chemical manufacturing, petroleum production, and electric utilities) and area sources (e.g., architectural coatings, residential water heaters, and consumer products). Mobile sources consist of on-road (e.g., light-duty passenger cars) and off-road sources (e.g., trains and ships).

Overall, total mobile source emissions account for 61 percent of the VOC and 88 percent of the NO_x emissions for these two ozone-forming pollutants. The on-road mobile category alone contributes about 51 and 63 percent of the VOC and NO_x emissions, respectively and approximately 78 percent of the CO.

Within stationary sources, point sources contribute more NO_x and SO_x emissions than area sources. However, area sources play a major role in VOC emissions, emitting about two to three times more than point sources. Furthermore, area sources are the predominant source (87 percent) of PM_{10} emissions due to inclusion of travel-related activity.

TABLE 3-1A

Summary of Emissions By Major Source Category: 1987 Base Year
Average Annual Day (tons/day[1])

Source Category	VOC	NO_x	CO	SO_x	PM_{10}
Stationary Sources					
Fuel Combustion	12	210	72	14	12
Waste Burning	2	2	17	1	3
Solvent Use	520	1	0	0	2
Petroleum Process, Storage, & Transfer	105	8	6	19	3
Industrial Processes	27	8	3	6	29
Misc. Processes*	40	8	13	1	408
Total Stationary Sources	**706**	**237**	**111**	**41**	**457**
Mobile Sources					
On-Road Vehicles	988	772	6,931	35	26
Off-Road Vehicles	124	294	1,363	49	19
Total Mobile Sources	**1,112**	**1,066**	**8,294**	**84**	**45**
TOTAL	**1,818**	**1,303**	**8,405**	**125**	**502**

TABLE 3-1B

Summary of Emissions By Major Source Category: 1987 Base Year
Planning Inventory** (tons/day[1])

	SUMMER OZONE PRECURSORS		WINTER PRECURSORS	
Source Category	VOC	NO_x	NO_x	CO
Stationary Sources				
Fuel Combustion	12	211	226	86
Waste Burning	1	2	3	33
Solvent Use	611	1	1	0
Petroleum Process, Storage, & Transfer	105	8	8	6
Industrial Processes	39	9	8	3
Misc. Processes	46	10	10	14
Total Stationary Sources	**814**	**241**	**256**	**142**
Mobile Sources				
On-Road Vehicles	944	750	801	7,616
Off-Road Vehicles	151	361	358	1,651
Total Mobile Sources	**1,095**	**1,111**	**1,159**	**9,267**
TOTAL	**1,909**	**1,351**	**1,415**	**9,409**

* Travel related road dust included

**Planning inventories are not used for PM_{10} analysis

[1] Values are rounded to nearest integer

TABLE 3-2A

Summary of Emissions By Major Source Category: 1990 Base Year
Average Annual Day (tons/day[1])

Source Category	VOC	NO_x	CO	SO_x	PM_{10}
Stationary Sources					
Fuel Combustion	12	193	97	19	15
Waste Burning	2	2	19	0	2
Solvent Use	474	1	0	0	1
Petroleum Process, Storage, & Transfer	109	5	4	12	3
Industrial Processes	30	7	3	5	29
Misc. Processes*	31	1	8	0	397
Total Stationary Sources	**658**	**209**	**131**	**36**	**447**
Mobile Sources					
On-Road Vehicles	863	891	6,679	34	39
Off-Road Vehicles	127	313	1,413	34	20
Total Mobile Sources	**990**	**1,204**	**8,092**	**68**	**59**
TOTAL	**1,648**	**1,413**	**8,223**	**104**	**506**

TABLE 3-2B

Summary of Emissions By Major Source Category: 1990 Base Year
Planning Inventory** (tons/day[1])

