MAG EIGHT-HOUR OZONE REDESIGNATION REQUEST AND MAINTENANCE PLAN FOR THE MARICOPA NONATTAINMENT AREA

FEBRUARY 2009

MARICOPA ASSOCIATION of GOVERNMENTS

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MARICOPA ASSOCIATION of GOVERNMENTS

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EXECUTIVE SUMMARY

MAG EIGHT-HOUR OZONE REDESIGNATION REQUEST AND MAINTENANCE PLAN FOR THE MARICOPA NONATTAINMENT AREA

EXECUTIVE SUMMARY

On July 18, 1997, the U.S. Environmental Protection Agency (EPA) promulgated an eight-hour ozone standard of 0.08 parts per million (ppm). The Maricopa Association of Governments (MAG) is requesting that EPA redesignate the Maricopa area to attainment for the 1997 eight-hour ozone standard. No violations of this standard have occurred since 2004. With the submittal of this redesignation request and maintenance plan, the Maricopa nonattainment area has satisfied all of the requirements for redesignation to attainment for the 1997 eight-hour ozone standard.

In March 2008, EPA promulgated a new, more stringent eight-hour ozone standard of 0.075 ppm. Lawsuits challenging the new standard have been filed in federal court. MAG will conduct the modeling and technical analyses and prepare the plans required by the Clean Air Act, after EPA designates the nonattainment areas and publishes implementation guidance for the new ozone standard.

The Maricopa area was designated nonattainment for the 1997 eight-hour ozone standard, effective June 15, 2004. The Maricopa nonattainment area was classified as "Basic" under Part D, Subpart 1, of the Clean Air Act. Basic nonattainment areas were required to submit a plan to EPA by June 15, 2007 that demonstrated attainment of the eight-hour ozone standard by June 15, 2009.

In accordance with the Clear Air Act, MAG submitted the Eight-Hour Ozone Plan for the Maricopa Nonattainment Area to EPA by June 15, 2007. This plan demonstrated, through modeling and supporting technical analyses, that the eight-hour ozone standard would be met by June 15, 2009. Air quality monitoring data indicated that the area attained the eight-hour ozone standard in 2005 and that the area has continued to meet the standard since then (i.e., 2006, 2007, and 2008).

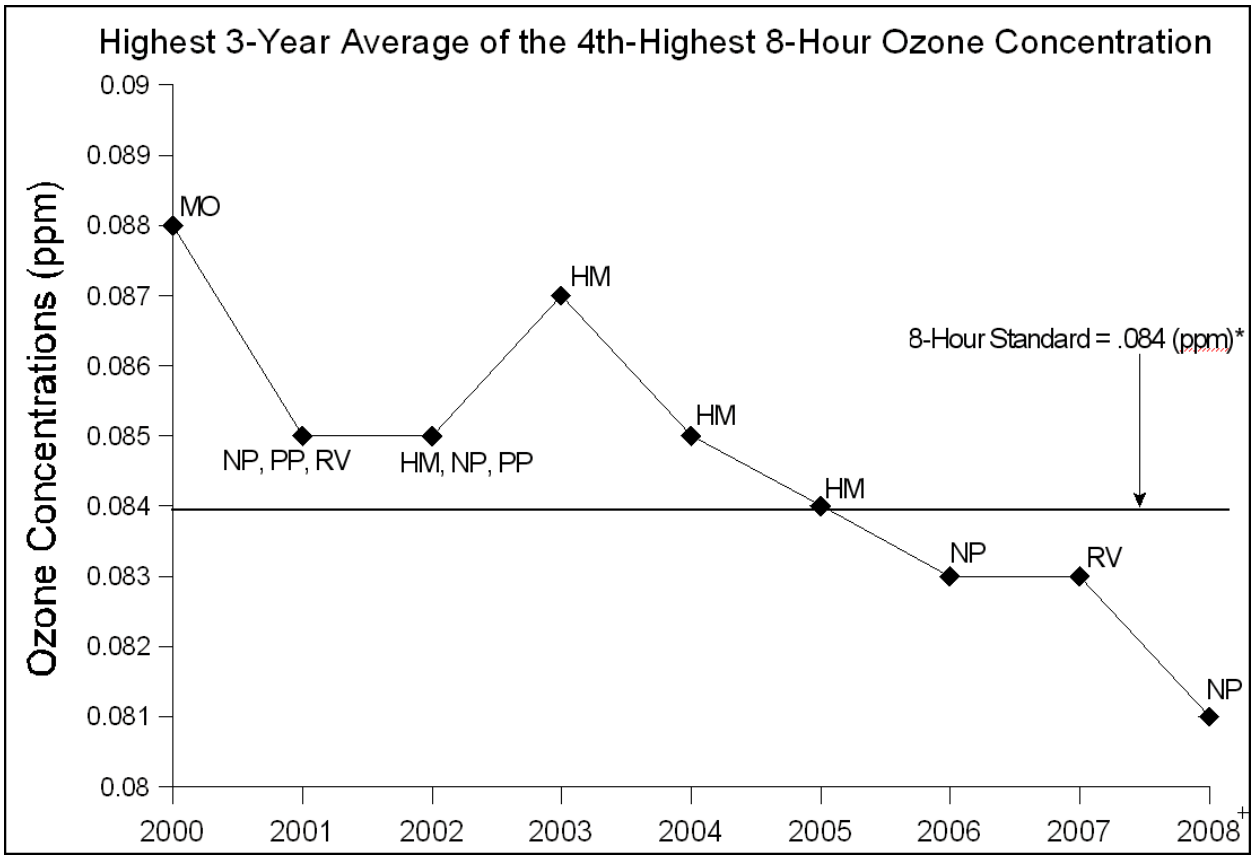
The Clean Air Act defines the following criteria that must be met before a nonattainment area may be redesignated to attainment:

- EPA must determine that the area has attained the eight-hour ozone standard.
- EPA must determine that the improvement in air quality is due to permanent and enforceable reductions in emissions.
- All applicable requirements for State Implementation Plans (SIPs) and Nonattainment Areas defined in the Clean Air Act must be met.
- EPA must approve a maintenance plan for the area. The plan must demonstrate maintenance of the eight-hour ozone standard for a period of at least ten years following the redesignation to attainment by EPA.

The maintenance plan in this document provides monitoring data to support the finding that the eight-hour ozone standard has been met in the nonattainment area since 2005. Figure ES-1 shows the downward trend in peak ozone concentrations that have occurred since

FIGURE ES-1

EIGHT-HOUR OZONE TRENDS
(2000-2008)



* Due to mathematical rounding, values ≥0.085 ppm are necessary to exceed the standard.

\+ Preliminary data through September 30, 2008. Quality assurance of the data is in progress.

Monitors Where the Highest 3-Year Average of the 4th-Highest 8-Hour Ozone Concentration Occurred:

(HM) Humboldt Mountain
(MO) Mount Ord
(NP) North Phoenix
(PP) Pinnacle Peak
(RV) Rio Verde

Sources: Environmental Protection Agency Air Quality System and Monitor Values Report; Arizona Department of Environmental Quality.

2000. The redesignation request in this document also demonstrates that these improvements in air quality are attributable to permanent and enforceable reductions in ozone precursor emissions and that other Clean Air Act requirements for SIPs and nonattainment areas have been met.

Generally, the approach taken in preparing the Eight-Hour Ozone Redesignation Request and Maintenance Plan is to rely on the legally-binding committed measures in programs and plans that have already been approved by EPA. These include the Modified Arizona Cleaner Burning Gasoline Program, approved by EPA on April 5, 2004; the Serious Area Carbon Monoxide Plan and Carbon Monoxide Maintenance Plan, approved by EPA on April 8, 2005; and the Serious Area Ozone State Implementation Plan and the One-Hour Ozone Maintenance Plan, approved by EPA on June 14, 2005. This approach was also used for the Eight-Hour Ozone Plan submitted to EPA by June 15, 2007.

Table ES-1 identifies the seven measures for which numeric emission reduction credit was taken in modeling maintenance of the eight-hour ozone standard in 2025. Three of these measures (i.e., Phased in Emission Test Cutpoints, One-Time Waiver from Vehicle Emissions Test, and Tougher Enforcement of Vehicle Registration and Emission Test Compliance) were committed measures in the Serious Area Carbon Monoxide Plan and the Carbon Monoxide Maintenance Plan. The measure, Summer Fuel Reformulation: California Phase 2 and Federal Phase II Reformulated Gasoline with 7 psi from May 1 though September 30, was part of the Modified Arizona Cleaner Burning Gasoline Program and was also a committed measure in the One-Hour Ozone Maintenance Plan.

Two other maintenance measures, Federal Nonroad Equipment Emissions Standards and Expansion of Area A Boundaries (HB 2538), were contingency measures in the MAG Eight-Hour Ozone Plan for the Maricopa Nonattainment Area. The seventh measure for which credit is taken is Ban Open Burning During Ozone Season. This new ozone measure was passed by the Arizona Legislature in June 2007 as part of S.B. 1552. Figures ES-2 and ES-3 show the VOC and NOx emission reductions attributable to each of the individual maintenance measures in 2025.

To meet the requirements for redesignation to attainment, this document includes an eight-hour ozone maintenance plan for the Maricopa nonattainment area. The maintenance plan demonstrates, through photochemical grid modeling and supporting technical analyses, that the eight-hour ozone standard of 0.08 parts per million (ppm) will continue to be maintained through 2025, a period of at least ten years following redesignation to attainment by EPA. Maintenance of the standard will be achieved, despite a 76 percent increase in vehicle travel in the nonattainment area between 2005 and 2025. The more stringent federal controls on emissions from light duty vehicles and nonroad equipment, as well as commitments made by State, County, and local governments in prior air quality plans and programs, will more than offset the future growth in the nonattainment area.

TABLE ES-1

COMMITTED MAINTENANCE MEASURES AND CONTINGENCY MEASURES IN THE EIGHT-HOUR OZONE MAINTENANCE PLAN

Maintenance Measures Used for Numeric Credit	Contingency Measures
1. Summer Fuel Reformulation: California Phase 2 and Federal Phase II Reformulated Gasoline with 7 psi from May 1 through September 30	1. Gross Polluter Waiver Provision
2. Phased-In Emission Test Cutpoints (I/M 147 Program)	2. Increased Waiver Repair Limit
3. One Time Waiver from Vehicle Emissions Test	3. Federal Heavy Duty Diesel Vehicle Emissions Standards
4. Tougher Enforcement of Vehicle Registration and Emission Test Compliance	4. Coordinate Traffic Signal Systems
5. Federal Nonroad Equipment Emissions Standards	5. Develop Intelligent Transportation Systems
6. Expansion of Area A Boundaries (HB 2538)	6. Liquid Leaker Test as part of VEI Program
7. Ban Open Burning During Ozone Season	

FIGURE ES-2

2025 ANTHROPOGENIC VOC EMISSION REDUCTIONS FOR INDIVIDUAL MAINTENANCE MEASURES

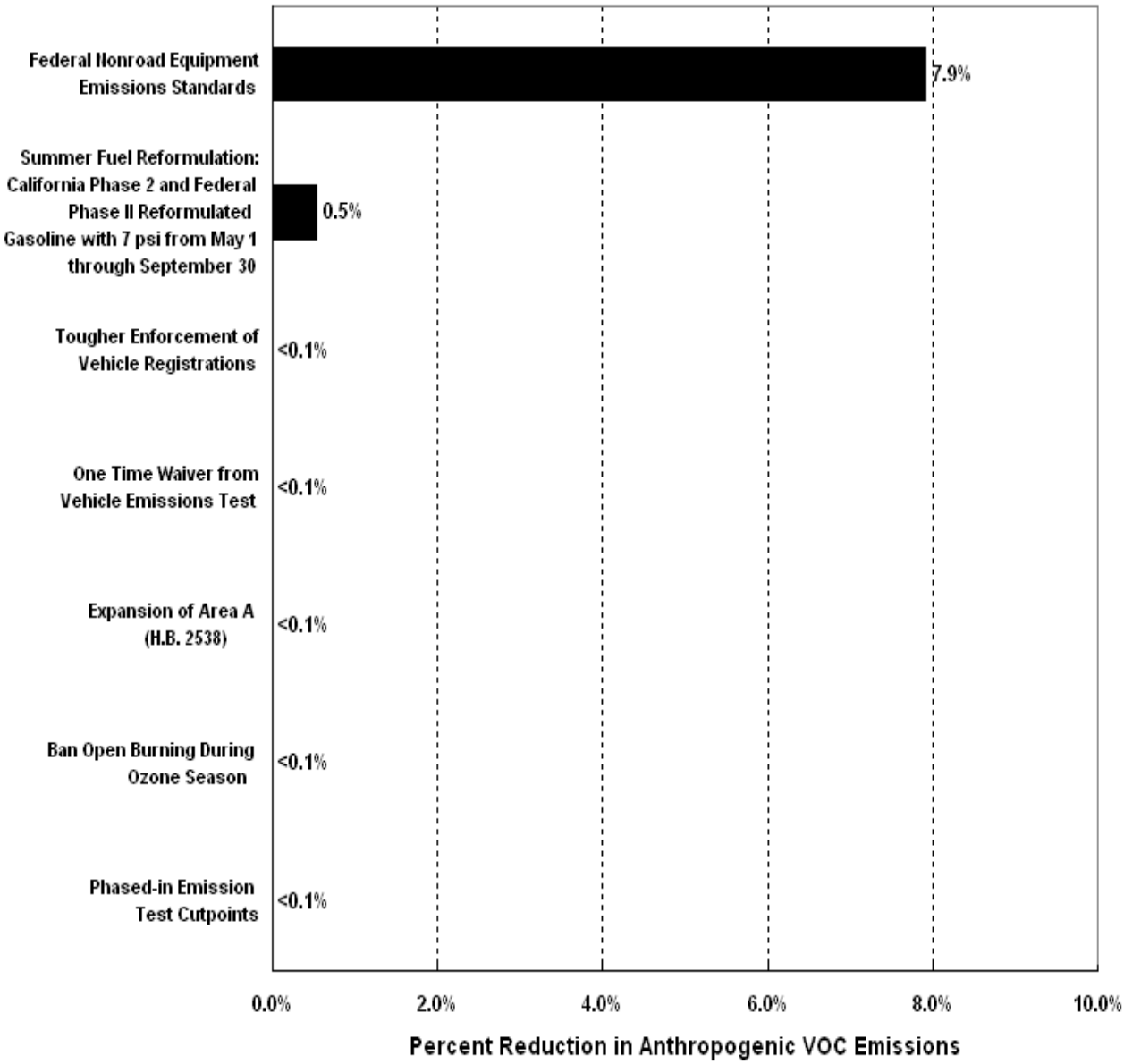
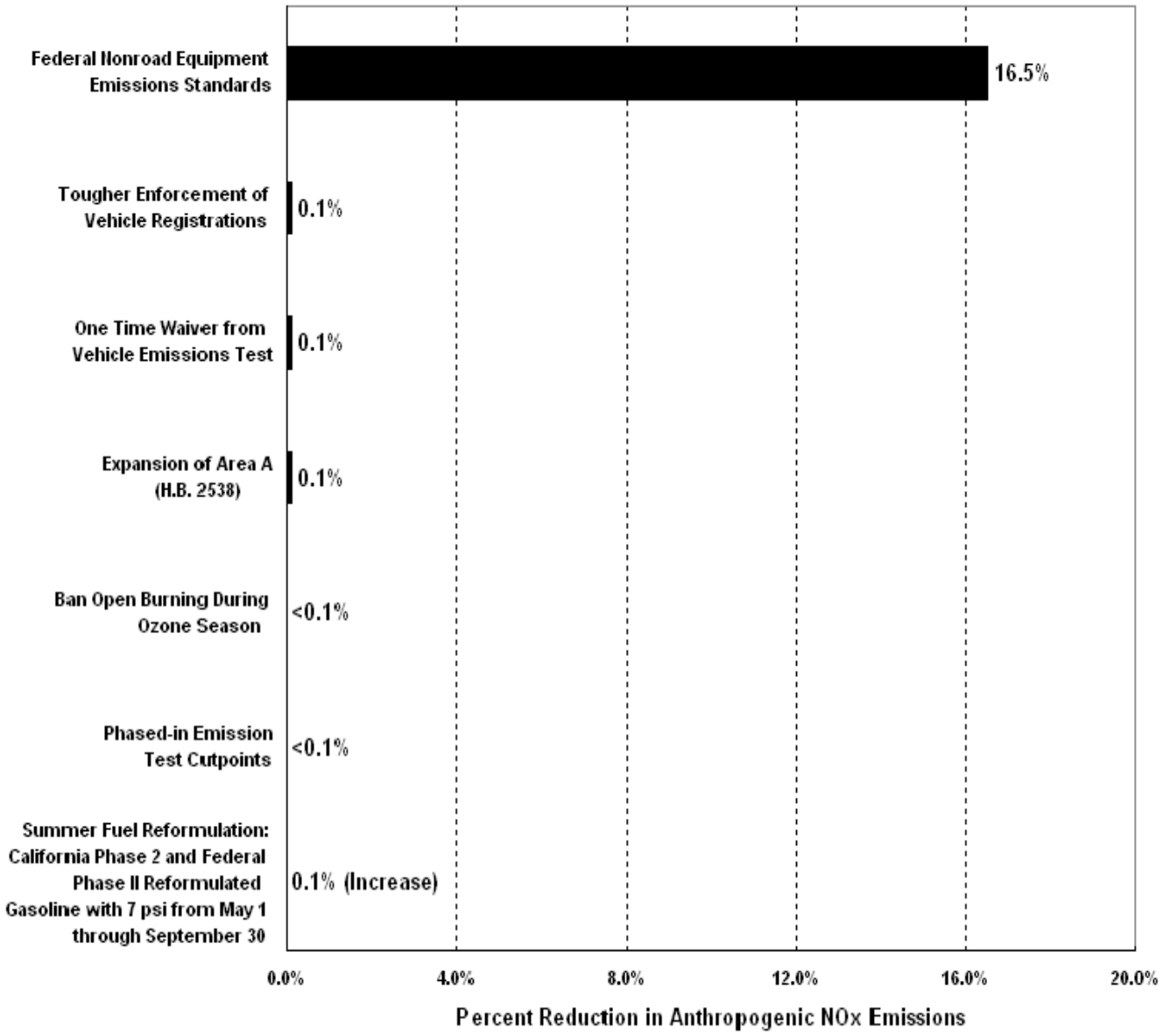


FIGURE ES-3

2025 ANTHROPOGENIC NOx EMISSION REDUCTIONS FOR INDIVIDUAL MAINTENANCE MEASURES



For the maintenance plan, MAG applied an EPA-approved photochemical grid model (the Comprehensive Air Quality Model with Extensions - CAMx) to simulate eight-hour ozone concentrations under the meteorological and transport conditions that accompanied high ozone episodes in June 2002, July 2002, and August 2001. The 2005 baseline emissions and the 2025 emissions used to model maintenance on the worst-case June episode day are shown in Tables ES-2 and ES-3. The 2025 emissions assume emission reduction credit for the seven maintenance measures discussed above. The 2025 emissions also take into account the major growth in regional population, employment and vehicle travel that is projected to occur between 2005 and 2025.

A comparison of 2005 and 2025 emissions in Tables ES-2 and ES-3 indicates that onroad mobile source emissions decline by more than one-third for VOC and almost 30 percent for NOx, while nonroad emissions are reduced by 21 percent for VOC and more than 50 percent for NOx. The reductions in onroad emissions occur despite a 76 percent increase in vehicle travel between 2005 and 2025. The reductions in onroad and nonroad emissions are due primarily to the replacement of older, high-polluting vehicles and equipment with new models that meet more stringent federal emission standards.

For VOC emissions, the combined share of onroad and nonroad source contributions declines from 17 to 12 percent, while point and area source emissions increase from 14 to 21 percent, between 2005 and 2025. Biogenic sources contribute the largest share of VOC emissions in both 2005 and 2025. Among the non-biogenic sources, area sources contribute the most VOC in 2005 (12 percent) and 2025 (19 percent).

For NOx, onroad mobile sources contribute the largest share of emissions in both 2005 and 2025. The combined onroad and nonroad share of NOx emissions decreases from 86 percent in 2005 to 60 percent in 2025. It is important to note, however, that power plants were assumed to emit maximum levels of NOx in 2025, whereas the power plant emissions in 2005 represent actual operating levels. This conservative modeling assumption increases point source emissions from 4 percent of the total NOx emissions in 2005 to 24 percent in 2025.

The maximum eight-hour ozone concentrations predicted by modeling the June, July, and August episodes in 2025 were 0.081 ppm, 0.079 ppm, and 0.079 ppm, respectively. Since the maximum value for each episode is less than 0.08 ppm, when rounded to the nearest 0.01 ppm, the modeling demonstrates maintenance of the standard in 2025.

