DRAFT

MAG 2014 STATE IMPLEMENTATION PLAN REVISION FOR THE REMOVAL OF STAGE II VAPOR RECOVERY CONTROLS IN THE MARICOPA EIGHT-HOUR OZONE NONATTAINMENT AREA

MAY 2014

MARICOPA ASSOCIATION of GOVERNMENTS

MAG 2014 STATE IMPLEMENTATION PLAN REVISION FOR THE REMOVAL OF STAGE II VAPOR RECOVERY CONTROLS IN THE MARICOPA EIGHT-HOUR OZONE NONATTAINMENT AREA

Prepared by:

May 2014

Technical Assistance Provided By:

Arizona Department of Environmental Quality
Arizona Department of Transportation
Maricopa County Air Quality Department
U.S. Environmental Protection Agency

MAG 2014 STATE IMPLEMENTATION PLAN REVISION
FOR THE REMOVAL OF STAGE II VAPOR RECOVERY CONTROLS
IN THE MARICOPA EIGHT-HOUR OZONE NONATTAINMENT AREA

TABLE OF CONTENTS

MAG 2014 STATE IMPLEMENTATION PLAN REVISION
FOR THE REMOVAL OF STAGE II VAPOR RECOVERY CONTROLS
IN THE MARICOPA EIGHT-HOUR OZONE NONATTAINMENT AREA

LIST OF TABLES

LIST OF TABLES (Continued)

MAG 2014 STATE IMPLEMENTATION PLAN REVISION
FOR THE REMOVAL OF STAGE II VAPOR RECOVERY CONTROLS
IN THE MARICOPA EIGHT-HOUR OZONE NONATTAINMENT AREA

LIST OF FIGURES

MAG 2014 STATE IMPLEMENTATION PLAN REVISION FOR THE REMOVAL OF STAGE II VAPOR RECOVERY CONTROLS IN THE MARICOPA EIGHT-HOUR OZONE NONATTAINMENT AREA

APPENDICES

APPENDIX A

Exhibit 1: Technical Document in Support of the MAG 2014 State Implementation Plan Revision for the Removal of Stage II Vapor Recovery Controls in the Maricopa Eight-Hour Ozone Nonattainment Area.

Exhibit 2: Arizona Revised Statutes Listed in Table 1-1.

APPENDIX B

Exhibit 1: Public Hearing Process Documentation.

Exhibit 2: Certification of Adoption.

MAG 2014 STATE IMPLEMENTATION PLAN REVISION FOR THE REMOVAL OF STAGE II VAPOR RECOVERY CONTROLS IN THE MARICOPA EIGHT-HOUR OZONE NONATTAINMENT AREA

EXECUTIVE SUMMARY

MARICOPA ASSOCIATION of GOVERNMENTS

MAG 2014 STATE IMPLEMENTATION PLAN REVISION FOR THE REMOVAL OF STAGE II VAPOR RECOVERY CONTROLS

EXECUTIVE SUMMARY

The Maricopa Association of Governments has prepared the MAG 2014 State Implementation Plan Revision for the Removal of Stage II Vapor Recovery Controls in the Maricopa Eight-Hour Ozone Nonattainment Area through a coordinated effort among the Arizona Department of Weights and Measures, Arizona Department of Environmental Quality, and Maricopa County Air Quality Department. On May 16, 2012, the Environmental Protection Agency (EPA) made a determination that onboard refueling vapor recovery (ORVR) systems are in widespread use throughout the motor vehicle fleet. Since Stage II is a duplicative system, this plan revision requests that EPA remove the requirement to install and operate Stage II vapor recovery systems in the Maricopa eight-hour ozone nonattainment area for new gasoline dispensing facilities beginning in 2014 and for existing gasoline dispensing facilities beginning in October 2016, before a disbenefit begins to occur in 2018.

Since September 2012, the Arizona Department of Weights and Measures, Arizona Department of Environmental Quality, Maricopa County Air Quality Department, and MAG have been coordinating with the Environmental Protection Agency on various approaches to remove the Stage II vapor recovery systems based upon the EPA guidance. In a November 15, 2013, conference call with the Arizona agencies, EPA recommended following a Stage II removal schedule for new gasoline dispensing facilities beginning in 2014 and existing facilities beginning after the 2016 ozone season (October 2016-September 2018). A removal schedule that begins after the 2016 ozone season results in the smallest temporary emission increases of the options considered. EPA requested that the statutory authority for Stage II removal be included in the plan revision. In addition, EPA prefers one plan revision for both new and existing facilities.

Section 182(b)(3) of the Clean Air Act, as amended in 1990, requires gasoline dispensing facilities located in nonattainment areas classified as Serious and above for the ozone National Ambient Air Quality Standards to operate Stage II vapor recovery systems. Stage II vapor recovery systems are installed at gasoline dispensing facilities to control emissions of displaced volatile organic compound (VOC) vapors during the transfer of gasoline from storage tanks to motor vehicle fuel tanks. The displaced vapors from the vehicle fuel tank are captured by the Stage II controls and returned to the underground storage tanks at the gasoline dispensing facility.

Onboard refueling vapor recovery systems consist of an activated carbon canister installed on the motor vehicle into which displaced volatile organic compound vapors are routed from the vehicle fuel tank during refueling. When the engine of the motor vehicle is started, the vapors are purged from the activated carbon canister and into the engine

where they are burned as fuel. Onboard refueling vapor recovery and Stage II are redundant emission control systems.

In response to the requirements of section 182(b)(3) of the Clean Air Act, the State of Arizona passed legislation in 1992 (S.B. 1430) that mandated the implementation of Stage II vapor recovery controls in ozone nonattainment areas classified as Moderate or above. The legislation was incorporated into law as Arizona Revised Statute Title 41, Chapter 15, Article 7. Under this law, most gasoline dispensing facilities were required to implement Stage II vapor recovery by November 15, 1993, with all facilities required to implement Stage II by November 15, 1994.

The Arizona Department of Environmental Quality (ADEQ) originally submitted the statutory provisions and rules establishing Stage II controls in the Maricopa County one-hour ozone nonattainment area in February 1993. In May 1994, ADEQ submitted amended Stage II vapor recovery rules which EPA approved into the Arizona State Implementation Plan on November 1, 1994. The latest version of the statutory provisions and rules regarding Stage II controls in the Maricopa area were approved into the Arizona State Implementation Plan by EPA in a final rule published on June 13, 2012.

On April 16, 2014, the Arizona State Legislature passed House Bill 2128 which authorized the removal of Stage II controls in the Maricopa eight-hour ozone nonattainment area for new gasoline dispensing facilities beginning in 2014 and for existing gasoline dispensing facilities beginning in October 2016, but no later than September 30, 2018, upon approval of this revision by EPA. House Bill 2128 contains an emergency clause which allows the bill to become effective immediately when signed by the Governor. The Governor signed House Bill 2128 on April 22, 2014. House Bill 2128 also maintains the existing requirements associated with installing and operating Stage I vapor recovery systems and clarifies that annual tests are required for Stage I vapor recovery systems. The Arizona Revised Statutes that authorize the scheduled removal of Stage II controls and maintain and clarify existing Stage I vapor recovery systems requirements are listed in Table ES-1. The Arizona Revised Statutes listed in Table ES-1 are included in Appendix A, Exhibit 2.

On August 7, 2012, the EPA released *Guidance on Removing Stage II Gasoline Vapor Control Programs from State Implementation Plans and Assessing Comparable Measures*. The EPA guidance provides technical and policy recommendations on how to develop and submit approvable State Implementation Plan revisions that remove the requirement to implement Stage II controls. This guidance provides equations that are used to estimate the areawide impact of Stage II controls on vehicle refueling emissions.

When assessing the emission reduction benefits associated with Stage II controls on vehicle refueling emissions, the EPA guidance recommends the use of an equation that calculates the areawide incremental emission control gain from Stage II controls as onboard refueling vapor recovery systems are phased in over time. In addition to calculating the incremental benefits of Stage II controls over time, the guidance also provides an equation for calculating the areawide volatile organic compound emission

Table ES-1
Arizona Revised Statutes that Authorize the Scheduled Removal of Stage II Controls and Maintain and Clarify Existing Stage I Vapor Recovery System Requirements

Arizona Revised Statutes (A.R.S.)	Description	Effective Date
A.R.S. § 41-2131. Only 4. and 5.	Definitions	4/22/2014
A.R.S. § 41-2132. Only A. - F.	Stage I vapor recovery systems	4/22/2014
A.R.S. § 41-2133.	Compliance schedules	4/22/2014
A.R.S. § 41-2135.	Stage II vapor recovery systems	4/22/2014

Notes:
House Bill 2128 repeals A.R.S. § 41-2135 and amends A.R.S. § 41-2131 by striking subsection 5, effective September 30, 2018. Stage II controls are not required at new facilities effective April 22, 2014 and decommissioning of Stage II controls at existing facilities will be complete by September 30, 2018.

House Bill 2128 also strikes the definition of “Vapor control system” in A.R.S. § 41-2131 subsection 6, as this phrase is no longer used in statutes amended by House Bill 2128.

reductions associated with the use of Stage II controls as onboard refueling vapor recovery systems are phased in. The EPA equations indicate that Stage II controls no longer provide areawide volatile organic compound emission reductions in the Maricopa area beginning in 2018. A summary of the areawide emission reduction benefits and disbenefits of Stage II controls along with the percent distribution of onboard refueling vapor recovery in the gasoline-powered highway vehicle fleet is shown in Table ES-2.

The requested schedule for removal of Stage II controls in the Maricopa eight-hour ozone nonattainment area in this State Implementation Plan revision includes removing the requirement to install and operate Stage II controls at new gasoline dispensing facilities beginning in 2014 and a two-year phased removal of Stage II controls at existing gasoline dispensing facilities beginning in October 2016 and ending no later than September 30, 2018. Removal of Stage II controls under the schedule requested in this revision optimally minimizes the temporary areawide increase in volatile organic compound emissions in the Maricopa area. The temporary increases from new and existing gasoline dispensing facilities are summed in Table ES-3 to provide the total emission increases associated with the scheduled removal of Stage II controls in the Maricopa eight-hour ozone nonattainment area in calendar years 2014 through 2018.

Section 110(l) of the Clean Air Act precludes the EPA from approving a State Implementation Plan revision if it would interfere with attainment of the National Ambient Air Quality Standards, reasonable further progress towards attainment, or any other applicable requirement under the Clean Air Act. Two analyses are performed in this revision to demonstrate that the loss of temporary emission reduction benefits resulting from the scheduled removal of Stage II controls in the Maricopa eight-hour ozone nonattainment area will not interfere with attainment of the ozone National Ambient Air Quality Standards, or reasonable further progress toward attainment, as required by Clean Air Act Section 110(l).

The first analysis is consistent with EPA guidance by following a planned phase-out of Stage II controls in the Maricopa area that optimally minimizes both the temporary volatile organic compound emissions increase from the loss of Stage II emission reduction benefits in 2014 through 2017 and the Stage II emissions disbenefit that begins in 2018. EPA's guidance on removing Stage II control programs states the following,

> *"Under the circumstances created by the CAA's widespread use waiver, a planned Stage II phase-out that is shown to result in an area-wide VOC emissions increase may also be consistent with the conditions of CAA section 110(l). A phase-out plan that would result in very small foregone emissions reductions in the near term that continue to diminish rapidly over time as ORVR phase-in continues, may result in temporary increases that are too small to interfere with attainment or progress towards attainment."* (p. 5)

The temporary emission increases associated with the scheduled removal of Stage II controls represent less than 0.05% of ozone season day mobile source (onroad and

Table ES-2
Summary of Areawide Emission Reduction Benefits and Disbenefits of Stage II Controls and the Percent Distribution of Onboard Refueling Vapor Recovery (ORVR) in the Gasoline-Powered Highway Vehicle Fleet

Year	Percent of Gasoline-Powered Vehicles With ORVR*	Percent of Gasoline-Powered Vehicle Miles Traveled by Vehicles With ORVR*	Percent of Gasoline Used by Vehicles With ORVR*	Compatibility Factor**	Increment (EPA Equation)	Emission Reduction Benefits from Stage II Controls (kg/day)
2006	42.6	51.2	49.2	0.0382	0.2936	4,549
2007	48.4	57.3	55.5	0.0431	0.2492	3,960
2008	53.3	62.3	60.5	0.0470	0.2140	3,286
2009	57.7	66.8	64.8	0.0503	0.1837	2,659
2010	62.4	71.6	69.5	0.0540	0.1506	2,168
2011	67.1	76.0	73.9	0.0574	0.1196	1,740
2012	71.4	80.0	77.7	0.0604	0.0928	1,379
2013	75.3	83.4	81.0	0.0629	0.0695	1,041
2014	78.7	86.3	84.0	0.0653	0.0484	725
2015	81.8	88.8	86.5	0.0672	0.0308	462
2016	84.5	90.9	88.6	0.0688	0.0160	238
2017	86.8	92.5	90.3	0.0702	0.0040	60
2018	88.8	93.9	91.9	0.0714	-0.0073	-108
2019	90.5	95.0	93.2	0.0724	-0.0164	-244
2020	92.0	95.9	94.3	0.0733	-0.0242	-359

*Due to the similarity between the average national and Maricopa County gasoline-powered highway vehicle fleet ages, the national data from Table A-1 of the EPA guidance document, *Guidance on Removing Stage II Gasoline Vapor Control Programs from State Implementation Plans and Assessing Comparable Measures*, were selected.
**Larger values of this factor denote increased incompatibility between onboard refueling vapor recovery systems and Vacuum Assist Stage II systems.

Table ES-3
Total Temporary Increase in Emissions Associated With the Removal of Stage II Controls from New and Existing Gasoline Dispensing Facilities in the Maricopa Area in 2014 through 2018

Calendar Year	Temporary Increase in VOC Emissions from New Gasoline Dispensing Facilities (kg/day)	Temporary Increase in VOC Emissions from Existing Gasoline Dispensing Facilities (kg/day)	Total Temporary Increase in VOC Emissions from New and Existing Gasoline Dispensing Facilities (kg/day)
2014	15	NA	15
2015	10	10	19
2016	5	10	15
2017	1	30	31
2018	0	23*	23*

*Temporary increases in emissions in 2018 are due to existing facilities that have not removed Stage II controls by the beginning of the 2018 ozone season.
Note: Totals shown in the table may not equal the sum of the individual values due to independent rounding.

nonroad) volatile organic compound emissions in years 2014 through 2018. Compared against the entire volatile organic compound emissions inventory, the temporary emission increases from removal of Stage II controls represent an even smaller percentage. As suggested by EPA guidance, temporary emission increases of this size are too small to interfere with attainment, or progress towards attainment, in the Maricopa eight-hour ozone nonattainment area.

The second analysis demonstrates that removal of Stage II controls in the Maricopa eight-hour ozone nonattainment area beginning in 2014 still produces a downward trend in future year mobile source volatile organic compound emissions. For this analysis, EPA's NONROAD2008a and MOVES2010b models are used to generate daily ozone season nonroad and onroad volatile organic compound emissions in the Maricopa area for the calendar years of 2013 through 2020. The model runs are structured to calculate emissions without the benefit of Stage II controls.

Table ES-4 includes the resulting emissions from the model runs and the emission reduction benefits of Stage II controls. Subtracting the emission reduction benefits of Stage II controls from the mobile source emissions modeled without Stage II controls results in total mobile source emissions with Stage II controls in the Maricopa area for calendar years 2013 through 2020.

Figure ES-1 displays the values in Table ES-4 through trend lines of total mobile source emissions with and without Stage II emissions in years 2013 through 2020 in the Maricopa area. Table ES-4 and Figure ES-1 demonstrate that even when the emission reduction benefits of Stage II controls are removed from total mobile source emissions beginning in 2014, total daily ozone season mobile source volatile organic compound emissions in the Maricopa area are reduced each year after 2013, continuing their downward trend.

The two analyses described above adequately demonstrate that the scheduled removal of Stage II controls in the Maricopa eight-hour ozone nonattainment area comply with the requirements of Section 110(l) of the Clean Air Act. The initial analysis demonstrates that the increased emissions from the removal of Stage II controls in years 2014 through 2018 are optimally minimized through decommissioning of existing facilities beginning in October 2016 and ending in September 2018. The resulting temporary emission increases are tiny and too small to interfere with attainment, or progress toward attainment, as suggested by EPA guidance.

The second analysis illustrates that the removal of Stage II controls in the Maricopa eight-hour ozone nonattainment area does not interfere with the downward trend in total mobile source emissions. Both analyses ensure that the scheduled removal of Stage II controls in the Maricopa eight-hour ozone nonattainment area will not interfere with attainment of the ozone National Ambient Air Quality Standard, or reasonable further progress towards attainment, as required by Section 110(l) of the Clean Air Act.

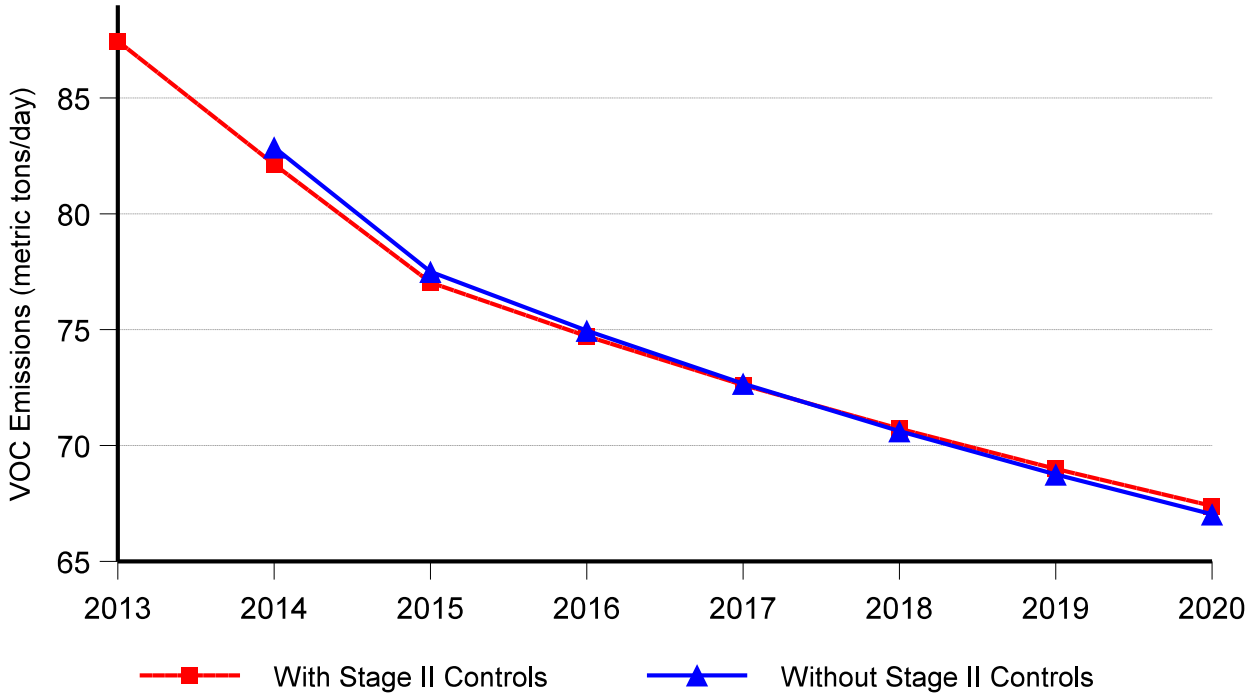
Table ES-4
Daily Ozone Season Mobile Source Volatile Organic Compound Emissions With and Without Stage II Controls in the Maricopa Area for Calendar Years 2013 through 2020

Year	Nonroad Without Stage II (metric tons/day)	Onroad Without Stage II (metric tons/day)	Emission Reduction Benefit from Stage II* (metric tons/day)	Onroad and Nonroad Total (metric tons/day)	
				Without Stage II	With Stage II
2013	26.29	62.20	1.04	NA**	87.45
2014	24.76	58.11	0.73	82.87	82.14
2015	23.49	54.01	0.46	77.50	77.04
2016	22.43	52.53	0.24	74.96	74.72
2017	21.63	51.04	0.06	72.67	72.61
2018	21.07	49.55	-0.11	70.62	70.73
2019	20.68	48.07	-0.24	68.75	68.99
2020	20.45	46.58	-0.36	67.03	67.39

*From Table 2-2

**Under the schedule requested in this State Implementation Plan revision, removal of Stage II controls would begin in 2014 for new gasoline dispensing facilities and in October 2016 for existing gasoline dispensing facilities.

Figure ES-1
Trend Lines of Daily Ozone Season Mobile Source Volatile Organic Compound Emissions With and Without Stage II Controls in the Maricopa Area for Calendar Years 2013 through 2020



CHAPTER ONE

INTRODUCTION

The Maricopa Association of Governments has prepared the MAG 2014 State Implementation Plan Revision for the Removal of Stage II Vapor Recovery Controls in the Maricopa Eight-Hour Ozone Nonattainment Area through a coordinated effort among the Arizona Department of Weights and Measures, Arizona Department of Environmental Quality, and Maricopa County Air Quality Department. On May 16, 2012, the Environmental Protection Agency (EPA) made a determination that onboard refueling vapor recovery (ORVR) systems are in widespread use throughout the motor vehicle fleet. Since Stage II is a duplicative system, this plan revision requests that EPA remove the requirement to install and operate Stage II vapor recovery systems in the Maricopa eight-hour ozone nonattainment area for new gasoline dispensing facilities beginning in 2014 and for existing gasoline dispensing facilities beginning in October 2016, before a disbenefit begins to occur in 2018.

Section 182(b)(3) of the Clean Air Act, as amended in 1990, requires gasoline dispensing facilities located in nonattainment areas classified as Serious and above for the ozone National Ambient Air Quality Standards to operate Stage II vapor recovery systems. Stage II vapor recovery systems are installed at gasoline dispensing facilities to control emissions of displaced volatile organic compound vapors during the transfer of gasoline from storage tanks to motor vehicle fuel tanks. The displaced vapors from the vehicle fuel tank are captured by the Stage II controls and returned to the underground storage tanks at the gasoline dispensing facility.

In addition to the Stage II controls required in Section 182(b)(3), Clean Air Act Section 202(a)(6) requires another method of controlling emissions from vehicle refueling referred to as onboard refueling vapor recovery systems. Onboard refueling vapor recovery systems consist of an activated carbon canister installed on the motor vehicle into which displaced volatile organic compound vapors are routed from the vehicle fuel tank during refueling. When the engine of the motor vehicle is started, the vapors are purged from the activated carbon canister and into the engine where they are burned as fuel.

Beginning with motor vehicles manufactured in 1998, onboard refueling vapor recovery systems have been phased in, and are a required control on nearly all new highway vehicles manufactured since 2006. Due to turnover in the motor vehicle fleet, older vehicles without onboard refueling vapor recovery systems will continue to be replaced by vehicles equipped with onboard refueling vapor recovery systems.

Onboard refueling vapor recovery and Stage II are redundant emission control systems. Section 202(a)(6) of the Clean Air Act provides authority for the EPA to waive the Stage II requirements of Section 182(b)(3) after the EPA Administrator determines onboard refueling vapor recovery systems are in widespread use.

On May 16, 2012, the EPA published a final rule determining that onboard refueling vapor recovery systems are in widespread use throughout the motor vehicle fleet. By this final rule, EPA exercised the authority provided in Section 202(a)(6) of the Clean Air Act to waive the requirement in Section 182(b)(3) for states to implement Stage II vapor recovery systems at gasoline dispensing facilities in nonattainment areas classified as Serious and above for the ozone National Ambient Air Quality Standards. This in turn allows states that were required to implement Stage II vapor recovery systems under Section 182(b)(3) of the Clean Air Act the option to submit to the EPA revised ozone State Implementation Plans that remove Stage II controls.

Since September 2012, the Arizona Department of Weights and Measures, Arizona Department of Environmental Quality, Maricopa County Air Quality Department, and MAG have been coordinating with the Environmental Protection Agency on various approaches to remove the Stage II vapor recovery systems based upon the EPA guidance. In a November 15, 2013, conference call with the Arizona agencies, EPA recommended following a Stage II removal schedule for new gasoline dispensing facilities beginning in 2014 and existing facilities beginning after the 2016 ozone season (October 2016-September 2018). A removal schedule that begins after the 2016 ozone season results in the smallest temporary emission increases of the options considered. EPA requested that the statutory authority for Stage II removal be included in the plan revision. In addition, EPA prefers one plan revision for both new and existing facilities.