	SUMMER OZONE PRECURSORS		WINTER PRECURSORS*	
Source Category	VOC	NO_x	NO_x	CO
Stationary Sources				
Fuel Combustion	14	202	215	120
Waste Burning	1	2	3	35
Solvent Use	547	1	1	1
Petroleum Process, Storage, & Transfer	110	5	5	5
Industrial Processes	40	8	8	3
Misc. Processes	33	2	2	9
Total Stationary Sources	**745**	**220**	**234**	**173**
Mobile Sources				
On-Road Vehicles	833	868	921	7,381
Off-Road Vehicles	155	384	382	1,723
Total Mobile Sources	**988**	**1,252**	**1,303**	**9,104**
TOTAL	**1,733**	**1,472**	**1,537**	**9,277**

* Travel related road dust included

**Planning inventories are not used for PM_{10} analysis

[1] Values are rounded to nearest integer

TABLE 3-3A

Summary of Emissions By Major Source Category: 1993 Base Year
Average Annual Day (tons/day[1])

Source Category	VOC	NO_x	CO	SO_x	PM_{10}
Stationary Sources					
Fuel Combustion	11	136	65	8	10
Waste Burning	1	3	17	2	2
Solvent Use	331	0	0	0	1
Petroleum Process, Storage, & Transfer	58	8	5	11	2
Industrial Processes	17	6	1	2	20
Misc. Processes*	32	1	11	0	344
Total Stationary Sources	**450**	**154**	**99**	**23**	**379**
Mobile Sources					
On-Road Vehicles	676	794	5,682	25	27
Off-Road Vehicles	114	246	1,264	31	15
Total Mobile Sources	**790**	**1,040**	**6,946**	**56**	**42**
TOTAL	**1,240**	**1,194**	**7,045**	**79**	**421**

TABLE 3-3B

Summary of Emissions By Major Source Category: 1993 Base Year
Planning Inventory** (tons/day[1])

	SUMMER OZONE PRECURSORS		WINTER PRECURSORS*	
Source Category	VOC	NO_x	NO_x	CO
Stationary Sources				
Fuel Combustion	11	135	149	76
Waste Burning	1	2	4	34
Solvent Use	364	0	0	0
Petroleum Process, Storage, & Transfer	59	8	8	5
Industrial Processes	22	6	6	1
Misc. Processes	34	1	1	11
Total Stationary Sources	**491**	**152**	**168**	**127**
Mobile Sources				
On-Road Vehicles	648	775	822	5,908
Off-Road Vehicles	138	296	294	1,538
Total Mobile Sources	**786**	**1,071**	**1,116**	**7,446**
TOTAL	**1,277**	**1,223**	**1,284**	**7,573**