To support the modeling results, MAG performed a number of supplemental technical analyses. One analysis involved the application of EPA software to determine if portions of the nonattainment area that are not near ozone monitors (i.e., unmonitored areas) will also meet the standard in 2025. The unmonitored area analysis determined that the maximum eight-hour ozone concentrations in 2025 would be 0.081 ppm for the June episode, 0.079 ppm for the July episode, and 0.083 ppm for the August episode. Since all of these values are less than the standard of 0.08 ppm, when rounded to the nearest 0.01 ppm, this analysis concluded that the standard would not be exceeded in portions of the

TABLE ES-2

VOC EMISSIONS FOR A JUNE EPISODE DAY IN 2005 AND 2025

Source Category	Thursday in June, 2005 (metric tons/day)	Thursday in June, 2025 (metric tons/day)	2025-2005 Difference (%)
Point	11.1	18.7	68.5
Area	79.2	124.8	57.5
Nonroad	40.3	31.8	-21.0
Onroad	72.1	47.9	-33.6
Biogenics	451.3	451.3	0.0
Total	**653.9**	**674.4**	**3.1**

Sources:

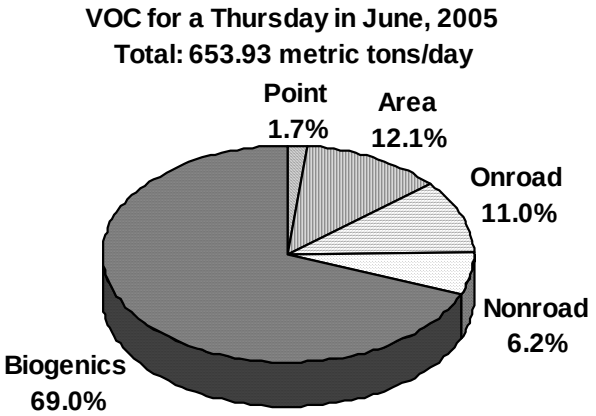
Point - Industrial, Manufacturing, and Electrical Power Generation Facilities

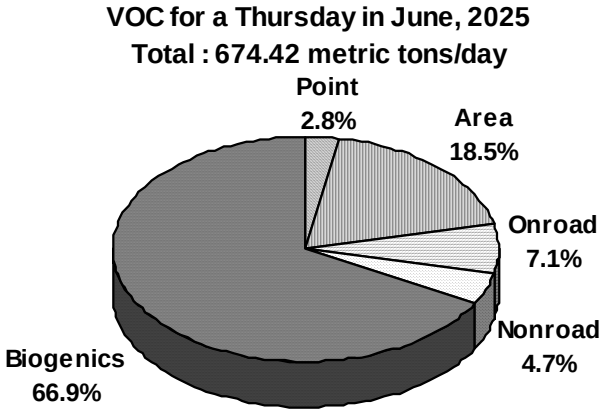
Area - Chemical Solvent Use; Industrial Processes; Storage and Transport of Fuels; Waste Treatment and Disposal; Residential and Industrial Fuel Combustion; Open Burning; and Wildfires

Nonroad - Utility, Lawn & Garden, Construction, Farm, and Recreational Equipment; Aircraft; and Locomotives

Onroad - Cars and Trucks Traveling on Paved and Unpaved Roads

Biogenics - Natural Vegetation





Note: The sum of the source categories may not equal the total due to rounding.

TABLE ES-3

NOx EMISSIONS FOR A JUNE EPISODE DAY IN 2005 AND 2025

Source Category	Thursday in June, 2005 (metric tons/day)	Thursday in June, 2025 (metric tons/day)	2025-2005 Difference (%)
Point	10.9	59.1	440.3
Area	19.6	31.1	58.8
Nonroad	77.7	37.9	-51.2
Onroad	154.3	109.8	-28.9
Biogenics	8.6	8.6	0.0
Total	**271.1**	**246.4**	**-9.1**

Sources:

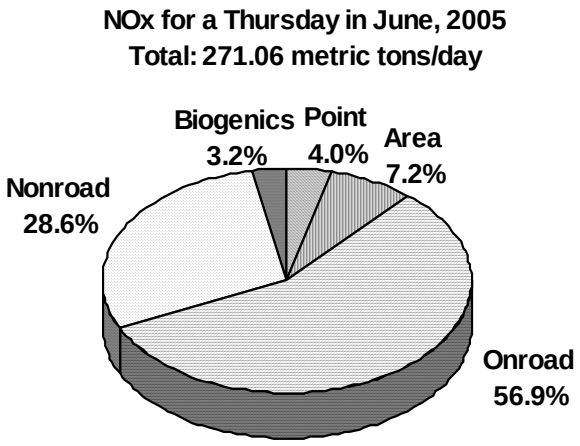
Point - Industrial, Manufacturing, and Electrical Power Generation Facilities

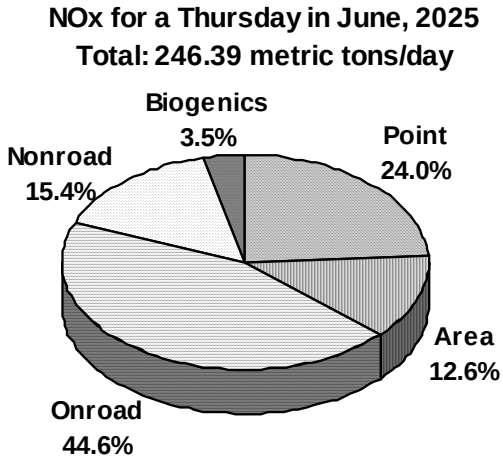
Area - Chemical Solvent Use; Industrial Processes; Storage and Transport of Fuels; Waste Treatment and Disposal; Residential and Industrial Fuel Combustion; Open Burning; and Wildfires

Nonroad - Utility, Lawn & Garden, Construction, Farm, and Recreational Equipment; Aircraft; and Locomotives

Onroad - Cars and Trucks Traveling on Paved and Unpaved Roads

Biogenics - Natural Vegetation





Note: The sum of the source categories may not equal the total due to rounding.

nonattainment area that are not near ozone monitors. The unmonitored area analysis, as well as all other supporting technical analyses, corroborate the conclusion that the eight-hour ozone standard will be maintained in the Maricopa nonattainment area through 2025.

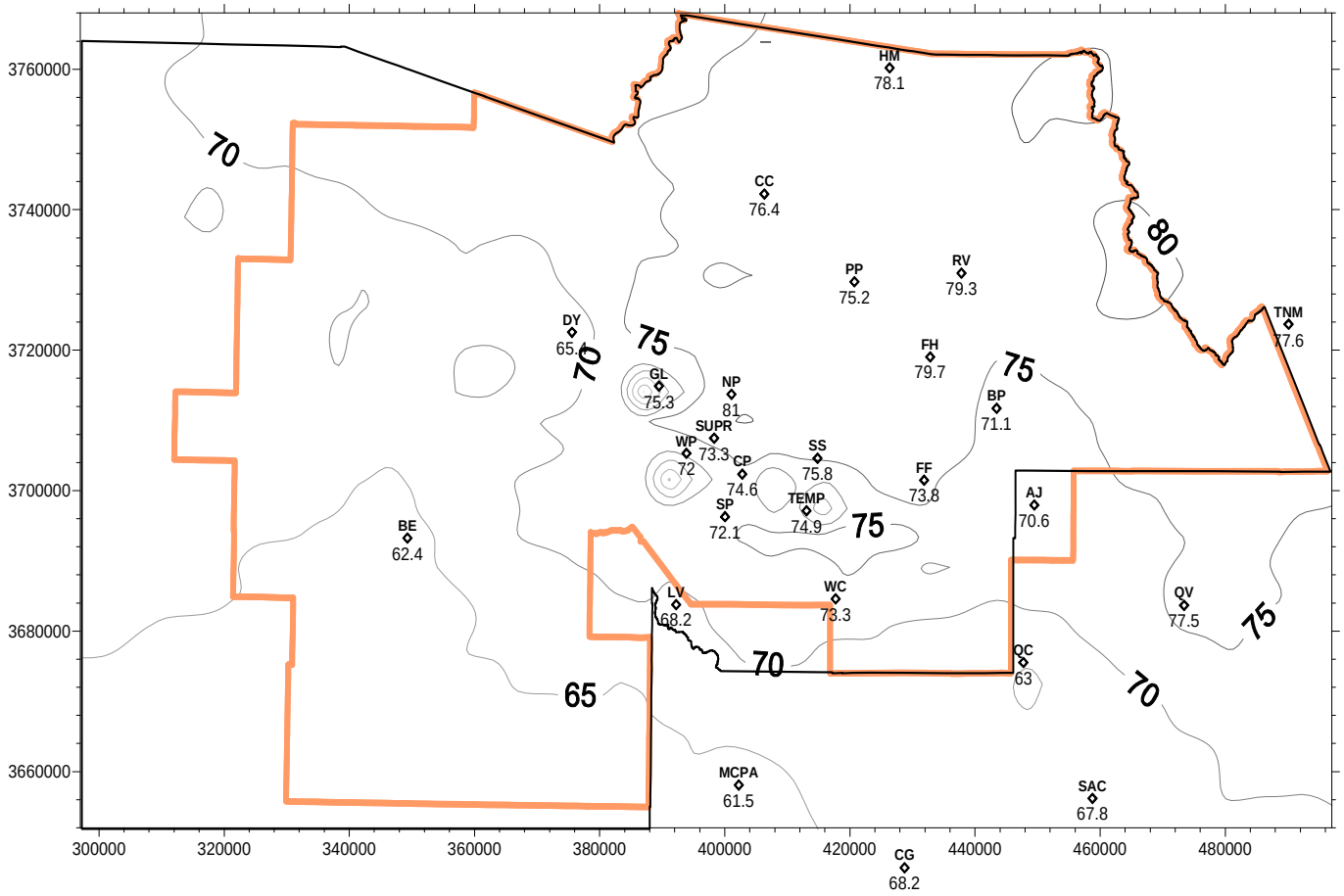
Figure ES-4 provides an isopleth plot of the results of the unmonitored area analysis overlaid with the values predicted by modeling each monitoring site on the June 2025 episode day. The eight-hour ozone concentrations are shown in parts per billion (ppb).

With the seven committed maintenance measures, the maintenance plan estimates that onroad mobile sources will contribute 43.8 metric tons per day of VOC and 101.8 metric tons per day of NOx in the eight-hour ozone nonattainment area in 2025. These emissions represent the new transportation conformity budgets for VOC and NOx in 2025.

The Clean Air Act requires that a maintenance plan also contain contingency provisions. The maintenance plan contains six contingency measures that are shown in Table ES-1. These measures have already been implemented in the Maricopa nonattainment area. Early implementation of contingency measures is allowed by EPA. The maintenance plan also describes the process and schedule to be followed if monitoring data indicates that additional measures may be needed in the future.

FIGURE ES-4

PREDICTED EIGHT-HOUR OZONE CONCENTRATIONS IN JUNE 2025
(in ppb)



CHAPTER ONE

INTRODUCTION

The Maricopa Association of Governments (MAG) is requesting that the U.S. Environmental Protection Agency (EPA) redesignate the Maricopa nonattainment area to attainment for the National Ambient Air Quality Standard for eight-hour ozone of 0.08 parts per million that was promulgated by EPA in 1997. The area was designated a nonattainment area for the eight-hour ozone standard in April 2004, but has not violated the standard since 2004. Therefore, the area is now eligible for redesignation. Chapter Two contains the formal redesignation request and supporting documentation. Chapter Three provides the Maintenance Plan which demonstrates continued attainment of the eight-hour ozone standard through the year 2025.

In 1978, the Governor of Arizona designated the Maricopa Association of Governments as the lead air quality planning agency for Maricopa County. Together with the State, MAG is responsible for determining which elements of the State Implementation Plan will be planned, implemented and enforced by State and local governments in Arizona. In 1992, the Arizona Legislature recertified MAG as the regional air quality planning agency. MAG coordinates with the Arizona Department of Environmental Quality, the Arizona Department of Transportation, and the Maricopa County Air Quality Department in developing the plans necessary to attain and maintain the national air quality standards.

This Redesignation Request and Maintenance Plan is reviewed and approved by the MAG Air Quality Technical Advisory Committee, the MAG Management Committee, and the MAG Regional Council. The MAG Air Quality Technical Advisory Committee was established in 1995 with representatives from State, county, and local governments, private industry, environmental groups, and the public-at-large. The Air Quality Technical Advisory Committee makes recommendations to the MAG Management Committee on air quality plans, projects, funding, and other pertinent issues.

The MAG Management Committee is composed of managers from each of the MAG member agencies that include twenty-five cities and towns, the Fort McDowell, Salt River Pima-Maricopa, and Gila River Indian Communities, Maricopa County, Regional Public Transportation Authority and the Arizona Department of Transportation. The MAG Management Committee makes recommendations to the MAG Regional Council. The Regional Council is the MAG decision-making body and is primarily comprised of elected officials from the MAG member agencies.

MAG is also required to conduct a public hearing on this redesignation request and maintenance plan in accordance with federal requirements. All public comments and responses are provided in Appendix B.

NATIONAL AMBIENT AIR QUALITY STANDARD FOR OZONE

On July 18, 1997, EPA promulgated an eight-hour ozone standard of 0.08 parts per million (ppm). In March 2008, EPA promulgated a new, more stringent eight-hour ozone standard of 0.075 ppm. Lawsuits challenging the new standard have been filed in federal court. MAG will conduct the modeling and technical analyses and prepare the plans required by the Clean Air Act, after EPA designates the nonattainment areas and publishes implementation guidance for the new ozone standard.

Compliance with the eight-hour standard is determined at each monitor by averaging the annual fourth-highest eight-hour ozone concentration over three consecutive years. EPA requires that the monitored eight-hour ozone values be rounded to the nearest 0.01 ppm, which means that a violation occurs when the three-year average of the fourth-highest monitored concentration is 0.085 ppm or higher.

The MAG 2007 Eight-Hour Ozone Plan for the Maricopa Nonattainment Area demonstrated, through modeling and supporting technical analyses, that the 1997 standard would be attained by June 15, 2009. Chapter Two presents the ozone monitoring data that confirms that the standard of 0.08 ppm will be met by this date; in fact, there have been no violations of this ozone standard at any monitor in the nonattainment area since 2004. This plan demonstrates maintenance through 2025 and requests that EPA redesignate the area to attainment for the 1997 standard. The phrase “eight-hour ozone standard” used throughout this document refers to the 1997 standard.

CHARACTERISTICS AND HEALTH EFFECTS OF OZONE

Ozone is not directly emitted from a source, but is produced by chemical reactions among volatile organic compounds (VOC), nitrogen oxides (NOx), and other air pollutants, in the presence of heat and sunlight. VOC and NOx are emitted by onroad vehicles and nonroad engines. Other sources of these ozone precursor emissions include industrial, manufacturing, and electrical power generation facilities; dry cleaners, service stations, architectural coatings, consumer and commercial solvent use; and natural vegetation. Peak ozone concentrations typically occur in the nonattainment area from May through September when high temperatures are conducive to the formation of ozone. Due to prevailing afternoon winds, ozone precursors and ozone can be transported to the mountainous areas in the eastern and northern portions of the nonattainment area.

Ozone irritates the lungs and repeated exposure may cause permanent lung damage. Symptoms of ozone exposure may include wheezing, coughing, and pain when taking a deep breath. Children, persons with pre-existing respiratory conditions such as asthma, and others who are active outdoors when ozone levels are high are most affected by the adverse health effects of ozone. Even low levels of ozone may cause aggravated asthma, reduced lung capacity, and make persons more susceptible to respiratory illnesses such as pneumonia and bronchitis.

NONATTAINMENT AREA

The Maricopa eight-hour ozone nonattainment area encompasses 4,880 square miles located in central Arizona. The nonattainment area boundaries are shown in Figure 1-1. The area contains portions of twenty-five cities and towns, the Fort McDowell and Salt River Pima-Maricopa Indian Communities, and unincorporated areas under the jurisdiction of Maricopa County. The southeastern portion of the nonattainment area also includes the Apache Junction area in Pinal County. The eight-hour ozone nonattainment area does not include the Gila River Indian Community.

According to a Special U.S. Census, the population of Maricopa County was 3.7 million in 2005. Most of these residents live and work within the nonattainment area boundaries.

The nonattainment area is located in the Salt River Valley at 1,100 feet above mean sea level and the urban area is almost completely surrounded by mountains. The climate in the nonattainment area is arid continental, experiencing extreme ranges in daily temperatures. Temperatures range from a mean of 55.5 degrees Fahrenheit in December to a mean of 94.8 degrees Fahrenheit in July; the annual mean temperature is 74.2 degrees Fahrenheit. The sun shines approximately 85 percent of the time and the annual average rainfall is 8.29 inches. In general, the prevailing wind direction is from E/SE to W/SW, although the winds can shift in the afternoon to a more westerly direction.

HISTORY

In accordance with the Clean Air Act, an urbanized portion of Maricopa County was formally designated as a nonattainment area for ozone in 1978. Under the 1990 Clean Air Act Amendments, the nonattainment area was classified as Moderate for ozone. In order to meet the Moderate area requirements, the MAG 1993 Ozone Plan for the Maricopa County Area was submitted to the Environmental Protection Agency by November 15, 1993. An Addendum to this Plan containing additional control measures was submitted to EPA in March 1994.

On April 13, 1994, EPA issued an incompleteness finding on the 1993 Ozone Plan and Addendum because the plan failed to include, in fully adopted and enforceable form, all of the measures relied upon in the 15 percent demonstration. This action started a two year FIP clock under CAA Section 110(c) for EPA to promulgate a 15 percent Rate of Progress Federal Implementation Plan. In November 1994 the modeling attainment demonstration for the 1993 Ozone Plan and Addendum was submitted to EPA, with a revision to the modeling attainment demonstration following in April 1995. The MAG 1993 Ozone Plan and Addendum, as well as the attainment demonstration, was found complete by EPA on May 12, 1995.

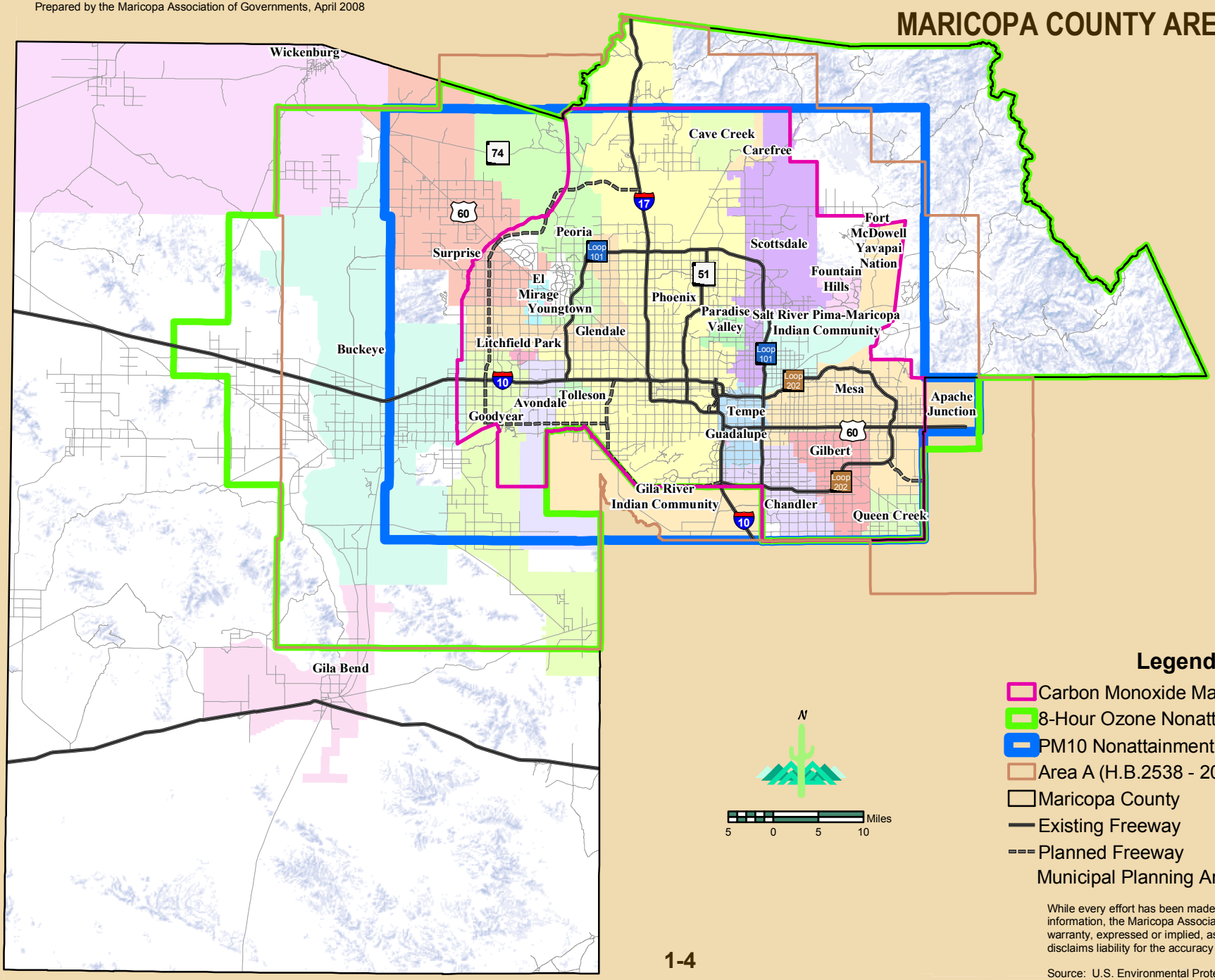
On November 6, 1997, the nonattainment area was reclassified to Serious due to failure to attain the ozone standard by November 15, 1996. The Serious Area reclassification was effective on February 13, 1998. Following the outcome of a lawsuit filed to require that

MARICOPA ASSOCIATION of GOVERNMENTS

Prepared by the Maricopa Association of Governments, April 2008

FIGURE 1-1

AIR QUALITY NONATTAINMENT AND MAINTENANCE AREAS FOR THE MARICOPA COUNTY AREA, ARIZONA



Legend

- Carbon Monoxide Maintenance Area
- 8-Hour Ozone Nonattainment Area
- PM10 Nonattainment Area
- Area A (H.B.2538 - 2001)
- Maricopa County
- Existing Freeway
- Planned Freeway

Municipal Planning Areas shaded

Source: U.S. Environmental Protection Agency, g:/dev/maps/AQ/85x11/aq_bounds_with_AreaA_MPA_gismag.mxd

EPA enforce the Federal Implementation Plan provisions in Section 110(c) of the Clean Air Act, EPA promulgated a Federal Implementation Plan for the 15 Percent Rate of Progress requirement on May 27, 1998.