BACKGROUND

As mentioned above, Section 182(b)(3) of the Clean Air Act, as amended in 1990, requires gasoline dispensing facilities located in nonattainment areas classified as Serious and above for the ozone National Ambient Air Quality Standards to operate Stage II vapor recovery systems. Originally, Section 182(b)(3) requirements for Stage II controls also applied to Moderate ozone nonattainment areas. However, Section 202(a)(6) of the Clean Air Act removed the requirement for Stage II controls in Moderate ozone nonattainment areas after EPA promulgated onboard refueling vapor recovery standards in April 1994.

In November 1991, the EPA classified a portion of Maricopa County as a Moderate nonattainment area for the one-hour ozone National Ambient Air Quality Standard. The nonattainment area was reclassified to Serious on November 6, 1997, due to failure to attain the one-hour ozone standard by November 15, 1996.

In response to the requirements of Section 182(b)(3) of the Clean Air Act, the State of Arizona passed legislation in 1992 (S.B. 1430) that mandated the implementation of Stage II vapor recovery controls in ozone nonattainment areas classified as Moderate or above. The legislation was incorporated into law as Arizona Revised Statute Title 41, Chapter 15, Article 7. Under this law, most gasoline dispensing facilities were required to implement Stage II vapor recovery by November 15, 1993, with all facilities required to implement Stage II by November 15, 1994.

The Arizona Department of Environmental Quality (ADEQ) originally submitted the statutory provisions and rules establishing Stage II controls in the Maricopa County one-hour ozone nonattainment area in February 1993. In May 1994, ADEQ submitted amended Stage II vapor recovery rules which EPA approved into the Arizona State Implementation Plan on November 1, 1994. The latest version of the statutory provisions and rules regarding Stage II controls in the Maricopa nonattainment area were approved into the Arizona State Implementation Plan by EPA in a final rule published on June 13, 2012.

In April 2004, the EPA classified the Maricopa area as a "Basic" nonattainment area for the 1997 eight-hour ozone standard under Part D, Subpart 1, of the Clean Air Act. The nonattainment area for the 1997 eight-hour ozone standard included a larger portion of Maricopa County than the prior one-hour ozone nonattainment area and also included a small portion of Pinal County located in Apache Junction. Under the anti-backsliding provision's of EPA's rules governing the transition from the one-hour ozone standard to the eight-hour ozone standard, the Maricopa area remains subject to the requirements of Section 182(b)(3) of the Clean Air Act due to its classification as Serious for the one-hour ozone standard on the effective date of the area's designation as nonattainment for the 1997 eight-hour ozone standard (June 15, 2004).

On June 14, 2005, EPA approved the One-Hour Ozone Redesignation Request and Maintenance Plan for the Maricopa County nonattainment area. The EPA revoked the one-hour ozone standard on June 15, 2005, which was less stringent than the eight-hour ozone standard promulgated in 1997.

On May 14, 2012, EPA reclassified the Maricopa area as a Marginal nonattainment area under Part D, Subpart 2, of the Clean Air Act for the 1997 eight-hour ozone standard. The Eight-Hour Ozone Plan for the Maricopa Nonattainment Area was approved by EPA on June 13, 2012.

The EPA published a final rule on May 21, 2012, which classified the Maricopa area as a Marginal nonattainment area for the 2008 eight-hour ozone standard and established an attainment date of December 31, 2015. The nonattainment area for the 2008 eight-hour ozone standard was expanded slightly to the south and west in Maricopa County as compared to the boundary established for the 1997 eight-hour ozone standard. A map of the Maricopa nonattainment area for the 2008 eight-hour ozone standard is shown in Figure 1-1.

REMOVAL OF STAGE II VAPOR RECOVERY CONTROLS IN THE MARICOPA EIGHT-HOUR OZONE NONATTAINMENT AREA

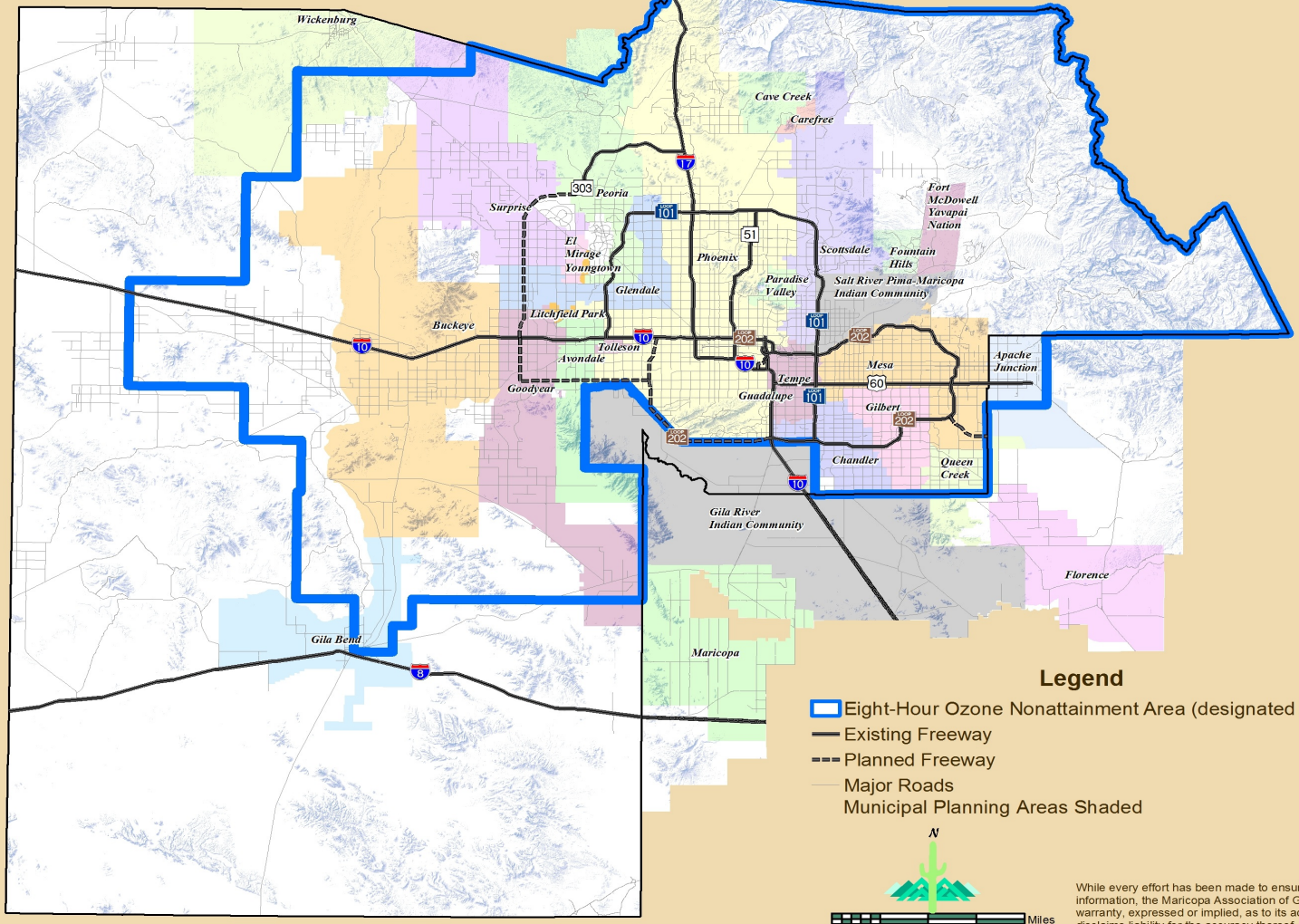
In response to the determination issued by the EPA that onboard refueling vapor recovery systems are in widespread use throughout the motor vehicle fleet effective May 16, 2012, this revision to the Arizona State Implementation Plan is requesting removal of the requirement to install and operate Stage II controls in the Maricopa eight-hour ozone

MARICOPA ASSOCIATION of GOVERNMENTS

Prepared by the Maricopa Association of Governments, May 2013

Figure 1-1

EIGHT-HOUR OZONE NONATTAINMENT AREA AND MUNICIPAL PLANNING AREAS



I:\Projects\air_quality\Maps\85x11\o3_mpa_fig1_1.mxd

nonattainment area for new gasoline dispensing facilities beginning in 2014 and for existing gasoline dispensing facilities beginning in October 2016, with all facilities having Stage II controls removed no later than September 30, 2018. This revision is effective upon approval by EPA.

On April 16, 2014, the Arizona State Legislature passed House Bill 2128 which authorized the removal of Stage II controls in the Maricopa eight-hour ozone nonattainment area for new gasoline dispensing facilities beginning in 2014 and for existing gasoline dispensing facilities beginning in October 2016, but no later than September 30, 2018, upon approval of this revision by EPA. House Bill 2128 contains an emergency clause which allows the bill to become effective immediately when signed by the Governor. The Governor signed House Bill 2128 on April 22, 2014. House Bill 2128 also maintains the existing requirements associated with installing and operating Stage I vapor recovery systems and clarifies that annual tests are required for Stage I vapor recovery systems. The Arizona Revised Statutes that authorize the scheduled removal of Stage II controls and maintain and clarify existing Stage I vapor recovery systems requirements are listed in Table 1-1. The Arizona Revised Statutes listed in Table 1-1 are included in Appendix A, Exhibit 2.

OUTLINE OF THE MAG 2014 REVISION FOR THE REMOVAL OF STAGE II VAPOR RECOVERY CONTROLS

The MAG 2014 State Implementation Plan Revision for the Removal of Stage II Vapor Recovery Controls is composed of the following major sections:

1. Introduction (This Chapter) - Includes a general discussion of Stage II controls and EPA's widespread use determination; historical background; request to remove Stage II controls in the Maricopa eight-hour ozone nonattainment area; and an outline of the MAG 2014 State Implementation Plan Revision.

2. Areawide Impacts of Stage II Vapor Recovery Controls on Vehicle Refueling Emissions - Includes a discussion of the impact of Stage II controls on volatile organic compound emissions in the Maricopa eight-hour ozone nonattainment area as calculated per equations specified by EPA guidance and the temporary increase in emissions associated with the phased removal of Stage II controls.

3. Demonstration of Compliance with Clean Air Act Section 110(l) Requirements - Includes two demonstrations that the removal of Stage II controls in the Maricopa eight-hour ozone nonattainment area satisfy the requirements of Section 110(l) of the Clean Air Act.

Table 1-1
Arizona Revised Statutes that Authorize the Scheduled Removal of Stage II Controls and Maintain and Clarify Existing Stage I Vapor Recovery System Requirements

Arizona Revised Statutes (A.R.S.)	Description	Effective Date
A.R.S. § 41-2131. Only 4. and 5.	Definitions	4/22/2014
A.R.S. § 41-2132. Only A. - F.	Stage I vapor recovery systems	4/22/2014
A.R.S. § 41-2133.	Compliance schedules	4/22/2014
A.R.S. § 41-2135.	Stage II vapor recovery systems	4/22/2014

Notes:
House Bill 2128 repeals A.R.S. § 41-2135 and amends A.R.S. § 41-2131 by striking subsection 5, effective September 30, 2018. Stage II controls are not required at new facilities effective April 22, 2014 and decommissioning of Stage II controls at existing facilities will be complete by September 30, 2018.

House Bill 2128 also strikes the definition of “Vapor control system” in A.R.S. § 41-2131 subsection 6, as this phrase is no longer used in statutes amended by House Bill 2128.

CHAPTER TWO

AREAWIDE IMPACTS OF STAGE II VAPOR RECOVERY CONTROLS ON VEHICLE REFUELING EMISSIONS

On August 7, 2012, the Environmental Protection Agency (EPA) released *Guidance on Removing Stage II Gasoline Vapor Control Programs from State Implementation Plans and Assessing Comparable Measures*. The EPA guidance provides technical and policy recommendations on how to develop and submit approvable State Implementation Plan revisions that remove the requirement to implement Stage II controls. This Chapter uses the equations recommended by EPA in the 2012 guidance to calculate the areawide emission reduction benefits associated with Stage II controls on vehicle refueling emissions in the Maricopa eight-hour ozone nonattainment area. The temporary areawide increase in emissions associated with the phased removal of Stage II controls in the Maricopa eight-hour ozone nonattainment area is also calculated in this Chapter.

EPA GUIDANCE EQUATIONS

When assessing the emission reduction benefits associated with Stage II controls on vehicle refueling emissions, the EPA guidance recommends the use of an equation that calculates the areawide incremental emission control gain from Stage II controls as onboard refueling vapor recovery (ORVR) systems are phased in over time. The EPA guidance equation calculating the incremental value of Stage II controls is represented by the following formula:

$$Increment_i = (Q_{SII})(1-Q_{ORVRi})(\eta_{iuSII}) - (Q_{SIIva})(CF_i)$$

Where:

- $Increment_i$ is the incremental areawide emission reduction benefit of Stage II controls in year *i*;
- Q_{SII} is the fraction of gasoline throughput covered by Stage II controls;
- Q_{ORVRi} is the fraction of annual gallons of gasoline dispensed to onboard refueling vapor recovery-equipped vehicles for year *i*;
- η_{iuSII} is the Stage II controls in-use control efficiency;
- Q_{SIIva} is the fraction of gasoline dispensed through vacuum-assisted Stage II controls; and
- CF_i is the compatibility factor for the increase in underground storage tank vent emissions over the normal breathing/emptying loss emissions associated with vacuum-assisted Stage II controls for year *i*.

The incremental value calculated by the EPA guidance equation identifies the areawide emission reduction benefits of Stage II controls relative to the distribution of onboard refueling vapor recovery systems in a given year. If the incremental value is greater than

zero, then Stage II controls provide areawide emission reduction benefits. If the incremental value is negative, then Stage II controls no longer provide areawide emission reduction benefits and actually produce an areawide emission disbenefit due to incompatibility issues between vehicles equipped with onboard refueling vapor recovery systems and gasoline dispensing facilities equipped with vacuum-assisted Stage II controls.

Table 2-1 shows the calculated incremental value of Stage II controls for years 2013 through 2020 for the Maricopa area. The Table identifies that Stage II controls no longer provide areawide emission reduction benefits beginning in year 2018 for the Maricopa area. Additional details regarding the inputs and calculations associated with the EPA guidance equation used to produce Table 2-1 are provided in the Technical Support Document (Appendix A, Exhibit 1).

In addition to calculating the incremental benefits of Stage II controls over time, the EPA guidance also provides an equation for calculating the amount of areawide volatile organic compound (VOC) emission reductions associated with the use of Stage II controls as onboard refueling vapor recovery systems are phased in. The EPA guidance equation calculating the amount of volatile organic compound emission reductions associated with use of Stage II controls is represented by the following formula:

$$VOC_i = (Increment_i)(GC_i)(EF)$$

Where:

- VOC_i is the amount of areawide volatile organic compound emission reductions associated with use of Stage II controls during the ozone season in year *i*, in kilograms per day;
- $Increment_i$ is the incremental areawide emission reduction benefit of Stage II controls in year *i*;
- GC_i is the projected gasoline consumption during the ozone season in year *i*, in gallons per day; and
- EF is the uncontrolled displacement refueling emission factor during the ozone season in grams per gallon.

Table 2-2 shows the calculated areawide volatile organic compound emission reductions associated with the use of Stage II controls in the Maricopa area during the ozone season (May - September) for years 2013 through 2020. Table 2-2 displays negative emission reductions for Stage II controls beginning in year 2018, which is a direct reflection of the negative incremental value. As in Table 2-1, this indicates that Stage II controls no longer provide areawide emission reductions in the Maricopa area beginning in 2018. Additional details regarding the inputs and calculations associated with the EPA guidance equation used to produce Table 2-2 are provided in the Technical Support Document (Appendix A, Exhibit 1). A summary of the areawide emission reduction benefits and disbenefits of Stage II controls along with the percent distribution of onboard refueling vapor recovery in the gasoline-powered highway vehicle fleet is shown in Table 2-3.

Table 2-1
Incremental Value of Stage II Controls in the Maricopa Area

Year	Q_{SII}	Q_{ORVRi}	η_{iuSII}	Q_{SIIva}	CF_i	**Increment$_i$**
2013	0.95	0.810	0.674	0.828	0.0629	**0.0695**
2014	0.95	0.840	0.674	0.828	0.0653	**0.0484**
2015	0.95	0.865	0.674	0.828	0.0672	**0.0308**
2016	0.95	0.886	0.674	0.828	0.0688	**0.0160**
2017	0.95	0.903	0.674	0.828	0.0702	**0.0040**
2018	0.95	0.919	0.674	0.828	0.0714	**-0.0073**
2019	0.95	0.932	0.674	0.828	0.0724	**-0.0164**
2020	0.95	0.943	0.674	0.828	0.0733	**-0.0242**

Table 2-2
Areawide Volatile Organic Compound Emission Reductions
Associated With the Use of Stage II Controls
in the Maricopa Area During the Ozone Season (May - September)

Year	Increment$_i$	GC$_i$ (gals/day)	EF (grams/gal)	**VOC$_i$ (kg/day)**
2013	0.0695	4,275,360	3.5	**1,041**
2014	0.0484	4,278,910	3.5	**725**
2015	0.0308	4,284,250	3.5	**462**
2016	0.0160	4,259,860	3.5	**238**
2017	0.0040	4,257,558	3.5	**60**
2018	-0.0073	4,249,383	3.5	**-108**
2019	-0.0164	4,247,144	3.5	**-244**
2020	-0.0242	4,240,841	3.5	**-359**

Table 2-3
Summary of Areawide Emission Reduction Benefits and Disbenefits of Stage II Controls and the Percent Distribution of Onboard Refueling Vapor Recovery (ORVR) in the Gasoline-Powered Highway Vehicle Fleet

Year	Percent of Gasoline-Powered Vehicles With ORVR*	Percent of Gasoline-Powered Vehicle Miles Traveled by Vehicles With ORVR*	Percent of Gasoline Used by Vehicles With ORVR*	Compatibility Factor**	Increment (EPA Equation)	Emission Reduction Benefits from Stage II Controls (kg/day)
2006	42.6	51.2	49.2	0.0382	0.2936	4,549
2007	48.4	57.3	55.5	0.0431	0.2492	3,960
2008	53.3	62.3	60.5	0.0470	0.2140	3,286
2009	57.7	66.8	64.8	0.0503	0.1837	2,659
2010	62.4	71.6	69.5	0.0540	0.1506	2,168
2011	67.1	76.0	73.9	0.0574	0.1196	1,740
2012	71.4	80.0	77.7	0.0604	0.0928	1,379
2013	75.3	83.4	81.0	0.0629	0.0695	1,041
2014	78.7	86.3	84.0	0.0653	0.0484	725
2015	81.8	88.8	86.5	0.0672	0.0308	462
2016	84.5	90.9	88.6	0.0688	0.0160	238
2017	86.8	92.5	90.3	0.0702	0.0040	60
2018	88.8	93.9	91.9	0.0714	-0.0073	-108
2019	90.5	95.0	93.2	0.0724	-0.0164	-244
2020	92.0	95.9	94.3	0.0733	-0.0242	-359

*Due to the similarity between the average national and Maricopa County gasoline-powered highway vehicle fleet ages, the national data from Table A-1 of the EPA guidance document, *Guidance on Removing Stage II Gasoline Vapor Control Programs from State Implementation Plans and Assessing Comparable Measures*, were selected.
**Larger values of this factor denote increased incompatibility between onboard refueling vapor recovery systems and Vacuum Assist Stage II systems.

TEMPORARY AREAWIDE INCREASE IN VOLATILE ORGANIC COMPOUND EMISSIONS UNDER A PHASED REMOVAL OF STAGE II CONTROLS IN THE MARICOPA EIGHT-HOUR OZONE NONATTAINMENT AREA

The requested schedule for removal of Stage II controls in the Maricopa eight-hour ozone nonattainment area in this State Implementation Plan revision includes removing the requirement to install and operate Stage II controls at new gasoline dispensing facilities beginning in 2014 and a two-year phased removal of Stage II controls at existing gasoline dispensing facilities beginning in October 2016 and ending no later than September 30, 2018. Removal of Stage II controls under the schedule requested in this revision optimally minimizes the temporary areawide increase in volatile organic compound emissions in the Maricopa area.

New Gasoline Dispensing Facilities

The temporary increase in emissions from the construction of new gasoline dispensing facilities without Stage II controls occurs in 2014 through 2017, since Stage II controls no longer provide areawide emission reduction benefits beginning in 2018. Increased emissions from new facilities are calculated by first quantifying the percent of the total emission reduction benefits from Stage II controls that new facilities account for in 2014 through 2017. Using data provided by the Arizona Department of Weights and Measures on the number of new and total gasoline dispensing facilities in the Maricopa area for calendar years 2008 through 2012, the percent of emission reduction benefits from Stage II controls that are attributable to new gasoline dispensing facilities for calendar years 2008 through 2012 in the Maricopa area is calculated by dividing the number of new gasoline dispensing facilities by the total number of gasoline dispensing facilities for each calendar year. Table 2-4 lists the percent of Stage II emission reduction benefits associated with new gasoline dispensing facilities in the Maricopa area for calendar years 2008 through 2012. The average percent of emission reduction benefits associated with new gasoline dispensing facilities in calendar years 2008 through 2012 is 2.06% as shown in Table 2-4.

The average percent of emissions reduction benefits associated with new facilities is next used to calculate the temporary increase in emissions for new facilities for calendar years 2014 through 2017 in the Maricopa area by multiplying the average percent shown in Table 2-4 (2.06%) by the total emission reduction benefits from Stage II controls in 2014 through 2017 as previously calculated and listed in Table 2-2. This calculation results in a temporary increase of 15 kilograms of volatile organic compound emissions per ozone season day in 2014 (e.g., 2.06% x 725 kg/day), ten kilograms per ozone season day in 2015, five kilograms per ozone season day in 2016, and one kilogram per ozone season day in 2017. Table 2-5 lists the temporary increase in emissions from new gasoline dispensing facilities constructed in 2014 through 2017 without Stage II controls in the Maricopa area.

Table 2-4
Percent of Emission Reduction Benefits from Stage II Controls Associated With New Gasoline Dispensing Facilities in the Maricopa Area for Calendar Years 2008 through 2012

Calendar Year	New Gasoline Dispensing Facilities	Total Gasoline Dispensing Facilities	Percent of Stage II Emission Reduction Benefits Associated With New Gasoline Dispensing Facilities
2008	14	1,120	1.25%
2009	36	1,135	3.17%
2010	32	1,048	3.05%
2011	13	1,079	1.20%
2012	17	1,056	1.61%
Average	**22**	**1,088**	**2.06%**

Table 2-5
Temporary Increase in Emissions from Construction of New Gasoline Dispensing Facilities Without Stage II Controls in the Maricopa Area in 2014 through 2017

Calendar Year	Projected Percent of Stage II Emission Reduction Benefits Associated with New Gasoline Dispensing Facilities	Areawide VOC Emission Reduction Benefits of Stage II Controls* (kg/day)	Temporary Increase in VOC Emissions from New Gasoline Dispensing Facilities (kg/day)
2014	2.06%	725	15
2015	2.06%	462	10
2016	2.06%	238	5
2017	2.06%	60	1

*From Table 2-2

Existing Gasoline Dispensing Facilities

In order to optimally minimize the temporary increase in emissions from removal of Stage II controls at existing gasoline dispensing facilities and allow for adequate time to safely decommission equipment, the removal of Stage II controls at existing facilities in the Maricopa area are phased in over a two-year period beginning after the end of the 2016 ozone season (October 2016 through September 2018). The Arizona Department of Weights and Measures anticipates that the decommissioning of Stage II controls at existing facilities will be spread evenly over each of the 24 months in October 2016 through September 2018. Decommissioning is expected to occur for existing facilities during the month when the annually scheduled Stage II controls test would have occurred. Since it will take 24 months to decommission the over 1,000 existing gasoline dispensing facilities in the Maricopa area, the older half of existing facilities will decommission in the first 12 months of the decommissioning period (October 2016 through September 2017), while the newer half of existing facilities will decommission in the second 12 months of the decommissioning period (October 2017 through September 2018).

A small number of existing gasoline dispensing facilities without Stage II controls will exist in the 2015 and 2016 ozone seasons before the decommissioning period begins as a result of new facilities built in 2014 and 2015 without Stage II controls (e.g., in 2015, 2.06% of existing facilities will not have Stage II controls due to the new facilities built in 2014; in 2016, 4.12% of existing facilities will not have Stage II controls due to new facilities built in 2014 and 2015). Accordingly, the temporary increase in emissions from existing facilities in 2015 and 2016 is calculated by multiplying the percent of existing facilities without Stage II controls by the emission reduction benefits of Stage II in 2015 and 2016.