* Travel related road dust included

**Planning inventories are not used for PM_{10} analysis

[1] Values are rounded to nearest integer

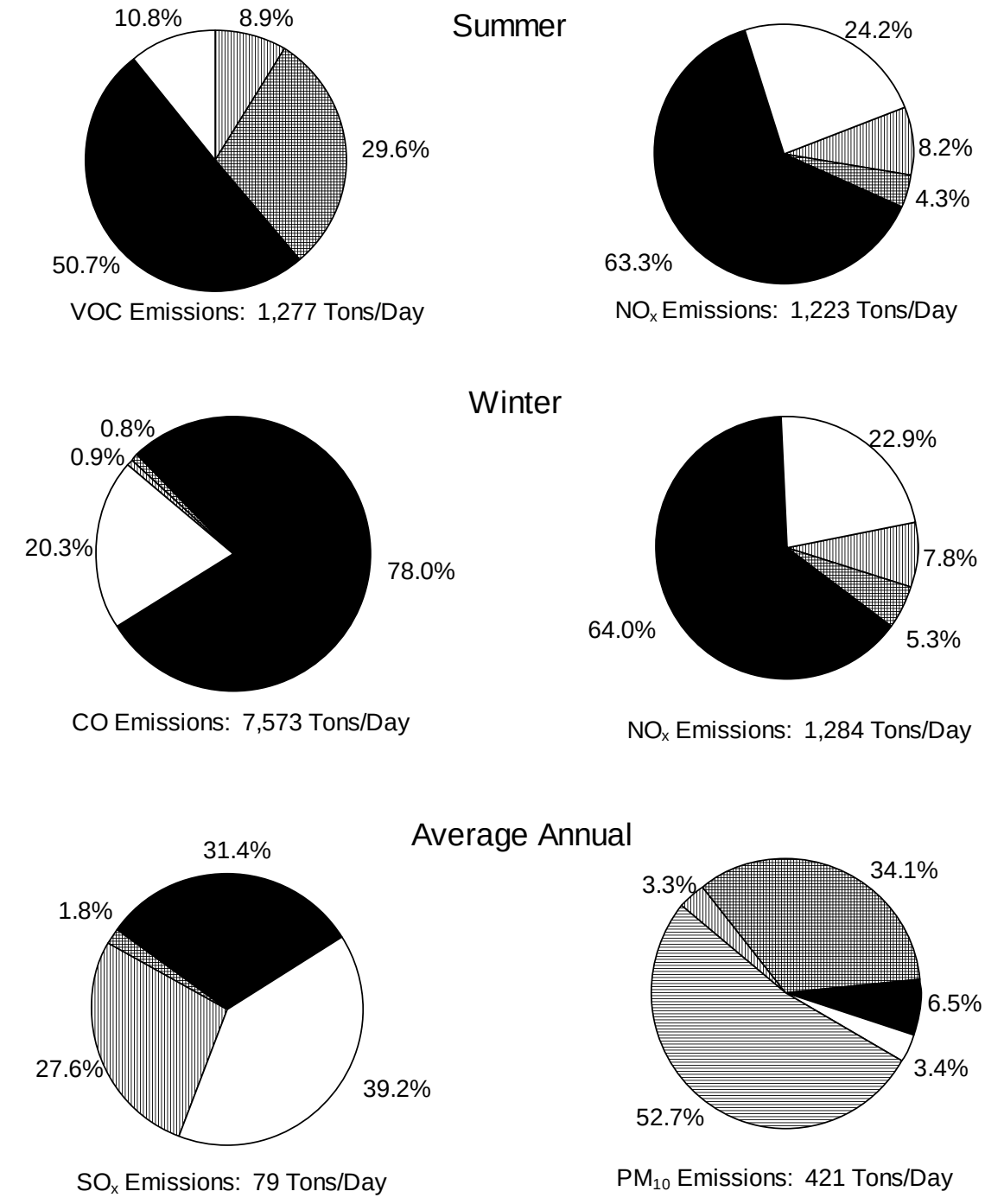
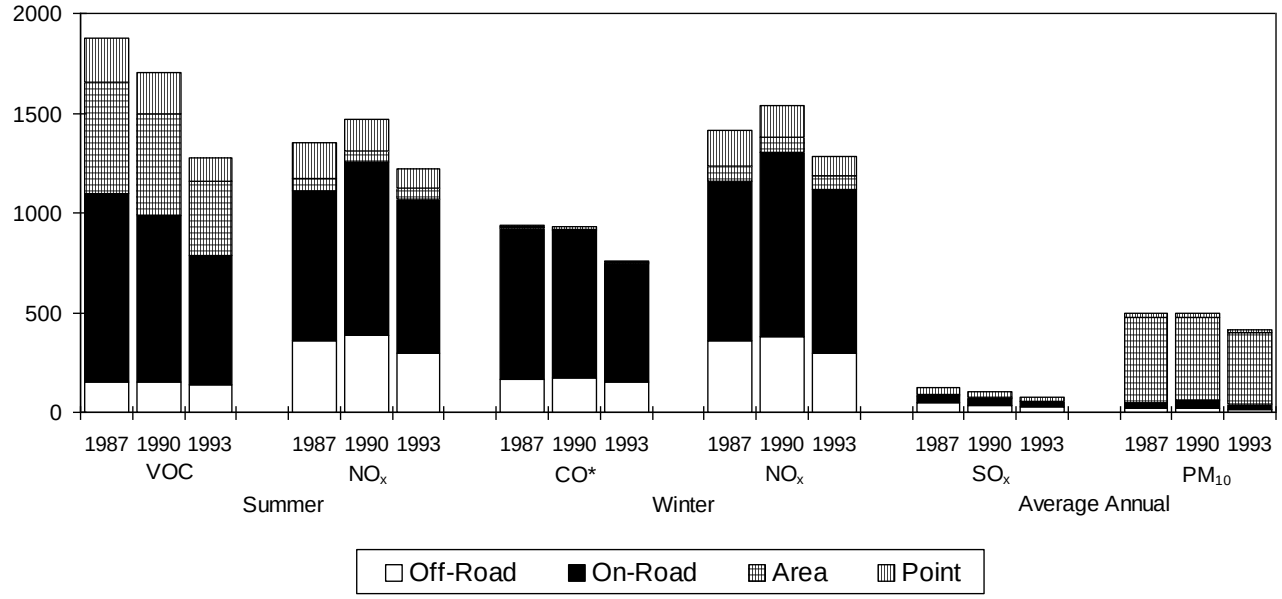