On December 14, 2000, the Serious Area Ozone State Implementation Plan for Maricopa County was submitted to EPA by the Arizona Department of Environmental Quality (ADEQ, 2000). In accordance with Section 110 of the Clean Air Act, a completeness finding on the Serious Area Ozone State Implementation Plan (SIP) was deemed by operation of law, since a determination was not made by EPA within six months of receipt of the Plan. The Serious Area Ozone SIP was approved by EPA on June 14, 2005.

On May 30, 2001, EPA determined that the Maricopa County nonattainment area had attained the one-hour ozone standard. The attainment determination was effective on June 29, 2001. EPA also determined that the serious area requirements for reasonable further progress, attainment determinations, and contingency measures for the one-hour ozone standard would not apply, as long as the area continued to attain the standard.

The MAG One-Hour Ozone Redesignation Request and Maintenance Plan for the Maricopa County Nonattainment Area was submitted to EPA in May 2004 (MAG, 2004). On June 14, 2005, EPA approved the One-Hour Ozone Redesignation Request and Maintenance Plan. On June 15, 2005, EPA revoked the one-hour ozone standard, which was less stringent than the eight-hour ozone standard promulgated in July 1997.

On April 30, 2004, EPA published the final rule designating eight-hour ozone nonattainment areas, effective June 15, 2004. The Maricopa nonattainment area was classified as "Basic" under Part D, Subpart 1, of the Clean Air Act, with an attainment date of June 15, 2009. The Clean Air Act requires that the attainment demonstration for a "Basic" nonattainment area be submitted to EPA three years after the effective date of the designation, which is June 15, 2007.

MAG submitted the Eight-Hour Ozone Plan for the Maricopa Nonattainment Area to EPA by June 15, 2007 (MAG, 2007). The Plan demonstrated attainment, through modeling and supporting technical analyses, by June 15, 2009. The monitoring data shown in Chapter Two confirms the findings of the Eight-Hour Ozone Plan that the eight-hour ozone standard will be attained by June 15, 2009.

REQUIRED COMPONENTS OF A REDESIGNATION REQUEST

Sections 107(d)(3)(D) and (E) of the Clean Air Act define the criteria that must be met before an area can be redesignated to attainment. This redesignation request and maintenance plan demonstrates that the Maricopa nonattainment area meets the five required criteria, which are summarized below:

1. Attainment of the Standard

Chapter Two provides the ozone monitoring data that confirms that the area has attained the eight-hour ozone standard promulgated by EPA in July 1997.

2. State Implementation Plan Approval

MAG submitted the Eight-Hour Ozone Plan for the Maricopa Nonattainment Area to EPA by June 15, 2007. In accordance with Section 110 of the Clean Air Act, a completeness finding was deemed by operation of law, since a determination was not made by EPA within six months of receipt of the Plan. To date, EPA has not approved the Eight-Hour Ozone Plan, but may take action to approve the Eight-Hour Ozone Plan concurrently with the approval of this Eight-Hour Ozone Redesignation Request and Maintenance Plan.

3. Improvement in Air Quality Due to Permanent and Enforceable Emission Reductions

Chapter Two presents the evidence that the improvement in air quality leading to attainment and maintenance of the standard has been due to permanent and enforceable reductions in ozone precursor emissions.

4. Clean Air Act Section 110 and Part D Requirements

Chapter Two discusses how requirements of Clean Air Act Section 110 (for SIPs) and Part D (for nonattainment areas) are satisfied by the Eight-Hour Ozone Plan for the Maricopa Nonattainment Area and the Maintenance Plan provided in Chapter Three of this document. Some of these requirements are also satisfied by the Serious Area Ozone SIP and the One-Hour Ozone Redesignation Request and Maintenance Plan, both of which were approved by EPA on June 14, 2005. In addition, several of the committed measures in the Revised MAG 1999 Serious Area Carbon Monoxide Plan for the Maricopa County Nonattainment Area (MAG, 2001) and the Carbon Monoxide Redesignation Request and Maintenance Plan for the Maricopa County Nonattainment Area (MAG, 2003), both of which were approved by EPA on April 8, 2005, also reduce ozone and have therefore been included in the Eight-Hour Ozone Maintenance Plan.

5. Maintenance Plan

Chapter Three contains the Maintenance Plan for the Maricopa Eight-Hour Ozone Nonattainment Area. The Maintenance Plan demonstrates, through modeling and supporting technical analyses, that the area will continue to attain the eight-hour ozone standard through 2025, a period of at least ten years following redesignation to attainment by EPA. The Maintenance Plan establishes transportation conformity budgets for 2025. The Maintenance Plan also contains contingency measures that have been implemented and describes the process and schedule that will be used to consider additional measures, if needed.

CHAPTER TWO

REDESIGNATION REQUEST

The Maricopa Association of Governments requests that the U.S. Environmental Protection Agency (EPA) redesignate the Maricopa nonattainment area to attainment for the National Ambient Air Quality Standard for eight-hour ozone of 0.08 parts per million (ppm) established in 1997. EPA designated the area as an eight-hour ozone nonattainment area in 2004, but the area has not violated the standard since 2004. Therefore, the area is eligible for redesignation.

REQUIRED COMPONENTS OF A REDESIGNATION REQUEST

The EPA Administrator may not redesignate an area to attainment, unless the following requirements of Section 107(d)(3)(E) of the Clean Air Act are met:

1. The Administrator determines that the area has attained the national ambient air quality standards.

2. The Administrator has fully approved the applicable implementation plan under Section 110(k).

3. The Administrator determines that the improvement in air quality is due to permanent and enforceable reductions in emissions.

4. The State has met all applicable requirements under Section 110 and Part D.

5. The EPA Administrator approves a maintenance plan for the area that meets the provisions of Section 175A.

The first four redesignation requirements are addressed in this chapter. Chapter Three contains the maintenance plan that is being submitted to EPA to fulfill the fifth and final requirement.

ATTAINMENT OF THE EIGHT-HOUR OZONE STANDARD

Attainment of the 1997 National Ambient Air Quality Standard of 0.08 ppm for eight-hour ozone is determined by averaging the annual fourth-highest eight-hour ozone concentration at each monitor over three consecutive years. EPA requires that the monitored eight-hour ozone values be rounded to the nearest 0.01 ppm, which means that a violation occurs when the three-year average of the fourth-highest monitored concentration is 0.085 ppm or higher. The following information demonstrates, as required by Section 107(d)(3)(E) of the Clean Air Act, that the Maricopa nonattainment area has attained the eight-hour ozone standard. This conclusion is based on quality assured data from the ozone monitors in the nonattainment area.

Climatological Data

The climate in the nonattainment area is arid continental, experiencing extreme ranges in daily temperatures. Temperatures range from a mean of 55.5 degrees Fahrenheit in December to a mean of 94.8 degrees Fahrenheit in July; the annual mean temperature is 74.2 degrees Fahrenheit. The sun shines approximately 85 percent of the time and the annual average rainfall is 8.29 inches. Most of the rainfall occurs from December through March and during the months of July and August (NOAA, 2008).

The air flow pattern in the area is typically drainage flow winds in the early morning, transition in the late morning to early afternoon, and upslope flow in the afternoon. That is, due to the heating and cooling effects of the ground surface, the air flow pattern generally exhibits a morning downslope to afternoon upslope cycle. This typical flow cycle virtually traps the air pollutants in the valley. Transport of the air pollutants from the valley to the mountain area can happen during the afternoon upslope flow hours, which is normally about three hours before transition starts. After the transition, the air flow is dominated by downslope flow, bringing the pollutants back to the valley. The average annual wind speed is 6.2 miles per hour.

Ozone Monitoring Network

The ozone monitoring network within the Maricopa eight-hour ozone nonattainment area consists of 19 monitoring sites. The Tonto National Monument site is located just outside the nonattainment area in Gila County and also monitors ozone. These stations are currently operated by the Maricopa County Air Quality Department, the Pinal County Air Quality Control District, and the Arizona Department of Environmental Quality. The ozone monitoring sites are identified, along with summary data from 2005 through 2008, in Tables 2-1 through 2-4. The geographical distribution of the ozone regional monitoring network is shown in Figure 2-1.

Tables 2-1 through 2-4 show the four highest eight-hour ozone concentrations at each monitor for the years 2005 through 2008, respectively. A violation of the standard occurs when the fourth-highest value at each monitor, averaged over three consecutive years, is 0.085 ppm or higher.

Historical Perspective

A review of the eight-hour ozone monitoring data reveals that there have been no violations of the eight-hour ozone standard at any monitor in the Maricopa nonattainment area since 2004. In contrast to the past four years of “clean” data, there were seven violating monitors in 2000. There was a noticeable decrease in the number of violations between 2000 and 2001, with only three violations recorded in 2001. During the years 2000 through 2008, the annual number of ozone violations ranged from seven (in 2000) to zero (in 2005, 2006, 2007, and 2008). These data indicate that there has been an overall downward trend in ozone concentrations in the nonattainment area over the last eight years.

TABLE 2-1

2005 OZONE MONITORING DATA SUMMARY FOR THE MARICOPA NONATTAINMENT AREA (8-HOUR OZONE STANDARD: 0.08 PPM*)

Site	Max Value (PPM)	2nd High (PPM)	3rd High (PPM)	4th High (PPM)
Apache Junction Maint. Yard, 305 E. Superstition	.076	.073	.070	.068
Blue Point, Usery Pass & Bush Highway	.089	.088	.083	.081
Buckeye, 26453 W. MC 85[S]	.067	.066	.066	.065
Cave Creek, 37019 N. Lava Lane[S]	.084	.083	.083	.082
Central Phoenix, 1645 E. Roosevelt	.081	.080	.078	.075
Dysart, 16825 N. Dysart[S]	.073	.069	.067	.066
Falcon Field, 4530 E. McKellips[S]	.081	.078	.078	.076
Fountain Hills, 16426 E. Palisades	.096	.091	.088	.088
Glendale, 6000 W. Olive[S]	.078	.077	.076	.076
Humboldt Mountain, Humboldt Mountain Summit[S]	.088	.088	.087	.087
JLG Supersite, 4530 N. 17th Ave.	.079	.077	.076	.076
North Phoenix, 601 E. Butler	.089	.088	.085	.084
Pinnacle Peak, 25000 N. Windy Walk	.085	.083	.083	.083
Rio Verde, 25608 N. Forest Road[S]	.093	.088	.087	.087
South Phoenix, 33 W. Tamarisk	.081	.081	.076	.076
South Scottsdale, 2857 N. Miller	.089	.084	.079	.077
Tempe, 1525 S. College[S]	.086	.078	.077	.076
Tonto National Monument, Tonto National Forest[S]	.098	.097	.084	.084
West Chandler, 275 S. Ellis[S]	.082	.076	.075	.075
West Phoenix, 3847 W. Earll	.072	.071	.069	.068

* Due to mathematical rounding, values $\geq$ 0.085 are necessary to exceed the standard.
[S] Seasonal monitor operating from April 1 to November 1.

Source: Environmental Protection Agency Monitor Values Report.

TABLE 2-2

2006 OZONE MONITORING DATA SUMMARY FOR THE MARICOPA NONATTAINMENT AREA (8-HOUR OZONE STANDARD: 0.08 PPM*)

Site	Max Value (PPM)	2nd High (PPM)	3rd High (PPM)	4th High (PPM)
Apache Junction Maint. Yard, 305 E. Superstition	.094	.090	.087	.084
Blue Point, Usery Pass & Bush Highway	.064	.063	.062	.062
Buckeye, 26453 W. MC 85[S]	.072	.068	.067	.067
Cave Creek, 37019 N. Lava Lane[S]	.088	.083	.082	.080
Central Phoenix, 1645 E. Roosevelt	.089	.083	.081	.080
Dysart, 16825 N. Dysart[S]	.079	.076	.075	.072
Falcon Field, 4530 E. McKellips[S]	.085	.082	.082	.079
Fountain Hills, 16426 E. Palisades	.089	.086	.086	.084
Glendale, 6000 W. Olive[S]	.084	.083	.079	.078
Humboldt Mountain, Humboldt Mountain Summit[S]	.084	.084	.082	.079
JLG Supersite, 4530 N. 17th Ave.	.085	.084	.083	.076
North Phoenix, 601 E. Butler	.094	.087	.086	.085
Pinnacle Peak, 25000 N. Windy Walk	.082	.079	.077	.076
Rio Verde, 25608 N. Forest Road[S]	.086	.084	.083	.083
South Phoenix, 33 W. Tamarisk	.075	.072	.072	.069
South Scottsdale, 2857 N. Miller	.086	.081	.080	.080
Tempe, 1525 S. College[S]	.087	.082	.081	.079
Tonto National Monument, Tonto National Forest[S]	.089	.085	.081	.081
West Chandler, 275 S. Ellis[S]	.089	.089	.083	.081
West Phoenix, 3847 W. Earll	.096	.088	.085	.082

* Due to mathematical rounding, values $\geq$ 0.085 are necessary to exceed the standard.
[S] Seasonal monitor operating from April 1 to November 1.

Source: Environmental Protection Agency Monitor Values Report.

TABLE 2-3

2007 OZONE MONITORING DATA SUMMARY FOR THE MARICOPA NONATTAINMENT AREA (8-HOUR OZONE STANDARD: 0.08 PPM*)

Site	Max Value (PPM)	2nd High (PPM)	3rd High (PPM)	4th High (PPM)
Apache Junction Maint. Yard, 305 E. Superstition	.083	.080	.079	.077
Blue Point, Usery Pass & Bush Highway	.066	.066	.059	.058
Buckeye, 26453 W. MC 85[S]	.066	.066	.064	.064
Cave Creek, 37019 N. Lava Lane[S]	.083	.079	.079	.077
Central Phoenix, 1645 E. Roosevelt	.073	.073	.070	.070
Dysart, 16825 N. Dysart[S]	.069	.069	.068	.065
Falcon Field, 4530 E. McKellips[S]	.080	.074	.074	.073
Fountain Hills, 16426 E. Palisades	.083	.078	.074	.074
Glendale, 6000 W. Olive[S]	.075	.075	.074	.071
Humboldt Mountain, Humboldt Mountain Summit[S]	.080	.079	.079	.078
JLG Supersite, 4530 N. 17th Ave.	.077	.076	.076	.076
North Phoenix, 601 E. Butler	.081	.081	.080	.078
Pinnacle Peak, 25000 N. Windy Walk	.076	.076	.075	.075
Rio Verde, 25608 N. Forest Road[S]	.082	.082	.080	.079
South Phoenix, 33 W. Tamarisk	.079	.077	.073	.072
South Scottsdale, 2857 N. Miller	.082	.077	.077	.077
Tempe, 1525 S. College[S]	.084	.077	.077	.076
Tonto National Monument, Tonto National Forest[S]	.078	.076	.076	.076
West Chandler, 275 S. Ellis[S]	.084	.079	.074	.072
West Phoenix, 3847 W. Earll	.079	.077	.076	.074

* Due to mathematical rounding, values $\geq$ 0.085 are necessary to exceed the standard.
[S] Seasonal monitor operating from April 1 to November 1.

Source: Environmental Protection Agency Monitor Values Report.

TABLE 2-4

2008 OZONE MONITORING DATA SUMMARY FOR THE MARICOPA NONATTAINMENT AREA[+] (8-HOUR OZONE STANDARD: 0.08 PPM*)

Site	Max Value (PPM)	2nd High (PPM)	3rd High (PPM)	4th High (PPM)
Apache Junction Maint. Yard, 305 E. Superstition	.082	.081	.081	.079
Blue Point, Usery Pass & Bush Highway	.076	.075	.075	.074
Buckeye, 26453 W. MC 85[S]	.071	.071	.070	.068
Cave Creek, 37019 N. Lava Lane[S]	.080	.080	.080	.078
Central Phoenix, 1645 E. Roosevelt	.078	.075	.072	.072
Dysart, 16825 N. Dysart[S]	.074	.067	.066	.066
Falcon Field, 4530 E. McKellips[S]	.079	.077	.077	.075
Fountain Hills, 16426 E. Palisades	.080	.080	.080	.079
Glendale, 6000 W. Olive[S]	.079	.077	.077	.074
Humboldt Mountain, Humboldt Mountain Summit[S]	.080	.078	.078	.077
JLG Supersite, 4530 N. 17th Ave.	.079	.079	.079	.078
North Phoenix, 601 E. Butler	.083	.081	.081	.080
Pinnacle Peak, 25000 N. Windy Walk	.080	.076	.073	.073
Rio Verde, 25608 N. Forest Road[S]	.081	.081	.079	.079
South Phoenix, 33 W. Tamarisk	.079	.077	.076	.076
South Scottsdale, 2857 N. Miller	.079	.078	.077	.076
Tempe, 1525 S. College[S]	.082	.082	.078	.078
Tonto National Monument, Tonto National Forest[S]	.084	.082	.081	.078
West Chandler, 275 S. Ellis[S]	.079	.079	.077	.077
West Phoenix, 3847 W. Earll	.081	.081	.080	.078

[+] Preliminary data through September 30, 2008. Quality assurance of the data is in progress.

* Due to mathematical rounding, values $\geq$ 0.085 are necessary to exceed the standard.

[S] Seasonal monitor operating from April 1 to November 1.

Sources: Environmental Protection Agency Air Quality System; Arizona Department of Environmental Quality.

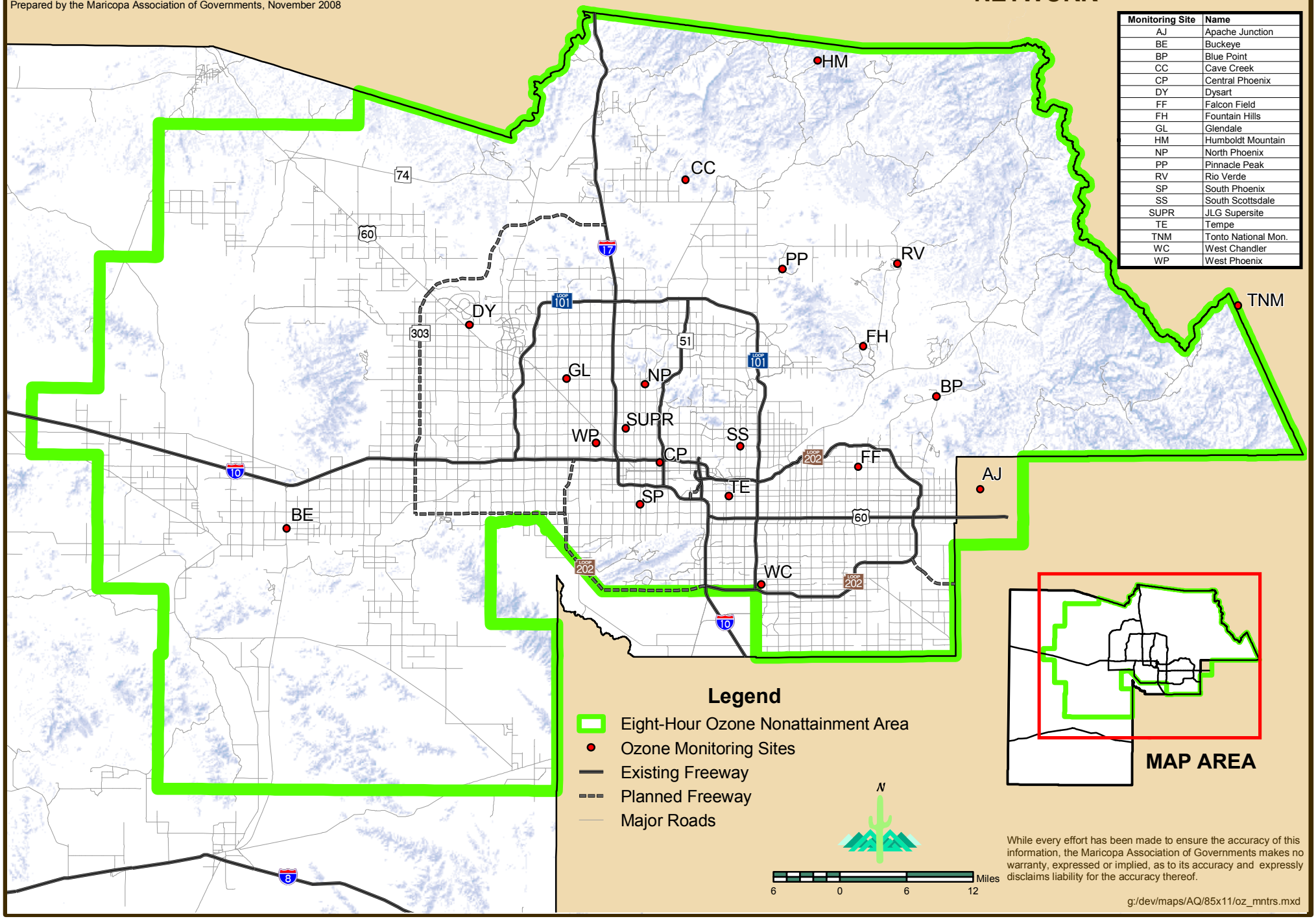
MARICOPA ASSOCIATION of GOVERNMENTS

Prepared by the Maricopa Association of Governments, November 2008

Figure 2-1

EIGHT-HOUR OZONE REGIONAL MONITORING NETWORK

Monitoring Site	Name
AJ	Apache Junction
BE	Buckeye
BP	Blue Point
CC	Cave Creek
CP	Central Phoenix
DY	Dysart
FF	Falcon Field
FH	Fountain Hills
GL	Glendale
HM	Humboldt Mountain
NP	North Phoenix
PP	Pinnacle Peak
RV	Rio Verde
SP	South Phoenix
SS	South Scottsdale
SUPR	JLG Supersite
TE	Tempe
TNM	Tonto National Mon.
WC	West Chandler
WP	West Phoenix



Legend

- Eight-Hour Ozone Nonattainment Area
- Ozone Monitoring Sites
- Existing Freeway
- Planned Freeway
- Major Roads

N

6 0 6 12 Miles

g:/dev/maps/AQ/85x11/oz_mntrs.mxd

Monitoring Results and Attainment of the Standard

The monitoring data presented in Table 2-5 verifies that the Maricopa nonattainment area attained the national eight-hour ozone standard of 0.08 ppm for the last four years, in accordance with the federal requirements of 40 CFR 50.10. For these years, data recovery rates for the monitors within the ozone monitoring network exceeded the 75 percent completeness requirements. In addition, all state and federal quality assurance procedures have been followed. Figure 2-2 illustrates the highest three-year average of the fourth-highest eight-hour ozone concentrations for monitors in the nonattainment area. In general, peak ozone concentrations in the nonattainment area have exhibited a downward trend over the last eight years.