In order to calculate the temporary increase in emissions from existing facilities in 2017, the percent of existing gasoline dispensing facilities in 2017 that will have Stage II controls removed by the end of the ozone season (September 30, 2017) must be calculated. As explained above, half of the existing gasoline dispensing facilities with Stage II controls will be decommissioned between October 2016 through September 2017, with decommissioning scheduled to occur evenly over each month. Under this schedule, 50.0% of the existing gasoline dispensing facilities will have Stage II controls removed by the end of the ozone season. Thus, the temporary increase in emissions from existing facilities in 2017 is calculated by multiplying the percent of existing facilities without Stage II controls by the emission reduction benefits of Stage II in 2017.

In 2018, areawide emission reduction benefits from Stage II controls no longer occurs in the Maricopa area; rather, Stage II controls that remain in place during the 2018 ozone season produce emission increases due to the incompatibility between Stage II controls and onboard refueling vapor recovery systems. As such, the temporary increase in emissions during 2018 are from facilities that have yet to decommission Stage II controls by the beginning of the 2018 ozone season. The 2018 ozone season begins in May 2018. Under the phased-in decommissioning schedule requested in this revision, 79.17% of the existing gasoline dispensing facilities would have removed Stage II controls by May 2018

(i.e., through April 2018, 19 months of the 24 month decommissioning period has passed, 19 ÷ 24 = 79.17%), leaving 20.83% of existing facilities with Stage II controls still in place. The temporary increase in emissions from existing facilities in 2018 is therefore calculated by multiplying the percent of existing facilities with Stage II controls in place at the beginning of the 2018 ozone season by the areawide emission disbenefit of Stage II controls in 2018.

In summary, the temporary increase in emissions associated with the removal of Stage II controls at existing gasoline dispensing facilities in the Maricopa area in 2015 through 2018 is listed in Table 2-6. The temporary increases from new and existing gasoline dispensing facilities are summed in Table 2-7 to provide the total emission increases associated with the scheduled removal of Stage II controls in the Maricopa eight-hour ozone nonattainment area in calendar years 2014 through 2018.

Table 2-6
Temporary Increase in Emissions Associated With the Removal of Stage II Controls from Existing Gasoline Dispensing Facilities in the Maricopa Area in 2015 through 2018

Calendar Year	Percent of Existing Gasoline Dispensing Facilities Without Stage II Controls by the End of the Ozone Season	Areawide VOC Emission Reduction Benefits of Stage II Controls* (kg/day)	Temporary Increase in VOC Emissions from Existing Gasoline Dispensing Facilities (kg/day)
2015	2.06%	462	10
2016	4.12%	238	10
2017	50.00%	60	30
Calendar Year	Percent of Existing Gasoline Dispensing Facilities With Stage II Controls at the Beginning of the Ozone Season	Areawide VOC Emission Increase from Stage II Controls* (kg/day)	Temporary Increase in VOC Emissions from Existing Gasoline Dispensing Facilities (kg/day)
2018	20.83%	108	23

*From Table 2-2

Table 2-7
Total Temporary Increase in Emissions Associated With the Removal of Stage II Controls from New and Existing Gasoline Dispensing Facilities in the Maricopa Area in 2014 through 2018

Calendar Year	Temporary Increase in VOC Emissions from New Gasoline Dispensing Facilities (kg/day)	Temporary Increase in VOC Emissions from Existing Gasoline Dispensing Facilities (kg/day)	Total Temporary Increase in VOC Emissions from New and Existing Gasoline Dispensing Facilities (kg/day)
2014	15	NA	15
2015	10	10	19
2016	5	10	15
2017	1	30	31
2018	0	23*	23*

*Temporary increases in emissions in 2018 are due to existing facilities that have not removed Stage II controls by the beginning of the 2018 ozone season.
Note: Totals shown in the table may not equal the sum of the individual values due to independent rounding.

CHAPTER THREE

DEMONSTRATION OF COMPLIANCE WITH CLEAN AIR ACT SECTION 110(l) REQUIREMENTS

Section 110(l) of the Clean Air Act precludes the EPA from approving a State Implementation Plan revision if it would interfere with attainment of the National Ambient Air Quality Standards, reasonable further progress towards attainment, or any other applicable requirement under the Clean Air Act. The analyses provided in this chapter demonstrate that the scheduled removal of Stage II controls in the Maricopa eight-hour ozone nonattainment area complies with the requirements of Section 110(l) of the Clean Air Act.

CLEAN AIR ACT SECTION 110(l) REQUIREMENTS

Clean Air Act Section 110(l) states the following,

> *"Each revision to an implementation plan submitted by a State under this chapter shall be adopted by such State after reasonable notice and public hearing. The Administrator shall not approve a revision of a plan if the revision would interfere with any applicable requirement concerning attainment and reasonable further progress (as defined in section 7501 of this title), or any other applicable requirement of this chapter."*

For this revision, complying with Section 110(l) of the Clean Air Act requires an explanation of how the removal of Stage II controls in the Maricopa eight-hour ozone nonattainment area does not interfere with attainment of the ozone National Ambient Air Quality Standard or reasonable further progress towards attainment. EPA's August 7, 2012 guidance document, *Guidance on Removing Stage II Gasoline Vapor Control Programs from State Implementation Plans and Assessing Comparable Measures*, additionally states,

> *"In evaluating whether a given SIP revision would interfere with attainment or maintenance, as required by section 110(l), the EPA generally considers whether the SIP revision will allow for an increase in actual emissions into the air over what is allowed under the existing EPA-approved SIP."* (p. 4)

The loss of the temporary emission reduction benefits of Stage II controls under the scheduled removal requested in this revision represents a temporary increase in emissions over what is currently projected for gasoline refueling in the EPA-approved Arizona State Implementation Plan. The following analyses provide demonstrations that the loss of temporary emission reduction benefits resulting from the scheduled removal of Stage II controls in the Maricopa eight-hour ozone nonattainment area will not interfere with attainment of the ozone National Ambient Air Quality Standards, or reasonable further

progress toward attainment, as required by Clean Air Act Section 110(l).

PHASED STAGE II REMOVAL SCHEDULE THAT OPTIMALLY MINIMIZES TEMPORARY VOLATILE ORGANIC COMPOUND EMISSION INCREASES

EPA's guidance on removing Stage II control programs states the following,

> *"Under the circumstances created by the CAA's widespread use waiver, a planned Stage II phase-out that is shown to result in an area-wide VOC emissions increase may also be consistent with the conditions of CAA section 110(l). A phase-out plan that would result in very small foregone emissions reductions in the near term that continue to diminish rapidly over time as ORVR phase-in continues, may result in temporary increases that are too small to interfere with attainment or progress towards attainment."* (p. 5)

In light of this guidance, the planned phase-out of Stage II controls in the Maricopa area optimally minimizes both the temporary volatile organic compound emissions increase from the loss of Stage II emission reduction benefits in 2014 through 2017 and the Stage II emissions disbenefit that begins in 2018. Since there are over 1,000 gasoline dispensing facilities in the Maricopa area, the Arizona Department of Weights and Measures estimates that it will take two years to remove Stage II controls at existing facilities in a manner that allows for proper decommissioning of Stage II controls. The schedule requested in this revision begins the removal of Stage II controls at existing facilities in October 2016, after the 2016 ozone season, and ends no later than September 30, 2018. Additionally, the schedule allows new facilities (approximately 22 facilities per year on average) to construct without Stage II controls beginning in 2014. Allowing new facilities to construct without Stage II controls avoids the additional economic burden of having to both install and remove Stage II controls in the period of a few years.

By waiting to start the removal of Stage II controls at existing facilities in October 2016, the emission reduction benefits of Stage II controls are only lost for a single ozone season (2017), since Stage II controls no longer provide areawide emission reduction benefits beginning in 2018. The emission reduction benefits of Stage II controls are also the smallest in 2017 as compared to earlier years, which limits the impacts of removing Stage II controls (see Table 2-2). Additionally, since the decommissioning process will take two years to complete, only fifty percent of existing facilities will have Stage II controls removed by the end of the 2017 ozone season, with the other fifty percent of existing facilities still receiving the emission reduction benefits of Stage II controls in the 2017 ozone season.

At the start of the 2018 ozone season, almost eighty percent of existing facilities will have had Stage II controls removed in the Maricopa area under the schedule requested in this revision (see Table 2-6). As such, only twenty percent of existing facilities (those with Stage II controls) will experience the emissions disbenefit of Stage II controls during the 2018 ozone season. By the end of the 2018 ozone season all gasoline dispensing facilities will be operating without Stage II controls in the Maricopa area, ensuring that the increased

emission disbenefit from Stage II controls in following ozone seasons will be avoided.

The temporary emission increases associated with the scheduled removal of Stage II controls (see Table 2-7) represent less than 0.05% of ozone season day mobile source (onroad and nonroad) volatile organic compound emissions in years 2014 through 2018. Compared against the entire volatile organic compound emissions inventory, the temporary emission increases from removal of Stage II controls represent an even smaller percentage. As suggested by EPA guidance, temporary emission increases of this size are too small to interfere with attainment, or progress towards attainment, in the Maricopa eight-hour ozone nonattainment area.

DECLINING TREND IN ONROAD AND NONROAD VOLATILE ORGANIC COMPOUND EMISSIONS AFTER REMOVAL OF STAGE II VAPOR RECOVERY CONTROLS

This analysis demonstrates that removal of Stage II controls in the Maricopa eight-hour ozone nonattainment area beginning in 2014 still produce a downward trend in future year mobile source volatile organic compound emissions. This provides additional evidence that the removal of Stage II controls will not interfere with attainment of the ozone National Ambient Air Quality Standard in the Maricopa area, or reasonable further progress towards attainment, as required by Section 110(l) of the Clean Air Act.

For this analysis, EPA's NONROAD2008a and MOVES2010b models are used to generate daily ozone season nonroad and onroad volatile organic compound emissions in the Maricopa area for the calendar years of 2013 through 2020. The model runs are structured to calculate emissions without the benefit of Stage II controls. Resulting emissions from the model runs are presented in Table 3-1. Additional details on the development of inputs and calculations associated with each of the model runs are available in the Technical Support Document (Appendix A, Exhibit 1).

Table 3-1 also includes the emission reduction benefits of Stage II controls in the Maricopa area as calculated per EPA guidance equations in Chapter 2 of this revision (see Table 2-2). Subtracting the emission reduction benefits of Stage II controls from the summed onroad and nonroad mobile source emissions modeled without Stage II controls results in total mobile source emissions with Stage II controls in the Maricopa area for calendar years 2013 through 2020. As can be seen in Table 3-1, even when the emission reduction benefits of Stage II controls are removed from total mobile source emissions beginning in 2014, total daily ozone season mobile source volatile organic compound emissions in the Maricopa area are reduced each year after 2013. Beginning in 2018, mobile source emissions without Stage II controls are less than mobile source emissions with Stage II controls, as Stage II controls no longer provide emission reduction benefits, but rather produce an emissions disbenefit.

It is important to note that the mobile source emissions presented in Table 3-1 either completely include or exclude Stage II controls at all gasoline dispensing facilities in the

Table 3-1
Daily Ozone Season Mobile Source Volatile Organic Compound Emissions With and Without Stage II Controls in the Maricopa Area for Calendar Years 2013 through 2020

Year	Nonroad Without Stage II (metric tons/day)	Onroad Without Stage II (metric tons/day)	Emission Reduction Benefit from Stage II* (metric tons/day)	Onroad and Nonroad Total (metric tons/day)	
				Without Stage II	With Stage II
2013	26.29	62.20	1.04	NA**	87.45
2014	24.76	58.11	0.73	82.87	82.14
2015	23.49	54.01	0.46	77.50	77.04
2016	22.43	52.53	0.24	74.96	74.72
2017	21.63	51.04	0.06	72.67	72.61
2018	21.07	49.55	-0.11	70.62	70.73
2019	20.68	48.07	-0.24	68.75	68.99
2020	20.45	46.58	-0.36	67.03	67.39

*From Table 2-2

**Under the schedule requested in this State Implementation Plan revision, removal of Stage II controls would begin in 2014 for new gasoline dispensing facilities and in October 2016 for existing gasoline dispensing facilities.

Maricopa area and do not represent the phased removal of Stage II controls in 2014 through 2018 as scheduled and requested in this revision. However, even conservatively assuming that all gasoline dispensing facilities do not have Stage II controls beginning in 2014, mobile source emissions without Stage II controls still decline rapidly in the following years.

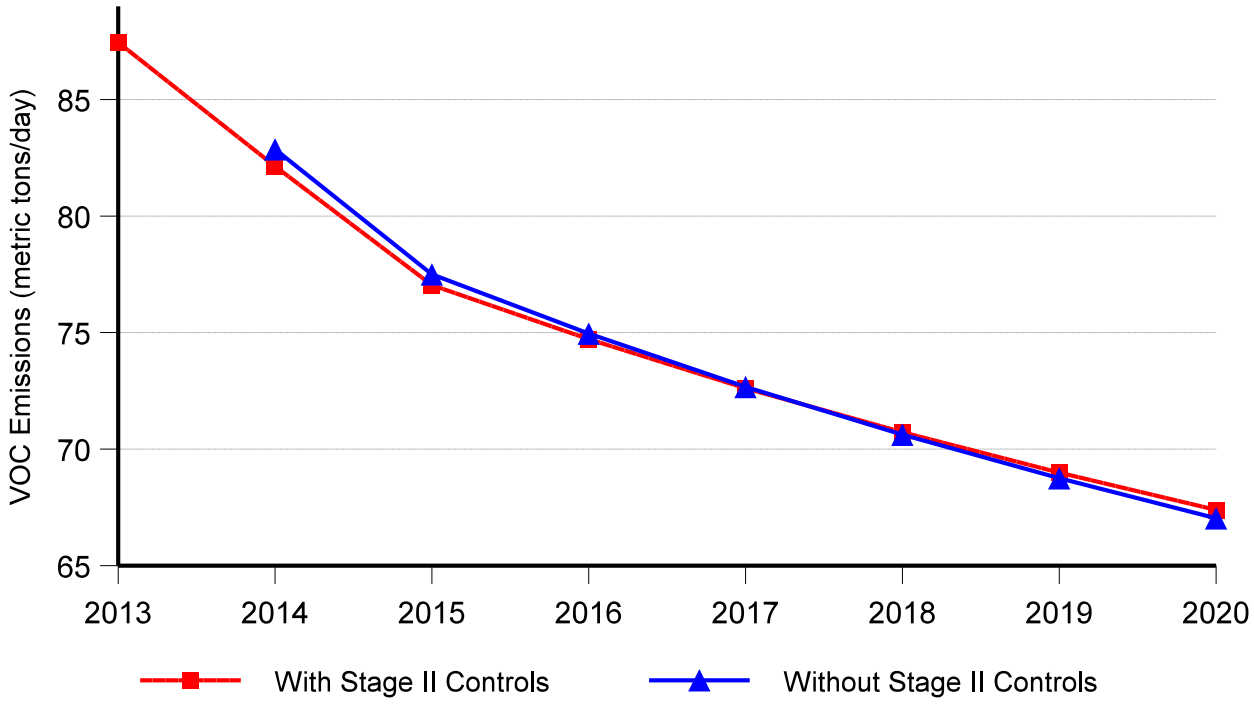
Figure 3-1 displays trend lines of the daily ozone season mobile source volatile organic compound emissions in the Maricopa area with and without Stage II controls. The trend line for mobile source emissions without Stage II controls continues to show a decline in emissions for each calendar year after 2013 in the Maricopa area. Both Figure 3-1 and Table 3-1 demonstrate that the removal of Stage II controls in the Maricopa eight-hour ozone nonattainment area will not interfere with attainment of the ozone National Ambient Air Quality Standard, or reasonable further progress towards attainment, as required by Section 110(l) of the Clean Air Act.

CONCLUSION

The two analyses described above adequately demonstrate that the scheduled removal of Stage II controls in the Maricopa eight-hour ozone nonattainment area comply with the requirements of Section 110(l) of the Clean Air Act. The initial analysis demonstrates that the increased emissions from the removal of Stage II controls in years 2014 through 2018 are optimally minimized through decommissioning of existing facilities beginning in October 2016 and ending in September 2018. The resulting temporary emission increases are tiny and too small to interfere with attainment, or progress toward attainment, as suggested by EPA guidance.

The second analysis illustrates that the removal of Stage II controls in the Maricopa eight-hour ozone nonattainment area does not interfere with the downward trend in total mobile source emissions. Both analyses ensure that the scheduled removal of Stage II controls in the Maricopa eight-hour ozone nonattainment area will not interfere with attainment of the ozone National Ambient Air Quality Standard, or reasonable further progress towards attainment, as required by Section 110(l) of the Clean Air Act.

Figure 3-1
Trend Lines of Daily Ozone Season Mobile Source Volatile Organic Compound Emissions With and Without Stage II Controls in the Maricopa Area for Calendar Years 2013 through 2020



DRAFT

MAG 2014 STATE IMPLEMENTATION PLAN REVISION FOR THE REMOVAL OF STAGE II VAPOR RECOVERY CONTROLS IN THE MARICOPA EIGHT-HOUR OZONE NONATTAINMENT AREA

APPENDICES

MAY 2014

MARICOPA ASSOCIATION of GOVERNMENTS

MAG 2014 STATE IMPLEMENTATION PLAN REVISION FOR THE REMOVAL OF STAGE II VAPOR RECOVERY CONTROLS IN THE MARICOPA EIGHT-HOUR OZONE NONATTAINMENT AREA

APPENDICES

APPENDIX A

Exhibit 1: Technical Document in Support of the MAG 2014 State Implementation Plan Revision for the Removal of Stage II Vapor Recovery Controls in the Maricopa Eight-Hour Ozone Nonattainment Area.

Exhibit 2: Arizona Revised Statutes Listed in Table 1-1.

APPENDIX B

Exhibit 1: Public Hearing Process Documentation.

Exhibit 2: Certification of Adoption.

APPENDIX A

APPENDIX A

EXHIBIT 1:

Technical Document in Support of the MAG 2014 State Implementation Plan Revision for the Removal of Stage II Vapor Recovery Controls in the Maricopa Eight-Hour Ozone Nonattainment Area

TECHNICAL DOCUMENT

IN SUPPORT OF

THE MAG 2014 STATE IMPLEMENTATION PLAN REVISION FOR THE REMOVAL OF STAGE II VAPOR RECOVERY CONTROLS IN THE MARICOPA EIGHT-HOUR OZONE NONATTAINMENT AREA

MAY 2014

Maricopa Association of Governments
302 North 1st Avenue, Suite 300
Phoenix, Arizona 85003

MARICOPA ASSOCIATION of GOVERNMENTS

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

APPENDICES

I. INTRODUCTION

The U.S. Environmental Protection Agency (EPA) published a final rule on May 16, 2012, determining that onboard refueling vapor recovery systems (ORVR) are in widespread use throughout the motor vehicle fleet. By this final rule, EPA exercised the authority provided in Section 202(a)(6) of the Clean Air Act to waive the requirement in Section 182(b)(3) for states to implement Stage II vapor recovery systems at gasoline dispensing facilities in nonattainment areas classified as Serious and above for the National Ambient Air Quality Standards for ozone.

This in turn allows states that were required to implement Stage II vapor recovery systems under Section 182(b)(3) of the Clean Air Act the option to submit to the EPA revised ozone State Implementation Plans that remove Stage II controls. In response to the May 16, 2012, waiver issued by EPA, the MAG 2014 State Implementation Plan Revision requests to remove the requirement to install and operate Stage II controls in the Maricopa eight-hour ozone nonattainment area for new gasoline dispensing facilities beginning in 2014 and for existing gasoline dispensing facilities beginning in October 2016. All existing gasoline dispensing facilities in the Maricopa area are scheduled to have Stage II controls removed by September 30, 2018.

Clean Air Act Section 110(l) requires that any revision to a State Implementation Plan must demonstrate that the revision does not interfere with attainment of the National Ambient Air Quality Standards, or reasonable further progress towards attainment. The phased removal of Stage II controls requested in this revision optimally minimizes the temporary increases in emissions associated with the removal of Stage II controls in the Maricopa eight-hour ozone nonattainment area. The temporary emission increases are too small to interfere with attainment or progress towards attainment.

Chapter II of the Technical Document in Support of the MAG 2014 State Implementation Plan Revision for the Removal of Stage II Vapor Recovery Controls in the Maricopa Eight-Hour Ozone Nonattainment Area (TSD) describes the EPA recommended equations used to calculate the areawide impact of Stage II controls on vehicle refueling emissions in the Maricopa County area. The results of these equations show that beginning in 2018, Stage II controls no longer provide emission reduction benefits in the Maricopa County area due to incompatibility issues between gasoline dispensing facilities equipped with vacuum-assisted Stage II controls and motor vehicles equipped with ORVR systems. Chapter II also quantifies the very small, temporary increase in emissions from the phased removal of Stage II controls from gasoline dispensing facilities in the Maricopa eight-hour ozone nonattainment area in years 2014 through 2018.

Chapter III of the TSD includes onroad and nonroad modeling that demonstrates the continued decline in onroad and nonroad volatile organic compound emissions even under complete removal of Stage II controls beginning in 2014. This provides additional evidence that removal of Stage II controls will not interfere with attainment of the ozone National Ambient Air Quality Standards.

II. AREAWIDE IMPACTS OF STAGE II VAPOR RECOVERY CONTROLS ON VEHICLE REFUELING EMISSIONS

EPA GUIDANCE EQUATIONS

EPA guidance (EPA, 2012c) indicates that states can use the assessment method described in Section 3 of the guidance to determine the point in time when onboard refueling vapor recovery (ORVR) systems achieve equivalent emissions reductions as compared to the reductions credited to Stage II vapor recovery controls. Three principal equations are provided in the guidance for assessing areawide impacts of Stage II controls on vehicle refueling volatile organic compound (VOC) emissions.

EPA Guidance Equation 1: Overall Stage II-ORVR increment

$$increment_i = (Q_{SII})(1 - Q_{ORVR_i})(\eta_{iuSII}) - (Q_{SIIva})(CF_i)$$

The increment in Equation 1 reflects the calendar year areawide VOC emission reduction benefit from Stage II controls at gasoline dispensing facilities (GDF) as vehicles equipped with ORVR systems phase in. A positive value of the increment indicates areawide emission reduction benefits from Stage II vapor controls, while a negative value indicates that Stage II controls no longer provide emission reduction benefits due to incompatibility issues between gasoline dispensing facilities equipped with vacuum-assisted Stage II controls and the increase in motor vehicles equipped with ORVR systems.

EPA guidance recommends the use of Equation 1 as the key equation for assessing and demonstrating compliance with the noninterference provisions of Clean Air Act Section 110(l).

EPA Guidance Equation 2: Overall Stage II-ORVR delta

$$delta = (Q_{SII})(\eta_{iuSII}) - (Q_{SIIva})(CF_i) - (Q_{ORVR_i})(\eta_{ORVR})$$

The delta in Equation 2 is the comparison between the Stage II efficiency and the ORVR efficiency when both refueling VOC emission control technologies are in use together. A positive value of delta indicates that the Stage II efficiency is higher than the ORVR efficiency while a negative value represents a higher ORVR efficiency due to incompatibility issues between vacuum-assisted Stage II controls and increase in motor vehicles with ORVR systems.

EPA guidance recommends using Equation 2 as the key equation for assessing and demonstrating compliance with Clean Air Act Section 193 requirements. As the Maricopa eight-hour ozone nonattainment area is not subject to the requirements of Section 193, Equation 2 is included here for completeness sake only.

EPA Guidance Equation 3: Impact on the refueling VOC emission inventory

$$VOC_i = (Increment_i)(GC_i)(EF)$$

Equation 3 quantifies the VOC emission reduction benefits of Stage II controls for each calendar year as motor vehicles equipped with ORVR systems increase.

Values of the individual variables for the three EPA guidance equations are developed for the entire Maricopa County area due to data availability and are a conservative estimate of the areawide impacts of Stage II controls on vehicle refueling emissions in the Maricopa eight-hour ozone nonattainment area. Description of the individual variables and the data developed for each variable are described as follows:

Q_{SII} - Fraction of gasoline throughput covered by Stage II Vapor Recovery Systems: The Arizona Department of Weights and Measures (ADWM) provided a value of 0.95 (95 percent) for Maricopa County. This value is within the range suggested by EPA guidance for areas like Maricopa County where the Stage II exemption for independent small business marketers with a gasoline dispensing throughput of less than 50,000 gallons per month has not been utilized.

Q_{ORVR} - Fraction of annual gallons of highway motor gasoline dispensed to ORVR-equipped vehicles: The values for the years 2006 through 2020 were obtained from Table A-1, column 4 in the Appendix to the EPA guidance (EPA, 2012c). Section 3.3.3 of the guidance indicates that an area may use national values in Table A-1 or adjust national values as appropriate depending upon the local fleet age. To estimate gasoline vehicle fleet age in Maricopa County, gasoline vehicle registration data on July 7, 2012 for Maricopa County were obtained from the Arizona Department of Transportation. Vehicle age distribution was derived by dividing vehicle population for each age by the total population for a specific gasoline vehicle class. The products of age and age distribution were summed to calculate the fleet-wide age of a vehicle class for Maricopa County in Table II-1.