FIGURE 3-3

Relative Contribution By Source Category to the 1993 Inventory

In the mobile source category, emissions from on-road vehicles are much higher than those from off-road sources for all criteria pollutants except SO_x. This can be explained by the fact that the sulfur content in fuels used for off-road vehicles is relatively higher than those for on-road vehicles.

Figure 3-4 compares the 1993 inventory with the reconstructed 1987 and 1990 inventories. As can be seen, slight emission reductions are shown for all stationary source pollutants due to adopted air regulations. Existing ARB vehicle regulations result in reductions in VOC and CO. The noticeable increase in NO_x emissions between 1987 and 1990 is due to the shift to 1990 census data as well as the estimated increase in heavy-duty vehicle VMTs.



*CO Emission values were divided by 10.

FIGURE 3-4

Comparison of Reconstructed 1987, 1990 Inventories and 1993 Inventory

FUTURE EMISSIONS

Data Development

The milestone years 1996, 1997, 1999, 2000, 2002, 2003, 2005, 2006, 2007, 2008, and 2010 are the target years for emissions rate-of-progress estimates under the federal Clean Air Act and the state Clean Air Act. In addition, an emissions inventory for the year 2020 is also prepared for the first time to form the basis for a first look at the air quality once the region attains the federal clean air standards. Due to the adoption of the NO_x and SO_x

RECLAIM program in October 1993, future emissions are divided into RECLAIM and non-RECLAIM emissions. Future NO_x and SO_x emissions from RECLAIM sources are estimated based on their initial allocations as specified by District Rule 2002. The revised allocations for the six source categories as part of District Rule 2015 technology review are incorporated in the RECLAIM emission forecast. The forecasts for non-RECLAIM emissions were derived using: 1) emissions from the 1993 base year; 2) expected controls after implementation of District and ARB rules adopted by September 30, 1996; and 3) emissions growth in various source categories between the base and future years. Rules adopted after September 30, 1996 are treated as baseline adjustment measures for emissions reduction accounting purposes. A detailed description of the forecasting methodology is provided in Appendix III of the 1997 AQMP.

Demographic growth forecasts for various socioeconomic categories (e.g., population, housing, employment by industries), developed by SCAG, were used to estimate future emissions. The 1990 Census data were used to validate the 1990 socioeconomic data and future growth. Industry growth factors for 2000, 2005, 2010, 2015 and 2020 were provided by SCAG. Growth factors for other interim years were interpolated between key forecast years. CEC-adopted energy efficiency standards and energy-based forecasts for the petroleum industry are also used to improve emission forecasts for certain gas appliance and refinery operation related categories. Table 3-4 summarizes key socioeconomic parameters used in the 1997 AQMP for emissions inventory development.