Quality Assurance Program

Eight-hour ozone monitoring data for the Maricopa nonattainment area has been collected and quality-assured in accordance with 40 CFR, Part 58, Appendix A "Quality Assurance Requirements for SLAMS, SPMs, and PSD Air Monitoring" and EPA's "Quality Assurance Handbook for Air Pollution Measurement Systems, Volume II; Ambient Air Quality Monitoring Program". The data are recorded in the EPA Air Quality System and are available for public review through sources such as the EPA AirData website and air quality monitoring reports produced annually by the Maricopa County Air Quality Department and the Arizona Department of Environmental Quality.

APPROVAL OF THE OZONE NONATTAINMENT SIP ELEMENT FOR THE MARICOPA AREA

MAG submitted the Eight-Hour Ozone Plan for the Maricopa Nonattainment Area to EPA by June 15, 2007, as required by the Clean Air Act. In accordance with Section 110 of the Clean Air Act, a completeness finding on this Plan was deemed by operation of law, since a determination was not made by EPA within six months of receipt of the Plan.

The Eight-Hour Ozone Plan has not been approved by EPA under Section 110(k) of the Clean Air Act. However, approval of both the eight-hour ozone attainment and maintenance plans may occur concurrently with EPA's action to redesignate the area to attainment.

IMPROVEMENT IN AIR QUALITY DUE TO PERMANENT AND ENFORCEABLE EMISSION REDUCTIONS

According to the EPA memorandum, Procedures for Processing Requests to Redesignate Areas to Attainment, September 4, 1992, "The state must be able to reasonably attribute the improvement in air quality to emission reductions which are permanent and enforceable." This section is intended to demonstrate that the improved air quality in the Maricopa County nonattainment area has occurred as a result of permanent and enforceable emission reductions.

TABLE 2-5

EIGHT-HOUR OZONE MONITORING DATA SUMMARY
THREE-YEAR AVERAGE OF THE FOURTH-HIGH, 2005-2008[+]
(8-HOUR OZONE STANDARD: 0.08 PPM*)

Site	2003-2005 Avg. 4th High (PPM)	2004-2006 Avg. 4th High (PPM)	2005-2007 Avg. 4th High (PPM)	2006-2008 Avg. 4th High (PPM)[+]
Apache Junction	.069	.073	.076	.080
Blue Point	.080	.072	.067	.064
Buckeye[S]	N/A	.063	.065	.066
Cave Creek[S]	.080	.079	.079	.078
Central Phoenix	.076	.076	.075	.074
Dysart[S]	.068	.067	.067	.067
Falcon Field[S]	.075	.075	.076	.075
Fountain Hills	.082	.082	.082	.079
Glendale[S]	.079	.076	.075	.074
Humboldt Mountain[S]	.084	.081	.081	.078
JLG Supersite	.074	.074	.076	.076
North Phoenix	.083	.083	.082	.081
Pinnacle Peak	.078	.075	.078	.074
Rio Verde[S]	.081	.081	.083	.080
South Phoenix	.074	.072	.072	.072
South Scottsdale	.076	.076	.078	.077
Tempe[S]	.075	.075	.077	.077
Tonto National Monument[S]	.081	.080	.080	.078
West Chandler[S]	.074	.075	.076	.076
West Phoenix	.072	.074	.074	.078

[+] Preliminary data through September 30, 2008. Quality assurance of the data is in progress.

* Due to mathematical rounding, values $\geq$ .085 ppm are necessary to exceed the standard.

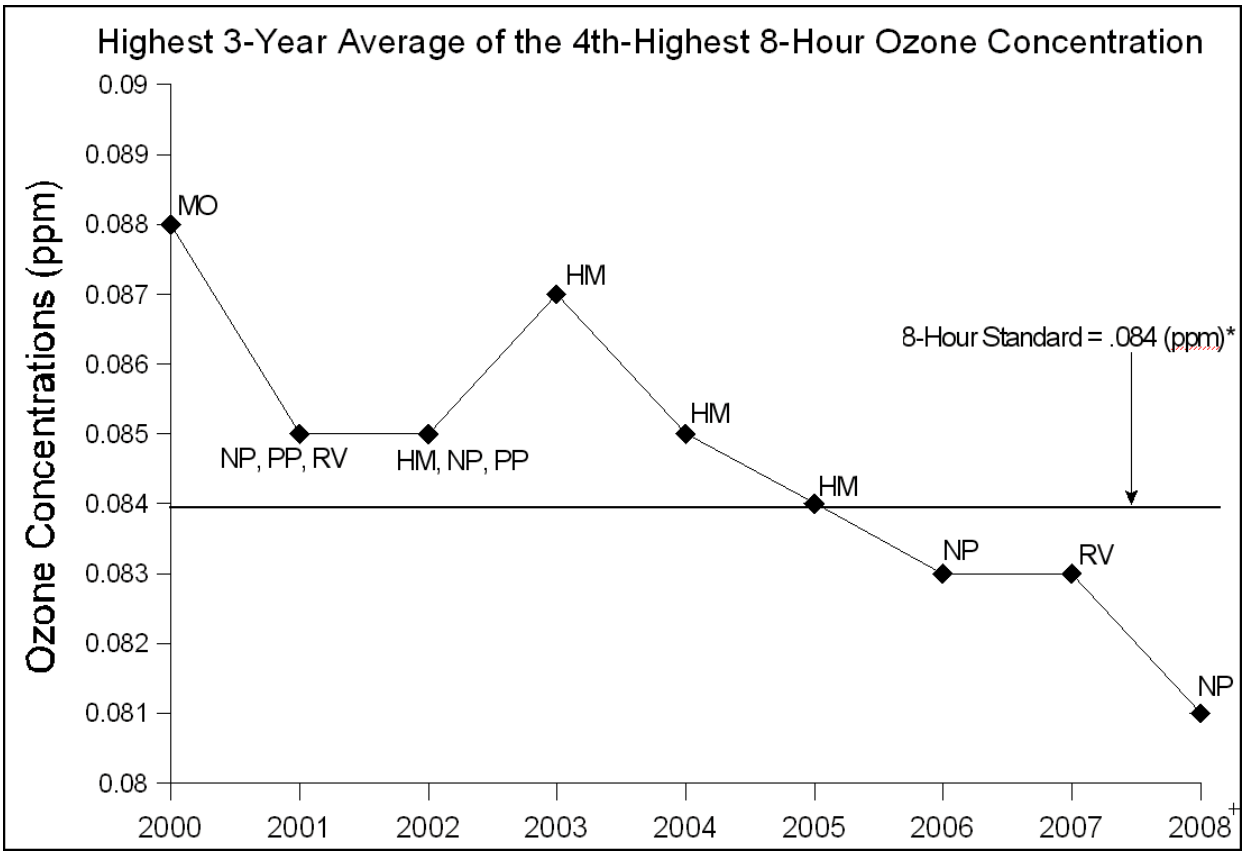
[S] Seasonal monitor operating from April 1 to November 1.

N/A-Data not available.

Sources: Environmental Protection Agency Air Quality System and Monitor Values Report; Arizona Department of Environmental Quality.

FIGURE 2-2

EIGHT-HOUR OZONE TRENDS
(2000-2008)



* Due to mathematical rounding, values ≥ .085 ppm are necessary to exceed the standard.
\+ Preliminary data through September 30, 2008. Quality assurance of the data is in progress.

Monitors Where the Highest 3-Year Average of the 4th-Highest
8-Hour Ozone Concentration Occurred

(HM) Humboldt Mountain
(MO) Mount Ord
(NP) North Phoenix
(PP) Pinnacle Peak
(RV) Rio Verde

Sources: Environmental Protection Agency Air Quality System and Monitor Values Report; Arizona Department of Environmental Quality.

As Figure 2-2 illustrates, there has been a general downward trend in ozone concentrations at monitors in the nonattainment area since 2000. The fourth-highest ozone levels decreased by about five percent between 2003 and 2008, at the same time population, employment and vehicle travel in the nonattainment area increased by more than fifteen percent.

Over time, numerous control measures have been implemented in the Maricopa area that have resulted in the decline in ozone concentrations. For example, the Environmental Protection Agency published a final rule on May 27, 1998 determining that the Maricopa nonattainment area has in place sufficient control measures to meet the 15 percent rate of progress requirement in the Clean Air Act. The Final Serious Area Ozone State Implementation Plan submitted in December 2000 also included Reasonably Available Control Technology (RACT) requirements for sources subject to RACT under the Clean Air Act. In addition, the Serious Area Carbon Monoxide Plan and Carbon Monoxide Redesignation Request and Maintenance Plan include measures which have reduced ozone.

The Eight-Hour Ozone Plan demonstrated, through modeling and supporting technical analyses, that the standard would be attained by June 15, 2009 (MAG, 2007). The ozone monitoring data shown earlier in this Chapter indicates that the nonattainment area has not violated the standard since 2004.

The general approach in the Eight Hour Ozone Maintenance Plan is to demonstrate maintenance of the eight-hour ozone standard through 2025 using emission reduction credit for committed measures in the Eight-Hour Ozone Plan. Four of these measures, Summer Fuel Reformulation, Phased-In Emission Test Cutpoints, One-Time Waiver from Vehicle Emissions Test, and Tougher Enforcement of Vehicle Registration and Emission Test Compliance, were approved by EPA in prior plans and programs. Numeric credit is also taken in the Maintenance Plan for Federal Nonroad Equipment Emissions Standards and Expansion of Area A Boundaries (HB 2538), which were committed contingency measures in the Eight-Hour Ozone Plan. A seventh maintenance measure, Ban Open Burning During Ozone Season, is a new ozone measure passed by the Arizona Legislature in June 2007.

The Maintenance Plan in Chapter Three documents, through modeling and supporting technical analyses, that the eight-hour ozone standard will continue to be maintained through 2025, despite substantial growth in population, employment and vehicle miles of travel expected between the baseline year of 2005 and the maintenance year of 2025. The impact of this growth on ozone precursor emissions will be offset by more stringent federal emission standards for light duty vehicles and nonroad equipment, as well as the committed State, County, and local measures in previously-approved plans.

The next section describes the committed measures that were used for numeric credit in modeling maintenance of the eight-hour ozone standard in 2025.

COMMITTED MEASURES USED FOR NUMERIC CREDIT IN THE MAINTENANCE DEMONSTRATION

The seven committed measures used for numeric credit in the modeling for the Maintenance Plan are described below. Table 3-2 in Chapter Three summarizes the emission reductions attributable to each of these committed maintenance measures in 2025. Additional details on the methodologies used to quantify the emission reduction credit for each measure are provided in Section IV-7-1 of the Technical Support Document for the Eight-Hour Ozone Redesignation Request and Maintenance Plan (TSD).

The following committed measures, which are permanent and enforceable, are anticipated to be in place through the maintenance year of 2025. Continued implementation of these measures, as well as the other committed measures in the aforementioned plans, will ensure that the ozone standard is met through 2025.

1. Summer Fuel Reformulation: California Phase 2 and Federal Phase II Reformulated Gasoline with 7 psi from May 1 through September 30

The Arizona Legislature passed H.B. 2307 in 1997 which contains requirements for the sale of gasoline from and after May 1, 1999 in Area A, subject to an appropriate waiver granted under Section 211 (c) (4) of the Clean Air Act, that meets the following fuel reformulation options:

- California Phase 2 Reformulated Gasoline, including alternative formulations allowed by the predictive model, as adopted by the California Air Resources Board pursuant to the California Code of Regulations, Title 13, Sections 2261 through 2262.7 and 2265, in effect on January 1, 1997, that meets the maximum 7.0 psi summertime vapor pressure requirements in A.R.S. Section 41-2083, Subsections D and F.

- Gasoline that meets the standards for Federal Phase II Reformulated Gasoline, as provided in 40 CFR Section 80.41, paragraphs (a) through (h), in effect on January 1, 1997, that meets the maximum 7.0 psi summertime vapor pressure requirement in A.R.S. Section 41-2083 Subsections D and F.

On February 10, 1998, the Environmental Protection Agency approved Arizona's cleaner burning gasoline (CBG) program into the State Implementation Plan. The program was implemented in two stages - from June to September 1998, gasoline sold in the area had to meet the standards similar to Federal Phase I Reformulated Gasoline or California's Phase 2 Reformulated Gasoline. Then, beginning May 1, 1999, all gas sold in the area had to meet standards similar to Federal Phase II or California's Phase 2 Reformulated Gasoline.

Arizona's CBG Program was included in the 1998 metropolitan Phoenix Ozone 15 Percent Rate of Progress Federal Implementation Plan as a committed control measure for emissions reduction credit. On July 6, 1999, EPA finalized a rule revising the federal plan as it related to the CBG Program.

On April 28, 2000, Senate Bill 1504 was signed into law by the Governor of Arizona. The law revised A.R.S. Section 41-2124 by eliminating the minimum oxygenate requirement for summertime gasoline in Maricopa County. Because of the cost and difficulty of blending ethanol in CBG and meeting the 7.0 psi Reid Vapor Pressure standard, methyl tertiary butyl ether (MTBE) had been the primary oxygenate used in Arizona's summertime CBG. In addition, A.R.S. Section 41-2122. E. prohibited the use of MTBE in gasoline beginning on January 1, 2005.

On September 29, 2003, the Environmental Protection Agency published a notice proposing to approve revisions to the Arizona Clean Burning Gasoline Program currently approved in the State Implementation Plan. The revisions replace Arizona's interim CBG program with a permanent program, amend the wintertime CBG program to limit the types of gasoline that may be supplied, and remove the minimum oxygen requirement for summertime gasoline. On January 26, 2004, the EPA Administrator signed the final approval notice for the revisions to the Arizona Clean Burning Gasoline Program. The final notice was published in the Federal Register on March 4, 2004, effective on April 5, 2004.

This measure is a committed measure in the Serious Area Ozone SIP, the One-Hour Ozone Maintenance Plan, and the Eight-Hour Ozone Plan. In the Eight-Hour Ozone Maintenance Plan, this measure reduces anthropogenic VOC emissions by 0.5 percent and increases anthropogenic NOx emissions by 0.1 percent in 2025.

2. Phased-In Emission Test Cutpoints

The Arizona Vehicle Inspection Maintenance Program was established in 1976 to promote the clean operation of motor vehicles by controlling vehicle exhaust emissions. The program is operated by the Arizona Department of Environmental Quality and contains the provisions listed in Section 182(c)(3) of the Clean Air Act for an Enhanced Vehicle Inspection and Maintenance Program.

The Vehicle Emissions Inspection Maintenance Program was significantly enhanced and strengthened by the Arizona Legislature in 1993 (H.B. 2001). The Legislature established a biennial, transient loaded (I/M 240) emissions test for gasoline powered vehicles model year 1981 or newer with a gross vehicle weight of up to 8,500 pounds, beginning January 1, 1995.

In 1993, the Arizona Legislature passed H.B. 2001 which increased the repair threshold limits for gasoline powered vehicles in order to be eligible for a waiver through the Vehicle Emissions Inspection Maintenance Program. The repair limits were increased in the following manner: 1967-1974 from $50 to $100; 1975-1980 from $200 to $300; and 1981

and newer from $300 to $450. The bill also increased the repair threshold limits from $300 to $500 for diesel powered vehicles with tandem axles or a gross vehicle weight in excess of 26,000 pounds.

The Arizona Legislature passed H.B. 2237 in 1997 which contained an appropriation of $120,000 from the State General Fund to the Arizona Department of Environmental Quality to develop and implement an alternative test protocol to reduce the false failure rates associated with the more stringent pass-fail standards for the Vehicle Emissions Testing Program (Section 19 of H.B. 2237).

In addition, the Arizona Department of Environmental Quality was to implement Interim Test Cutpoints for the Vehicle Emissions Inspection Program until issues were resolved with the final test cutpoints for the I/M 240 Program. The Interim Cutpoints were selected to achieve the following failure rates in three vehicle class categories (Light Duty Gasoline Vehicles, Light Duty Gasoline Trucks 1, and Light Duty Gasoline Trucks 2: 50 percent for Model Years 1981-85; 25 percent for 1986 to 1989 model years, and 10 percent for Model Years 1990-93).

In August 2002, EPA proposed approval of the Arizona I/M Program and signed the final approval notice on October 31, 2002. The final approval notice was published in the Federal Register on January 22, 2003.

This measure is a committed measure in the Serious Area Carbon Monoxide Plan, the Carbon Monoxide Maintenance Plan, the One-Hour Ozone Maintenance Plan, and the Eight-Hour Ozone Plan. In the Eight-Hour Ozone Maintenance Plan, this measure reduces anthropogenic VOC and NOx emissions by less than 0.1 percent in 2025.

3. One-Time Waiver from Vehicle Emissions Test

The Arizona Legislature passed S.B. 1002 in 1996 which limits the issuance of a waiver for failure to comply with the emission testing requirements to one-time only beginning January 1, 1997 (A.R.S. 49-542 D). This measure is a committed measure in the Serious Area Carbon Monoxide Plan, the Carbon Monoxide Maintenance Plan, the One-Hour Ozone Maintenance Plan, and the Eight-Hour Ozone Plan. In the Eight-Hour Ozone Maintenance plan, this measure reduces anthropogenic VOC emissions by less than 0.1 percent and anthropogenic NOx emissions by 0.1 percent in 2025.

4. Tougher Enforcement of Vehicle Registration and Emissions Test Compliance

The Motor Vehicle Division (MVD) of the Arizona Department of Transportation (ADOT) has instituted a comprehensive vehicle registration enforcement program. Three key elements of the new program are a Registration Enforcement Team, a Registration Enforcement Tracking System, and a New Resident Tracking Program. Through public participation, consistent policy and procedure application, and new tracking methods, MVD will enforce the Arizona registration laws to ensure vehicles in question are registered properly. This

will be an ongoing effort.

Another phase of the Program is an initiative to coordinate ADOT efforts with other law enforcement agencies to assist MVD personnel in enforcing registration compliance. Other initiatives include a system user agreement between MVD and the City Courts to utilize information in conjunction with registration compliance and discussions with U.S. West (now known as Qwest) for obtaining information relating to new connect customers.

The Arizona Legislature passed S.B. 1427 in 1998 which requires school districts and special districts in Area A to prohibit parking in employee parking lots by employees who have not complied with emissions testing requirements. Cities, towns, and counties in Area A and Area B are currently subject to this provision (A.R.S. 49-552).

In 1999, the Arizona Legislature passed H.B. 2254 which requires each vehicle that is owned by the United States government and that is domiciled in this state for more than ninety consecutive days and each vehicle that is owned by a state or political subdivision of this state to comply with A.R.S. 49-542.

Collectively, the provisions in H.B. 2254 that apply to Tougher Enforcement of Vehicle Registration and Emissions Test Compliance include A.R.S. 49-557 and 49-541.01 D. and E.

This measure is a committed measure in the Serious Area Carbon Monoxide Plan, the Carbon Monoxide Maintenance Plan, the One-Hour Ozone Maintenance Plan, and the Eight-Hour Ozone Plan. In the Eight-Hour Ozone Maintenance Plan, this measure reduces anthropogenic VOC emissions by less than 0.1 percent and anthropogenic NOx emissions by 0.1 percent in 2025.

5. Federal Nonroad Equipment Emissions Standards

In 1998, EPA issued a final rule setting more stringent Tier 2 and Tier 3 emission standards for new diesel nonroad equipment (EPA, 1998). The Tier 2 program phased in more stringent standards for all equipment types between 2001 and 2006. The Tier 3 program imposed even more stringent standards for 50 to 750 horsepower (hp) engines, beginning in 2005 through 2008.

In 2004, EPA issued the Clean Air Diesel - Tier 4 Final Rule that requires manufacturers to produce nonroad engines with advanced emission-control technologies that will reduce emissions by an additional 90 percent or more (EPA, 2004). The Tier 4 standards apply to nonroad engines with less than 25 hp, beginning in 2008. The Tier 4 standards for larger engines will be phased in between 2011 and 2015, depending upon the size and type of engine.

This measure was a committed contingency measure in the Eight-Hour Ozone Plan. In the Eight-Hour Ozone Maintenance Plan, this federally-mandated measure is expected to

reduce anthropogenic VOC emissions by 7.9 percent and anthropogenic NOx emissions by 16.5 percent in 2025.

6. Expansion of Area A Boundaries (HB 2538)

The Arizona Legislature passed H.B. 2538 in 2001 which expands the boundaries of Area A. Previously, the Area A boundaries followed the boundaries defined by S.B. 1427, which was passed by the Arizona Legislature in 1998. Specifically, H.B. 2538 expands the boundaries of Area A past those described in S.B. 1427, adding additional portions of Maricopa County west of Goodyear and Peoria and a small piece of land on the north side of Lake Pleasant. The implementation of air quality measures in the areas described in H.B. 2538 began on January 1, 2002, except for public sector alternative fuel requirements that are phased in over a seven year period.