In order to compare national fleet age and Maricopa County fleet age, weighting factors by vehicle class (distribution of gasoline vehicles in each class) were developed for both the national fleet and the Maricopa County. Weighting factors for the national fleet were derived from national vehicle population outputs from EPA's Motor Vehicle Emission Simulator (MOVES), while weighting factors for Maricopa County's fleet were derived from the July 2012 Maricopa County vehicle registration data. The weighting factors for each vehicle class were applied to the national and Maricopa County fleet ages and then summed to calculate the average fleet age for all gasoline vehicles across the nation and in Maricopa County. As shown in Table II-2, the average national fleet age is 8.41 years, while Maricopa County's average fleet age is 8.68 years. This indicates that the average gasoline fleet age in Maricopa County is only 0.27 years older than the average national gasoline fleet age. Due to the similarity between the average national and Maricopa County fleet ages, the national data in Table A-1 of the EPA guidance were selected for this variable.

η_{iuSII} - Stage II Vapor Recovery System in-use control efficiency: The ADWM estimated a value of 67.4% (0.674) based upon an analysis of 316 unannounced inspections of Stage II controls performed from September 2010 through September 2012 in Maricopa County.

Table II-1. Maricopa County Average Vehicle Population and Age Distribution by Vehicle Type (Data Source: Maricopa County July 7, 2012 Vehicle Registration)

Vehicle Year	Age	LDGV		LDGT1		LDGT2		HDGV.		MC	
		Population	Age Dist.	Population	Age Dist.	Population	Age Dist.	Population	Age Dist.	Population	Age Dist.
2012	0	109,847	0.05261	7,095	0.01678	4,151	0.13222	19,907	0.15198	3,062	0.03954
2011	1	116,602	0.05584	13,213	0.03126	2,961	0.09432	12,136	0.09265	4,138	0.05344
2010	2	106,997	0.05124	11,079	0.02621	1,172	0.03733	5,279	0.04030	2,759	0.03563
2009	3	86,223	0.04129	8,270	0.01956	894	0.02848	5,417	0.04136	6,005	0.07755
2008	4	139,351	0.06674	20,018	0.04736	2,445	0.07788	12,785	0.09761	6,858	0.08857
2007	5	162,424	0.07779	27,967	0.06616	2,654	0.08454	18,146	0.13854	7,421	0.09584
2006	6	161,704	0.07744	31,320	0.07409	2,580	0.08218	21,095	0.16105	6,905	0.08917
2005	7	152,374	0.07297	27,712	0.06556	1,943	0.06189	9,413	0.07186	5,643	0.07288
2004	8	141,044	0.06755	31,726	0.07505	1,643	0.05233	4,384	0.03347	4,127	0.05330
2003	9	127,661	0.06114	27,636	0.06538	1,238	0.03943	1,619	0.01236	4,767	0.06156
2002	10	120,629	0.05777	26,930	0.06371	921	0.02934	689	0.00526	3,794	0.04900
2001	11	107,795	0.05162	29,254	0.06921	1,190	0.03791	750	0.00573	3,251	0.04198
2000	12	101,028	0.04838	24,375	0.05766	1,230	0.03918	8,835	0.06745	2,700	0.03487
1999	13	82,773	0.03964	18,200	0.04306	832	0.02650	3,411	0.02604	2,219	0.02866
1998	14	65,218	0.03123	16,781	0.03970	637	0.02029	2,759	0.02106	1,622	0.02095
1997	15	55,853	0.02676	16,251	0.03845	674	0.02147	2,187	0.01670	1,285	0.01659
1996	16	41,193	0.01973	11,665	0.02760	529	0.01685	354	0.00270	1,209	0.01561
1995	17	38,022	0.01821	11,511	0.02723	525	0.01672	372	0.00284	970	0.01253
1994	18	28,391	0.01360	10,511	0.02487	455	0.01449	226	0.00173	740	0.00956
1993	19	21,849	0.01046	6,595	0.01560	343	0.01093	153	0.00117	686	0.00886
1992	20	16,695	0.00800	4,637	0.01097	220	0.00701	111	0.00085	502	0.00648
1991	21	14,354	0.00687	4,063	0.00961	198	0.00631	101	0.00077	369	0.00477
1990	22	11,372	0.00545	3,446	0.00815	204	0.00650	88	0.00067	350	0.00452
1989	23	9,215	0.00441	3,667	0.00868	245	0.00780	113	0.00086	317	0.00409
1988	24	7,101	0.00340	2,690	0.00636	200	0.00637	79	0.00060	305	0.00394
1987 and Older	25	62,334	0.02985	26,094	0.06173	1,310	0.04173	574	0.00438	5,429	0.07011
Total		2,088,049	1.00000	422,706	1	31,394	1.00000	130,983	1.00000	77,433	1.00000
Avg Age			**8.5**		**10.7**		**7.6**		**5.4**		**8.6**

Table II-2. Averaged National and Maricopa County Gasoline Vehicle Fleet Age

Vehicle Type	Averaged Vehicle Type Age (years)		Weighting Factor (distribution of vehicle type populations)		Averaged Vehicle Fleet Age (years)	
	National	Maricopa	National	Maricopa	National	Maricopa
LDGV	8.0	8.5	0.4853	0.7591		
LDGT1	8.9	10.7	0.2834	0.1537		
LDGT2	8.9	7.6	0.1460	0.0114	***8.41***	***8.68***
HDGV	9.6	5.4	0.0440	0.0476		
MC	6.9	8.6	0.0413	0.0282		

Q_{SIIva} - Fraction of gasoline throughput dispensed through vacuum-assist type Stage II Vapor Recovery Systems: The ADWM provided a value of 82.8% (0.828) based upon distribution records of the types of Stage II control systems used in Maricopa County.

η_{ORVR} - In-use control efficiency for ORVR: The control efficiency for Maricopa County is 0.98 as recommended by the EPA guidance.

GC_i - Projected gasoline consumption, for calendar year of interest: Gasoline consumption data by month for Maricopa County were provided by the Maricopa County Air Quality Department for the calendar years 2006 through 2012. The daily average gasoline consumption for the ozone season (May - September) was calculated. Historical and future gasoline vehicle daily energy consumption data in Maricopa County were derived from MOVES2010b runs. MOVES2010b provided gasoline vehicle daily energy consumption data in mega joule per day, which were converted to gallons per day using a gasoline heat value of 130,000 Btu/gal. Historical (2006-2012) gasoline consumption data for Maricopa County as derived from MOVES2010b runs underestimated gasoline consumption for Maricopa County's fleet when compared to actual historical usage data. To correct for this underestimation, future gasoline consumption projections from MOVES2010b were adjusted by using the ratio of actual gasoline consumption to MOVES2010b gasoline consumption for Maricopa County. The averaged ratio of actual gasoline consumption to MOVES-derived gasoline consumption for the years 2006 through 2012 is given in Table II-3. The adjusted gasoline consumption projections for the years 2013 through 2020 are provided in Table II-4. The adjusted gasoline consumption projection data in Table II-4 were used in calculating the VOC emission reduction benefits of Stage II controls over time.

***EF (g/gal)* - Uncontrolled displacement refueling emission factor:** This variable represents the uncontrolled emissions emitted during vehicle refueling and is calculated by using the following EPA guidance equation:

$$EF(g/gal) = \exp[-1.2798 - 0.0049(\Delta T) + 0.0203(T_d) + 0.1315(RVP)]$$

Arizona values for the dispensed fuel temperature *(T_d),* and the difference between storage tank fuel temperature and dispensed fuel temperature (*ΔT)*, are obtained from Tables A-2 and A-3 of the EPA guidance. The value for Reid Vapor Pressure (*RVP*) in Maricopa County is set to 7.0psi to comply with the state statute RVP limit during the ozone season. The resulting EF for Maricopa County (3.5 g/gal) is calculated as follows:

$$EF = \exp[-1.2798 - 0.0049(7.1) + 0.0203(79°F) + 0.1315(7.0\,psi)] = 3.5\,g/gal$$

CF_i - Compatibility factor: This variable represents an increase in underground storage tank (UST) vent pipe emissions over normal breathing/emptying loss emissions per calendar year. This variable increases as more ORVR vehicles refuel at gasoline dispensing facilities (GDFs) in the presence of vacuum-assisted Stage II control systems. The compatibility issues occur during refueling ORVR vehicles at GDFs with vacuum-assist Stage II control systems. As an ORVR vehicle captures an air vapor mixture from the vehicle fuel tank, the vacuum-assist Stage II system draws fresh air into the UST instead

Table II-3. Actual and Estimated Ozone Season Gasoline Consumption for Maricopa County

Year	Gasoline Consumption (gallons/day)		Ratio (Actual / MOVES)
	Actual	MOVES	
2006	4,426,507	3,901,411	1.1346
2007	4,539,422	3,932,768	1.1543
2008	4,386,751	3,904,294	1.1236
2009	4,135,378	3,849,269	1.0743
2010	4,113,479	3,842,599	1.0705
2011	4,157,642	3,856,366	1.0781
2012	4,244,665	3,853,087	1.1016
		Average	**1.1053**

Table II-4. Projected Ozone Season Gasoline Consumption for Maricopa County

Year	Gasoline Consumption Projections (gallons/day)	
	MOVES	Adjusted
2013	3,868,054	4,275,360
2014	3,871,266	4,278,910
2015	3,876,097	4,284,250
2016	3,854,031	4,259,860
2017	3,851,948	4,257,558
2018	3,844,552	4,249,383
2019	3,842,526	4,247,144
2020	3,836,823	4,240,841

of an air vapor mixture from the vehicle fuel tank. The fresh air drawn into the UST increases gasoline evaporation and pressure in the UST. As a result, fugitive emissions from the UST increase, which causes the incompatibility problem between ORVR vehicles and vacuum-assisted Stage II control systems.

The factor is zero if all GDFs have ORVR-compatible nozzles, or one if all GDFs are incompatible with ORVR vehicles. The compatibility factor for any given year can be calculated from either the product of VMT_{ORVR} and a constant term of 0.07645 or the product of Q_{ORVR} and a constant term 0.0777, per EPA guidance. Both equations result in similar compatibility factors. The compatibility factors for Maricopa County for the years 2006 through 2020 have been calculated using Q_{ORVR} and the constant of 0.0777.

Table II-5 presents the results of EPA equations 1 through 3 when calculated using the variables described above. As stated earlier, EPA maintains that equation 1 is key to demonstrating compliance with the noninterference provision of Clean Air Act Section 110(l). As such, the results of equation 1 show that Stage II controls in the Maricopa County area will no longer provide emission reduction benefits beginning in calendar year 2018 (first year with negative increment value) due to the incompatibility issues between gasoline dispensing facilities equipped with vacuum-assisted Stage II controls and increasing numbers of motor vehicles equipped with ORVR systems.

TEMPORARY AREAWIDE INCREASE IN VOLATILE ORGANIC COMPOUND EMISSIONS UNDER A PHASED REMOVAL OF STAGE II CONTROLS IN THE MARICOPA EIGHT-HOUR OZONE NONATTAINMENT AREA

The requested schedule for removal of Stage II controls in the Maricopa eight-hour ozone nonattainment area in this State Implementation Plan revision includes removing the requirement to install and operate Stage II controls at new gasoline dispensing facilities beginning in 2014 and a two-year phased removal of Stage II controls at existing gasoline dispensing facilities beginning in October 2016 and ending no later than September 30, 2018. Removal of Stage II controls under the schedule requested in this revision optimally minimizes the temporary areawide increase in volatile organic compound emissions in the Maricopa area.

New Gasoline Dispensing Facilities

The temporary increase in emissions from the construction of new gasoline dispensing facilities without Stage II controls occurs in 2014 through 2017, since Stage II controls no longer provide areawide emission reduction benefits beginning in 2018. Increased emissions from new facilities are calculated by first quantifying the percent of the total emission reduction benefits from Stage II controls that new facilities account for in 2014 through 2017. Using data provided by the Arizona Department of Weights and Measures on the number of new and total gasoline dispensing facilities in the Maricopa area for calendar years 2008 through 2012, the percent of emission reduction benefits from Stage II controls that are attributable to new gasoline dispensing facilities for calendar years 2008 through 2012 in the Maricopa area is calculated by dividing the number of new gasoline dispensing facilities by the total number of gasoline dispensing facilities for each calendar year. Table II-6 lists the percent of Stage II emission reduction benefits associated with new gasoline dispensing facilities in the Maricopa area for calendar years 2008 through 2012. The average percent of emission reduction benefits associated with new gasoline dispensing facilities in

Table II-5. Ozone Season Daily VOC Emission Reduction Benefit from Stage II Controls

Year	GC_i Gas Use (gallons/day)	Q_{ORVRi} % of Gas to ORVR Systems	CF_i	***Increment*** (*EPA eq. 1*)	*Delta* (*EPA eq. 2*)	VOC_i Emission Reduction Benefit (kg/day) (*EPA eq. 3*)
2006	4,426,507	49.2%	0.0382	**0.2936**	0.1265	**4,549**
2007	4,539,422	55.5%	0.0431	**0.2492**	0.0607	**3,960**
2008	4,386,751	60.5%	0.0470	**0.2140**	0.0085	**3,286**
2009	4,135,378	64.8%	0.0503	**0.1837**	-0.0364	**2,659**
2010	4,113,479	69.5%	0.0540	**0.1506**	-0.0855	**2,168**
2011	4,157,642	73.9%	0.0574	**0.1196**	-0.1315	**1,740**
2012	4,244,665	77.7%	0.0604	**0.0928**	-0.1711	**1,379**
2013	4,275,360	81.0%	0.0629	**0.0695**	-0.2056	**1,041**
2014	4,278,910	84.0%	0.0653	**0.0484**	-0.2369	**725**
2015	4,284,250	86.5%	0.0672	**0.0308**	-0.2631	**462**
2016	4,259,860	88.6%	0.0688	**0.0160**	-0.2850	**238**
2017	4,257,558	90.3%	0.0702	**0.0040**	-0.3027	**60**
2018	4,249,383	91.9%	0.0714	**-0.0073**	-0.3194	**-108**
2019	4,247,144	93.2%	0.0724	**-0.0164**	-0.3330	**-244**
2020	4,240,841	94.3%	0.0733	**-0.0242**	-0.3445	**-359**

Table II-6. Percent of Emission Reduction Benefits from Stage II Controls Associated with New Gasoline Dispensing Facilities in the Maricopa Area for Calendar Years 2008 through 2012

Calendar Year	New Gasoline Dispensing Facilities	Total Gasoline Dispensing Facilities	Percent of Stage II Emission Reduction Benefits Associated with New Gasoline Dispensing Facilities
2008	14	1,120	1.25%
2009	36	1,135	3.17%
2010	32	1,048	3.05%
2011	13	1,079	1.20%
2012	17	1,056	1.61%
Average	**22**	**1,088**	**2.06%**

calendar years 2008 through 2012 is 2.06% as shown in Table II-6.

The average percent of emissions reduction benefits associated with new facilities is next used to calculate the temporary increase in emissions for new facilities for calendar years 2014 through 2017 in the Maricopa area by multiplying the average percent shown in Table II-6 (2.06%) by the total emission reduction benefits from Stage II controls in 2014 through 2017 as previously calculated and listed in Table II-5. This calculation results in a temporary increase of 15 kilograms of volatile organic compound emissions per ozone season day in 2014 (e.g., 2.06% x 725 kg/day), ten kilograms per ozone season day in 2015, five kilograms per ozone season day in 2016, and one kilogram per ozone season day in 2017. Table II-7 lists the temporary increase in emissions from new gasoline dispensing facilities constructed in 2014 through 2017 without Stage II controls in the Maricopa area.

Existing Gasoline Dispensing Facilities

In order to optimally minimize the temporary increase in emissions from removal of Stage II controls at existing gasoline dispensing facilities, the removal of Stage II controls at existing facilities in the Maricopa area are phased in over a two-year period beginning after the end of the 2016 ozone season (October 2016 through September 2018). The Arizona Department of Weights and Measures anticipates that the decommissioning of Stage II controls at existing facilities will be spread evenly over each of the 24 months in October 2016 through September 2018. Decommissioning is expected to occur for existing facilities during the month when the annually scheduled Stage II controls test would have occurred. Since it will take 24 months to decommission the over 1,000 existing gasoline dispensing facilities in the Maricopa area, the older half of existing facilities will decommission in the first 12 months of the decommissioning period (October 2016 through September 2017), while the newer half of existing facilities will decommission in the second 12 months of the decommissioning period (October 2017 through September 2018).

A small number of existing gasoline dispensing facilities without Stage II controls will exist in the 2015 and 2016 ozone seasons before the decommissioning period begins as a result of new facilities built in 2014 and 2015 without Stage II controls (e.g., in 2015, 2.06% of existing facilities will not have Stage II controls due to the new facilities built in 2014; in 2016, 4.12% of existing facilities will not have Stage II controls due to new facilities built in 2014 and 2015). Accordingly, the temporary increase in emissions from existing facilities in 2015 and 2016 is calculated by multiplying the percent of existing facilities without Stage II controls by the emission reduction benefits of Stage II in 2015 and 2016.

In order to calculate the temporary increase in emissions from existing facilities in 2017, the percent of existing gasoline dispensing facilities in 2017 that will have Stage II controls removed by the end of the ozone season (September 30, 2017) must be calculated. As explained above, half of the existing gasoline dispensing facilities with Stage II controls will be decommissioned between October 2016 through September 2017, with decommissioning scheduled to occur evenly over each month. Under this schedule, 50.00% of the existing gasoline dispensing facilities will have had Stage II controls removed by the end of the ozone season. Thus, the temporary increase in emissions from existing facilities in 2017 is calculated by multiplying the percent of existing facilities without Stage II controls by the emission reduction benefits of Stage II in 2017.

In 2018, areawide emission reduction benefits from Stage II controls no longer occurs in the

Table II-7. Temporary Increase in Emissions from Construction of New Gasoline Dispensing Facilities without Stage II Controls in the Maricopa Area in 2014 through 2017

Calendar Year	Projected Percent of Stage II Emission Reduction Benefits Associated with New Gasoline Dispensing Facilities	Areawide VOC Emission Reduction Benefits of Stage II Controls* (kg/day)	Temporary Increase in VOC Emissions from New Gasoline Dispensing Facilities (kg/day)
2014	2.06%	725	15
2015	2.06%	462	10
2016	2.06%	238	5
2017	2.06%	60	1

*From Table II-5

Maricopa area; rather, Stage II controls that remain in place during the 2018 ozone season produce emission increases due to the incompatibility between Stage II controls and onboard refueling vapor recovery systems. As such, the temporary increase in emissions during 2018 are from facilities that have yet to decommission Stage II controls by the beginning of the 2018 ozone season. The 2018 ozone season begins in May 2018. Under the phased-in decommissioning schedule requested in this revision, 79.17% of the existing gasoline dispensing facilities would have removed Stage II controls by May 2018 (i.e., through April 2018, 19 months of the 24 month decommissioning period has passed, 19 ÷ 24 = 79.17%), leaving 20.83% of existing facilities with Stage II controls still in place. The temporary increase in emissions from existing facilities in 2018 is therefore calculated by multiplying the percent of existing facilities with Stage II controls in place at the beginning of the 2018 ozone season by the areawide emission disbenefit of Stage II controls in 2018.

In summary, the temporary increase in emissions associated with the removal of Stage II controls at existing gasoline dispensing facilities in the Maricopa area in 2015 through 2018 is listed in Table II-8. The temporary increases from new and existing gasoline dispensing facilities are summed in Table II-9 to provide the total emission increases associated with the scheduled removal of Stage II controls in the Maricopa eight-hour ozone nonattainment area in calendar years 2014 through 2018.

The following chapter of this TSD provides an additional analysis demonstrating that the removal of Stage II controls beginning in 2014 in the Maricopa area will meet the requirements of Clean Air Act Section 110(l) by documenting the declining trend in total mobile source VOC emissions after the removal of Stage II controls in the Maricopa area.

Table II-8. Temporary Increase in Emissions Associated with the Removal of Stage II Controls from Existing Gasoline Dispensing Facilities in the Maricopa Area in 2015 through 2018

Calendar Year	Percent of Existing Gasoline Dispensing Facilities without Stage II Controls by the End of the Ozone Season	Areawide VOC Emission Reduction Benefits of Stage II Controls* (kg/day)	Temporary Increase in VOC Emissions from Existing Gasoline Dispensing Facilities (kg/day)
2015	2.06%	462	10
2016	4.12%	238	10
2017	50.00%	60	30
Calendar Year	Percent of Existing Gasoline Dispensing Facilities with Stage II Controls at the Beginning of the Ozone Season	Areawide VOC Emission Increase from Stage II Controls* (kg/day)	Temporary Increase in VOC Emissions from Existing Gasoline Dispensing Facilities (kg/day)
2018	20.83%	108	23

*From Table II-5

Table II-9. Total Temporary Increase in Emissions Associated with the Removal of Stage II Controls from New and Existing Gasoline Dispensing Facilities in the Maricopa Area in 2014 through 2018

Calendar Year	Temporary Increase in VOC Emissions from New Gasoline Dispensing Facilities (kg/day)	Temporary Increase in VOC Emissions from Existing Gasoline Dispensing Facilities (kg/day)	Total Temporary Increase in VOC Emissions from New and Existing Gasoline Dispensing Facilities (kg/day)
2014	15	NA	15
2015	10	10	19
2016	5	10	15
2017	1	30	31
2018	0	23*	23*

*Temporary increases in emissions in 2018 are due to existing facilities that have not removed Stage II controls by the beginning of the 2018 ozone season.

Note: Totals shown in the table may not equal the sum of the individual values due to independent rounding.

III. DECLINING TREND IN ONROAD AND NONROAD VOLATILE ORGANIC COMPOUND EMISSIONS AFTER REMOVAL OF STAGE II VAPOR RECOVERY CONTROLS

This analysis provides evidence that the MAG 2014 Revision complies with Clean Air Act Section 110(l) by demonstrating that removal of Stage II controls in the Maricopa area does not alter the downward trend (reasonable further progress) in onroad and nonroad mobile source volatile organic compound (VOC) emissions in the years 2013 through 2020. Nonroad and onroad mobile source emissions with and without Stage II controls were developed as follows:

NONROAD SOURCE VOC EMISSIONS

The EPA NONROAD2008a model (EPA, 2005 and 2013) was executed to estimate emissions for nonroad equipment categories, excluding aircraft and locomotive emissions, in the ozone season months of May through September. Nonroad source emissions were estimated without Stage II controls on refueling emissions for Maricopa County for the years 2013 through 2020; the Stage II Control Percent option of the NONROAD2008a model was set to zero. Monthly minimum, maximum, and average temperatures were calculated from the 2012 hourly temperatures at the Phoenix Sky Harbor International Airport monitoring site. Monthly local fuel parameters (i.e., RVP, gasoline and diesel sulfur, and ethanol content) required by NONROAD2008a as inputs were obtained from the Arizona Department of Weights and Measures (ADWM). The model runs for future years were based on the monthly local fuel parameter data for Maricopa County in 2012 provided by the ADWM. Table III-1 summarizes the monthly temperatures and local fuel inputs for the ozone season in 2012 used to develop the nonroad emissions.

NONROAD2008a model inputs, including equipment population, activity levels for equipment, and growth factors, were based on default values derived from national averages, with the exception of commercial lawn and garden equipment. Equipment population and activity levels for commercial lawn and garden equipment were based on the results of a survey performed by ENVIRON as a part of the Cap and Trade Oversight Committee (CTOC) work (ENVIRON, 2003). The survey results indicated that the population of commercial lawn and garden equipment in Maricopa County is significantly lower than the default values in NONROAD2008a, while average annual operating hours for the equipment are slightly higher than the default values. RunSpec files for NONROAD2008a model runs are provided in Appendix I.

The average daily nonroad emissions for the ozone season were calculated by dividing the summed monthly NONROAD2008a emissions for May through September by the number of days in May through September (153 days). Average ozone season day VOC emissions from nonroad mobile source emissions without Stage II controls in Maricopa County are provided in Table III-2.