TABLE 3-4

Baseline Socioeconomic Forecasts Used in 1997 AQMP*

Category	1993	2000 (% Growth)		2010 (% Growth)	
Population (Millions)	13.8	14.8	(+7)	16.7	(+21)
Housing Units (Millions)	4.8	5.1	(+6)	5.7	(+19)
Total Employment (Millions)	6.0	6.7	(+12)	8.0	(+33)
Daily VMT	293.3	317.9	(+8)	377.9	(+29)
Daily Vehicle Trips (Millions)	31.2	33.2	(+6)	37.9	(+21)

* No AQMP measures included.

Current forecasts indicate that this region will experience a population growth of 21 percent by the year 2010 with a 29 percent increase in vehicle miles traveled (VMT). The current projection for the year 2010 shows about half a million decrease in population and a 36-million mile decrease in VMT forecast as compared to the projection from the 1994

AQMP. The differences in the forecasts are primarily due to the change in base year from 1990 to 1993.

Summary of Baseline Emissions

Emission data by source categories (point, area, on-road mobile and off-road mobile sources) and by pollutants are presented in Tables 3-5 through 3-7 for the years 2000, 2006, and 2010.

Without any additional controls, VOC, NO_x, and CO emissions are expected to decrease due to existing regulations, such as the LEV and oxygenated fuel programs, and the RECLAIM program. Figure 3-5 illustrates the relative contribution to the 2010 inventory by source category. A comparison between Figures 3-3 and 3-5 indicates that the on-road mobile category continues to be a major contributor to CO and NO_x emissions. However, due to the adopted LEV regulation, by 2010 on-road mobile accounts for about 19 percent of total VOC emissions compared to 51 percent in 1993. Meanwhile, area sources become the major contributor to VOC emissions from 30 percent in 1993 to 48 percent in 2010.

TABLE 3-5A

Summary of Emissions By Major Source Category: 2000 Base Year
Average Annual Day (tons/day[1])

Source Category	VOC	NO_x	CO	SO_x	PM_{10}
Stationary Sources					
Fuel Combustion	10	64	64	2	9
Waste Burning	6	5	91	0	11
Solvent Use	316	0	0	0	1
Petroleum Process, Storage, & Transfer	45	0	5	0	2
Industrial Processes	20	0	1	0	23
Misc. Processes*	32	1	11	0	364
RECLAIM Source	NA	43	NA	16	NA
Total Stationary Sources	**429**	**113**	**172**	**18**	**410**
Mobile Sources					
On-Road Vehicles	350	521	2,963	14	16
Off-Road Vehicles	112	248	1,270	34	15
Total Mobile Sources	**462**	**769**	**4,233**	**48**	**31**
TOTAL	**891**	**882**	**4,405**	**66**	**441**

TABLE 3-5B

Summary of Emissions By Major Source Category: 2000 Base Year
Planning Inventory** (tons/day[1])

	SUMMER OZONE PRECURSORS		WINTER PRECURSORS*	
Source Category	VOC	NO_x	NO_x	CO
Stationary Sources				
Fuel Combustion	10	60	72	77
Waste Burning	3	3	12	200
Solvent Use	348	0	0	0
Petroleum Process, Storage,	46	0	0	5
& Transfer				
Industrial Processes	27	0	0	1
Misc. Processes	34	1	1	12
RECLAIM Source	NA	45	45	NA
Total Stationary Sources	**468**	**109**	**130**	**295**
Mobile Sources				
On-Road Vehicles	334	509	535	3,298
Off-Road Vehicles	135	298	295	1,549
Total Mobile Sources	**469**	**807**	**830**	**4,847**
TOTAL	**937**	**916**	**960**	**5,142**

* Travel related road dust included

**Planning inventories are not used for PM_{10} analysis

[1] Values are rounded to nearest integer

TABLE 3-6A

Summary of Emissions By Major Source Category: 2006 Base Year
Average Annual Day (tons/day[1])