“Area A” means the area delineated as follows:

(a) In Maricopa County:
Township 8 North, Range 2 East and Range 3 East
Township 7 North, Range 2 West Through Range 5 East
Township 6 North, Range 5 West Through Range 6 East
Township 5 North, Range 5 West Through Range 7 East
Township 4 North, Range 5 West Through Range 8 East
Township 3 North, Range 5 West Through Range 8 East
Township 2 North, Range 5 West Through Range 8 East
Township 1 North, Range 5 West Through Range 7 East
Township 1 South, Range 5 West Through Range 7 East
Township 2 South, Range 5 West Through Range 7 East
Township 3 South, Range 5 West Through Range 1 East
Township 4 South, Range 5 West Through Range 1 East

(b) In Pinal County:
Township 1 North, Range 8 East And Range 9 East
Township 1 South, Range 8 East And Range 9 East
Township 2 South, Range 8 East And Range 9 East
Township 3 South, Range 7 East Through Range 9 East

(c) In Yavapai County:
Township 7 North, Range 1 East And Range 1 West Through Range 2 West
Township 6 North, Range 1 East And Range 1 West

It is important to note that under A.R.S. 49-406 (A), MAG has statutory authority to conduct nonattainment area planning within Maricopa County. However, MAG does not have air quality planning authority for either Pinal or Yavapai Counties.

Under A.R.S. 49-406 (K), the Arizona Department of Environmental Quality has air quality

planning authority to adopt SIP measures in those portions of Area A in Pinal and Yavapai Counties where MAG does not have authority. For ozone, the committed measures include the Vehicle Emissions Inspection Program, Clean Burning Gasoline Program, Stage II Vapor Recovery Program, Trip Reduction Program, Voluntary Vehicle Repair and Retrofit Program, and Traffic Signal Synchronization. For carbon monoxide, the committed measures include the Vehicle Emissions Inspection Program, Clean Burning Gasoline Program, Trip Reduction Program, Clean Burning Fireplace Construction and Conversion Program, No Burn Days and Public Participation Programs, and Voluntary Vehicle Repair and Retrofit Program. MAG anticipates that ADEQ will also provide notice and public hearing on this plan, perhaps jointly with MAG, prior to ADEQ's adoption of the plan under A.R.S section 49-404 and ADEQ's subsequent submittal of the plan to EPA for approval. Emission reduction credit for this measure applies only to the area between the Area A boundary established by S.B. 1427 and the Area A boundary established by H.B. 2538.

The Area A boundaries defined by H.B. 2538 are shown in Figure 1-1. The expansion of Area A by H.B. 2538 was a contingency measure in the Eight-Hour Ozone Plan. In the Eight-Hour Ozone Maintenance Plan, this measure reduces anthropogenic VOC emissions by less than 0.1 percent and anthropogenic NOx emissions by 0.1 percent in 2025.

7. Ban on Open Burning During the Ozone Season

This new ozone measure was passed by the Arizona Legislature in June 2007 as part of S.B. 1552. S.B 1552 states that "from May 1 to September 1 each year, it is unlawful for any person to ignite, cause to be ignited, permit to be ignited or suffer, allow or maintain any open outdoor fire in Area A as defined in Section 49-541". Credit for this measure was not included in the Eight-Hour Ozone Plan, since S.B. 1552 was passed by the Legislature and signed into law after the modeling and documentation of the Eight-Hour Ozone Plan were completed and the plan had been submitted to EPA by the federal deadline of June 15, 2007. In the Eight-Hour Ozone Maintenance Plan, this measure reduces anthropogenic VOC and NOx emissions by less than 0.1 percent in 2025.

CLEAN AIR ACT SECTION 110 AND PART D REQUIREMENTS

Before an area can be redesignated to attainment, requirements of Section 110 and Part D of the Clean Air Act must be met. The provisions of Section 110(a)(2) and Part D are required as part of the State Implementation Plan to bring the Maricopa County nonattainment area into attainment, and have been addressed in plans already approved by EPA. By approving these prior plans, EPA has determined that all applicable provisions of Section 110 and Part D have been met. This section summarizes the applicable requirements of Section 110 and Part D and provides references from the previously-approved plans that address these requirements.

Section 110(a)(2) addresses general requirements for a State Implementation Plan (SIP). The Eight-Hour Ozone Redesignation Request and Maintenance Plan for the Maricopa Nonattainment Area will be a revision to the Arizona SIP.

A. Include enforceable measures and schedules necessary to show compliance (1)
B. Monitor and compile data on ambient air quality (2)
C. Provide a program to enforce measures in (A) and regulate stationary sources (1),(4)
D. Prohibit sources from emitting pollutants that would contribute significantly to nonattainment, interfere with maintenance of the standard, or interfere with Prevention of Significant Deterioration (PSD) or visibility in other states (3)
E. Provide assurances that there are adequate resources to implement the plan, nothing in the SIP is otherwise prohibited by law, and the State has responsibility for ensuring adequate implementation (1)
F. Stationary source emissions monitoring and reporting (4)
G. Provide for emergency powers authority (5)
H. Provide for the revisions to the plan (6)
I. Meet the applicable requirements of Part D for nonattainment areas (10)
J. Meet the requirements of Section 121 (consultation) (9); Section 127 (public notification) (7), and part C (PSD and visibility) (3),(4)
K. Perform air quality modeling (8)
L. Permitting fees for major stationary sources (4)
M. Consultation and participation by local political subdivisions affected by the SIP (9)

The numbers following each SIP requirement listed above refer to the subsection below that describes how the requirements of Section 110(a)(2) are met by this Plan.

(1) Enforcement, Adequate Resources, and Responsibility for Adequate Implementation

The Eight-Hour Ozone Redesignation Request and Maintenance Plan relies on State, County and local commitments to implement control measures in the Serious Area Carbon Monoxide Plan (MAG, 2001), the One-Hour Ozone Maintenance Plan (MAG, 2004), and the Serious Area Ozone SIP (ADEQ, 2000). All of these plans have been approved by EPA. Sections 110(a)(2)(A),(C), and (E), concerning plan enforcement and implementation requirements, are addressed in Chapter Eight (page 8-146) and Chapter Eleven (page 11-1) of the Serious Area Carbon Monoxide Plan. In order to comply with these sections, a State law was passed in 1992 which provides an approach for assurances that State and local committed measures will be adequately implemented (A.R.S. Section 49-406 I. and J.).

Regarding committed measures, A.R.S. Section 49-406 G. (passed by the Legislature in 1992) requires that each agency which commits to implement any control measure contained in the State Implementation Plan must describe the commitment in a resolution. The resolution must be adopted by the appropriate governing body of the agency. State law also requires the entity to specify the following information in the resolutions: (1) its authority for implementing the limitation or measure as provided in statute, ordinance, or

rule; (2) a program for the enforcement of the limitation or measure; and (3) the level of personnel and funding allocated to the implementation of the measure.

Chapter Eleven of the Serious Area Carbon Monoxide Plan includes resolutions from the MAG member agencies and other implementing entities. The resolutions indicate specific commitments to implement various control strategies. Generally, the authorities of cities and towns to implement the types of measures that they have committed to in their respective resolutions are provided under A.R.S. § 9-240 Powers of Common Council. The general authorities of the County to implement the measures in the commitments are provided under A.R.S. § 11-251 and A.R.S. § 49-478. Copies of these local and county government authorities are included in Chapter Eleven of the Revised Serious Area Carbon Monoxide Plan.

If any person (includes State, County, local governments, regional agencies, and other entities) fails to implement a committed measure, the County would file an action in Superior Court to have the Court order that the measure be implemented. Likewise, the Director of the Arizona Department of Environmental Quality will backstop the County if it fails to implement a committed measure or if the County fails to backstop the local governments and regional agencies (see Appendix C, Exhibit 2, Serious Area Carbon Monoxide Plan).

(2) Monitoring and Compiling of Data on Ambient Air Quality

Section 110(a)(2)(B) establishes the requirement to monitor, compile, and analyze ambient air quality data. Appendix A, Exhibit 2 of the Serious Area Carbon Monoxide Plan contains the 1992 Memorandum of Agreement for Air Quality Planning (MAG, 2001). This agreement identifies Maricopa County and the Arizona Department of Environmental Quality as having the primary roles for air quality monitoring, including special purpose air quality and meteorological monitoring for plan development.

Chapter Four of the Serious Area Carbon Monoxide Plan (page 4-5) provides additional evidence that the monitoring requirements for the region are being met through the efforts of Maricopa County and the Arizona Department of Environmental Quality. Arizona Statutes 49-406. Nonattainment area plan and 49-424. Duties of Department provide the regulatory basis for air quality monitoring in the State and any nonattainment areas. Additional information on the quality assurance program for the ozone monitoring network operated in the Maricopa nonattainment area is provided below.

Eight-hour ozone monitoring data for the Maricopa nonattainment area has been collected and quality-assured in accordance with 40 CFR, Part 58, Appendix A “Quality Assurance Requirements for SLAMS, SPMs, and PSD Air Monitoring” and EPA’s “Quality Assurance Handbook for Air Pollution Measurement Systems, Volume II; Ambient Air Quality Monitoring Program”. The data are recorded in the EPA Air Quality System and are available for public review through sources such as the EPA AirData website and air quality monitoring reports produced annually by the Maricopa County Air Quality Department and

the Arizona Department of Environmental Quality.

(3) Provisions to Prohibit Sources from Impacting Air Quality in Other States

Section 110(a)(2)(D) requires that a SIP contain adequate provisions prohibiting any source or other type of emissions activity within the State from emitting any air pollutant in amounts which will contribute significantly to nonattainment in, or interfere with maintenance by, any other State with respect to any such national primary or secondary ambient air quality standard; or interfere with measures required to be included in the applicable implementation plan for any other State under Part C to prevent significant deterioration of air quality or to protect visibility.

Visibility, as defined in Part C of the Clean Air Act, is currently addressed through a Federal Implementation Plan for the State of Arizona. The lack of proximity to another state makes it unlikely that ozone emissions are transported from the Maricopa nonattainment area to another state.

(4) Preconstruction Review for All New and Modified Stationary Sources; Stationary Source Emissions Monitoring; and Permitting Fees for Major Stationary Sources

The requirements of Sections 110(a)(2)(C), (F), and (L), concerning preconstruction review, emissions monitoring, and permitting fees for stationary sources, are addressed by the State in Title 49. Article 2. State Air Pollution Control, and Article 3. County Air Pollution Control, of the Arizona Revised Statutes. Compliance with this requirement is the responsibility of the Arizona Department of Environmental Quality or applicable county agency. Appendix A, Exhibit 2 of the Serious Area Carbon Monoxide Plan contains the 1992 Memorandum of Agreement for Air Quality Planning (MAG, 2001). This agreement identifies Maricopa County as having the lead role for stationary source emissions control.

Following adoption by the State, Maricopa County adopted new source review regulations designed to prevent significant deterioration of air quality, patterned after the State regulations. The Maricopa County Regulations contain requirements for obtaining installation permits for new major sources located in nonattainment, attainment, or unclassifiable areas. Both the State and Maricopa County new source review regulations are currently in effect.

The Maricopa County Air Pollution Control Regulations contain the regulations that constitute the legal basis for control of air pollution sources in Maricopa County, Arizona. They are adopted to implement the policy set forth in Title 49 of the Arizona Revised Statutes and to fulfill the State's responsibilities under the federal Clean Air Act and its amendments to provide a legally enforceable State Implementation Plan for the attainment and maintenance of the National Ambient Air Quality Standards.

Applicable Maricopa County Air Pollution Control Regulations include; Rule 240 - Permits for New Major Sources and Major Modifications to Existing Major Sources, Rule 241 -

Permits for New Sources and Modifications to Existing Major Sources, and Rule 245 - Continuous Source Emission Monitoring.

(5) Provide for Authority Comparable to that in Section 303 for Emergency Powers

Section 110(a)(2)(G) addresses the authority for emergency powers. Under Section 303 of the Clean Air Act, upon receipt of evidence that a pollution source or combination of sources (including moving sources) is presenting an imminent and substantial endangerment to public health or welfare, or the environment, the EPA Administrator may bring suit on behalf of the United States in the appropriate United States district court to immediately restrain any person causing or contributing to the alleged pollution to stop the emission of air pollutants causing or contributing to such pollution or to take such other action as may be necessary. If it is not practicable to assure prompt protection of public health or welfare or the environment by commencement of such a civil action, the Administrator may issue such orders as may be necessary to protect public health or welfare or the environment.

Emergency powers for the State of Arizona are addressed under A.R.S. 49-465. Imminent and substantial endangerment; 49-462.07 Violation; injunctive relief; and 49-465. Air Pollution Emergency.

(6) Provide for Plan Revisions to Account for Changes to the NAAQS or When a Plan is Found Substantially Inadequate to Attain a Standard

Section 110(a)(2)(H) requires a plan revision to take into account revisions of such national primary or secondary ambient air quality standard, or the availability of improved or more expeditious methods of attaining such standard, and whenever the Administrator finds that the plan is substantially inadequate to attain the national ambient air quality standard.

A.R.S. 49-404. State Implementation Plan and 49-406. Nonattainment Area Plan provisions provide for State, county, and local agencies to revise the SIP to account for changes to air quality standards or if a plan is found to be inadequate. The applicable documentation for making plan revisions can be found in the Serious Area Carbon Monoxide Plan, Appendix A, Exhibit 2, 1992 Memorandum of Agreement for Air Quality Planning (MAG, 2001).

(7) Meet the Applicable Requirements of Section 127 (Relating to Public Notification)

Section 110(a)(2)(J) requires a plan revision to meet the applicable requirements of Section 127 relating to Public Notification. Public notification procedures followed for the Serious Area Carbon Monoxide Plan are documented in the section, Public Participation in the Preparation of the MAG 1999 Serious Area Carbon Monoxide Plan on page 10-3 (MAG, 2001).

(8) Air Quality Modeling

Section 110(a)(2)(K) provides for the performance of such air quality modeling as the Administrator may prescribe for the purpose of predicting the effect on ambient air quality of any emissions of any air pollutant for which the Administrator has established a national ambient air quality standard, and the submission, upon request, of data related to such air quality modeling to the Administrator.

In the Eight-Hour Ozone Plan, MAG performed air quality modeling with EPA-approved models to demonstrate attainment of the standard by June 15, 2009 (MAG, 2007). The modeling and supplemental analyses that support the modeling results are described in the Technical Support Document in Appendix A, Exhibit 2, of the 2007 Eight-Hour Ozone Plan.

The Modeling Protocol in Support of an Eight-Hour Ozone Redesignation Request and Maintenance Plan describes the modeling to be performed for the maintenance demonstration. For details, see Appendix I-i of the Technical Support Document for Ozone Modeling in Support of the Eight-Hour Ozone Redesignation Request and Maintenance Plan for the Maricopa Nonattainment Area (TSD).

Chapter Three of this Plan describes the air quality modeling for the 2025 maintenance demonstration. Section IV of the TSD identifies the key inputs to the ozone modeling, including methods and assumptions used to develop the baseline and future year emission inventories and quantify the emission reduction credit for the maintenance measures. Section V of the TSD provides the results of the photochemical grid modeling and the unmonitored area analysis, both of which support the finding that the eight-hour ozone standard will continue to be attained through 2025.

(9) Consultation and Participation by Local Political Subdivisions Affected by the SIP

Evidence for consultation and participation by local political subdivisions affected by the SIP can be found in Chapter Ten, Public Participation in the Serious Area Carbon Monoxide Plan on page 10-1 (MAG, 2001). The decision-making structure of the Maricopa Association of Governments includes twenty-five cities and towns; the Fort McDowell, Salt River Pima-Maricopa, and Gila River Indian Communities, Maricopa County, and the Arizona Department of Transportation.

Appendix A, Exhibit 2 -1992 Memorandum of Agreement for Air Quality Planning, in the Serious Area Carbon Monoxide Plan details the consultation and participation process used in developing the air quality plans.

(10) Meet the Applicable Requirements of Part D

Part D, Subpart 1, Section 172, of the Clean Air Act specifies the Nonattainment Plan provisions applicable to the Eight-Hour Ozone Redesignation Request and Maintenance Plan. The Plan meets each of the provisions as discussed below.

A. Implement all reasonably available control measures as expeditiously as practicable

In accordance with Section 172(c)(1), the state is required to submit a revision that implements reasonably available control measures (RACM) as expeditiously as practicable, including such reductions as may be obtained through the adoption, at a minimum, of RACT. Since the Maricopa nonattainment area is designated as a subpart 1 area for ozone, and demonstrates attainment by July 15, 2009, RACT is deemed to be met with control requirements associated with a demonstration that the NAAQS is attained as expeditiously as practicable (70FR71612, 11/29/2005, Section IV.G.1). Under the anti-backsliding provisions of 40 CFR 51.905 for areas designated Serious nonattainment for the one-hour ozone standard at the time of designation for the eight-hour standard, the state remained subject to the obligations to implement RACT for the categories of sources identified under Sections 182(a)(2)(A) and (b)(2). On June 14, 2005, EPA approved the One-Hour Ozone Redesignation Request and Maintenance Plan for the Maricopa County Nonattainment Area, including the RACT demonstration under Sections 182(a)(2)(A) and (b)(2) (MAG, 2004). NOx RACT was not required in the One-Hour Ozone Maintenance Plan, because EPA approved a NOx exemption petition for the nonattainment area on April 19, 1995. The source categories subject to RACT, in accordance with Section 172(c)(1) and 40 CFR 51.905, are summarized in Table 2-6.

B. Plans shall require reasonable further progress

In Part D of the Clean Air Act, Section 171 indicates that the term “Reasonable Further Progress” means such “annual incremental reductions in emissions of the relevant air pollutant as are required by this part or may reasonably be required by the Administrator for the purpose of ensuring attainment of the applicable national ambient air quality standard by the applicable date.” Reasonable further progress is addressed in Chapter Five of the Eight-Hour Ozone Plan (MAG, 2007).

C. Plans shall include a comprehensive, accurate, current inventory of actual emissions from all sources of the relevant pollutant or pollutants in the area and periodic revisions

The Clean Air Act requires a comprehensive, accurate, and current inventory of actual emissions from all sources. On April 1, 1993, the 1990 base year emission inventory for the Maricopa County ozone nonattainment area was submitted to EPA. Full approval of the 1990 inventory was effective on June 26, 1998. The 1996 base year ozone inventory was submitted as part of the Final Serious Area Ozone SIP in Appendix E.

The 1999 Periodic Ozone Emissions Inventory for the Maricopa County Nonattainment Area was included in the One-Hour Ozone Redesignation Request and Maintenance Plan as Appendix A, Exhibit 1. The 1999 inventory was submitted to EPA in August 2002.

The 2002 Periodic Emissions Inventory of Ozone Precursors for the Maricopa County, Arizona, Nonattainment Area was included in Appendix A, Exhibit 1, of the Eight-Hour

TABLE 2-6
MARICOPA COUNTY VOC RACT RULES AND SIP STATUS

CONTROL TECHNIQUES GUIDELINES

Rule	Adoption	Revisions & Approvals
MC Rule 350	July 13, 1988	Revised: April 6, 1992; Approved: September 5, 1995 (60 FR 46024)
Rule 351	February 15, 1995	Approved: February 9, 1998 (63 FR 6489)
Rule 350-Gasoline Bulk Plants	July 13, 1988	Revised: April 6, 1992; Approved: September 5, 1995 (60 FR 46024)
Rule 353-Service Stations-Stage I	July 13, 1988	Revised: April 6, 1992; Approved: February 1, 1996 (61 FR 3578)
Rule 350-Fixed Roof Petroleum Tanks	July 13, 1988	Revised: April 6, 1992; Approved: September 5, 1995 (60 FR 46024)
Miscellaneous Refinery Sources	Negative Declaration	Submitted: December 14, 2000; Approved: August 26, 2002 (67 FR 54741)
Rule 340-Cutback Asphalt	July 13, 1988	Revised: June 22, 1992 and September 21, 1992; Approved: February 1, 1996 (61 FR 3578)
Rule 331-Solvent Metal Cleaning	July 13, 1988	Revised: June 22, 1992, June 19, 1996, and April 21, 2004; Approved: February 1, 1996 (61 FR 3578), February 9, 1998 (63 FR 6489), and December 21, 2004 (69 FR 76417)
Surface Coating Of:		
Rule 336-Cans	July 13, 1988	Revised: September 21, 1992, June 19, 1996, and April 7, 1999; Approved: September 20, 1999 (64 FR 50759)
Rule 336-Metal Coils	July 13, 1988	Revised: September 21, 1992, June 19, 1996, and April 7, 1999; Approved: September 20, 1999 (64 FR 50759)
Rule 336-Fabrics	July 13, 1988	Revised: September 21, 1992, June 19, 1996, and April 7, 1999; Approved: September 20, 1999 (64 FR 50759)
Rule 336-Paper Products	July 13, 1988	Revised: September 21, 1992, June 19, 1996, and April 7, 1999; Approved: September 20, 1999 (64 FR 50759)

TABLE 2-6
MARICOPA COUNTY VOC RACT RULES AND SIP STATUS (cont.)

CONTROL TECHNIQUES GUIDELINES

Rule	Adoption	Revisions & Approvals
Automobile & Light Duty Trucks	Negative Declaration	Submitted: December 14, 2000; Approved: August 26, 2002 (67 FR 54741)
Rule 336-Metal Furniture	July 13, 1988	Revised: September 21, 1992, June 19, 1996, and April 7, 1999; Approved: September 20, 1999 (64 FR 50759)
Magnetic Wire	Negative Declaration	Submitted: December 14, 2000; Approved: August 26, 2002 (67 FR 54741)
Rule 336-Large Appliances	July 13, 1988	Revised: September 21, 1992, June 19, 1996, and April 7, 1999; Approved: September 20, 1999 (64 FR 50759)
Leaks from Petroleum Refineries	Negative Declaration	Submitted: December 14, 2000; Approved: August 26, 2002 (67 FR 54741)
Rule 336-Miscellaneous Metal Parts Surface Coating	July 13, 1988	Revised: September 21, 1992, June 19, 1996, and April 7, 1999; Approved: September 20, 1999 (64 FR 50759)
Surface Coating of Flat Wood Paneling	Negative Declaration	Submitted: December 14, 2000; Approved: August 26, 2002 (67 FR 54741)
Synthetic Pharmaceutical Manufacture	Negative Declaration	Submitted: December 14, 2000; Approved: August 26, 2002 (67 FR 54741)
Rubber Tire Manufacture	Negative Declaration	Submitted: December 14, 2000; Approved: August 26, 2002 (67 FR 54741)
Rule 350-External Floating Roof Petroleum Tanks	July 13, 1988	Revised: April 6, 1992; Approved: September 5, 1995 (60 FR 46024)
Rule 337-Graphic Arts	November 20, 1996	Submitted: February 26, 1997; Approved: February 8, 1998 (63 FR 6489)
Perchloroethylene Dry Cleaning		Perchloroethylene was delisted as a VOC by EPA, effective March 8, 1996 (61 FR 4588)

TABLE 2-6
MARICOPA COUNTY VOC RACT RULES AND SIP STATUS (cont.)