ONROAD SOURCE VOC EMISSIONS

Onroad mobile source ozone season VOC emissions were calculated without Stage II controls using the latest version of the EPA Motor Vehicle Emission Simulator (MOVES2010b), the MAG MOVESLink model, and transportation network assignment data for years 2012, 2015, and 2025 provided by the MAG Transportation Division. The transportation network assignment data used in this analysis utilize the population projections adopted by the MAG Regional Council in June 2013; these projections are based on the 2010 U.S. Census. Transportation network assignment outputs by the TransCAD Travel Demand Model (TDM) provide link specific traffic volume, length,

Table III-1. NONROAD2008a Input Data for Maricopa County in 2012

Month	Temperature			RVP	Sulfur %		Ethanol			Oxygen Wt%
	Min	Max	Avg	(psi)	Gas	Diesel	CNG/ LNG *	Market Share %	Vol %	
May	70.9	98.2	84.6	7.0	0.0016	0.0008	0.003	95	10.2	3.3749
June	81.0	106.5	93.8	6.8	0.0018	0.0006	0.003	95	10.0	3.3278
July	83.2	104.6	93.9	6.8	0.0019	0.0007	0.003	95	10.1	3.3483
August	84.9	105.8	95.4	6.7	0.0017	0.0008	0.003	95	9.9	3.2751
September	78.1	99.2	88.7	6.8	0.0021	0.0007	0.003	95	10.0	3.3213

* NONROAD2008a default was used.

Table III-2. NONROAD2008a Nonroad Ozone Season Day VOC Emissions without Stage II Controls in Maricopa County for Calendar Years 2013 - 2020

Year	Nonroad Mobile Source Ozone Season Day VOC Emissions without Stage II Controls (metric tons/day)
2013	26.29
2014	24.76
2015	23.49
2016	22.43
2017	21.63
2018	21.07
2019	20.68
2020	20.45

and travel times. MOVES2010b includes emission factors for off-network and network (rural restricted access, rural unrestricted access, urban restricted access, and urban unrestricted access) road types. Off-network includes locations such as parking lots, truck stops, rest areas, and freight or bus terminals, where the predominant activities are vehicle starts, parking, and idling. As required in the MOVES guidance (EPA, 2012a), onroad emission inventories include off-network emissions to account for emissions from vehicle starts and extended idling activity. To eliminate the Stage II refueling emission control program from MOVES2010b runs, two fields, "refuelingVaporProgramAdjustment" and "refuelingSpillProgramAdjustment" in the [County Year] table in the MOVES database, were set to zero for all calendar years, as described in Appendix F of EPA's MOVES2010b User Guide (EPA, 2012a).

MOVES2010b

MOVES2010b is EPA's state-of-the-art regulatory emissions model, which replaces the previous mobile source emissions model, MOBILE6.2 (EPA, 2003). MOVES2010b estimates national, state, and county level emissions from motor vehicles. Each MOVES2010b model run requires as input the specification of vehicle types, time periods, geographical areas, pollutants, vehicle operating characteristics, and road types for a particular scenario in a Run Specification (RunSpec).

In order to calculate onroad vehicle ozone season day emissions for calendar years 2013 to 2020, MOVES2010b was executed using local input data and transportation network assignment data for calendar years 2012, 2015, and 2025 and the geographical area of Maricopa County using the County Domain/Scale and the Inventory Calculation Type options. An example of the MOVES2010b model RunSpec summaries can be found in Appendix I.

MOVESLink

MOVESLink is a motor vehicle emissions processing model developed by MAG to estimate onroad mobile source emissions inventories using MOVES2010b and link level activity data output by the MAG TransCAD Travel Demand Model (TDM). MOVESLink is used to perform regional transportation conformity analyses, develop periodic emissions inventories and evaluate transportation projects and emissions control measures in support of State Implementation Plans (SIPs).

MOVESLink was developed in the Python programming language using state-of-the-art GIS technology. This model is used to (1) read link-level activity data from the MAG TransCAD traffic assignment, (2) prepare MOVES2010b input data, (3) execute MOVES2010b, and (4) post-process MOVES2010b results.

MOVES Input Data

MOVES2010b requires detailed local data including fuel data, Inspection and Maintenance (I/M) programs, meteorological data, vehicle population, source type age distribution, annual vehicle miles traveled (VMT), monthly/daily/hourly VMT fractions, road type distribution, average speed distribution, ramp fraction, and Alternative Vehicle and Fuel Technologies (AVFT). Local input data for MOVES2010b were prepared in accordance with MOVES technical guidance (EPA, 2012b).

Fuel Data

The fuel data for each month were derived from the fuel inspection results in Maricopa County provided by the Arizona Department of Weights and Measures (ADWM). The fuel data for Maricopa County were applied to the entire Maricopa County area using the latest 2012 fuel data obtained from the ADWM. The specific MOVES tables for fuel data, which are [fuelsupply] and [fuelformulation], are presented in Appendix I.

I/M Programs

The I/M program data in [IMCoverage] table reflect gasoline vehicle inspection programs being implemented in Maricopa Area A (MCAQD, 2008). The term "I/M vehicles" denotes vehicles which are required to undergo an emissions test and inspection under the Arizona Vehicle Inspection/Maintenance Program. Since participation in the I/M program is required for all vehicles registered in Area A, with the exception of certain model years and vehicle classes, it is assumed that 91.6 percent of the vehicles operating within Area A participate in the I/M program and the rest do not participate in the program (MAG, 2004). This percentage reflects the control measures "Tougher Enforcement of Vehicle Registration and Emissions Test Compliance" and "Expansion of Area A Boundaries," described in the MAG Eight-Hour Ozone Redesignation Request and Maintenance Plan for the Maricopa Nonattainment Area (MAG, 2009). This percentage is directly applied to the Compliance Factor in the [IMCoverage] table. The same I/M programs were applied for the entire Maricopa County area. The specific MOVES table for I/M programs is presented in Appendix I.

Meteorological Data

For MOVES temperature and relative humidity inputs, meteorological data at the Phoenix Sky Harbor International Airport monitoring site were obtained from the National Climatic Data Center (NCDC) for the ozone season (May through September) in 2012. The hourly average temperature and relative humidity data for each month were used in running MOVES2010b for Maricopa County. The specific MOVES table [ZoneMonthHour] for meteorological data is presented in Appendix I.

Vehicle Population

The MOVES source type vehicle population data in Maricopa County for the years 2012 and 2013 were derived from the July 7, 2012 and July 25, 2013 vehicle registration data provided by the Arizona Department of Transportation (ADOT). The July 2012 and 2013 vehicle registration data were allocated to the twenty-eight MOBILE6.2 vehicle types based on MOBILE6.2 VMT fractions. Then, the vehicle population by MOBILE6.2 vehicle type was re-assigned to the thirteen MOVES source types using the match-up table (Table A.1) in accordance with the EPA technical guidance (EPA, 2012b). For MOVES2010b runs with the 2012 network assignment data for the year 2012, the vehicle population data derived from the July 2012 vehicle registration data were utilized. For future years, the vehicle population data derived from the latest July 2013 vehicle registration were adjusted by applying the ratio of the projected Maricopa County population in a future year to those in 2013. The specific MOVES table [SourceTypeYear] for vehicle population is presented in Appendix I.

Source Type Age Distribution

MOVES2010b categorizes vehicles according to vehicle classes and model years. The source type age distribution was prepared using EPA's data converter (registrationdistributionconverter-_veh16.xls) that takes the registration distribution input file of MOBILE6.2 and converts it to the appropriate MOVES age distribution input table [SourceTypeAgeDistribution]. The source type age distribution for Maricopa County was applied. The specific MOVES table for source type age distribution is presented in Appendix I.

Annual VMT

Since MOVES2010b requires annual VMTs by Highway Performance Monitoring System (HPMS) vehicle type as input, the daily VMTs by HPMS vehicle type were derived from (1) the traffic assignment data provided by the MAG Transportation Division, (2) the MOVES default VMT fraction for Maricopa County, and (3) the daily VMTs by facility type and the estimated percentages of daily vehicle travel by vehicle type and highway functional classification provided by ADOT. The daily VMTs by HPMS vehicle type were multiplied by 366 days for 2012 or 365 days for other years to obtain the annual VMTs by HPMS vehicle type. The specific MOVES table [HPMSvTypeYear] for annual VMT is presented in Appendix I.

Road Type Distribution

The road type distribution by HPMS vehicle type was derived from the traffic assignment data provided by the MAG Transportation Division and the MOVES default VMT fraction for Maricopa County. As suggested in EPA technical guidance (EPA, 2012b), the same road type distribution by HPMS vehicle type was used for all MOVES source types within an HPMS vehicle class. The specific MOVES table [RoadTypeDistribution] for road type distribution is presented in Appendix I.

VMT Fraction

The month/day/hour VMT fractions for Maricopa County were developed from data recorded by continuous traffic counters on freeways (ADOT Freeway Management System) and arterials (Phoenix Automatic Traffic Recorders) during the year 2007. The specific MOVES tables [MonthVMTFraction], [DayVMTFraction], and [HourVMTFraction] for VMT fractions are presented in Appendix I.

Average Speed Distribution

In MOVES2010b, vehicle power, speed, and acceleration have a significant effect on vehicle emissions for all pollutants. MOVES2010b estimates those emissions effects by assigning activity to operating mode distributions, which are determined by the distribution of vehicle hours traveled (VHT) by average speed. As recommended in EPA technical guidance (EPA, 2012b), estimates of local average speeds were derived by MOVESLink using the traffic assignment data provided by the MAG Transportation Division. To develop the average speed distribution, VHTs in sixteen speed bins were accumulated separately for each hour of the day, source type, and road type. Then, the average speed distribution was calculated by normalizing VHTs in sixteen speed bins for each hour of the day, source type, and road type. The same methodology was applied to develop the speed estimates for the entire Maricopa County area. The specific MOVES table

[AvgSpeedDistribution] for the average speed distribution is presented in Appendix I.

Ramp Fraction

The ramp fraction represents the percent of VHT on ramps on both rural restricted roads (road type 2) and urban restricted roads (road type 4). The fraction of VHT on ramps was derived by dividing the total VHTs on ramps by the total VHTs for each restricted road type. The VHTs were estimated from the traffic assignment data provided by the MAG Transportation Division. The specific MOVES table [RoadType] for ramp fraction is presented in Appendix I.

AVFT Strategy

MOVES2010b allows users to modify the fuel engine fraction using different fuels and technologies in each model year in order to reflect local conditions. The fleet information for transit buses for the model years 1997 through 2012 provided by Valley Metro was used to prepare the AVFT input file. Since the fleet data are available only for specific model years, MOVES2010b default values were obtained from the [fuelEngFraction] table in the MOVES default database and used for the rest of the model years. The specific MOVES table [AVFT] is presented in Appendix I.

Onroad VOC Emissions

Onroad VOC emissions for Maricopa County without Stage II controls were calculated for five months of the ozone season (May through September) using transportation network assignment data for the years 2012, 2015 and 2025. The onroad VOC emissions total for the five-month ozone season was divided by the total number of days in the ozone season, 153 days, for the individual years. Consequently, ozone season average daily VOC emissions were calculated for the years 2012, 2015, and 2025 in Table III-3.

Ozone season average daily VOC emissions for the years 2013 and 2014 were derived by interpolating ozone season average daily VOC emissions for 2012 and 2015, and those for the years 2016 through 2020 were derived by interpolating emissions for 2015 and 2025. The ozone season average daily VOC emissions from onroad mobile source without Stage II controls in Maricopa County for the years 2013 through 2020 are presented in Table III-4.

SUMMARY OF NONROAD AND ONROAD VOC EMISSIONS WITH AND WITHOUT STAGE II CONTROLS

The emission reduction benefits of Stage II controls in Maricopa County were calculated in Chapter II of this TSD according to equations recommended by recent EPA guidance (EPA, 2012c) and are listed in Table II-5. In order to calculate mobile source emissions with Stage II controls, the emission reductions benefits of Stage II controls listed in Table II-5 were subtracted from the sum of the nonroad and onroad mobile source emissions listed in Tables III-2 and III-4.

Table III-5 provides a summary of daily ozone season mobile source VOC emissions with and without Stage II controls in Maricopa County. It is important to note that the mobile source emissions presented in Table III-5 either completely include or exclude Stage II controls at all gasoline dispensing facilities in the Maricopa area and do not represent the phased removal of Stage II controls in 2014 through 2018 as scheduled and requested in this revision. However, even

Table III-3. Onroad Ozone Season Day VOC Emissions without Stage II Controls in Maricopa County Calculated with Network Assignment Data for 2012, 2015, and 2025

Year	Onroad Mobile Source Ozone Season Day VOC Emissions without Stage II Controls (metric tons/day)
2012	66.29
2015	54.01
2025	39.15

Table III-4. MOVES2010b Onroad Ozone Season Day VOC Emissions without Stage II Controls in Maricopa County for Calendar Years 2013 - 2020

Year	Onroad Mobile Source Ozone Season Day VOC Emissions without Stage II Controls (metric tons/day)
2013	62.20
2014	58.11
2015	54.01
2016	52.53
2017	51.04
2018	49.55
2019	48.07
2020	46.58

Table III-5. Daily Ozone Season Mobile Source VOC Emissions with and without Stage II Controls in Maricopa County for Calendar Years 2013 - 2020

Year	Nonroad w/o Stage II (metric tons/day)	Onroad w/o Stage II (metric tons/day)	Emission Reduction Benefit from Stage II* (metric tons/day)	Onroad and Nonroad VOC Total (metric tons/day)	
				w/o Stage II	with Stage II
2013	26.29	62.20	1.04	NA**	87.45
2014	24.76	58.11	0.73	82.87	82.14
2015	23.49	54.01	0.46	77.50	77.04
2016	22.43	52.53	0.24	74.96	74.72
2017	21.63	51.04	0.06	72.67	72.61
2018	21.07	49.55	-0.11	70.62	70.73
2019	20.68	48.07	-0.24	68.75	68.99
2020	20.45	46.58	-0.36	67.03	67.39

* From Table II-5.

** Under the schedule requested in this revision, removal of Stage II controls would begin in 2014 for new gasoline dispensing facilities and in October 2016 for existing gasoline dispensing facilities.

conservatively assuming that all gasoline dispensing facilities do not have Stage II controls beginning in 2014, mobile source emissions without Stage II controls still decline rapidly in the following years.

It is clear from Table III-5, that even when Stage II controls are no longer in place, mobile source VOC emissions continue to decline. Figure III-1 displays the data in Table III-5 by showing the trend lines of mobile source VOC emissions with and without Stage II controls in 2013 through 2020 in Maricopa County. Figure III-1 demonstrates that removal of Stage II controls in the Maricopa eight-hour ozone nonattainment area will not interfere with attainment, or reasonable further progress towards attainment, as required by Clean Air Act Section 110(l).

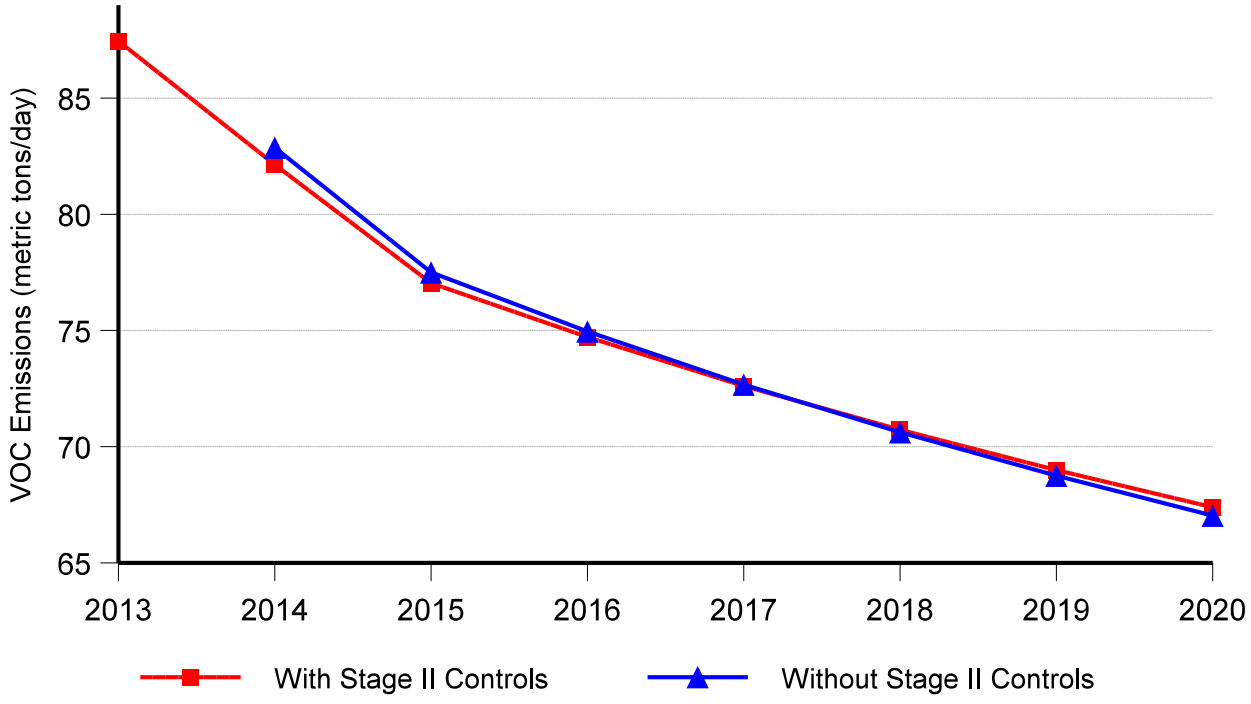


Figure III-1. Trend Lines of Daily Ozone Season Mobile Source VOC Emissions with and without Stage II Controls in Maricopa County for Calendar Years 2013 - 2020.

IV. REFERENCES

ENVIRON, (2003), Maricopa County 2002 Comprehensive Emission Inventory for the Cap and Trade Oversight Committee, Final Report prepared for Arizona Department of Environmental Quality, Oct. 8, 2003.

Maricopa Association of Governments, (2004), One-Hour Ozone Redesignation Request and Maintenance Plan for the Maricopa County Nonattainment Area, March 2004.

Maricopa Association of Governments, (2007), Eight-Hour Ozone Plan for the Maricopa Nonattainment Area, June 2007.

Maricopa Association of Governments, (2009), MAG Eight-Hour Ozone Redesignation Request and Maintenance Plan for the Maricopa Nonattainment Area, February 2009.

Maricopa County Air Quality Department, (2008), Planning Document: Area A, January 2008, http://www.maricopa.gov/aq/divisions/planning_analysis/docs/Area_A.pdf.

U.S. Environmental Protection Agency, (2003), User's Guide to MOBILE6.1 and MOBILE6.2, Mobile Source Emission Factor Model, EPA-420-R-03-010, August 2003.

U.S. Environmental Protection Agency, (2005), User's Guide for the Final NONROAD2005 Model, EPA-420-R-05-013, December 2005.

U.S. Environmental Protection Agency, (2012a), Motor Vehicle Emission Simulator (MOVES), User Guide Version, MOVES2010b, EPA-420-B-12-001, March 2012.

U.S. Environmental Protection Agency, (2012b), Using MOVES to Prepare Emission Inventories in State Implementation Plans and Transportation Conformity: Technical Guidance for MOVES2010, 2010a and 2010b, EPA-420-B-12-028, April 2012.

U.S. Environmental Protection Agency, (2012c), Guidance on Removing Stage II Gasoline Vapor Control Programs from State Implementation Plans and Assessing Comparable Measures, EPA-457/B-12-001, August 7, 2012.

U.S. Environmental Protection Agency, (2013), NONROAD Model (nonroad engines, equipment, and vehicles), http://www.epa.gov/otaq/nonrdmdl.htm.

APPENDIX I

NONROAD2008a and MOVES2010b MODEL INPUTS AND OUTPUTS
FOR EMISSIONS INVENTORY DEVELOPMENT

NONROAD2008a RunSpec

NONROAD2008a RunSpecs for May 2013 are provided as examples.

Written by Nonroad interface at 6/26/2013 1:25:24 PM
This is the options file for the NONROAD program.
The data is sperated into "packets" bases on common
information. Each packet is specified by an
identifier and a terminator. Any notes or descriptions
can be placed between the data packets.

9/2005 epa: Add growth & tech years to PERIOD packet
  and Counties & Retrofit files to RUNFILES packet.

PERIOD PACKET

This is the packet that defines the period for
which emissions are to be estimated. The order of the
records matter. The selection of certain parameters
will cause some of the record that follow to be ignored.
The order of the records is as follows:

1 - Char 10 - Period type for this simulation.
                Valid responses are: ANNUAL, SEASONAL, and MONTHLY
2 - Char 10 - Type of inventory produced.
                Valid responses are: TYPICAL DAY and PERIOD TOTAL
3 - Integer - year of episode (4 digit year)
4 - Char 10 - Month of episode (use complete name of month)
5 - Char 10 - Type of day
                Valid responses are: WEEKDAY and WEEKEND

/PERIOD/
Period type   : Monthly
Summation type   : Period total
Year of episode   : 2013
Season of year   :
Month of year   : May
Weekday or weekend : Weekday
Year of growth calc: 2013
Year of tech sel   : 2013
/END/

OPTIONS PACKET

This is the packet that defines some of the user
options that drive the model. Most parameters are
used to make episode specific emission factor
adjustments. The order of the records is fixed.
The order is as follows.

1 - Char 80 - First title on reports
2 - Char 80 - Second title on reports
3 - Real 10 - Fuel RVP of gasoline for this simulation
4 - Real 10 - Oxygen weight percent of gasoline for simulation
5 - Real 10 - Percent sulfur for gasoline
6 - Real 10 - Percent sulfur for diesel
7 - Real 10 - Percent sulfur for LPG/CNG
8 - Real 10 - Minimum daily temperature (deg. F)
9 - Real 10 - maximum daily temperature (deg. F)
10 - Real 10 - Representative average daily temperature (deg. F)
11 - Char 10 - Flag to determine if region is high altitude

Valid responses are: HIGH and LOW
12 - Char 10 - Flag to determine if RFG adjustments are made
Valid responses are: YES and NO

```
/OPTIONS/
Title 1            : MARICOPA COUNTY MAY 2013
Title 2            : 2013
Fuel RVP for gas   : 7.0
Oxygen Weight %    : 3.3749
Gas sulfur %       : 0.0016
Diesel sulfur %    : 0.0008
Marine Dsl sulfur %: 0.0008
CNG/LPG sulfur %   : 0.003
Minimum temper. (F): 70.9
Maximum temper. (F): 98.2
Average temper. (F): 84.6
Altitude of region : LOW
EtOH Blend % Mkt   : 95.0
EtOH Vol %         : 10.2
/END/
```

REGION PACKET

This is the packet that defines the region for which emissions are to be estimated.

The first record tells the type of region and allocation to perform.

Valid responses are:

US TOTAL - emissions are for entire USA without state breakout.

50STATE - emissions are for all 50 states and Washington D.C., by state.

STATE - emissions are for a select group of states and are state-level estimates

COUNTY - emissions are for a select group of counties and are county level estimates. If necessary, allocation from state to county will be performed.

SUBCOUNTY - emissions are for the specified sub counties and are subcounty level estimates. If necessary, county to subcounty allocation will be performed.

The remaining records define the regions to be included. The type of data which must be specified depends on the region level.

US TOTAL - Nothing needs to be specified. The FIPS code 00000 is used automatically.

50STATE - Nothing needs to be specified. The FIPS code 00000 is used automatically.

STATE - state FIPS codes

COUNTY - state or county FIPS codes. State FIPS

code means include all counties in the
state.