Source Category	VOC	NO_x	CO	SO_x	PM_{10}
Stationary Sources					
Fuel Combustion	10	65	71	2	10
Waste Burning	7	6	102	0	12
Solvent Use	340	0	0	0	1
Petroleum Process, Storage, & Transfer	46	0	5	0	2
Industrial Processes	23	0	1	0	23
Misc. Processes*	33	1	12	0	376
RECLAIM Source	NA	32	NA	11	NA
Total Stationary Sources	**459**	**104**	**191**	**13**	**424**
Mobile Sources					
On-Road Vehicles	222	403	2,103	16	14
Off-Road Vehicles	120	231	1,363	37	16
Total Mobile Sources	**342**	**634**	**3,466**	**53**	**30**
TOTAL	**801**	**738**	**3,657**	**66**	**454**

TABLE 3-6B

Summary of Emissions By Major Source Category: 2006 Base Year
Planning Inventory** (tons/day[1])

	SUMMER OZONE PRECURSORS		WINTER PRECURSORS*	
Source Category	VOC	NO_x	NO_x	CO
Stationary Sources				
Fuel Combustion	11	60	73	85
Waste Burning	4	4	13	227
Solvent Use	374	0	0	0
Petroleum Process, Storage, & Transfer	46	0	0	5
Industrial Processes	31	0	0	1
Misc. Processes	35	1	1	13
RECLAIM Source	NA	33	33	NA
Total Stationary Sources	**501**	**98**	**120**	**331**
Mobile Sources				
On-Road Vehicles	217	396	413	2,274
Off-Road Vehicles	145	274	271	1,655
Total Mobile Sources	**362**	**670**	**684**	**3,929**
TOTAL	**863**	**768**	**804**	**4,260**

* Travel related road dust included

**Planning inventories are not used for PM_{10} analysis

[1] Values are rounded to nearest integer

TABLE 3-7A

Summary of Emissions By Major Source Category: 2010 Base Year
Average Annual Day (tons/day[1])

Source Category	VOC	NO_x	CO	SO_x	PM_{10}
Stationary Sources					
Fuel Combustion	11	65	75	2	10
Waste Burning	7	6	102	0	12
Solvent Use	362	0	0	0	1
Petroleum Process, Storage, & Transfer	46	0	5	0	3
Industrial Processes	26	0	1	0	24
Misc. Processes*	34	1	13	0	383
RECLAIM Source	NA	32	NA	11	NA
Total Stationary Sources	**486**	**104**	**196**	**13**	**433**
Mobile Sources					
On-Road Vehicles	165	365	1,810	17	14
Off-Road Vehicles	119	228	1,335	40	16
Total Mobile Sources	**284**	**593**	**3,145**	**57**	**30**
TOTAL	**770**	**697**	**3,341**	**70**	**463**

TABLE 3-7B

Summary of Emissions By Major Source Category: 2010 Base Year
Planning Inventory** (tons/day[1])

	SUMMER OZONE PRECURSORS		WINTER PRECURSORS*	
Source Category	VOC	NOx	NOx	CO
Stationary Sources				
Fuel Combustion	11	60	72	91
Waste Burning	4	4	13	227
Solvent Use	400	0	1	0
Petroleum Process, Storage, & Transfer	47	0	0	5
Industrial Processes	33	0	0	1
Misc. Processes	36	1	1	13
RECLAIM Source	NA	33	33	NA
Total Stationary Sources	**531**	**98**	**120**	**337**
Mobile Sources				
On-Road Vehicles	163	360	373	1,913
Off-Road Vehicles	145	269	266	1,643
Total Mobile Sources	**308**	**629**	**639**	**3,556**
TOTAL	**839**	**727**	**759**	**3,893**