CONTROL TECHNIQUES GUIDELINES

Rule	Adoption	Revisions & Approvals
Rule 352-Gasoline Truck Leaks and Vapor Collection	November 16, 1992	Submitted: February 4, 1993; Approved: September 5, 1995 (60 FR 46024)
Manufacture of High-Density Polyethylene Polypropylene, and Polystyrene Resins	Negative Declaration	Submitted: December 14, 2000; Approved: August 26, 2002 (67 FR 54741)
Fugitive Emissions from Synthetic Organic Chemical, Polymer, and Resin Manufacturing Equipment	Negative Declaration	Submitted: December 14, 2000; Approved: August 26, 2002 (67 FR 54741)
Rule 333-Large Petroleum Dry Cleaners	June 19, 1996	Submitted: February 26, 1997; Approved: February 9, 1998 (63 FR 6489)
Air Oxidation Processes-Synthetic Organic Chemical Manufacturing Industries	Negative Declaration	Submitted: December 14, 2000; Approved: August 26, 2002 (67 FR 54741)
Equipment Leaks from Natural Gas/Gasoline Processing Plants	Negative Declaration	Submitted: December 14, 2000; Approved: August 26, 2002 (67 FR 54741)
Synthetic Organic Chemical Manufacturing Industries (SOCMI)-Distillation and Reactor Processes	Negative Declaration	Submitted: December 14, 2000; Approved: August 26, 2002 (67 FR 54741)
Rule 350- Volatile Organic Liquid Storage	July 13, 1988	Revised: April 6, 1992; Approved: September 5, 1995 (60 FR 46024)
SOCMI Batch Processes	Negative Declaration	Submitted: December 14, 2000; Approved: August 26, 2002 (67 FR 54741)
Industrial Wastewater	Negative Declaration	Submitted: December 14, 2000; Approved: August 26, 2002 (67 FR 54741)
Rule 336-Plastic Parts Coating (for business machines and automobiles)	July 13, 1988	Revised: September 21, 1992, June 19, 1996, and April 7, 1999; Approved: September 20, 1999 (64 FR 50759)

TABLE 2-6
MARICOPA COUNTY VOC RACT RULES AND SIP STATUS (cont.)

CONTROL TECHNIQUES GUIDELINES

Rule	Adoption	Revisions & Approvals
Rule 331-Cleaning Solvents	July 13, 1988	Revised: June 22, 1992, June 19, 1996, and April 21, 2004; Approved: February 1, 1996 (61 FR 3578), February 9, 1998 (63 FR 6489), and December 21, 2004 (69 FR 76417)
Rule 337-Offset Lithography	November 20, 1996	Submitted: February 26, 1997; Approved: February 9, 1998 (63 FR 6489)
Shipbuilding and Ship Repair Coatings	Negative Declaration	Submitted: December 14, 2000; Approved: August 26, 2002 (67 FR 54741)
Rule 342-Wood Furniture	November 20, 1996	Submitted: February 26, 1997; Approved: February 9, 1998 (63 FR 6489)
Rule 348- Aerospace	April 7, 1999	Submitted: August 4, 1999; Approved: September 20, 1999 (64 FR 50759)
Rule 335-Architectural and Industrial Maintenance (AIM) Coatings	July 13, 1988	Submitted: January 4, 1990; Approved: January 6, 1992 (57 FR 354)
Major Sources Subject to RACT		
Fiberglass Boat Manufacturing	Negative Declaration	Submitted: April 21, 2004; Approved: February 10, 2005 (70 FR 7038)
Rule 334-Rubber Sports Ball Manufacturing	June 19, 1996	Submitted: February 26, 1997; Approved: February 2, 1998 (63 FR 6489)
Rule 341-Metal Casting	August 5, 1994	Submitted: August 16, 1994; Approved: February 12, 1996 (61 FR 5287)
Rule 343-Commercial Bread Bakeries	February 15, 1995	Submitted: August 31, 1995; Approved: March 17, 1997 (62 FR 12544)

TABLE 2-6
MARICOPA COUNTY VOC RACT RULES AND SIP STATUS (cont.)

CONTROL TECHNIQUES GUIDELINES

Rule	Adoption	Revisions & Approvals
Rule 338-Semiconductor Manufacturing	June 19, 1996	Submitted: February 26, 1997; Approved: February 9, 1998 (63 FR 6489)
Rule 339-Vegetable Oil Extraction Processes	November 16, 1992	Submitted: February 4, 1993; Approved: February 9, 1998 (63 FR 6489)
Rule 346-Coating Wood Millwork	November 20, 1996	Submitted: February 26, 1997; Approved: February 9, 1998 (63 FR 6489)
Rule 347-Ferrous Sand Casting	March 4, 1998	Submitted: August 4, 1999; Approved: June 12, 2000 (65 FR 36788)
Rule 349-Vitamin Manufacturing	April 7, 1999	Submitted: August 4, 1999; Approved: June 8, 2001 (66 FR 30815)
Rule 344-Automotive Windshield Wiper Fluid	April 7, 1999	Submitted: August 4, 1999; Approved: November 30, 2001 (66 FR 59699)
Fiberboard for Expansion Joints		VOC RACT by permit (W.R. Meadows); Submitted: April 20,2005; Approved: June 14, 2005 (70 FR 34357)
Rule 358-Polystyrene Foam Operations	April 20, 2005	Submitted: April 25, 2005; Approved: May 26, 2005 (70 FR 30370)

Ozone Plan (MAG, 2007). The Maricopa County Air Quality Department has recently completed the 2005 Periodic Emissions Inventory for Ozone Precursors (MCAQD, 2008). This inventory is provided in Appendix A, Exhibit 1, of this document.

D. The plan provisions shall identify and quantify the emissions of any pollutant allowed from the construction and operation of major new or modified stationary sources in the area

The TSD supporting this maintenance plan describes the stationary source emissions for 2005 and 2025, including major new or modified sources. The 2005 stationary source emissions used as the baseline for the maintenance modeling were provided by the Maricopa County Air Quality Department and are consistent with the 2005 Periodic Emissions Inventory in Appendix A, Exhibit 1. The 1992 Memorandum of Agreement for Air Quality Planning found in Appendix A, Exhibit 2, of the Serious Area Carbon Monoxide Plan provides the distribution of responsibilities for local air quality planning (MAG, 2001). The Maricopa County Air Quality Department regulates stationary sources through the Maricopa County Air Pollution Control Regulations, including Regulation II - Permit and Fees and Rule 240 - Permit Requirements for New Major Sources and Major Modifications to Existing Major Sources.

Section 172(c)(4) requires an area, in developing its attainment plan, to identify expected emission increases that will result from new or modified major sources in a "zone to which economic development should be targeted" according to Section 173(a)(1)(B). These provisions effectively allow the State to provide a "growth allowance" for sources in such an area in lieu of the offset requirements under Section 173(a)(1)(A). This is an optional alternative to requiring the acquisition of offsets under Section 173(a)(1)(A). Neither the Maricopa County Air Pollution Control Regulations nor the Arizona Administrative Code provide a growth allowance in such areas.

E. The plan provisions shall require permits for the construction and operation of new or modified major stationary sources anywhere in the nonattainment area

Maricopa County received SIP approval of its major and minor source NSR program in 1988 (see 53 FR 30220, 53 FR30224, and 53 FR 30238, August 10, 1988). Effective November 22, 1993, EPA delegated Prevention of Significant Deterioration (PSD) authority to Maricopa County via a PSD Delegation Agreement. On August 15, 1994, ADEQ submitted a SIP revision containing portions of the State permitting program that are applicable to major sources, major source modifications, and minor sources. Part of the SIP revision, under a separate cover, included applicable Maricopa County rules, pertinent to the NSR/PSD program. The amendments to Maricopa County Rules 100, 200, 210, 220, 240, and Appendix B were submitted as a revision to the NSR/PSD program. The submittal also requested approval of synthetic minor provisions under Section 112 (l) of the CAA. On September 1, 1994, EPA deemed both the ADEQ and Maricopa County SIP revision complete and each is currently awaiting full approval. To assure adequate SIP revisions required by Section 110(a)(2)(E) of the CAA, the Director of ADEQ is authorized

under ARS §§ 49-402B to assert jurisdiction over major NSR/PSD and minor NSR sources, excluding those located on Indian Reservations. ADEQ received SIP approval of its NSR/PSD program effective May 3, 1983 and delegation of PSD authority for PM-10 effective March 12, 1999.

The EPA guidance memorandum, Part D New Source Review (Part D NSR) Requirements for Areas Requesting Redesignation to Attainment, October 14, 1994, states that "nonattainment areas may be redesignated to attainment notwithstanding the lack of a fully-approved Part D NSR program, provided the program is not relied upon for maintenance." In addition, the EPA guidance indicates that Part D NSR rules do not need to be placed in the contingency portion of the maintenance plan. It is important to note that the Eight-Hour Ozone Maintenance Plan for the Maricopa nonattainment area does not rely on credit for the NSR program to demonstrate maintenance.

F. Include enforceable emission limitations and other control measures, means, or techniques, as well as schedules and timetable for compliance to provide for attainment of such standard

All of the State control measures for which credit is taken in modeling maintenance of the eight-hour ozone standard in 2025 have already been implemented. Legally-enforceable commitments, including the schedules for compliance for these measures were included in prior EPA-approved plans and programs, including the Serious Area CO Plan (MAG, 2001); the One-Hour Ozone Maintenance Plan (MAG, 2004); the modified Arizona Cleaner Burning Gasoline Program, effective April 5, 2004; and the final Serious Area Ozone SIP (ADEQ, 2000), effective June 14, 2005. Timetables have been established for compliance with the federal nonroad equipment emission standards, for which credit is taken in the maintenance plan (EPA, 1998 and 2004).

G. Plans shall meet the applicable requirements of Section 110(a)(2)

Nonattainment plans must show that the requirements under Section 110 are met. These requirements specify that the plans must contain enforceable emission limits, monitoring requirements, procedures to prevent interstate pollution problems, adequate resources to carry out the control programs, and other provisions related to the development and administration of effective air pollution control programs. These requirements are listed at the beginning of this section and other discussions in this Chapter demonstrate that the requirements of Section 110 have been met.

H. States may use equivalent techniques for modeling, emission inventories, planning procedures unless they are less effective than the methods specified by the Administrator

The provisions of Section 172(c)(8) allow the State to use equivalent techniques for modeling, inventories, or other planning activities, unless EPA determines that the techniques are less effective. This maintenance plan uses models, emission inventories,

and planning procedures that were documented in the Modeling Protocol in Support of the Eight-Hour Ozone Redesignation Request and Maintenance Plan (MAG, 2008). The modeling protocol was reviewed and incorporates recommendations by EPA and the Air Quality Planning Team. The modeling protocol, included in Appendix I-i of the TSD, adheres closely to EPA guidance (EPA, 2005).

I. Provide for specific contingency measures to be undertaken if the area fails to make reasonable further progress, or to attain the NAAQS by the applicable attainment date

Section 172(c)(9) of the Clean Air Act requires that nonattainment plans contain contingency measures. Such measures are to be undertaken without further action by the State or the EPA Administrator if the area fails to make reasonable further progress or meet the standard by the attainment date. Committed measures that have already been implemented may be contingency measures if they will not hasten attainment or are not needed to demonstrate attainment or maintenance of the applicable standard. EPA also allows federal measures to be contingency measures if they are not needed to demonstrate attainment or maintenance.

The six contingency measures in the Eight-Hour Ozone Maintenance plan are: Gross Polluter Option for I/M Program Waivers, Increased Waiver Repair Limit Options, Federal Heavy Duty Diesel Vehicle Emission Standards, the Liquid Leaker Test as part of the Vehicle Emission Inspection (VEI) Program, Coordinate Traffic Signal Systems, and Develop Intelligent Transportation Systems. Emission reduction credit for these contingency measures was not been taken in modeling maintenance of the eight-hour ozone standard in 2025. A description of the contingency measures is provided in Chapter Section IV-7-2 of the TSD.

The next chapter describes the maintenance plan that must be approved by EPA before the Maricopa area can be redesignated to attainment for the 1997 eight-hour ozone standard.

CHAPTER THREE

MAINTENANCE PLAN

Section 107(d)(3)(E) of the Clean Air Act (CAA) stipulates that the Environmental Protection Agency (EPA) must fully approve a maintenance plan that meets the requirements of Section 175A of the CAA before a nonattainment area can be redesignated to attainment. The maintenance plan is a State Implementation Plan (SIP) revision that demonstrates maintenance of the relevant National Ambient Air Quality Standard (NAAQS) for at least ten years beyond the date of the area's redesignation to attainment by EPA.

As allowed in section 107(d)(3)(D) of the CAA, EPA has indicated that 18 months should be assumed as the length of time it will take to approve a redesignation request. Due to uncertainties regarding the timing of EPA's approval, the year 2025 has been modeled to ensure that the eight-hour ozone NAAQS will be maintained for at least ten years beyond the date of EPA's official notice of redesignation to attainment.

EPA has established the following core elements that are required for approval of a maintenance plan:

- Description of control measures for the maintenance period
- Emission inventories for the base and future years
- Maintenance demonstration
- Mobile source emission budgets
- An approved monitoring network and verification of continued attainment
- Contingency provisions
- Subsequent maintenance plan revisions

The remaining sections of this chapter address these core elements of an eight-hour ozone maintenance plan.

DESCRIPTION OF CONTROL MEASURES FOR THE MAINTENANCE PERIOD

In general, the maintenance plan demonstrates attainment of the eight-hour ozone standard in 2025 with committed control measures that were used to demonstrate attainment in the Eight-Hour Ozone Plan (MAG, 2007). Credit for four attainment measures in the Eight-Hour Ozone Plan have been assumed in demonstrating maintenance in 2025. The modeling for the maintenance plan also takes credit for the Federal Nonroad Equipment Emissions Standards and the Expansion of Area A Boundaries (HB 2538) that were contingency measures in the Eight-Hour Ozone Plan. In addition, the modeling takes credit for a new ozone measure passed in June 2007 as part of Arizona Senate Bill 1552 that prohibits open burning during the summer ozone season.

The liquid leaker test, as part of the Arizona Vehicle Emissions Inspection (VEI) Program,

was also included in S.B. 1552. Since this measure only applies to pre-1996 model year vehicles, it is assumed that fleet turnover will eliminate these older vehicles by 2025 and no emission reduction credit was taken for this measure in modeling maintenance. However, the liquid leaker test will reduce emissions during the maintenance period (i.e., 2005 through 2025). As a result, this measure is classified as a contingency measure in the maintenance plan.

Two attainment measures in the Eight-Hour Ozone Plan, Coordinate Traffic Signal Systems and Develop Intelligent Transportation Systems, have been reclassified as contingency measures in the maintenance plan. One other attainment measure in the 2007 Ozone Plan, Maricopa County Rule 358: Polystyrene Foam Operations, is included in the 2005 baseline emissions for the maintenance plan. Three of the contingency measures in the Eight-Hour Ozone Plan are also contingency measures in the maintenance plan.

The committed attainment and contingency measures in the Eight-Hour Ozone Plan were derived from EPA-approved programs and plans for the Maricopa Area, including the Modified Arizona Cleaner Burning Gasoline Program, effective April 5, 2004; the Serious Area Carbon Monoxide Plan (MAG, 2001) and the Carbon Monoxide Maintenance Plan (MAG, 2003), approved by EPA on April 8, 2005; and the Serious Area Ozone SIP (ADEQ, 2000) and the One-Hour Ozone Maintenance Plan (MAG, 2004), approved by EPA on June 14, 2005.

Although the one-hour ozone standard was revoked by EPA on June 15, 2005, all committed control measures in the approved one-hour ozone plans remain in effect as legally-binding commitments on the part of the State of Arizona, Maricopa County, and local governments. These permanent and enforceable measures will continue to reduce the volatile organic compounds (VOC) and nitrogen oxides (NOx) that contribute to the formation of ozone.

In addition to measures in these EPA-approved plans, maintenance of the eight-hour ozone standard through 2025 will be facilitated by more stringent federal emission standards for light duty motor vehicles and nonroad diesel engines. Together, these federal measures and the legally-binding commitments contained in prior EPA-approved plans and programs have been effective in reducing ozone in the nonattainment area, as evidenced by the fact that there have been no violations of the standard since 2004.

The committed control measures in the maintenance plan are organized into three groups. The first group includes those measures for which numeric emission reduction credit was taken in the modeling for the maintenance demonstration. The first column of Table 3-1 identifies the seven maintenance measures that were used for numeric credit in the maintenance demonstration. The combined reductions from the maintenance measures, collectively called the maintenance measure package (MMP), are reflected in the 2025 VOC and NOx emissions summarized later in this chapter.

TABLE 3-1

COMMITTED MAINTENANCE MEASURES AND CONTINGENCY MEASURES IN THE EIGHT-HOUR OZONE MAINTENANCE PLAN

Maintenance Measures Used for Numeric Credit	Contingency Measures
1. Summer Fuel Reformulation: California Phase 2 and Federal Phase II Reformulated Gasoline with 7 psi from May 1 through September 30	1. Gross Polluter Waiver Provision
2. Phased-In Emission Test Cutpoints (I/M 147 Program)	2. Increased Waiver Repair Limit
3. One Time Waiver from Vehicle Emissions Test	3. Federal Heavy Duty Diesel Vehicle Emissions Standards
4. Tougher Enforcement of Vehicle Registration and Emission Test Compliance	4. Coordinate Traffic Signal Systems
5. Federal Nonroad Equipment Emissions Standards	5. Develop Intelligent Transportation Systems
6. Expansion of Area A Boundaries (HB 2538)	6. Liquid Leaker Test as Part of VEI Program
7. Ban Open Burning During Ozone Season	

The second group of control measures includes the committed contingency measures that are part of the maintenance plan. No emission reduction credit was taken for these measures in the modeling for the maintenance demonstration and the impact of these measures is not reflected in the 2025 emissions. The six contingency measures are listed in the second column of Table 3-1.

The third group of control measures includes the committed measures from EPA-approved plans that were not used for numeric credit in those plans. These plans include the Serious Area Carbon Monoxide Plan (MAG, 2001), Carbon Monoxide Maintenance Plan (MAG, 2003), Serious Area Ozone SIP (ADEQ, 2000), and One-Hour Ozone Maintenance Plan (MAG, 2004). The emission reductions attributable to these measures were not easily quantified or may not have been possible to quantify. However, these measures will continue to reinforce the air quality benefits of the other committed measures in the maintenance plan.

Measures Used for Numeric Credit

The maintenance plan assumes numeric credit for four measures that were also quantified as attainment measures in the 2007 Eight-Hour Ozone Plan. In addition, numeric credit has been taken in the maintenance plan for three additional measures: federal nonroad equipment standards, the expansion of Area A boundaries (HB 2538), and the ban on open burning during the ozone season. The federal nonroad emission standards and expansion of Area A were contingency measures in the 2007 Eight-Hour Ozone Plan. The ban on open burning in S.B. 1552 was not passed in time to be included in the 2007 Eight-Hour Ozone Plan.

Descriptions of the seven maintenance measures for which numeric credit was taken are provided in Chapter Two. Figures 3-1 and 3-2 illustrate the percent reductions in anthropogenic VOC and NOx emissions, respectively, due to implementation of the individual maintenance measures. Table 3-2 quantifies the emission reductions from these individual measures in metric tons per day.

The base total 2025 anthropogenic emissions shown in Table 3-2 were estimated by removing the emission reductions due to the seven maintenance measures from the emissions used to model a Thursday in June 2025. Thursday is the day of the week during the June episode in 2002 when the highest eight-hour ozone concentrations were measured at monitors in the Maricopa nonattainment area.

A comparison of 2025 anthropogenic emissions by source category with and without the seven maintenance measures is shown in Tables 3-3 and 3-4 for VOC and NOx, respectively. Comparable pie charts are provided at the bottom of each table. Biogenic emissions are not included in these tables and pie charts, because the maintenance measures do not reduce biogenic emissions.