SUBCOUNTY - county FIPS code and subregion code.

```
/REGION/
Region Level       : COUNTY
Maricopa County AZ : 04013
/END/

or use -
Region Level       : STATE
Michigan           : 26000
```

SOURCE CATEGORY PACKET

This packet is used to tell the model which source categories are to be processed. It is optional. If used, only those source categories list will appear in the output data file. If the packet is not found, the model will process all source categories in the population files.

```
Diesel Only -
                  :2270000000
                  :2282020000
                  :2285002015
Spark Ignition Only -
                  :2260000000
                  :2265000000
                  :2267000000
                  :2268000000
                  :2282005010
                  :2282005015
                  :2282010005
                  :2285004015
                  :2285006015
```

This is the packet that lists the names of output files and some of the input data files read by the model. If a drive:\path\ is not given, the location of the NONROAD.EXE file itself is assumed. You will probably want to change the names of the Output and Message files to match that of the OPTion file, e.g., MICH-97.OPT, MICH-97.OUT, MICH-97.MSG, and if used MICH-97.AMS.

```
/RUNFILES/
ALLOC XREF         : data\allocate\allocate.xrf
ACTIVITY           : data\activity\activity.dat
EXH TECHNOLOGY     : data\tech\tech-exh.dat
EVP TECHNOLOGY     : data\tech\tech-evp.dat
SEASONALITY        : data\season\season.dat
REGIONS            : data\season\season.dat
MESSAGE            : c:\nonroad\2013nonroad\output\may13.msg
OUTPUT DATA        : c:\nonroad\2013nonroad\output\may13.out
EPS2 AMS           :
US COUNTIES FIPS   : data\allocate\fips.dat
RETROFIT           :
/END/
```

```
-------------------------------------------------------
This is the packet that defines the equipment population
files read by the model.
-------------------------------------------------------
/POP FILES/
Population File    :c:\nonroad\data\pop\az.pop
/END/

POPULATION FILE    : c:\nonroad\data\POP\MI.POP


-------------------------------------------------------
This is the packet that defines the growth files
files read by the model.
-------------------------------------------------------
/GROWTH FILES/
Growth FILE        : data\growth\nation.grw
/END/

/ALLOC FILES/
Air trans. empl.   :c:\nonroad\data\allocate\az_airtr.alo
Undergrnd coal prod:c:\nonroad\data\allocate\az_coal.alo
Construction cost  :c:\nonroad\data\allocate\az_const.alo
Harvested acres    :c:\nonroad\data\allocate\az_farms.alo
Golf course estab. :c:\nonroad\data\allocate\az_golf.alo
Wholesale estab.   :c:\nonroad\data\allocate\az_holsl.alo
Family housing     :c:\nonroad\data\allocate\az_house.alo
Logging employees  :c:\nonroad\data\allocate\az_loggn.alo
Landscaping empl.  :c:\nonroad\data\allocate\az_lscap.alo
Manufacturing empl.:c:\nonroad\data\allocate\az_mnfg.alo
Oil & gas employees:c:\nonroad\data\allocate\az_oil.alo
Census population  :c:\nonroad\data\allocate\az_pop.alo
Allocation File    :c:\nonroad\data\allocate\az_rail.alo
RV Park establish. :c:\nonroad\data\allocate\az_rvprk.alo
Snowblowers comm.  :c:\nonroad\data\allocate\az_sbc.alo
Snowblowers res.   :c:\nonroad\data\allocate\az_sbr.alo
Snowmobiles        :c:\nonroad\data\allocate\az_snowm.alo
Rec marine inboard :c:\nonroad\data\allocate\az_wib.alo
Rec marine outboard:c:\nonroad\data\allocate\az_wob.alo
/END/
-------------------------------------------------------
This is the packet that defines the emssions factors
files read by the model.
-------------------------------------------------------
/EMFAC FILES/
THC exhaust        : data\emsfac\exhthc.emf
CO exhaust         : data\emsfac\exhco.emf
NOX exhaust        : data\emsfac\exhnox.emf
PM exhaust         : data\emsfac\exhpm.emf
BSFC               : data\emsfac\bsfc.emf
Crankcase          : data\emsfac\crank.emf
Spillage           : data\emsfac\spillage.emf
Diurnal            : data\emsfac\evdiu.emf
Tank Perm          : data\emsfac\evtank.emf
Non-RM Hose Perm   : data\emsfac\evhose.emf
RM Fill Neck Perm  : data\emsfac\evneck.emf
RM Supply/Return   : data\emsfac\evsupret.emf
RM Vent Perm       : data\emsfac\evvent.emf
Hot Soaks          : data\emsfac\evhotsk.emf
RuningLoss         : data\emsfac\evrunls.emf
/END/
```

```
-----------------------------------------------------
This is the packet that defines the deterioration factors
files read by the model.
-----------------------------------------------------
/DETERIORATE FILES/
THC exhaust        : data\detfac\exhthc.det
CO exhaust         : data\detfac\exhco.det
NOX exhaust        : data\detfac\exhnox.det
PM exhaust         : data\detfac\exhpm.det
Diurnal            : data\detfac\evdiu.det
Tank Perm          : data\detfac\evtank.det
Non-RM Hose Perm   : data\detfac\evhose.det
RM Fill Neck Perm  : data\detfac\evneck.det
RM Supply/Return   : data\detfac\evsupret.det
RM Vent Perm       : data\detfac\evvent.det
Hot Soaks          : data\detfac\evhotsk.det
RuningLoss         : data\detfac\evrunls.det
/END/

Optional Packets - Add initial slash "/" to activate

/STAGE II/
Control Factor     : 0.0
/END/
Enter percent control: 95 = 95% control = 0.05 x uncontrolled
Default should be zero control.

/MODELYEAR OUT/
EXHAUST BMY OUT    :
EVAP BMY OUT       :
/END/

SI REPORT/
SI report file-CSV :OUTPUTS\NRPOLLUT.CSV
/END/

/DAILY FILES/
DAILY TEMPS/RVP    :
/END/

PM Base Sulfur
 cols 1-10: dsl tech type;
 11-20: base sulfur wt%; or '1.0' means no-adjust (cert= in-use)
/PM BASE SULFUR/
T2         0.0350    0.02247
T3         0.2000    0.02247
T3B        0.0500    0.02247
T4A        0.0500    0.02247
T4B        0.0015    0.02247
T4         0.0015    0.30
T4N        0.0015    0.30
T2M        0.0350    0.02247
T3M        1.0       0.02247
T4M        1.0       0.02247
/END/
/SOURCE CATEGORY/
                   :2260004010
                   :2260004015
                   :2260004020
                   :2260004025
                   :2260004030
```

:2260004035
:2260004040
:2260004045
:2260004050
:2260004055
:2260004060
:2260004065
:2260004075
:2265004010
:2265004015
:2265004020
:2265004025
:2265004030
:2265004035
:2265004040
:2265004045
:2265004050
:2265004055
:2265004060
:2265004065
:2265004075
:2267004010
:2267004015
:2267004020
:2267004025
:2267004030
:2267004035
:2267004040
:2267004045
:2267004050
:2267004055
:2267004060
:2267004065
:2267004075
:2268004010
:2268004015
:2268004020
:2268004025
:2268004030
:2268004035
:2268004040
:2268004045
:2268004050
:2268004055
:2268004060
:2268004065
:2268004075
:2270004010
:2270004015
:2270004020
:2270004025
:2270004030
:2270004035
:2270004040
:2270004045
:2270004050
:2270004055
:2270004060
:2270004065
:2270004075
:2260001000

:2265001000
:2267001000
:2268001000
:2270001000
:2260002000
:2265002000
:2267002000
:2268002000
:2270002000
:2260003000
:2265003000
:2267003000
:2268003000
:2270003000
:2260005000
:2265005000
:2267005000
:2268005000
:2270005000
:2260006000
:2265006000
:2267006000
:2268006000
:2270006000
:2260007000
:2265007000
:2267007000
:2268007000
:2270007000
:2260009000
:2265009000
:2267009000
:2268009000
:2270009000
:2260010000
:2265010000
:2267010000
:2268010000
:2270010000
:2285000000
:2282000000
/END/

Commercial Lawn and Garden Equipment Runspec

```
Written by Nonroad interface at 6/26/2013 1:31:57 PM
This is the options file for the NONROAD program.
The data is sperated into "packets" bases on common
information.  Each packet is specified by an
identifier and a terminator. Any notes or descriptions
can be placed between the data packets.

9/2005 epa: Add growth & tech years to PERIOD packet
  and Counties & Retrofit files to RUNFILES packet.

-----------------------------------------------------

                  PERIOD PACKET

This is the packet that defines the period for
which emissions are to be estimated.  The order of the
records matter.  The selection of certain parameters
will cause some of the record that follow to be ignored.
The order of the records is as follows:

1  - Char 10  - Period type for this simulation.
                  Valid responses are: ANNUAL, SEASONAL, and MONTHLY
2  - Char 10  - Type of inventory produced.
                  Valid responses are: TYPICAL DAY and PERIOD TOTAL
3  - Integer  - year of episode (4 digit year)
4  - Char 10  - Month of episode (use complete name of month)
5  - Char 10  - Type of day
                  Valid responses are: WEEKDAY and WEEKEND
-----------------------------------------------------
/PERIOD/
Period type        : Monthly
Summation type     : Period total
Year of episode    : 2013
Season of year     :
Month of year      : May
Weekday or weekend : Weekday
Year of growth calc: 2013
Year of tech sel   : 2013
/END/

-----------------------------------------------------

                  OPTIONS PACKET

This is the packet that defines some of the user
options that drive the model.  Most parameters are
used to make episode specific emission factor
adjustments. The order of the records is fixed.
The order is as follows.

1  -  Char 80  - First title on reports
2  -  Char 80  - Second title on reports
3  -  Real 10  - Fuel RVP of gasoline for this simulation
4  -  Real 10  - Oxygen weight percent of gasoline for simulation
5  -  Real 10  - Percent sulfur for gasoline
6  -  Real 10  - Percent sulfur for diesel
7  -  Real 10  - Percent sulfur for LPG/CNG
8  -  Real 10  - Minimum daily temperature (deg. F)
9  -  Real 10  - maximum daily temperature (deg. F)
```

```
10 -  Real 10  - Representative average daily temperature (deg. F)
11 -  Char 10  - Flag to determine if region is high altitude
                      Valid responses are: HIGH and LOW
12 -  Char 10  - Flag to determine if RFG adjustments are made
                      Valid responses are: YES and NO
-----------------------------------------------------
/OPTIONS/
Title 1            : MARICOPA COUNTY L&G MAY 2013
Title 2            : 2013
Fuel RVP for gas   : 7.0
Oxygen Weight %    : 3.3749
Gas sulfur %       : 0.0016
Diesel sulfur %    : 0.0008
Marine Dsl sulfur %: 0.0008
CNG/LPG sulfur %   : 0.003
Minimum temper. (F): 70.9
Maximum temper. (F): 98.2
Average temper. (F): 84.6
Altitude of region : LOW
EtOH Blend % Mkt   : 95
EtOH Vol %         : 10.2
/END/

-----------------------------------------------------
                  REGION PACKET

This is the packet that defines the region for which
emissions are to be estimated.

The first record tells the type of region and
allocation to perform.

Valid responses are:
US TOTAL   -  emissions are for entire USA without state
              breakout.

50STATE    -  emissions are for all 50 states
              and Washington D.C., by state.

STATE      -  emissions are for a select group of states
              and are state-level estimates

COUNTY     -  emissions are for a select group of counties
              and are county level estimates.  If necessary,
              allocation from state to county will be performed.

SUBCOUNTY  -  emissions are for the specified sub counties
              and are subcounty level estimates.  If necessary,
              county to subcounty allocation will be performed.

The remaining records define the regions to be included.
The type of data which must be specified depends on the
region level.

US TOTAL   -  Nothing needs to be specified.  The FIPS
              code 00000 is used automatically.

50STATE    -  Nothing needs to be specified.  The FIPS
              code 00000 is used automatically.

STATE      -  state FIPS codes
```

```
COUNTY     -  state or county FIPS codes.  State FIPS
              code means include all counties in the
              state.

SUBCOUNTY  -  county FIPS code and subregion code.
-----------------------------------------------------
/REGION/
Region Level       : COUNTY
Maricopa County AZ : 04013
/END/

or use -
Region Level       : STATE
Michigan           : 26000
-----------------------------------------------------

                  SOURCE CATEGORY PACKET

This packet is used to tell the model which source
categories are to be processed.  It is optional.
If used, only those source categories list will
appear in the output data file.  If the packet is
not found, the model will process all source
categories in the population files.
-----------------------------------------------------

Diesel Only -
                   :2270000000
                   :2282020000
                   :2285002015
Spark Ignition Only -
                   :2260000000
                   :2265000000
                   :2267000000
                   :2268000000
                   :2282005010
                   :2282005015
                   :2282010005
                   :2285004015
                   :2285006015
-----------------------------------------------------
 This is the packet that lists the names of output files
 and some of the input data files read by the model.  If
 a drive:\path\ is not given, the location of the
 NONROAD.EXE file itself is assumed.  You will probably
 want to change the names of the Output and Message files
 to match that of the OPTion file, e.g., MICH-97.OPT,
 MICH-97.OUT, MICH-97.MSG, and if used MICH-97.AMS.
-----------------------------------------------------
/RUNFILES/
ALLOC XREF         : data\allocate\allocate.xrf
ACTIVITY           : data\activity\azmcl.dat
EXH TECHNOLOGY     : data\tech\tech-exh.dat
EVP TECHNOLOGY     : data\tech\tech-evp.dat
SEASONALITY        : data\season\season.dat
REGIONS            : data\season\season.dat
MESSAGE            : c:\nonroad\2013nonroad\output\may13lg.msg
OUTPUT DATA        : c:\nonroad\2013nonroad\output\may13lg.out
EPS2 AMS           :
US COUNTIES FIPS   : data\allocate\fips.dat
RETROFIT           :
```

```
/END/

-------------------------------------------------------
This is the packet that defines the equipment population
files read by the model.
-------------------------------------------------------
/POP FILES/
Population file    :c:\nonroad\data\pop\azmclg.pop
/END/

POPULATION FILE    : c:\nonroad\data\POP\MI.POP


-------------------------------------------------------
This is the packet that defines the growth files
files read by the model.
-------------------------------------------------------
/GROWTH FILES/
Growth FILE        : data\growth\nation.grw
/END/

/ALLOC FILES/
Air trans. empl.   :c:\nonroad\data\allocate\az_airtr.alo
Undergrnd coal prod:c:\nonroad\data\allocate\az_coal.alo
Construction cost  :c:\nonroad\data\allocate\az_const.alo
Harvested acres    :c:\nonroad\data\allocate\az_farms.alo
Golf course estab. :c:\nonroad\data\allocate\az_golf.alo
Wholesale estab.   :c:\nonroad\data\allocate\az_holsl.alo
Family housing     :c:\nonroad\data\allocate\az_house.alo
Logging employees  :c:\nonroad\data\allocate\az_loggn.alo
Landscaping empl.  :c:\nonroad\data\allocate\az_lscap.alo
Manufacturing empl.:c:\nonroad\data\allocate\az_mnfg.alo
Oil & gas employees:c:\nonroad\data\allocate\az_oil.alo
Census population  :c:\nonroad\data\allocate\az_pop.alo
Allocation File    :c:\nonroad\data\allocate\az_rail.alo
RV Park establish. :c:\nonroad\data\allocate\az_rvprk.alo
Snowblowers comm.  :c:\nonroad\data\allocate\az_sbc.alo
Snowblowers res.   :c:\nonroad\data\allocate\az_sbr.alo
Snowmobiles        :c:\nonroad\data\allocate\az_snowm.alo
Rec marine inboard :c:\nonroad\data\allocate\az_wib.alo
Rec marine outboard:c:\nonroad\data\allocate\az_wob.alo
/END/
-------------------------------------------------------
This is the packet that defines the emssions factors
files read by the model.
-------------------------------------------------------
/EMFAC FILES/
THC exhaust        : data\emsfac\exhthc.emf
CO exhaust         : data\emsfac\exhco.emf
NOX exhaust        : data\emsfac\exhnox.emf
PM exhaust         : data\emsfac\exhpm.emf
BSFC               : data\emsfac\bsfc.emf
Crankcase          : data\emsfac\crank.emf
Spillage           : data\emsfac\spillage.emf
Diurnal            : data\emsfac\evdiu.emf
Tank Perm          : data\emsfac\evtank.emf
Non-RM Hose Perm   : data\emsfac\evhose.emf
RM Fill Neck Perm  : data\emsfac\evneck.emf
RM Supply/Return   : data\emsfac\evsupret.emf
RM Vent Perm       : data\emsfac\evvent.emf
Hot Soaks          : data\emsfac\evhotsk.emf
```

```
RuningLoss         : data\emsfac\evrunls.emf
/END/

------------------------------------------------------
This is the packet that defines the deterioration factors
files read by the model.
------------------------------------------------------
/DETERIORATE FILES/
THC exhaust        : data\detfac\exhthc.det
CO exhaust         : data\detfac\exhco.det
NOX exhaust        : data\detfac\exhnox.det
PM exhaust         : data\detfac\exhpm.det
Diurnal            : data\detfac\evdiu.det
Tank Perm          : data\detfac\evtank.det
Non-RM Hose Perm   : data\detfac\evhose.det
RM Fill Neck Perm  : data\detfac\evneck.det
RM Supply/Return   : data\detfac\evsupret.det
RM Vent Perm       : data\detfac\evvent.det
Hot Soaks          : data\detfac\evhotsk.det
RuningLoss         : data\detfac\evrunls.det
/END/

Optional Packets - Add initial slash "/" to activate

/STAGE II/
Control Factor     : 0.0
/END/
Enter percent control: 95 = 95% control = 0.05 x uncontrolled
Default should be zero control.

/MODELYEAR OUT/
EXHAUST BMY OUT    :
EVAP BMY OUT       :
/END/

SI REPORT/
SI report file-CSV :OUTPUTS\NRPOLLUT.CSV
/END/

/DAILY FILES/
DAILY TEMPS/RVP    :
/END/

PM Base Sulfur
 cols 1-10: dsl tech type;
 11-20: base sulfur wt%; or '1.0' means no-adjust (cert= in-use)
/PM BASE SULFUR/
T2         0.0350    0.02247
T3         0.2000    0.02247
T3B        0.0500    0.02247
T4A        0.0500    0.02247
T4B        0.0015    0.02247
T4         0.0015    0.30
T4N        0.0015    0.30
T2M        0.0350    0.02247
T3M        1.0       0.02247
T4M        1.0       0.02247
/END/
/SOURCE CATEGORY/
                   :2260004011
                   :2260004016
```

:2260004021
:2260004026
:2260004031
:2260004036
:2260004041
:2260004046
:2260004051
:2260004056
:2260004061
:2260004066
:2260004071
:2260004076
:2265004011
:2265004016
:2265004021
:2265004026
:2265004031
:2265004036
:2265004041
:2265004046
:2265004051
:2265004056
:2265004061
:2265004066
:2265004071
:2265004076
:2267004011
:2267004016
:2267004021
:2267004026
:2267004031
:2267004036
:2267004041
:2267004046
:2267004051
:2267004056
:2267004061
:2267004066
:2267004071
:2267004076
:2268004011
:2268004016
:2268004021
:2268004026
:2268004031
:2268004036
:2268004041
:2268004046
:2268004051
:2268004056
:2268004061
:2268004066
:2268004071
:2268004076
:2270004011
:2270004016
:2270004021
:2270004026
:2270004031
:2270004036
:2270004041

:2270004046
:2270004051
:2270004056
:2270004061
:2270004066
:2270004071
:2270004076
/END/

MOVES2010b RunSpecs and Inputs

MOVES2010b RunSpec summary, RunSpec and input data for the June 2012 run are provided as examples.

MOVES2010b RunSpec Summary

Time Spans:
- Aggregate By: Hour
- Years: 2012
- Months: June
- Days: Weekdays
- Hours: Begin Hour: 00:00 - 00:59
  End Hour: 23:00 - 23:59

Geographic Bounds:
- COUNTY geography
- Selection: ARIZONA - Maricopa County

On Road Vehicle Equipment:
- Diesel Fuel - Combination Long-haul Truck
- Diesel Fuel - Combination Short-haul Truck
- Diesel Fuel - Intercity Bus
- Diesel Fuel - Light Commercial Truck
- Diesel Fuel - Motor Home
- Diesel Fuel - Motorcycle
- Diesel Fuel - Passenger Car
- Diesel Fuel - Passenger Truck
- Diesel Fuel - Refuse Truck
- Diesel Fuel - School Bus
- Diesel Fuel - Single Unit Long-haul Truck
- Diesel Fuel - Single Unit Short-haul Truck
- Diesel Fuel - Transit Bus
- Gasoline - Combination Long-haul Truck
- Gasoline - Combination Short-haul Truck
- Gasoline - Intercity Bus
- Gasoline - Light Commercial Truck
- Gasoline - Motor Home
- Gasoline - Motorcycle
- Gasoline - Passenger Car
- Gasoline - Passenger Truck
- Gasoline - Refuse Truck
- Gasoline - School Bus
- Gasoline - Single Unit Long-haul Truck
- Gasoline - Single Unit Short-haul Truck
- Gasoline - Transit Bus
- Compressed Natural Gas (CNG) - Combination Long-haul Truck
- Compressed Natural Gas (CNG) - Combination Short-haul Truck
- Compressed Natural Gas (CNG) - Intercity Bus
- Compressed Natural Gas (CNG) - Light Commercial Truck
- Compressed Natural Gas (CNG) - Motor Home
- Compressed Natural Gas (CNG) - Motorcycle
- Compressed Natural Gas (CNG) - Passenger Car
- Compressed Natural Gas (CNG) - Passenger Truck
- Compressed Natural Gas (CNG) - Refuse Truck
- Compressed Natural Gas (CNG) - School Bus
- Compressed Natural Gas (CNG) - Single Unit Long-haul Truck
- Compressed Natural Gas (CNG) - Single Unit Short-haul Truck
- Compressed Natural Gas (CNG) - Transit Bus

Road Types:
- Off-Network
- Rural Restricted Access
- Rural Unrestricted Access
- Urban Restricted Access
- Urban Unrestricted Access

Pollutants And Processes:
- Running Exhaust Total Gaseous Hydrocarbons
- Running Exhaust Non-Methane Hydrocarbons
- Running Exhaust Non-Methane Organic Gases
- Running Exhaust Total Organic Gases
- Running Exhaust Volatile Organic Compounds
- Running Exhaust Oxides of Nitrogen (Nox)
- Running Exhaust Methane (CH4)
- Crankcase Running Exhaust Total Gaseous Hydrocarbons
- Crankcase Running Exhaust Non-Methane Hydrocarbons
- Crankcase Running Exhaust Non-Methane Organic Gases
- Crankcase Running Exhaust Total Organic Gases
- Crankcase Running Exhaust Volatile Organic Compounds
- Crankcase Running Exhaust Oxides of Nitrogen (Nox)
- Crankcase Running Exhaust Methane (CH4)
- Start Exhaust Total Gaseous Hydrocarbons
- Start Exhaust Non-Methane Hydrocarbons
- Start Exhaust Non-Methane Organic Gases
- Start Exhaust Total Organic Gases
- Start Exhaust Volatile Organic Compounds
- Start Exhaust Oxides of Nitrogen (Nox)
- Start Exhaust Methane (CH4)
- Evap Permeation Total Gaseous Hydrocarbons
- Evap Permeation Non-Methane Hydrocarbons
- Evap Permeation Non-Methane Organic Gases
- Evap Permeation Total Organic Gases
- Evap Permeation Volatile Organic Compounds
- Evap Fuel Vapor Venting Total Gaseous Hydrocarbons
- Evap Fuel Vapor Venting Non-Methane Hydrocarbons
- Evap Fuel Vapor Venting Non-Methane Organic Gases
- Evap Fuel Vapor Venting Total Organic Gases
- Evap Fuel Vapor Venting Volatile Organic Compounds
- Evap Fuel Leaks Total Gaseous Hydrocarbons
- Evap Fuel Leaks Non-Methane Hydrocarbons
- Evap Fuel Leaks Non-Methane Organic Gases
- Evap Fuel Leaks Total Organic Gases
- Evap Fuel Leaks Volatile Organic Compounds
- Crankcase Start Exhaust Total Gaseous Hydrocarbons
- Crankcase Start Exhaust Non-Methane Hydrocarbons
- Crankcase Start Exhaust Non-Methane Organic Gases
- Crankcase Start Exhaust Total Organic Gases
- Crankcase Start Exhaust Volatile Organic Compounds
- Crankcase Start Exhaust Oxides of Nitrogen (Nox)
- Crankcase Start Exhaust Methane (CH4)
- Crankcase Extended Idle Exhaust Total Gaseous Hydrocarbons
- Crankcase Extended Idle Exhaust Non-Methane Hydrocarbons
- Crankcase Extended Idle Exhaust Non-Methane Organic Gases
- Crankcase Extended Idle Exhaust Total Organic Gases
- Crankcase Extended Idle Exhaust Volatile Organic Compounds
- Crankcase Extended Idle Exhaust Oxides of Nitrogen (Nox)
- Crankcase Extended Idle Exhaust Methane (CH4)
- Refueling Displacement Vapor Loss Total Gaseous Hydrocarbons
- Refueling Displacement Vapor Loss Non-Methane Hydrocarbons
- Refueling Displacement Vapor Loss Non-Methane Organic Gases
- Refueling Displacement Vapor Loss Total Organic Gases
- Refueling Displacement Vapor Loss Volatile Organic Compounds
- Refueling Displacement Vapor Loss Methane (CH4)
- Refueling Spillage Loss Total Gaseous Hydrocarbons
- Refueling Spillage Loss Non-Methane Hydrocarbons
- Refueling Spillage Loss Non-Methane Organic Gases
- Refueling Spillage Loss Total Organic Gases
- Refueling Spillage Loss Volatile Organic Compounds
- Refueling Spillage Loss Methane (CH4)
- Extended Idle Exhaust Total Gaseous Hydrocarbons
- Extended Idle Exhaust Non-Methane Hydrocarbons
- Extended Idle Exhaust Non-Methane Organic Gases
- Extended Idle Exhaust Total Organic Gases
- Extended Idle Exhaust Volatile Organic Compounds
- Extended Idle Exhaust Oxides of Nitrogen (Nox)
- Extended Idle Exhaust Methane (CH4)