* Travel related road dust included

**Planning inventories are not used for PM_{10} analysis

[1] Values are rounded to nearest integer

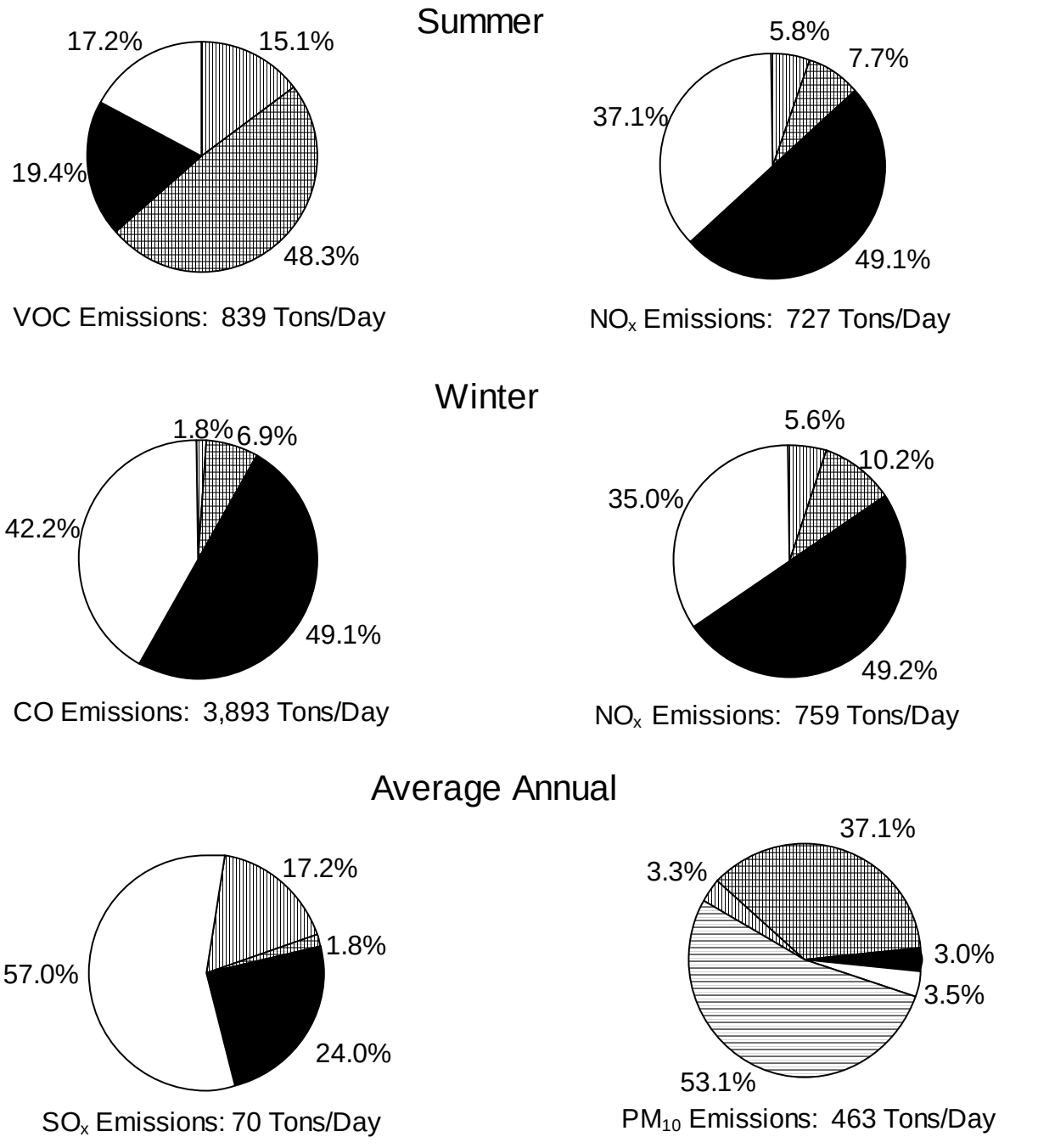


FIGURE 3-5

Relative Contribution By Source Category to the 2010 Inventory