FIGURE 3-1

2025 ANTHROPOGENIC VOC EMISSION REDUCTIONS FOR INDIVIDUAL MAINTENANCE MEASURES

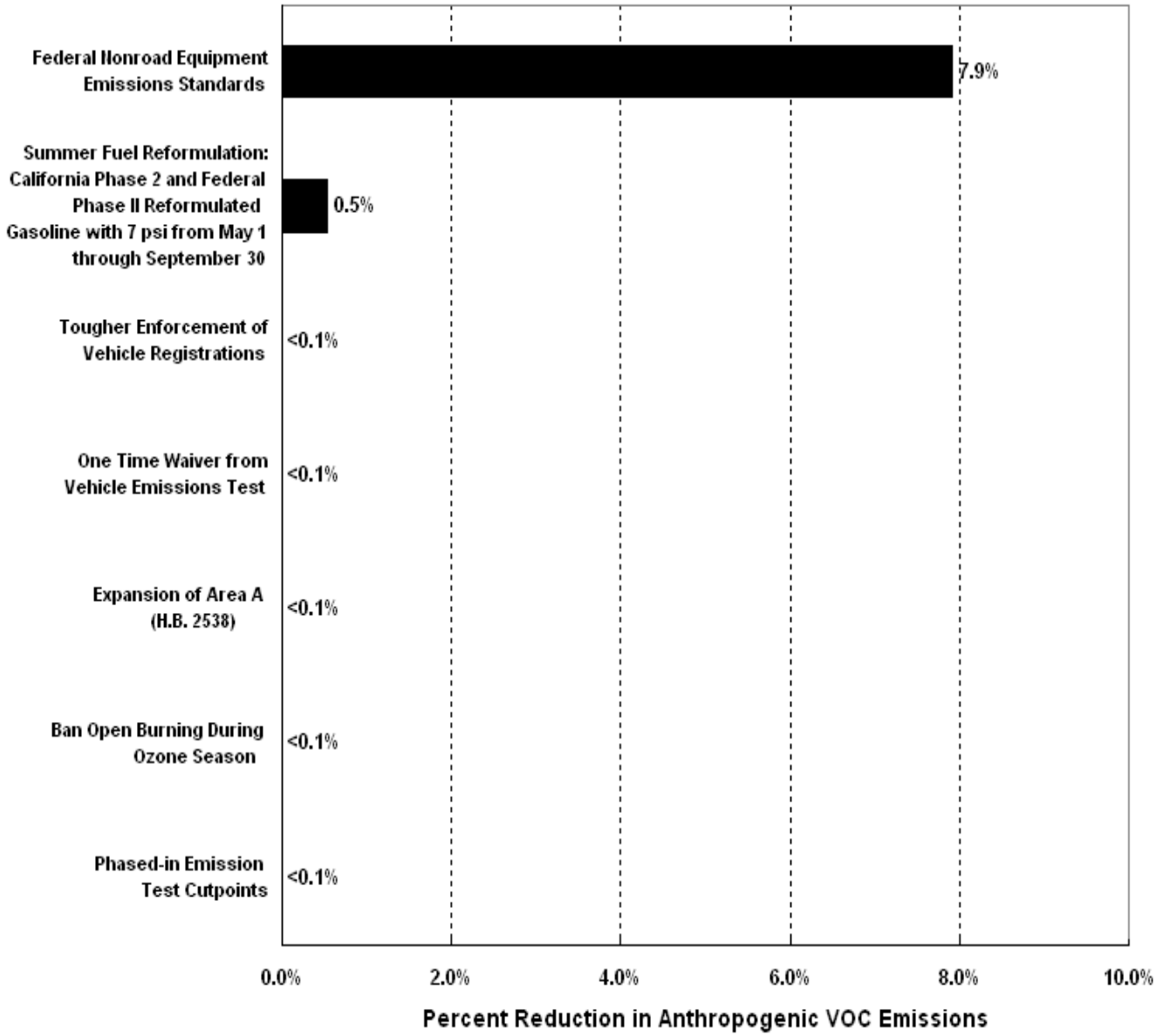


FIGURE 3-2

2025 ANTHROPOGENIC NOx EMISSION REDUCTIONS FOR INDIVIDUAL MAINTENANCE MEASURES

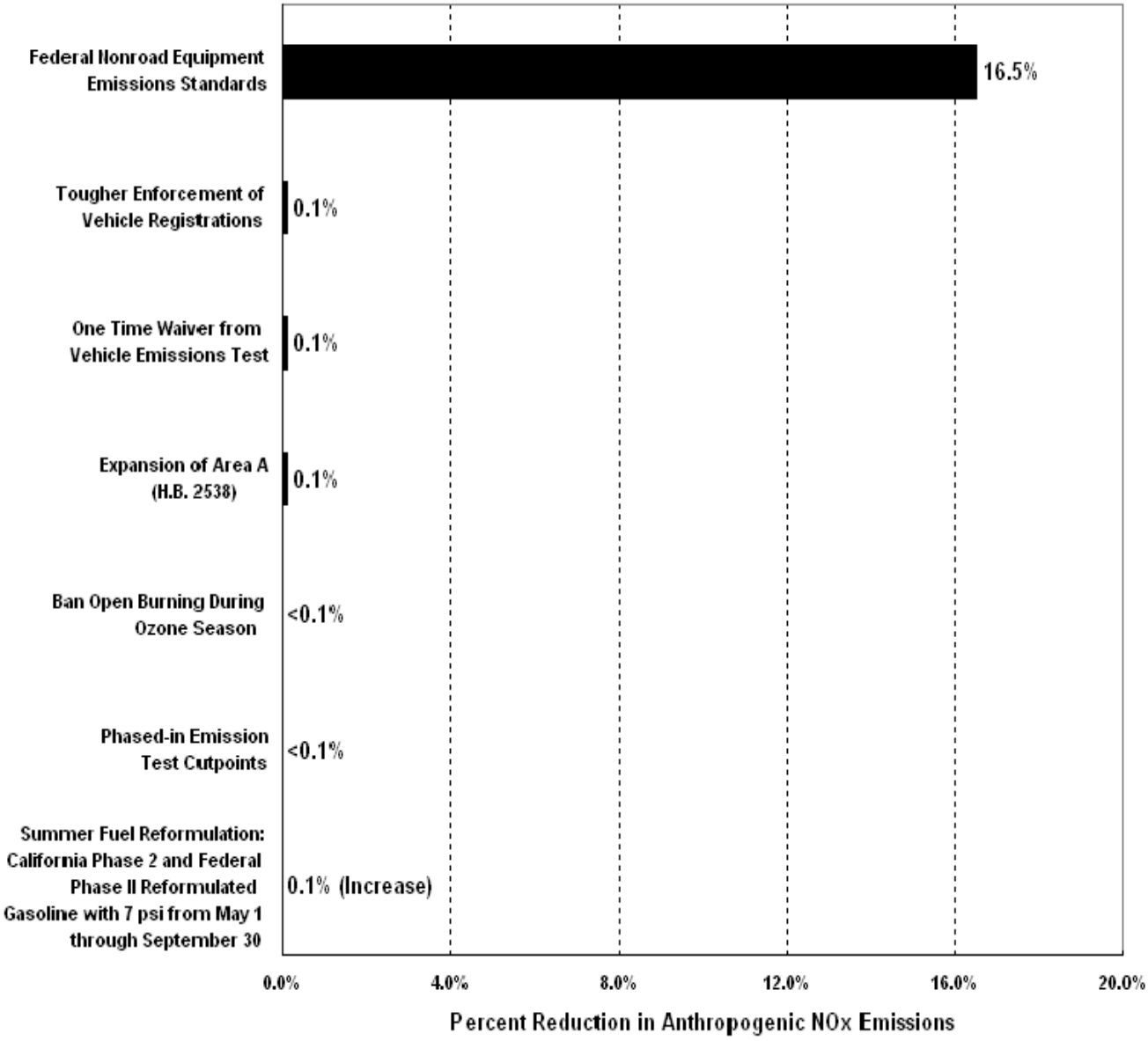


TABLE 3-2

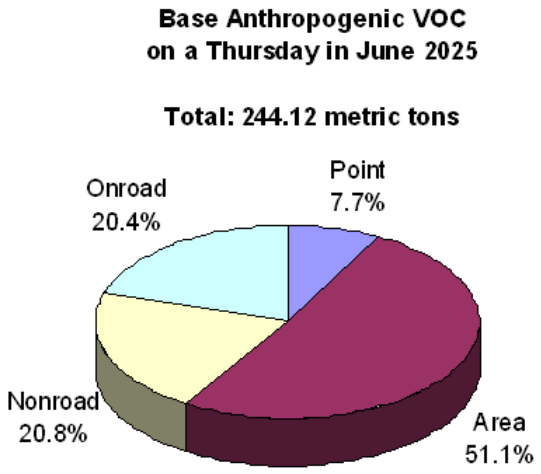
2025 EMISSION REDUCTIONS FOR INDIVIDUAL MAINTENANCE MEASURES IN METRIC TONS PER DAY

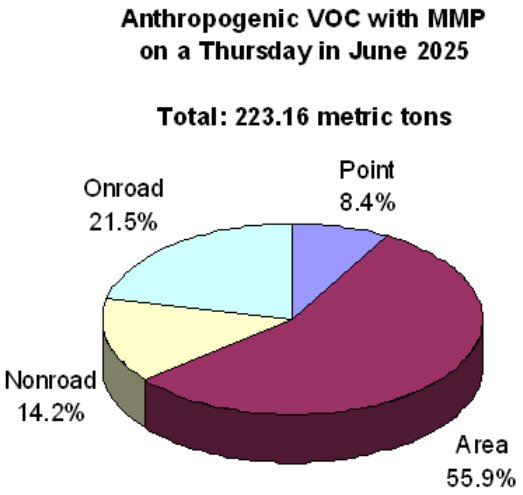
	VOC		NOx	
Base Total Anthropogenic Emissions on a Thursday in June 2025 (metric tons/day)	244.1		285.8	
Maintenance Measure	**Emission Reductions (metric tons/day)**	**Percent Reduction in Anthropogenic Emissions**	**Emission Reductions (metric tons/day)**	**Percent Reduction in Anthropogenic Emissions**
1. Summer Fuel Reformulation: California Phase 2 and Federal Phase II Reformulated Gasoline with 7 psi from May 1 through September 30	1.3	0.5%	0.4 (increase)	0.1% (increase)
2. Phased-In Emission Test Cutpoints	< 0.1	< 0.1%	< 0.1	< 0.1%
3. One Time Waiver from Vehicle Emissions Test	0.2	< 0.1%	0.3	0.1%
4. Tougher Enforcement of Vehicle Registration and Emission Test Compliance	0.2	< 0.1%	0.4	0.1%
5. Federal Nonroad Equipment Emissions Standards	19.3	7.9%	47.2	16.5%
6. Expansion of Area A Boundary (H.B. 2538)	0.2	< 0.1%	0.4	0.1%
7. Ban Open Burning during Ozone Season	< 0.1	< 0.1%	< 0.1	< 0.1%

TABLE 3-3

2025 ANTHROPOGENIC VOC EMISSIONS WITH AND WITHOUT THE MAINTENANCE MEASURE PACKAGE (MMP)

Source Category	Base Anthropogenic VOC Emissions on a Thursday in June 2025 (metric tons/day)	Anthropogenic VOC Emissions with MMP on a Thursday in June 2025 (metric tons/day)	2025 MMP vs Base Anthropogenic VOC Emissions (%)
Point	18.7	18.7	0.0
Area	124.8	124.8	0.0
Nonroad	50.8	31.8	-37.4
Onroad	49.8	47.9	-3.8
Total	244.1	223.2	-8.6



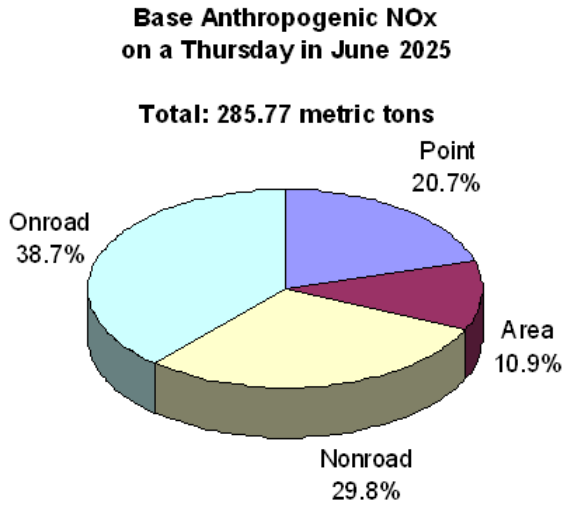


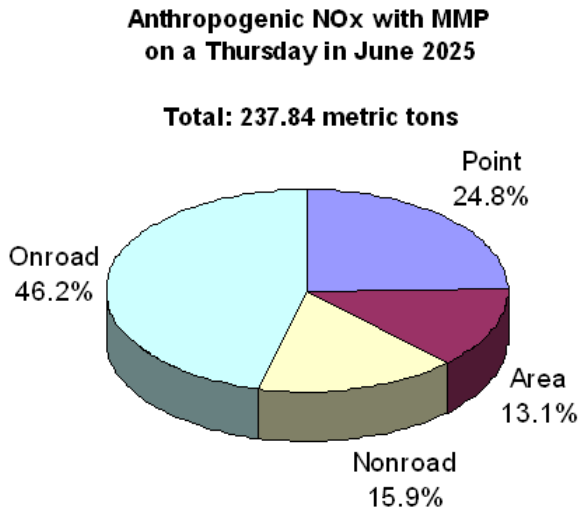
Note: The percent total may not be equal to 100% due to rounding.

TABLE 3-4

2025 ANTHROPOGENIC NOx EMISSIONS WITH AND WITHOUT THE MAINTENANCE MEASURE PACKAGE (MMP)

Source Category	Base Anthropogenic NOx Emissions on a Thursday in June 2025 (metric tons/day)	Anthropogenic NOx with the MMP on a Thursday in June 2025 (metric tons/day)	2025 MMP vs. Base Anthropogenic NOx Emissions (%)
Point	59.1	59.1	0.0
Area	31.1	31.1	0.0
Nonroad	85.1	37.9	-55.5
Onroad	110.5	109.8	-0.6
Total	285.8	237.8	-16.8





Note: The percent total may not be equal to 100% due to rounding.

The total reduction in anthropogenic emissions due to the package of seven maintenance measures in June 2025 is 8.6 percent for VOC and 16.8 percent for NOx. The methodologies for quantifying the emission reductions for the individual measures are described in Section IV-7-1 of Appendix A, Exhibit 2, the Technical Support Document for Ozone Modeling in Support of the Eight-Hour Ozone Redesignation Request and Maintenance Plan for the Maricopa Nonattainment Area (TSD).

Contingency Measures

The six contingency measures for the maintenance plan are described in Section VI-7-2 of the TSD. All of the contingency measures listed in Table 3-1 have already been implemented in the nonattainment area. Early implementation of contingency measures is allowed by EPA (EPA, 1993) and helps to ensure that the standard will be maintained through 2025.

EPA also allows the use of federal measures as contingency measures, if credit for these measures is not taken in the maintenance demonstration. No credit was quantified in this maintenance plan for the contingency measures. A later section in this Chapter discusses the procedures that will be followed to consider and implement additional contingency measures, if they are needed.

Measures Which Improve Air Quality, But Were Not Used for Numeric Credit

The third group of measures in the maintenance plan represents commitments in the EPA-approved Serious Area Carbon Monoxide Plan, Carbon Monoxide Maintenance Plan, Serious Area Ozone SIP, and One-Hour Ozone Maintenance Plan. Ozone precursor emission reduction credit for these measures were not easily quantified or may not have been possible to quantify. Detailed descriptions of these committed control measures are contained in Chapter Eight of the Serious Area Carbon Monoxide Plan, Chapter Three of the Carbon Monoxide Maintenance Plan, Chapter Two of the Serious Area Ozone SIP, and Chapter Two of the One-Hour Ozone Maintenance Plan.

EMISSION INVENTORIES FOR THE BASE AND FUTURE YEARS

This section discusses the 2005 and 2025 emissions used in modeling maintenance of the eight-hour ozone standard. The 2005 and 2025 emissions were developed for the three ozone episodes that were modeled in the attainment demonstration for the Eight-Hour Ozone Plan. The June 2002, July 2002, and August 2001 episodes are described in Section II-3-4 of the TSD. A more detailed discussion of these episodes is provided in Appendix A, Exhibit 2, of the Eight-Hour Ozone Plan for the Maricopa Nonattainment Area (MAG, 2007).

Onroad mobile source emissions for 2005 were developed using estimates of 2005 population and employment based on the Special U.S. Census conducted for Maricopa County in 2005. Population and employment are key inputs to the MAG transportation

model that produces the vehicle miles of travel (VMT) and speeds used in calculating onroad mobile source emissions with the EPA MOBILE6.2 model.

The 2005 emissions assume credit for committed control measures that were in place during the summer of 2005. Table 3-5 summarizes the key assumptions used in developing the 2005 emissions. Section IV-1 of the TSD discusses the methods and assumptions used to develop the 2005 baseline emissions.

In general, the 2005 emissions used in modeling maintenance are consistent with the 2005 periodic emission inventory for ozone precursors developed by the Maricopa County Air Quality Department (MCAQD, 2008). A comparison of the 2005 MAG baseline emissions used in modeling and the 2005 periodic emissions inventory is provided in Appendix IV-iv of the TSD.

The VOC and NOx emissions used to model maintenance in 2025 include reduction credit for the seven committed maintenance measures. Table 3-5 summarizes the key assumptions used in developing the 2025 emissions used to demonstrate maintenance. Section IV-2 of the TSD details the methods and assumptions used to develop the 2025 ozone precursor emissions.

Emissions for point and area sources were projected from 2005 to 2025 by application of appropriate growth factors. The growth factors were based on the latest population and employment projections approved by the MAG Regional Council in May 2007. A detailed description of the assumptions used in developing the 2025 point and area source emissions is provided in Section IV-2-2-4 of the TSD.

For power plants, the Potential to Emit (PTE) rates provided by MCAQD were assumed for 2025. To demonstrate permanent and enforceable improvement in air quality, EPA guidance in "Procedures for Processing Requests for Redesignation to Attainment" (EPA, 1992) states that "the analysis should assume that sources are operating at permitted levels (or historic peak levels) unless evidence is presented that such an assumption is unrealistic." The PTE rates assumed for power plants in 2025 represent the maximum levels currently permitted by MCAQD for power plants that are expected to be operating in 2025. The anticipated growth in population and industry between 2005 and 2025 will increase the demand for electricity in the eight-hour ozone nonattainment area. In addition, the summer ozone season is the time of year when peak demand typically occurs. In general, the uncertainties inherent in long-range power generation forecasts support the use of PTE rates for the maintenance demonstration.

With the exception of commercial lawn and garden equipment, the growth factors for projecting 2005 nonroad emissions to 2025 were derived from the EPA NONROAD2005 model defaults for Maricopa County. The assumptions used in developing the 2025 nonroad emissions are discussed in Section IV-2-2-3 of the TSD.

TABLE 3-5

KEY ASSUMPTIONS USED TO DEVELOP 2005 AND 2025 EMISSIONS FOR THE MAINTENANCE DEMONSTRATION

2005	2025
1. Oxygenate content, reid vapor pressure (RVP), and sulfur content for onroad mobile emissions based on actual fuel properties provided by the AZ Department of Weights and Measures (ADWM)	1. Summer Fuel Reformulation: California Phase 2 and Federal Phase II Reformulated Gasoline with 7 psi from May 1 - September 30
2. Enhanced Inspection/Maintenance (I/M) for all vehicles[1] in Area A with Phased-In Emission Test Cutpoints (I/M 147)	2. Enhanced Inspection/Maintenance (I/M) for all vehicles[2] in Area A with Phased-In Emission Test Cutpoints (I/M 147)
3. Waiver rate for pre-1981 vehicles = 0.709%; 1981+ vehicles = 0.781%[3]	3. Waiver rate for pre-1981 vehicles = 0.709%; 1981+ vehicles = 0.781%
4. Vehicles participating in the I/M program: 91.6%; not participating: 8.4%[4]	4. Vehicles participating in the I/M program: 91.6%; not participating: 8.4%
5. Federal Light Duty Vehicle Emissions Standards (Tier 2)	5. Federal Light Duty Vehicle Emissions Standards (Tier 2)
6. Federal Nonroad Equipment Emission Standards (Tier 2)	6. Federal Nonroad Equipment Emission Standards (Tiers 2, 3, and 4)
7. RVP and sulfur content for nonroad mobile emissions based on actual fuel properties provided by the ADWM	7. Sulfur content of diesel fuel for nonroad equipment = 15 ppm; sulfur content of gasoline for nonroad equipment = 30 ppm[5]
8. Phase II vapor recovery - 46% efficiency[6]	8. Phase II vapor recovery - 46% efficiency
9. Power plant emissions based on actual operating levels in 2005	9. Power plant emissions based on maximum Potential to Emit (PTE) levels

[1]Excluding vintage vehicles.

[2]Excluding vintage vehicles and motorcycles.

[3]Waiver rate was reduced from 4% for pre-1981 vehicles and 3% for 1981+ vehicles due to the measure: One-Time Waiver from Vehicle Emissions Test.

[4]Participation in the I/M program was increased by 2% due to the measure: Tougher Enforcement of Vehicle Registration and Emissions Test Compliance.

[5]420-F-08-004 and 40 CFR Chapter 1, Subpart H. It is important to note, however, that the lower federally-mandated sulfur contents do not reduce VOC or NOx emissions.

[6]Efficiency provided by Duane Yantorno, Arizona Department of Weights and Measures.

Onroad mobile source emissions for 2025 were based on the population and employment projections adopted by the MAG Regional Council in May 2007. To provide safety margins for transportation conformity budgets, the onroad mobile VOC and NOx emissions in the ozone modeling domain were increased by ten percent in 2025. Spatially, this increase was applied proportionately to the onroad mobile source emissions in each four kilometer grid cell. The methods and assumptions used in developing the onroad mobile source emissions are described in Section IV-2-2-1 of the TSD.

Biogenic emissions used in the maintenance plan were derived from the MAG Biogenics Study (ENVIRON, 2006). The same gridded biogenic emissions used in modeling attainment in the Eight-Hour Ozone Plan (MAG, 2007a) were used in modeling maintenance of the eight-hour ozone standard. The biogenic emissions are described in Section IV-2-2-2 of the TSD.

The 2005 and 2025 VOC and NOx emissions for the peak episode day in June are summarized by source category in Tables 3-6 and 3-7, respectively. Comparable pie charts of the 2005 and 2025 emissions are provided at the bottom of each table. The emissions for the June episode day are shown because the highest ozone concentrations occurred under the meteorological and pollutant transport conditions associated with that episode day on June 6, 2002. Summaries of the 2005 and 2025 emission inventories for the July and August episode days with the highest ozone concentrations are shown in Section IV-2-2-6 of the TSD.