General Output:
- Output Database Server Name: [using default]
- Output Database Name: 'conf_mc_wo_StageII_2012_august2013_m2010b_out_v6', Mass Units: Grams
- Energy Units: Joules
- Distance Units: Miles
- Time Aggregate Level: Month

Output Emissions Breakdown Selection:
Fuel Type
Emission Process
Road Type
Onroad SCC

Manage Input Data Sets:
selection: None

MOVES2010b RunSpec

```
<runspec>
    <description><![CDATA[MC area for 2012, Emission Inventory]]></description>
    <modelscale value="Inv"/>
    <modeldomain value="SINGLE"/>
    <geographicselections>
        <geographicselection type="COUNTY" key="4013" description="ARIZONA - Maricopa County"/>
    </geographicselections>
    <timespan>
        <year key="2012"/>
        <month id="6"/>
        <day id="5"/>
        <beginhour id="1"/>
        <endhour id="24"/>
        <aggregateBy key="Hour"/>
    </timespan>
    <onroadvehicleselections>
        <onroadvehicleselection fueltypeid="1" fueltypedesc="Gasoline" sourcetypeid="11" sourcetypename="Motorcycle"/>
        <onroadvehicleselection fueltypeid="1" fueltypedesc="Gasoline" sourcetypeid="21" sourcetypename="Passenger Car"/>
        <onroadvehicleselection fueltypeid="1" fueltypedesc="Gasoline" sourcetypeid="31" sourcetypename="Passenger Truck"/>
        <onroadvehicleselection fueltypeid="1" fueltypedesc="Gasoline" sourcetypeid="32" sourcetypename="Light Commercial Truck"/>
        <onroadvehicleselection fueltypeid="1" fueltypedesc="Gasoline" sourcetypeid="41" sourcetypename="Intercity Bus"/>
        <onroadvehicleselection fueltypeid="1" fueltypedesc="Gasoline" sourcetypeid="42" sourcetypename="Transit Bus"/>
        <onroadvehicleselection fueltypeid="1" fueltypedesc="Gasoline" sourcetypeid="43" sourcetypename="School Bus"/>
        <onroadvehicleselection fueltypeid="1" fueltypedesc="Gasoline" sourcetypeid="51" sourcetypename="Refuse Truck"/>
        <onroadvehicleselection fueltypeid="1" fueltypedesc="Gasoline" sourcetypeid="52" sourcetypename="Single Unit Short-haul Truck"/>
        <onroadvehicleselection fueltypeid="1" fueltypedesc="Gasoline" sourcetypeid="53" sourcetypename="Single Unit Long-haul Truck"/>
        <onroadvehicleselection fueltypeid="1" fueltypedesc="Gasoline" sourcetypeid="54" sourcetypename="Motor Home"/>
        <onroadvehicleselection fueltypeid="1" fueltypedesc="Gasoline" sourcetypeid="61" sourcetypename="Combination Short-haul Truck"/>
        <onroadvehicleselection fueltypeid="1" fueltypedesc="Gasoline" sourcetypeid="62" sourcetypename="Combination Long-haul Truck"/>
        <onroadvehicleselection fueltypeid="2" fueltypedesc="Diesel Fuel" sourcetypeid="11" sourcetypename="Motorcycle"/>
        <onroadvehicleselection fueltypeid="2" fueltypedesc="Diesel Fuel" sourcetypeid="21" sourcetypename="Passenger Car"/>
        <onroadvehicleselection fueltypeid="2" fueltypedesc="Diesel Fuel" sourcetypeid="31" sourcetypename="Passenger Truck"/>
        <onroadvehicleselection fueltypeid="2" fueltypedesc="Diesel Fuel" sourcetypeid="32" sourcetypename="Light Commercial Truck"/>
        <onroadvehicleselection fueltypeid="2" fueltypedesc="Diesel Fuel" sourcetypeid="41" sourcetypename="Intercity Bus"/>
        <onroadvehicleselection fueltypeid="2" fueltypedesc="Diesel Fuel" sourcetypeid="42" sourcetypename="Transit Bus"/>
        <onroadvehicleselection fueltypeid="2" fueltypedesc="Diesel Fuel" sourcetypeid="43" sourcetypename="School Bus"/>
        <onroadvehicleselection fueltypeid="2" fueltypedesc="Diesel Fuel" sourcetypeid="51" sourcetypename="Refuse Truck"/>
        <onroadvehicleselection fueltypeid="2" fueltypedesc="Diesel Fuel" sourcetypeid="52" sourcetypename="Single Unit Short-haul Truck"/>
        <onroadvehicleselection fueltypeid="2" fueltypedesc="Diesel Fuel" sourcetypeid="53" sourcetypename="Single Unit Long-haul Truck"/>
        <onroadvehicleselection fueltypeid="2" fueltypedesc="Diesel Fuel" sourcetypeid="54" sourcetypename="Motor Home"/>
        <onroadvehicleselection fueltypeid="2" fueltypedesc="Diesel Fuel" sourcetypeid="61" sourcetypename="Combination Short-haul Truck"/>
        <onroadvehicleselection fueltypeid="2" fueltypedesc="Diesel Fuel" sourcetypeid="62" sourcetypename="Combination Long-haul Truck"/>
        <onroadvehicleselection fueltypeid="3" fueltypedesc="Compressed Natural Gas (CNG)" sourcetypeid="11" sourcetypename="Motorcycle"/>
        <onroadvehicleselection fueltypeid="3" fueltypedesc="Compressed Natural Gas (CNG)" sourcetypeid="21" sourcetypename="Passenger Car"/>
        <onroadvehicleselection fueltypeid="3" fueltypedesc="Compressed Natural Gas (CNG)" sourcetypeid="31" sourcetypename="Passenger Truck"/>
        <onroadvehicleselection fueltypeid="3" fueltypedesc="Compressed Natural Gas (CNG)" sourcetypeid="32" sourcetypename="Light Commercial
Truck"/>
        <onroadvehicleselection fueltypeid="3" fueltypedesc="Compressed Natural Gas (CNG)" sourcetypeid="41" sourcetypename="Intercity Bus"/>
        <onroadvehicleselection fueltypeid="3" fueltypedesc="Compressed Natural Gas (CNG)" sourcetypeid="42" sourcetypename="Transit Bus"/>
        <onroadvehicleselection fueltypeid="3" fueltypedesc="Compressed Natural Gas (CNG)" sourcetypeid="43" sourcetypename="School Bus"/>
        <onroadvehicleselection fueltypeid="3" fueltypedesc="Compressed Natural Gas (CNG)" sourcetypeid="51" sourcetypename="Refuse Truck"/>
        <onroadvehicleselection fueltypeid="3" fueltypedesc="Compressed Natural Gas (CNG)" sourcetypeid="52" sourcetypename="Single Unit Short-
haul Truck"/>
        <onroadvehicleselection fueltypeid="3" fueltypedesc="Compressed Natural Gas (CNG)" sourcetypeid="53" sourcetypename="Single Unit Long-haul
Truck"/>
        <onroadvehicleselection fueltypeid="3" fueltypedesc="Compressed Natural Gas (CNG)" sourcetypeid="54" sourcetypename="Motor Home"/>
        <onroadvehicleselection fueltypeid="3" fueltypedesc="Compressed Natural Gas (CNG)" sourcetypeid="61" sourcetypename="Combination Short-
haul Truck"/>
        <onroadvehicleselection fueltypeid="3" fueltypedesc="Compressed Natural Gas (CNG)" sourcetypeid="62" sourcetypename="Combination Long-
haul Truck"/>
    </onroadvehicleselections>
    <offroadvehicleselections>
    </offroadvehicleselections>
    <offroadvehiclesccs>
    </offroadvehiclesccs>
    <roadtypes>
        <roadtype roadtypeid="1" roadtypename="Off-Network"/>
        <roadtype roadtypeid="2" roadtypename="Rural Restricted Access"/>
        <roadtype roadtypeid="3" roadtypename="Rural Unrestricted Access"/>
        <roadtype roadtypeid="4" roadtypename="Urban Restricted Access"/>
        <roadtype roadtypeid="5" roadtypename="Urban Unrestricted Access"/>
    </roadtypes>
    <pollutantprocessassociations>
        <pollutantprocessassociation pollutantkey="1" pollutantname="Total Gaseous Hydrocarbons" processkey="1" processname="Running Exhaust"/>
        <pollutantprocessassociation pollutantkey="1" pollutantname="Total Gaseous Hydrocarbons" processkey="15" processname="Crankcase Running
Exhaust"/>
```

<pollutantprocessassociation pollutantkey="3" pollutantname="Oxides of Nitrogen (NOx)" processkey="1" processname="Running Exhaust"/>
<pollutantprocessassociation pollutantkey="3" pollutantname="Oxides of Nitrogen (NOx)" processkey="15" processname="Crankcase Running Exhaust"/>
<pollutantprocessassociation pollutantkey="5" pollutantname="Methane (CH4)" processkey="1" processname="Running Exhaust"/>
<pollutantprocessassociation pollutantkey="5" pollutantname="Methane (CH4)" processkey="15" processname="Crankcase Running Exhaust"/>
<pollutantprocessassociation pollutantkey="79" pollutantname="Non-Methane Hydrocarbons" processkey="1" processname="Running Exhaust"/>
<pollutantprocessassociation pollutantkey="79" pollutantname="Non-Methane Hydrocarbons" processkey="15" processname="Crankcase Running Exhaust"/>
<pollutantprocessassociation pollutantkey="80" pollutantname="Non-Methane Organic Gases" processkey="1" processname="Running Exhaust"/>
<pollutantprocessassociation pollutantkey="80" pollutantname="Non-Methane Organic Gases" processkey="15" processname="Crankcase Running Exhaust"/>
<pollutantprocessassociation pollutantkey="86" pollutantname="Total Organic Gases" processkey="1" processname="Running Exhaust"/>
<pollutantprocessassociation pollutantkey="86" pollutantname="Total Organic Gases" processkey="15" processname="Crankcase Running Exhaust"/>
<pollutantprocessassociation pollutantkey="87" pollutantname="Volatile Organic Compounds" processkey="1" processname="Running Exhaust"/>
<pollutantprocessassociation pollutantkey="87" pollutantname="Volatile Organic Compounds" processkey="15" processname="Crankcase Running Exhaust"/>
<pollutantprocessassociation pollutantkey="1" pollutantname="Total Gaseous Hydrocarbons" processkey="2" processname="Start Exhaust"/>
<pollutantprocessassociation pollutantkey="1" pollutantname="Total Gaseous Hydrocarbons" processkey="11" processname="Evap Permeation"/>
<pollutantprocessassociation pollutantkey="1" pollutantname="Total Gaseous Hydrocarbons" processkey="12" processname="Evap Fuel Vapor Venting"/>
<pollutantprocessassociation pollutantkey="1" pollutantname="Total Gaseous Hydrocarbons" processkey="13" processname="Evap Fuel Leaks"/>
<pollutantprocessassociation pollutantkey="1" pollutantname="Total Gaseous Hydrocarbons" processkey="16" processname="Crankcase Start Exhaust"/>
<pollutantprocessassociation pollutantkey="1" pollutantname="Total Gaseous Hydrocarbons" processkey="17" processname="Crankcase Extended Idle Exhaust"/>
<pollutantprocessassociation pollutantkey="1" pollutantname="Total Gaseous Hydrocarbons" processkey="18" processname="Refueling Displacement Vapor Loss"/>
<pollutantprocessassociation pollutantkey="1" pollutantname="Total Gaseous Hydrocarbons" processkey="19" processname="Refueling Spillage Loss"/>
<pollutantprocessassociation pollutantkey="1" pollutantname="Total Gaseous Hydrocarbons" processkey="90" processname="Extended Idle Exhaust"/>
<pollutantprocessassociation pollutantkey="3" pollutantname="Oxides of Nitrogen (NOx)" processkey="2" processname="Start Exhaust"/>
<pollutantprocessassociation pollutantkey="3" pollutantname="Oxides of Nitrogen (NOx)" processkey="16" processname="Crankcase Start Exhaust"/>
<pollutantprocessassociation pollutantkey="3" pollutantname="Oxides of Nitrogen (NOx)" processkey="17" processname="Crankcase Extended Idle Exhaust"/>
<pollutantprocessassociation pollutantkey="3" pollutantname="Oxides of Nitrogen (NOx)" processkey="90" processname="Extended Idle Exhaust"/>
<pollutantprocessassociation pollutantkey="5" pollutantname="Methane (CH4)" processkey="2" processname="Start Exhaust"/>
<pollutantprocessassociation pollutantkey="5" pollutantname="Methane (CH4)" processkey="16" processname="Crankcase Start Exhaust"/>
<pollutantprocessassociation pollutantkey="5" pollutantname="Methane (CH4)" processkey="17" processname="Crankcase Extended Idle Exhaust"/>
<pollutantprocessassociation pollutantkey="5" pollutantname="Methane (CH4)" processkey="18" processname="Refueling Displacement Vapor Loss"/>
<pollutantprocessassociation pollutantkey="5" pollutantname="Methane (CH4)" processkey="19" processname="Refueling Spillage Loss"/>
<pollutantprocessassociation pollutantkey="5" pollutantname="Methane (CH4)" processkey="90" processname="Extended Idle Exhaust"/>
<pollutantprocessassociation pollutantkey="79" pollutantname="Non-Methane Hydrocarbons" processkey="2" processname="Start Exhaust"/>
<pollutantprocessassociation pollutantkey="79" pollutantname="Non-Methane Hydrocarbons" processkey="11" processname="Evap Permeation"/>
<pollutantprocessassociation pollutantkey="79" pollutantname="Non-Methane Hydrocarbons" processkey="12" processname="Evap Fuel Vapor Venting"/>
<pollutantprocessassociation pollutantkey="79" pollutantname="Non-Methane Hydrocarbons" processkey="13" processname="Evap Fuel Leaks"/>
<pollutantprocessassociation pollutantkey="79" pollutantname="Non-Methane Hydrocarbons" processkey="16" processname="Crankcase Start Exhaust"/>
<pollutantprocessassociation pollutantkey="79" pollutantname="Non-Methane Hydrocarbons" processkey="17" processname="Crankcase Extended Idle Exhaust"/>
<pollutantprocessassociation pollutantkey="79" pollutantname="Non-Methane Hydrocarbons" processkey="18" processname="Refueling Displacement Vapor Loss"/>
<pollutantprocessassociation pollutantkey="79" pollutantname="Non-Methane Hydrocarbons" processkey="19" processname="Refueling Spillage Loss"/>
<pollutantprocessassociation pollutantkey="79" pollutantname="Non-Methane Hydrocarbons" processkey="90" processname="Extended Idle Exhaust"/>
<pollutantprocessassociation pollutantkey="80" pollutantname="Non-Methane Organic Gases" processkey="2" processname="Start Exhaust"/>
<pollutantprocessassociation pollutantkey="80" pollutantname="Non-Methane Organic Gases" processkey="11" processname="Evap Permeation"/>
<pollutantprocessassociation pollutantkey="80" pollutantname="Non-Methane Organic Gases" processkey="12" processname="Evap Fuel Vapor Venting"/>
<pollutantprocessassociation pollutantkey="80" pollutantname="Non-Methane Organic Gases" processkey="13" processname="Evap Fuel Leaks"/>
<pollutantprocessassociation pollutantkey="80" pollutantname="Non-Methane Organic Gases" processkey="16" processname="Crankcase Start Exhaust"/>
<pollutantprocessassociation pollutantkey="80" pollutantname="Non-Methane Organic Gases" processkey="17" processname="Crankcase Extended Idle Exhaust"/>
<pollutantprocessassociation pollutantkey="80" pollutantname="Non-Methane Organic Gases" processkey="18" processname="Refueling Displacement Vapor Loss"/>
<pollutantprocessassociation pollutantkey="80" pollutantname="Non-Methane Organic Gases" processkey="19" processname="Refueling Spillage Loss"/>

```
        <pollutantprocessassociation pollutantkey="80" pollutantname="Non-Methane Organic Gases" processkey="90" processname="Extended Idle
Exhaust"/>
        <pollutantprocessassociation pollutantkey="86" pollutantname="Total Organic Gases" processkey="2" processname="Start Exhaust"/>
        <pollutantprocessassociation pollutantkey="86" pollutantname="Total Organic Gases" processkey="11" processname="Evap Permeation"/>
        <pollutantprocessassociation pollutantkey="86" pollutantname="Total Organic Gases" processkey="12" processname="Evap Fuel Vapor
Venting"/>
        <pollutantprocessassociation pollutantkey="86" pollutantname="Total Organic Gases" processkey="13" processname="Evap Fuel Leaks"/>
        <pollutantprocessassociation pollutantkey="86" pollutantname="Total Organic Gases" processkey="16" processname="Crankcase Start
Exhaust"/>
        <pollutantprocessassociation pollutantkey="86" pollutantname="Total Organic Gases" processkey="17" processname="Crankcase Extended Idle
Exhaust"/>
        <pollutantprocessassociation pollutantkey="86" pollutantname="Total Organic Gases" processkey="18" processname="Refueling Displacement
Vapor Loss"/>
        <pollutantprocessassociation pollutantkey="86" pollutantname="Total Organic Gases" processkey="19" processname="Refueling Spillage Loss"/>
        <pollutantprocessassociation pollutantkey="86" pollutantname="Total Organic Gases" processkey="90" processname="Extended Idle Exhaust"/>
        <pollutantprocessassociation pollutantkey="87" pollutantname="Volatile Organic Compounds" processkey="2" processname="Start Exhaust"/>
        <pollutantprocessassociation pollutantkey="87" pollutantname="Volatile Organic Compounds" processkey="11" processname="Evap
Permeation"/>
        <pollutantprocessassociation pollutantkey="87" pollutantname="Volatile Organic Compounds" processkey="12" processname="Evap Fuel Vapor
Venting"/>
        <pollutantprocessassociation pollutantkey="87" pollutantname="Volatile Organic Compounds" processkey="13" processname="Evap Fuel
Leaks"/>
        <pollutantprocessassociation pollutantkey="87" pollutantname="Volatile Organic Compounds" processkey="16" processname="Crankcase Start
Exhaust"/>
        <pollutantprocessassociation pollutantkey="87" pollutantname="Volatile Organic Compounds" processkey="17" processname="Crankcase
Extended Idle Exhaust"/>
        <pollutantprocessassociation pollutantkey="87" pollutantname="Volatile Organic Compounds" processkey="18" processname="Refueling
Displacement Vapor Loss"/>
        <pollutantprocessassociation pollutantkey="87" pollutantname="Volatile Organic Compounds" processkey="19" processname="Refueling Spillage
Loss"/>
        <pollutantprocessassociation pollutantkey="87" pollutantname="Volatile Organic Compounds" processkey="90" processname="Extended Idle
Exhaust"/>
    </pollutantprocessassociations>
    <databaseselections>
    <databaseselection servername="" databasename="StageII_Input" description="Stage II Refueling Input"/>
    </databaseselections>
    <internalcontrolstrategies>
 <internalcontrolstrategy
classname="gov.epa.otaq.moves.master.implementation.ghg.internalcontrolstrategies.rateofprogress.RateOfProgressStrategy"><![CDATA[
useParameters   No
]]></internalcontrolstrategy>
   </internalcontrolstrategies>
   <inputdatabase servername="" databasename="" description=""/>
   <uncertaintyparameters uncertaintymodeenabled="false" numberofrunspersimulation="0" numberofsimulations="0"/>
   <geographicoutputdetail description="LINK"/>
   <outputemissionsbreakdownselection>
      <modelyear selected="false"/>
      <fueltype selected="true"/>
      <emissionprocess selected="true"/>
      <onroadoffroad selected="true"/>
      <roadtype selected="true"/>
      <sourceusetype selected="true"/>
      <movesvehicletype selected="true"/>
      <onroadscc selected="false"/>
      <offroadscc selected="false"/>
      <estimateuncertainty selected="false" numberOfIterations="2" keepSampledData="false" keepIterations="false"/>
      <sector selected="false"/>
      <engtechid selected="false"/>
      <hpclass selected="false"/>
   </outputemissionsbreakdownselection>
   <outputdatabase servername="" databasename="conf_mc_wo_StageII_2012_august2013_m2010b_out_v6" description=""/>

   <outputtimestep value="Hour"/>
   <outputvmtdata value="true"/>
   <outputsho value="true"/>
   <outputsh value="true"/>
   <outputshp value="true"/>
   <outputshidling value="true"/>
   <outputstarts value="true"/>
   <outputpopulation value="true"/>
   <scaleinputdatabase servername="localhost" databasename="conf_mc_wo_StageII_2012_august2013_m2010b_in_v6" description=""/>
   <pmsize value="0"/>
   <outputfactors>
      <timefactors selected="true" units="Hours"/>
      <distancefactors selected="true" units="Miles"/>
      <massfactors selected="true" units="Grams" energyunits="Joules"/>
   </outputfactors>
   <savedata>
   </savedata>
```

```
    <donotexecute>
    </donotexecute>
    <generatordatabase shouldsave="false" servername="" databasename="" description=""/>
        <donotperformfinalaggregation selected="false"/>
    <lookuptableflags scenarioid="conf_mc_wo_StageII_2012_august2013_m2010b_in_v6" truncateoutput="true" truncateactivity="true"/>
</runspec>
```

MOVES2010b Local Input Data

[FuelFormulation]

fuel Formulation ID	fuel Subtype ID	RVP	sulfur Level	ETOH Volume	MTBE Volume	ETBE Volume	TAME Volume	aromatic Content	olefin Content	benzene Content	e200	e300	volToWt PercentOxy	BioDiesel EsterVolume	Cetane Index	PAH Content	T50	T90
11200	12	7.91	15.56	10.0	0	0	0	19.0	5.2	0.5	49.2	88.8	3.7638	0	0	0	200.174	304.616
11201	12	8.76	9.53	10.2	0	0	0	19.4	7.0	0.6	52.7	91.0	3.8167	0	0	0	189	293.667
11202	12	8.85	13.24	10.4	0	0	0	20.2	9.3	0.6	53.8	90.9	3.8982	0	0	0	180.294	294.294
11203	12	8.79	16.00	9.9	0	0	0	18.0	3.1	0.6	52.6	89.8	3.7075	0	0	0	186.375	301.125
11204	12	8.44	14.00	10.1	0	0	0	16.7	2.9	0.6	51.0	90.0	3.7300	0	0	0	198	301
11205	12	6.98	16.00	10.2	0	0	0	15.4	4.8	0.5	46.0	88.5	3.7900	0	0	0	211	307
11206	12	6.81	17.58	10.0	0	0	0	21.1	6.2	0.5	45.3	87.3	3.6933	0	0	0	213.592	310.533
11207	12	6.79	18.90	10.1	0	0	0	21.6	6.1	0.5	45.5	87.2	3.7140	0	0	0	213.05	311.46
11208	12	6.75	17.45	9.9	0	0	0	20.1	7.3	0.6	44.1	85.9	3.6360	0	0	0	217.19	316.065
11209	12	6.83	21.06	10.0	0	0	0	18.9	6.1	0.3	45.1	85.6	3.7122	0	0	0	213.25	317.8
11210	13	8.73	11.88	8.5	0	0	0	19.1	2.6	0.4	51.5	89.6	3.7083	0	0	0	192.88	302.38
11211	12	8.60	14.22	10.3	0	0	0	18.6	3.1	0.3	51.0	89.6	3.8656	0	0	0	194.589	301.522
11212	12	8.65	16.88	10.4	0	0	0	19.4	4.0	0.3	51.4	90.1	3.8939	0	0	0	192.872	298.544
4022	12	9.60	20.13	10.0	0	0	0	19.5	8.4	0.6	54.2	87.4	0.3488	0	0	0	191.235	309.329
4023	12	8.04	18.19	10.0	0	0	0	19.4	6.0	0.6	52.8	87.4	0.3488	0	0	0	194.082	309.329
4024	12	7.00	16.90	10.0	0	0	0	19.3	4.4	0.6	51.9	87.4	0.3488	0	0	0	195.98	309.329
4025	12	11.6	22.71	10.0	0	0	0	19.6	11.7	0.6	56.1	87.4	0.3488	0	0	0	187.439	309.329
31200	20	0	6.28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31201	20	0	5.86	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31202	20	0	6.20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31203	20	0	5.30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31204	20	0	4.70	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31205	20	0	7.60	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31206	20	0	5.50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31207	20	0	7.35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31208	20	0	8.30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31209	20	0	6.75	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31210	20	0	5.40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31211	20	0	6.20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31212	20	0	6.20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