Between 2005 and 2025, onroad mobile emissions decline by more than one-third for VOC and almost 30 percent for NOx. Over this same period, nonroad emissions are also reduced by 21 percent for VOC and more than 50 percent for NOx. These significant decreases in mobile source emissions occur despite a 76 percent increase in vehicle travel over the twenty year period, due to the phasing in of new light duty vehicles and nonroad equipment that must meet more stringent, federally-mandated emission standards (i.e., Tier 2 and Tiers 2-4, respectively).

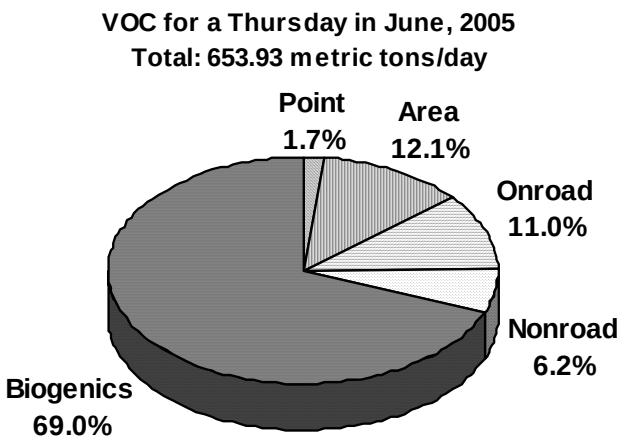
Biogenic and onroad mobile sources contribute the largest share of emissions in both 2005 and 2025 for VOC and NOx, respectively. In 2005 and 2025, area sources contribute the highest percent of anthropogenic VOC emissions (12 percent and 19 percent, respectively). Between 2005 and 2025, the combined share of onroad and nonroad source emissions decline from 17 to 12 percent of total VOC emissions, while the share of point and area source emissions increase from 14 to 21 percent.

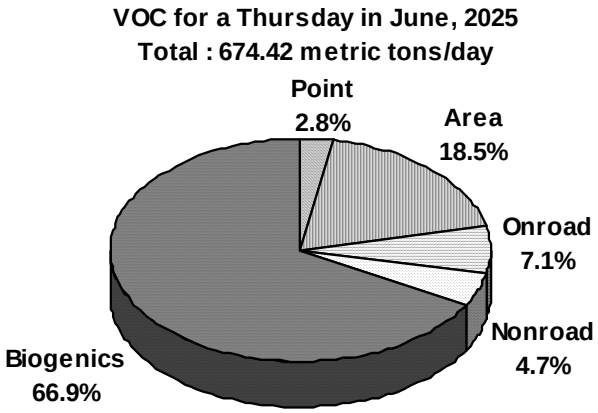
Similarly, the onroad and nonroad share of NOx emissions decreases from 86 percent in 2005 to 60 percent in 2025. However, as noted in Table 3-5, power plants were assumed to emit maximum levels of NOx in 2025, whereas the 2005 power plant emissions represent actual operating levels. This conservative modeling assumption has the effect of increasing point source emissions from 4 percent of the total NOx emissions in 2005 to 24 percent in 2025.

TABLE 3-6

VOC EMISSIONS FOR A JUNE EPISODE DAY IN 2005 AND 2025

Source Category	Thursday in June, 2005 (metric tons/day)	Thursday in June, 2025 (metric tons/day)	2025-2005 Difference (%)
Point	11.1	18.7	68.5
Area	79.2	124.8	57.5
Nonroad	40.3	31.8	-21.0
Onroad	72.1	47.9	-33.6
Biogenics	451.3	451.3	0.0
Total	**653.9**	**674.4**	**3.1**



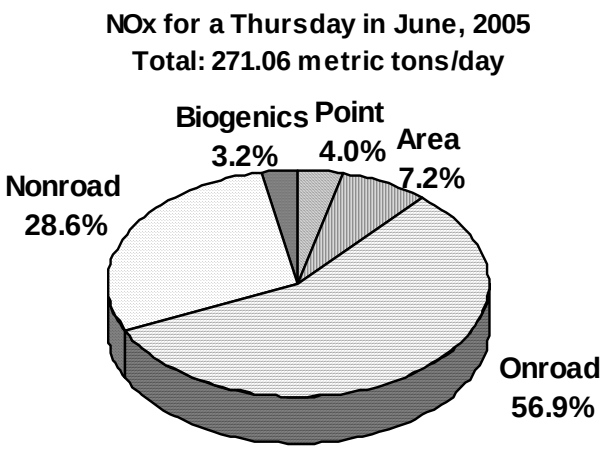


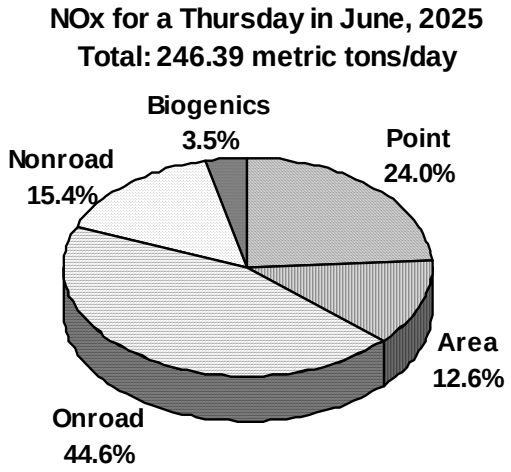
Note: The percent total may not be equal to 100% due to rounding.

TABLE 3-7

NOx EMISSIONS FOR A JUNE EPISODE DAY IN 2005 AND 2025

Source Category	Thursday in June, 2005 (metric tons/day)	Thursday in June, 2025 (metric tons/day)	2025-2005 Difference (%)
Point	10.9	59.1	440.3
Area	19.6	31.1	58.8
Nonroad	77.7	37.9	-51.2
Onroad	154.3	109.8	-28.9
Biogenics	8.6	8.6	0.0
Total	**271.1**	**246.4**	**-9.1**





Note: The percent total may not be equal to 100% due to rounding.

MAINTENANCE DEMONSTRATION

The modeling for the 2025 maintenance demonstration was performed with the EPA-approved Comprehensive Air Quality Model with Extensions (CAMx). Details on the selection, validation and application of CAMx are provided in Section III of the TSD. To demonstrate maintenance of the 1997 eight-hour ozone standard, the CAMx modeling for 2025 must show that predicted eight-hour ozone design values are less than 0.085 ppm throughout the ozone modeling domain for every episode. The 2025 maximum simulated eight-hour ozone concentrations for each episode are provided in Table 3-8. All three of these simulated maximum values occurred near the North Phoenix ozone monitor.

MAG performed a number of supplemental tests to corroborate the CAMx modeling results in 2025. One of these tests was an unmonitored area analysis, using the EPA Modeled Attainment Test Software (MATS), to ensure that areas that are not near existing air quality monitors also meet the standard in 2025. The maximum ozone design values produced by the MATS analysis were 0.081 ppm for the June episode, 0.079 ppm for the July episode, and 0.083 ppm for the August episode in 2025.

In order to determine the sensitivity of the maintenance demonstration to a range of power plant emission rates, MAG also performed supplemental analyses for 2025 that replaced the PTE rates with 2005 baseline power plant emission rates. The supplemental analyses included CAMx/MM5 modeling and unmonitored area analysis. Both analyses concluded that the eight-hour ozone standard would be maintained in 2025 with 2005 power plant emission rates. These supplemental analyses, described in Appendix IV-viii of the TSD, provide convincing evidence that the standard will be maintained in the future, with power plant emission rates ranging from minimum (2005) to maximum (PTE) levels.

Figure 3-3 provides an isopleth plot of the results of the unmonitored area analysis overlaid with the values predicted by modeling each monitoring site on the June 2025 episode day. The eight-hour ozone concentrations are shown in parts per billion (ppb).

Since the maximum monitored and unmonitored area ozone concentrations for all episodes are less than 0.085 ppm, maintenance of the eight-hour ozone standard has been demonstrated for the Maricopa nonattainment area in 2025. Technical details supporting the modeling and supplemental analyses for the maintenance demonstration are provided in Sections V and VI of the TSD.

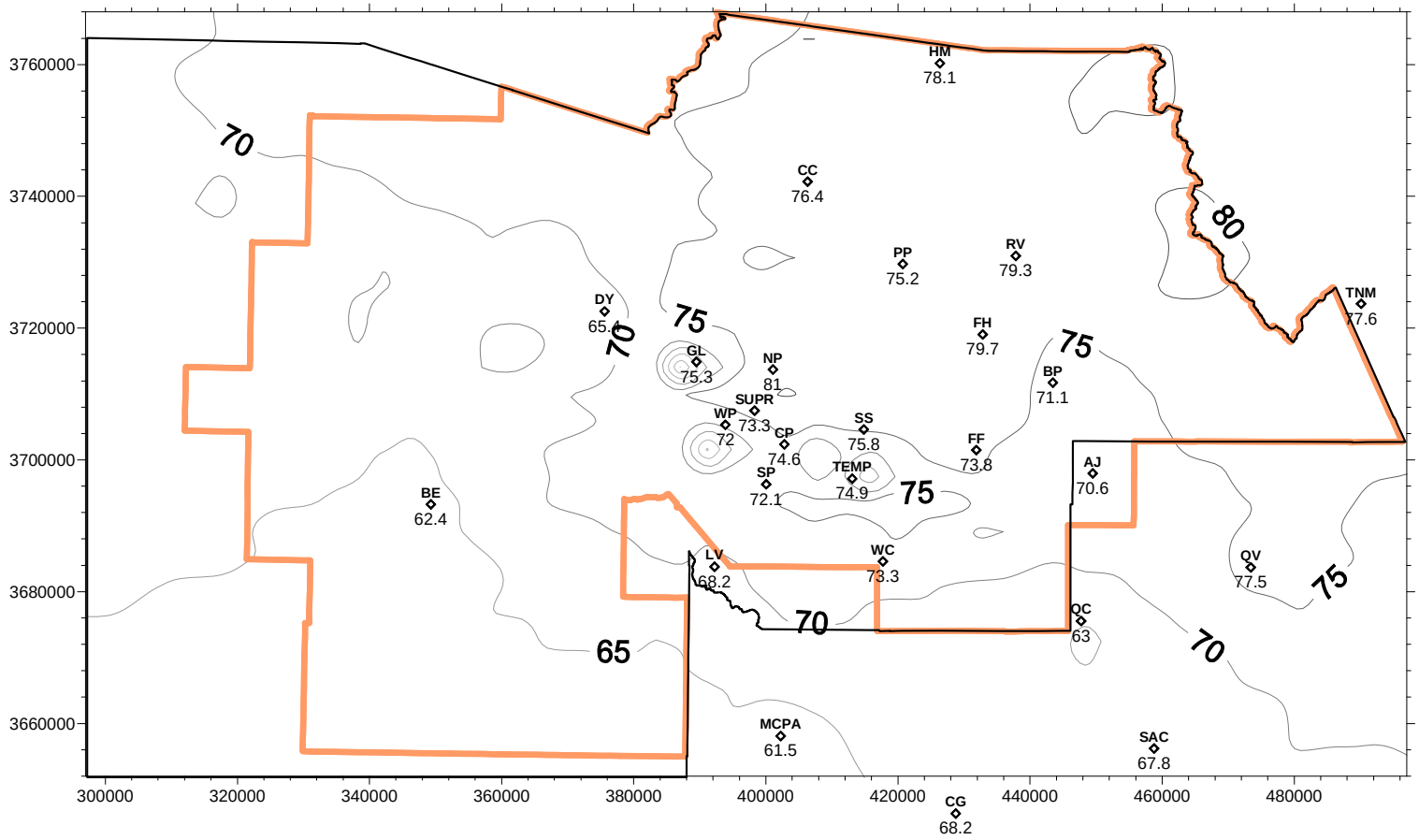
TABLE 3-8

MAXIMUM MODELED EIGHT-HOUR OZONE CONCENTRATIONS FOR THE JUNE, JULY AND AUGUST EPISODES IN 2025

Modeled Episode	Maximum Design Value in the Eight-Hour Ozone Modeling Domain
June 2025	0.081 ppm
July 2025	0.079 ppm
August 2025	0.079 ppm

FIGURE 3-3

PREDICTED EIGHT-HOUR OZONE CONCENTRATIONS IN JUNE 2025
(in ppb)



MOBILE SOURCE EMISSION BUDGETS

In accordance with the 1990 Clean Air Act Amendments (CAAA), transportation conformity requirements are intended to ensure that transportation activities do not result in air quality degradation. Section 176 of the Amendments requires that transportation plans, programs, and projects conform to applicable air quality plans before the transportation action is approved by a Metropolitan Planning Organization (MPO). The designated MPO for Maricopa County is the Maricopa Association of Governments.

Section 176(c) of the CAAA provides the framework for ensuring that Federal actions conform to air quality plans under section 110. Conformity to an implementation plan means that proposed activities must not: (1) Cause or contribute to any new violation of any standard in any area, (2) Increase the frequency or severity of any existing violation of any standard in any area, or (3) Delay timely attainment of any standard or any required interim emission reductions or other milestones in any area.

EPA transportation conformity regulations establish criteria involving comparison of projected transportation plan emissions with the motor vehicle emissions assumed in applicable air quality plans. These regulations define the term “motor vehicle emissions budget” as meaning “the portion of the total allowable emissions defined in a revision of the applicable implementation plan (or in an implementation plan revision which was endorsed by the Governor or his or her designee) for a certain date for the purpose of meeting reasonable further progress milestones or attainment demonstrations, for any criteria pollutant or its precursors, allocated by the applicable implementation plan to highway and transit vehicles.”

MAG submitted the Eight-Hour Ozone Plan to EPA in June 2007 (MAG, 2007). This plan demonstrated attainment of the eight-hour ozone standard by the ozone season of 2008 and contained 2008 conformity budgets for VOC and NOx. EPA found these eight-hour ozone conformity budgets to be adequate, effective November 7, 2007. The 2008 budgets of 67.9 metric tons per day for VOC and 138.3 metric tons per day for NOx represent onroad mobile source emissions in the eight-hour ozone nonattainment area. These budgets from the 2007 Eight-Hour Ozone Plan were used in the 2008 MAG Conformity Analysis.

In addition to the 2008 conformity budgets established in the 2007 Eight-Hour Ozone Plan, this maintenance plan establishes 2025 conformity budgets based on the 2025 onroad mobile source VOC and NOx emissions used to model maintenance in the eight-hour ozone nonattainment area. These maintenance budgets include emission reduction credit for the committed maintenance measure package. The 2025 maintenance budgets are derived from the onroad mobile VOC and NOx emissions on the peak episode day in June 2025. This is comparable to the episode day, June 6, 2002, which had the highest ozone concentrations.

As shown in Tables 3-6 and 3-7, the onroad mobile emissions in the eight-hour ozone modeling domain on the peak episode day in June 2025 are 47.9 metric tons per day for VOC and 109.8 metric tons per day for NOx. A GIS analysis was performed to extract the onroad mobile emissions in the eight-hour ozone nonattainment area from the larger eight-hour ozone modeling domain. The resultant onroad mobile source emissions for the eight-hour nonattainment area are 43.8 metric tons per day for VOC and 101.8 metric tons per day for NOx. These represent the 2025 maintenance budgets for transportation conformity purposes.

MAG will use these new 2025 VOC and NOx emission budgets in conformity analyses that begin after these budgets have been found to be adequate or are approved by EPA as part of the Eight-Hour Ozone Redesignation Request and Maintenance Plan. In subsequent conformity analyses, onroad mobile source emissions for conformity horizon years of 2008 through 2024 can not exceed the 2008 VOC and NOx emission budgets, while onroad mobile emissions in horizon years after 2024 can not exceed the 2025 maintenance budgets for VOC and NOx.

The methods and assumptions used to estimate onroad mobile source emissions in 2025 are documented in Section IV-2 of the TSD. The models and assumptions used in estimating onroad mobile source emissions for future conformity analyses may differ from those described in the TSD, because the latest emission models and other planning assumptions (e.g., vehicle registrations, speeds, population, and vehicle miles of travel) must be used each time a conformity analysis is performed (FHWA, 2001).

Due to the inherent uncertainties associated with use of the latest planning assumptions in conformity analyses, the 2025 VOC and NOx emissions from onroad mobile sources were increased by ten percent in the eight-hour ozone (4 kilometer) modeling domain to create a safety margin for the conformity budgets. EPA has indicated that safety margins are allowed, if maintenance can be modeled with the increased emissions (EPA, 2007). The VOC and NOx emissions from onroad mobile sources were increased by ten percent for all three modeled episodes. The increase was distributed spatially in the ozone modeling domain based on the proportion of onroad mobile emissions assigned to each four kilometer grid cell. Since maintenance was demonstrated with the increased onroad mobile source emissions, the 2025 conformity budgets in the maintenance plan incorporate a safety margin.

AN APPROVED MONITORING NETWORK AND VERIFICATION OF CONTINUED ATTAINMENT

The air quality monitoring data shown in Chapter Two confirms that the Maricopa nonattainment area attained the 1997 eight-hour ozone standard during the ozone season of 2008, as modeled in the Eight-Hour Ozone Plan. The three year average (i.e., 2006-2008) of the annual fourth highest eight-hour ozone concentrations at all monitors was less than 0.085 ppm, which means that the area has met the attainment date of June 15, 2009,

as required by the Clean Air Act. The monitoring data also indicate that the eight-hour ozone concentrations have been trending downward and there have been no violations of the ozone standard at any monitor since 2004.

After the Maricopa nonattainment area has been redesignated to attainment by EPA, the Arizona Department of Environmental Quality (ADEQ) and the Maricopa County Air Quality Department (MCAQD) will continue to operate an appropriate air quality monitoring network of National Air Monitoring Stations (NAMS) and State and Local Air Monitoring Stations (SLAMS) in accordance with 40 CFR Part 58 to verify the continued attainment of the ozone standard. If measured parameters (e.g., population, vehicle miles of travel, significant sources) change significantly over time, ADEQ and MCAQD will perform the appropriate studies to determine whether additional and/or re-sited monitors are necessary. Annual review of the NAMS/SLAMS air quality surveillance system will continue to be conducted in accordance with 40 CFR 58.20(d) to determine whether the system continues to meet the monitoring objectives presented in Appendix C of 40 CFR Part 58.

In order to track the progress of the Maintenance Plan, periodic emission inventories of ozone precursors will continue to be prepared every three years in accordance with Section 187(a)(5) of the Clean Air Act. Maricopa County will coordinate and compile the inventory with input and assistance from ADEQ, the Arizona Department of Transportation, and MAG, as described in the 1992 Air Quality Memorandum of Agreement. Changes in the inventory will be reviewed and evaluated through the regional air quality planning process to determine if additional measures should be considered.

The 2005 Periodic Emission Inventory for Ozone Precursors for the Maricopa County, Arizona, Nonattainment Area is contained in Appendix A, Exhibit 1. Generally, the 2005 baseline emissions used in the maintenance demonstration and the 2005 periodic emissions inventory are in close agreement, as indicated in the comparison provided in Appendix IV-iv of the TSD.

CONTINGENCY PROVISIONS

Section 175A(d) of the Clean Air Act requires that maintenance plans contain contingency provisions. EPA guidance on the required content of the maintenance plan is provided in the September 4, 1992 EPA memorandum. This memo indicates that the maintenance plan is not required to contain fully adopted contingency measures. However, the plan should contain clearly identified contingency measures to be adopted, a schedule and procedures for adoption and implementation, and a specific time limit for action by the State. In addition, specific indicators should be identified which will be used to determine when the contingency measures need to be implemented.

Consistent with the August 13, 1993 EPA guidance memorandum titled, “Early Implementation of Contingency Measures for Ozone and Carbon Monoxide (CO)

Nonattainment Areas," the contingency measures described in this Eight-Hour Ozone Maintenance Plan are comprised of committed control measures that are expected to be implemented early. An example of early implementation of contingency measures in a maintenance plan that has been approved by EPA is the redesignation of the Salt Lake City Carbon Monoxide Nonattainment Area to attainment (see page 3216 of the January 21, 1999 Federal Register). In that action, EPA noted that both contingency measures in the Salt Lake City contingency plan had already been partially implemented.

There are six contingency measures in the Eight-Hour Ozone Maintenance Plan: Gross Polluter Option for I/M Program Waivers; Increased Waiver Repair Limit Options; Federal Heavy Duty Diesel Vehicle Emissions Standards; Liquid Leaker Test as Part of the Vehicle Emissions Inspection (VEI) Program; Coordinate Traffic Signal Systems; and Develop Intelligent Transportation Systems. A description of the individual contingency measures is provided in Section IV-7-2 of the TSD. Emission reduction credit for these six contingency measures was not taken in modeling maintenance of the eight-hour ozone standard. Early and continued implementation of these contingency measures provides additional confidence that the eight-hour ozone standard will be maintained through 2025.

In order to meet the contingency provision requirements of a maintenance plan, ambient air quality monitoring data will be examined to determine if additional contingency measures are needed. Contingency provisions will be triggered when the three-year average of the annual fourth highest daily eight-hour ozone concentration exceeds 84 ppb at any ozone monitor. If this occurs, additional control measures will be considered, which may include the strengthening of existing contingency measures.

When the contingency trigger is activated, the following schedule of actions would be followed: (A) Verification of the monitoring data to be completed three months after activation of the trigger; (B) Applicable control measures to be considered for adoption six months after the date established in A above; and (C) Resultant committed measures to be implemented within six to twelve months, depending upon the time needed to put the measures in place.

SUBSEQUENT MAINTENANCE PLAN REVISIONS

Section 175A(b) of the Clean Air Act requires that a maintenance plan revision be submitted to EPA eight years after redesignation of the area to attainment. The purpose of the revision is to provide for maintenance of the ozone NAAQS for an additional ten years beyond the first maintenance period. As the designated Regional Air Quality Planning Agency for the Maricopa County area, MAG intends to prepare the revised maintenance plan required by the Clean Air Act eight years after redesignation to attainment.

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