[FuelSupply]

countyID	fuelYearID	monthGroupID	fuelFormulationID	marketShare	marketShareCV
4013	2012	6	4024	0.05	0.5
4013	2012	6	11206	0.95	0.5
4013	2012	6	31206	1	0.5
4013	2012	6	30	1	0.5

[HPMSvTypeYear]

HPMSVtypeID	yearID	VMTGrowthFactor	HPMSBaseYearVMT	baseYearOffNetVMT
10	2012	0	157,407,628	0
20	2012	0	18,131,963,906	0
30	2012	0	12,465,027,215	0
40	2012	0	40,453,049	0
50	2012	0	1,078,347,057	0
60	2012	0	921,191,391	0

[SourceTypeYear]

yearID	sourceTypeID	sourceTypePopulation
2012	11	78,397
2012	21	2,117,128
2012	31	448,872
2012	32	176,144
2012	41	1,190
2012	42	729
2012	43	7,805
2012	51	590
2012	52	21,996
2012	53	1,362
2012	54	3,428
2012	61	9,925
2012	62	8,143

[ZoneMonthHour]

monthID	zoneID	HourID	temperature	relHumidity
6	40130	1	90	16
6	40130	2	88	17
6	40130	3	87	19
6	40130	4	84	20
6	40130	5	83	22
6	40130	6	82	23
6	40130	7	83	21
6	40130	8	87	19
6	40130	9	91	16
6	40130	10	94	14
6	40130	11	97	12
6	40130	12	100	11
6	40130	13	102	10
6	40130	14	103	9
6	40130	15	104	9
6	40130	16	105	9
6	40130	17	105	9
6	40130	18	105	9
6	40130	19	103	9
6	40130	20	101	10
6	40130	21	98	12
6	40130	22	95	13
6	40130	23	94	14
6	40130	24	92	15

[SourceTypeAgeDistribution]

	AgeFraction by SourceTypeID													
YearID	AgeID	11	21	31	32	41	42	43	51	52	53	54	61	62
2012	0	0.0417	0.0527	0.0497	0.0545	0.0531	0.0531	0.1003	0.1003	0.0876	0.1002	0.1005	0.1005	0.1004
2012	1	0.0564	0.0560	0.0495	0.0512	0.0433	0.0433	0.0670	0.0670	0.0627	0.0670	0.0671	0.0671	0.0671
2012	2	0.0376	0.0513	0.0287	0.0288	0.0165	0.0165	0.0298	0.0298	0.0295	0.0297	0.0299	0.0299	0.0298
2012	3	0.0820	0.0413	0.0228	0.0240	0.0268	0.0268	0.0362	0.0362	0.0325	0.0358	0.0363	0.0363	0.0362
2012	4	0.0936	0.0666	0.0584	0.0606	0.0639	0.0639	0.0824	0.0824	0.0759	0.0818	0.0826	0.0825	0.0825
2012	5	0.1012	0.0776	0.0750	0.0807	0.1396	0.1396	0.1387	0.1386	0.1210	0.1368	0.1389	0.1388	0.1387
2012	6	0.0942	0.0775	0.0825	0.0879	0.1295	0.1295	0.1426	0.1425	0.1257	0.1406	0.1428	0.1427	0.1426
2012	7	0.0770	0.0730	0.0668	0.0678	0.0889	0.0889	0.0793	0.0793	0.0755	0.0785	0.0795	0.0794	0.0794
2012	8	0.0563	0.0675	0.0695	0.0673	0.0576	0.0576	0.0459	0.0459	0.0518	0.0457	0.0460	0.0460	0.0459
2012	9	0.0651	0.0611	0.0575	0.0547	0.0411	0.0411	0.0274	0.0274	0.0351	0.0274	0.0275	0.0274	0.0274
2012	10	0.0518	0.0577	0.0527	0.0495	0.0318	0.0318	0.0187	0.0187	0.0274	0.0188	0.0187	0.0187	0.0187
2012	11	0.0444	0.0516	0.0585	0.0553	0.0430	0.0430	0.0239	0.0239	0.0328	0.0240	0.0239	0.0239	0.0239
2012	12	0.0369	0.0484	0.0525	0.0531	0.0539	0.0539	0.0607	0.0607	0.0580	0.0599	0.0608	0.0608	0.0607
2012	13	0.0303	0.0396	0.0393	0.0390	0.0498	0.0498	0.0365	0.0365	0.0369	0.0361	0.0366	0.0366	0.0365
2012	14	0.0221	0.0312	0.0325	0.0317	0.0261	0.0261	0.0242	0.0242	0.0261	0.0240	0.0242	0.0242	0.0242
2012	15	0.0175	0.0267	0.0330	0.0319	0.0258	0.0258	0.0212	0.0212	0.0241	0.0211	0.0212	0.0212	0.0212
2012	16	0.0165	0.0197	0.0237	0.0226	0.0223	0.0223	0.0115	0.0115	0.0146	0.0115	0.0115	0.0115	0.0115
2012	17	0.0132	0.0182	0.0231	0.0220	0.0218	0.0218	0.0110	0.0112	0.0144	0.0120	0.0107	0.0112	0.0112
2012	18	0.0101	0.0136	0.0205	0.0193	0.0138	0.0138	0.0073	0.0074	0.0109	0.0080	0.0070	0.0072	0.0073
2012	19	0.0094	0.0105	0.0134	0.0127	0.0085	0.0085	0.0048	0.0049	0.0073	0.0057	0.0044	0.0048	0.0049
2012	20	0.0069	0.0080	0.0093	0.0088	0.0062	0.0062	0.0034	0.0035	0.0051	0.0039	0.0033	0.0034	0.0035
2012	21	0.0051	0.0069	0.0082	0.0078	0.0059	0.0059	0.0038	0.0039	0.0051	0.0043	0.0036	0.0039	0.0039
2012	22	0.0048	0.0054	0.0073	0.0070	0.0081	0.0081	0.0040	0.0040	0.0049	0.0042	0.0039	0.0039	0.0040
2012	23	0.0043	0.0044	0.0079	0.0074	0.0056	0.0056	0.0031	0.0031	0.0044	0.0032	0.0031	0.0030	0.0030
2012	24	0.0039	0.0036	0.0085	0.0080	0.0039	0.0039	0.0024	0.0024	0.0040	0.0024	0.0025	0.0023	0.0023
2012	25	0.0036	0.0029	0.0093	0.0086	0.0027	0.0027	0.0019	0.0019	0.0039	0.0020	0.0020	0.0018	0.0018
2012	26	0.0033	0.0024	0.0101	0.0094	0.0019	0.0019	0.0014	0.0014	0.0040	0.0019	0.0014	0.0014	0.0014
2012	27	0.0030	0.0019	0.0106	0.0098	0.0013	0.0013	0.0011	0.0011	0.0040	0.0016	0.0011	0.0011	0.0011
2012	28	0.0027	0.0016	0.0074	0.0069	0.0009	0.0009	0.0009	0.0009	0.0030	0.0014	0.0009	0.0008	0.0008
2012	29	0.0025	0.0013	0.0077	0.0073	0.0006	0.0006	0.0007	0.0007	0.0034	0.0016	0.0007	0.0006	0.0007
2012	30	0.0025	0.0200	0.0038	0.0045	0.0061	0.0061	0.0075	0.0074	0.0080	0.0090	0.0075	0.0069	0.0072

[IMCoverage]

polProcessID	stateID	countyID	yearID	sourceTypeID	fuelTypeID	IMProgramID	begModelYearID	endModelYearID	inspectFreq	testStandardsID	useIMyn	complianceFactor
101	4	4013	2012	21	1	3	1967	1980	1	13	N	95.8845
101	4	4013	2012	21	1	6	1981	1995	2	33	N	95.8845
101	4	4013	2012	21	1	10	1996	2006	2	51	N	95.8845
101	4	4013	2012	31	1	3	1967	1980	1	13	N	95.8845
101	4	4013	2012	31	1	6	1981	1995	2	33	N	95.8845
101	4	4013	2012	31	1	10	1996	2006	2	51	N	95.8845
101	4	4013	2012	32	1	3	1967	1980	1	13	N	95.8845
101	4	4013	2012	32	1	6	1981	1995	2	33	N	95.8845
101	4	4013	2012	32	1	10	1996	2006	2	51	N	95.8845
101	4	4013	2012	52	1	3	1967	2006	1	13	N	95.8845
102	4	4013	2012	21	1	3	1967	1980	1	13	N	95.8845
102	4	4013	2012	21	1	6	1981	1995	2	33	N	95.8845
102	4	4013	2012	21	1	10	1996	2006	2	51	N	95.8845
102	4	4013	2012	31	1	3	1967	1980	1	13	N	95.8845
102	4	4013	2012	31	1	6	1981	1995	2	33	N	95.8845
102	4	4013	2012	31	1	10	1996	2006	2	51	N	95.8845
102	4	4013	2012	32	1	3	1967	1980	1	13	N	95.8845
102	4	4013	2012	32	1	6	1981	1995	2	33	N	95.8845
102	4	4013	2012	32	1	10	1996	2006	2	51	N	95.8845
102	4	4013	2012	52	1	3	1967	2006	1	13	N	95.8845
112	4	4013	2012	21	1	8	1996	2006	2	43	N	95.8845
112	4	4013	2012	21	1	9	1981	1995	1	44	N	95.8845
112	4	4013	2012	31	1	8	1996	2006	2	43	N	95.8845
112	4	4013	2012	31	1	9	1981	1995	1	44	N	95.8845
112	4	4013	2012	32	1	8	1996	2006	2	43	N	95.8845
112	4	4013	2012	32	1	9	1981	1995	1	44	N	95.8845
112	4	4013	2012	52	1	7	1967	2006	1	41	N	95.8845
113	4	4013	2012	21	1	8	1996	2006	2	43	N	95.8845
113	4	4013	2012	21	1	9	1981	1995	1	44	N	95.8845
113	4	4013	2012	31	1	8	1996	2006	2	43	N	95.8845
113	4	4013	2012	31	1	9	1981	1995	1	44	N	95.8845
113	4	4013	2012	32	1	8	1996	2006	2	43	N	95.8845
113	4	4013	2012	32	1	9	1981	1995	1	44	N	95.8845
113	4	4013	2012	52	1	7	1967	2006	1	41	N	95.8845
201	4	4013	2012	21	1	3	1967	1980	1	13	N	95.8845
201	4	4013	2012	21	1	6	1981	1995	2	33	N	95.8845
201	4	4013	2012	21	1	10	1996	2006	2	51	N	95.8845
201	4	4013	2012	31	1	3	1967	1980	1	13	N	95.8845
201	4	4013	2012	31	1	6	1981	1995	2	33	N	95.8845
201	4	4013	2012	31	1	10	1996	2006	2	51	N	95.8845
201	4	4013	2012	32	1	3	1967	1980	1	13	N	95.8845
201	4	4013	2012	32	1	6	1981	1995	2	33	N	95.8845
201	4	4013	2012	32	1	10	1996	2006	2	51	N	95.8845
201	4	4013	2012	52	1	3	1967	2006	1	13	N	95.8845
202	4	4013	2012	21	1	3	1967	1980	1	13	N	95.8845
202	4	4013	2012	21	1	6	1981	1995	2	33	N	95.8845
202	4	4013	2012	21	1	10	1996	2006	2	51	N	95.8845
202	4	4013	2012	31	1	3	1967	1980	1	13	N	95.8845
202	4	4013	2012	31	1	6	1981	1995	2	33	N	95.8845
202	4	4013	2012	31	1	10	1996	2006	2	51	N	95.8845
202	4	4013	2012	32	1	3	1967	1980	1	13	N	95.8845
202	4	4013	2012	32	1	6	1981	1995	2	33	N	95.8845
202	4	4013	2012	32	1	10	1996	2006	2	51	N	95.8845
202	4	4013	2012	52	1	3	1967	2006	1	13	N	95.8845
301	4	4013	2012	21	1	3	1967	1980	1	13	N	95.8845
301	4	4013	2012	21	1	6	1981	1995	2	33	N	95.8845
301	4	4013	2012	21	1	10	1996	2006	2	51	N	95.8845
301	4	4013	2012	31	1	3	1967	1980	1	13	N	95.8845
301	4	4013	2012	31	1	6	1981	1995	2	33	N	95.8845
301	4	4013	2012	31	1	10	1996	2006	2	51	N	95.8845
301	4	4013	2012	32	1	3	1967	1980	1	13	N	95.8845
301	4	4013	2012	32	1	6	1981	1995	2	33	N	95.8845
301	4	4013	2012	32	1	10	1996	2006	2	51	N	95.8845
301	4	4013	2012	52	1	3	1967	2006	1	13	N	95.8845
302	4	4013	2012	21	1	3	1967	1980	1	13	N	95.8845
302	4	4013	2012	21	1	6	1981	1995	2	33	N	95.8845
302	4	4013	2012	21	1	10	1996	2006	2	51	N	95.8845
302	4	4013	2012	31	1	3	1967	1980	1	13	N	95.8845
302	4	4013	2012	31	1	6	1981	1995	2	33	N	95.8845
302	4	4013	2012	31	1	10	1996	2006	2	51	N	95.8845
302	4	4013	2012	32	1	3	1967	1980	1	13	N	95.8845
302	4	4013	2012	32	1	6	1981	1995	2	33	N	95.8845
302	4	4013	2012	32	1	10	1996	2006	2	51	N	95.8845

302	4	4013	2012	52	1	3	1967	2006	1	13	N	95.8845
101	4	4013	2012	21	1	103	1967	1980	1	13	Y	62.454
101	4	4013	2012	21	1	106	1981	1995	2	31	Y	69.4533
101	4	4013	2012	21	1	110	1996	2008	2	51	Y	90.7854
101	4	4013	2012	31	1	103	1967	1980	1	13	Y	62.454
101	4	4013	2012	31	1	106	1981	1995	2	31	Y	69.4533
101	4	4013	2012	31	1	110	1996	2008	2	51	Y	85.3383
101	4	4013	2012	32	1	103	1967	1980	1	13	Y	62.454
101	4	4013	2012	32	1	106	1981	1995	2	31	Y	69.4533
101	4	4013	2012	32	1	110	1996	2008	2	51	Y	79.8911
101	4	4013	2012	41	1	103	1967	1980	1	13	Y	62.454
101	4	4013	2012	42	1	103	1967	1980	1	13	Y	62.454
101	4	4013	2012	43	1	103	1967	1980	1	13	Y	62.454
101	4	4013	2012	51	1	103	1967	1980	1	13	Y	62.454
101	4	4013	2012	52	1	103	1967	1980	1	13	Y	62.454
101	4	4013	2012	53	1	103	1967	1980	1	13	Y	62.454
101	4	4013	2012	54	1	103	1967	1980	1	13	Y	62.454
101	4	4013	2012	61	1	103	1967	1980	1	13	Y	62.454
101	4	4013	2012	62	1	103	1967	1980	1	13	Y	62.454
102	4	4013	2012	21	1	103	1967	1980	1	13	Y	62.454
102	4	4013	2012	21	1	106	1981	1995	2	31	Y	69.4533
102	4	4013	2012	21	1	110	1996	2008	2	51	Y	90.7854
102	4	4013	2012	31	1	103	1967	1980	1	13	Y	62.454
102	4	4013	2012	31	1	106	1981	1995	2	31	Y	69.4533
102	4	4013	2012	31	1	110	1996	2008	2	51	Y	85.3383
102	4	4013	2012	32	1	103	1967	1980	1	13	Y	62.454
102	4	4013	2012	32	1	106	1981	1995	2	31	Y	69.4533
102	4	4013	2012	32	1	110	1996	2008	2	51	Y	79.8911
102	4	4013	2012	41	1	103	1967	1980	1	13	Y	62.454
102	4	4013	2012	42	1	103	1967	1980	1	13	Y	62.454
102	4	4013	2012	43	1	103	1967	1980	1	13	Y	62.454
102	4	4013	2012	51	1	103	1967	1980	1	13	Y	62.454
102	4	4013	2012	52	1	103	1967	1980	1	13	Y	62.454
102	4	4013	2012	53	1	103	1967	1980	1	13	Y	62.454
102	4	4013	2012	54	1	103	1967	1980	1	13	Y	62.454
102	4	4013	2012	61	1	103	1967	1980	1	13	Y	62.454
102	4	4013	2012	62	1	103	1967	1980	1	13	Y	62.454
112	4	4013	2012	21	1	108	1996	2008	2	45	Y	97.5323
112	4	4013	2012	21	1	109	1981	1995	2	44	Y	69.4533
112	4	4013	2012	21	1	111	1967	1980	1	41	Y	94.7236
112	4	4013	2012	31	1	108	1996	2008	2	45	Y	91.6803
112	4	4013	2012	31	1	109	1981	1995	2	44	Y	65.2861
112	4	4013	2012	31	1	111	1967	1980	1	41	Y	94.7236
112	4	4013	2012	32	1	108	1996	2008	2	45	Y	85.8284
112	4	4013	2012	32	1	109	1981	1995	2	44	Y	61.1189
112	4	4013	2012	32	1	111	1967	1980	1	41	Y	94.7236
112	4	4013	2012	41	1	107	1981	2008	1	41	Y	93.4643
112	4	4013	2012	41	1	111	1967	1980	1	41	Y	94.7236
112	4	4013	2012	42	1	107	1981	2008	1	41	Y	93.4643
112	4	4013	2012	42	1	111	1967	1980	1	41	Y	94.7236
112	4	4013	2012	43	1	107	1981	2008	1	41	Y	93.4643
112	4	4013	2012	43	1	111	1967	1980	1	41	Y	94.7236
112	4	4013	2012	51	1	107	1981	2008	1	41	Y	93.4643
112	4	4013	2012	51	1	111	1967	1980	1	41	Y	94.7236
112	4	4013	2012	52	1	107	1981	2008	1	41	Y	93.4643
112	4	4013	2012	52	1	111	1967	1980	1	41	Y	94.7236
112	4	4013	2012	53	1	107	1981	2008	1	41	Y	93.4643
112	4	4013	2012	53	1	111	1967	1980	1	41	Y	94.7236
112	4	4013	2012	54	1	107	1981	2008	1	41	Y	93.4643
112	4	4013	2012	54	1	111	1967	1980	1	41	Y	94.7236
112	4	4013	2012	61	1	107	1981	2008	1	41	Y	93.4643
112	4	4013	2012	61	1	111	1967	1980	1	41	Y	94.7236
112	4	4013	2012	62	1	107	1981	2008	1	41	Y	93.4643
112	4	4013	2012	62	1	111	1967	1980	1	41	Y	94.7236
113	4	4013	2012	21	1	108	1996	2008	2	45	Y	97.5323
113	4	4013	2012	21	1	109	1981	1995	2	44	Y	69.4533
113	4	4013	2012	21	1	111	1967	1980	1	41	Y	94.7236
113	4	4013	2012	31	1	108	1996	2008	2	45	Y	91.6803
113	4	4013	2012	31	1	109	1981	1995	2	44	Y	65.2861
113	4	4013	2012	31	1	111	1967	1980	1	41	Y	94.7236
113	4	4013	2012	32	1	108	1996	2008	2	45	Y	85.8284
113	4	4013	2012	32	1	109	1981	1995	2	44	Y	61.1189
113	4	4013	2012	32	1	111	1967	1980	1	41	Y	94.7236
113	4	4013	2012	41	1	107	1981	2008	1	41	Y	93.4643
113	4	4013	2012	41	1	111	1967	1980	1	41	Y	94.7236

113	4	4013	2012	42	1	107	1981	2008	1	41	Y	93.4643
113	4	4013	2012	42	1	111	1967	1980	1	41	Y	94.7236
113	4	4013	2012	43	1	107	1981	2008	1	41	Y	93.4643
113	4	4013	2012	43	1	111	1967	1980	1	41	Y	94.7236
113	4	4013	2012	51	1	107	1981	2008	1	41	Y	93.4643
113	4	4013	2012	51	1	111	1967	1980	1	41	Y	94.7236
113	4	4013	2012	52	1	107	1981	2008	1	41	Y	93.4643
113	4	4013	2012	52	1	111	1967	1980	1	41	Y	94.7236
113	4	4013	2012	53	1	107	1981	2008	1	41	Y	93.4643
113	4	4013	2012	53	1	111	1967	1980	1	41	Y	94.7236
113	4	4013	2012	54	1	107	1981	2008	1	41	Y	93.4643
113	4	4013	2012	54	1	111	1967	1980	1	41	Y	94.7236
113	4	4013	2012	61	1	107	1981	2008	1	41	Y	93.4643
113	4	4013	2012	61	1	111	1967	1980	1	41	Y	94.7236
113	4	4013	2012	62	1	107	1981	2008	1	41	Y	93.4643
113	4	4013	2012	62	1	111	1967	1980	1	41	Y	94.7236
201	4	4013	2012	21	1	103	1967	1980	1	13	Y	62.454
201	4	4013	2012	21	1	106	1981	1995	2	31	Y	69.4533
201	4	4013	2012	21	1	110	1996	2008	2	51	Y	90.7854
201	4	4013	2012	31	1	103	1967	1980	1	13	Y	62.454
201	4	4013	2012	31	1	106	1981	1995	2	31	Y	69.4533
201	4	4013	2012	31	1	110	1996	2008	2	51	Y	85.3383
201	4	4013	2012	32	1	103	1967	1980	1	13	Y	62.454
201	4	4013	2012	32	1	106	1981	1995	2	31	Y	69.4533
201	4	4013	2012	32	1	110	1996	2008	2	51	Y	79.8911
201	4	4013	2012	41	1	103	1967	1980	1	13	Y	62.454
201	4	4013	2012	42	1	103	1967	1980	1	13	Y	62.454
201	4	4013	2012	43	1	103	1967	1980	1	13	Y	62.454
201	4	4013	2012	51	1	103	1967	1980	1	13	Y	62.454
201	4	4013	2012	52	1	103	1967	1980	1	13	Y	62.454
201	4	4013	2012	53	1	103	1967	1980	1	13	Y	62.454
201	4	4013	2012	54	1	103	1967	1980	1	13	Y	62.454
201	4	4013	2012	61	1	103	1967	1980	1	13	Y	62.454
201	4	4013	2012	62	1	103	1967	1980	1	13	Y	62.454
202	4	4013	2012	21	1	103	1967	1980	1	13	Y	62.454
202	4	4013	2012	21	1	106	1981	1995	2	31	Y	69.4533
202	4	4013	2012	21	1	110	1996	2008	2	51	Y	90.7854
202	4	4013	2012	31	1	103	1967	1980	1	13	Y	62.454
202	4	4013	2012	31	1	106	1981	1995	2	31	Y	69.4533
202	4	4013	2012	31	1	110	1996	2008	2	51	Y	85.3383
202	4	4013	2012	32	1	103	1967	1980	1	13	Y	62.454
202	4	4013	2012	32	1	106	1981	1995	2	31	Y	69.4533
202	4	4013	2012	32	1	110	1996	2008	2	51	Y	79.8911
202	4	4013	2012	41	1	103	1967	1980	1	13	Y	62.454
202	4	4013	2012	42	1	103	1967	1980	1	13	Y	62.454
202	4	4013	2012	43	1	103	1967	1980	1	13	Y	62.454
202	4	4013	2012	51	1	103	1967	1980	1	13	Y	62.454
202	4	4013	2012	52	1	103	1967	1980	1	13	Y	62.454
202	4	4013	2012	53	1	103	1967	1980	1	13	Y	62.454
202	4	4013	2012	54	1	103	1967	1980	1	13	Y	62.454
202	4	4013	2012	61	1	103	1967	1980	1	13	Y	62.454
202	4	4013	2012	62	1	103	1967	1980	1	13	Y	62.454
301	4	4013	2012	21	1	103	1967	1980	1	13	Y	62.454
301	4	4013	2012	21	1	106	1981	1995	2	31	Y	69.4533
301	4	4013	2012	21	1	110	1996	2008	2	51	Y	90.7854
301	4	4013	2012	31	1	103	1967	1980	1	13	Y	62.454
301	4	4013	2012	31	1	106	1981	1995	2	31	Y	69.4533
301	4	4013	2012	31	1	110	1996	2008	2	51	Y	85.3383
301	4	4013	2012	32	1	103	1967	1980	1	13	Y	62.454
301	4	4013	2012	32	1	106	1981	1995	2	31	Y	69.4533
301	4	4013	2012	32	1	110	1996	2008	2	51	Y	79.8911
301	4	4013	2012	41	1	103	1967	1980	1	13	Y	62.454
301	4	4013	2012	42	1	103	1967	1980	1	13	Y	62.454
301	4	4013	2012	43	1	103	1967	1980	1	13	Y	62.454
301	4	4013	2012	51	1	103	1967	1980	1	13	Y	62.454
301	4	4013	2012	52	1	103	1967	1980	1	13	Y	62.454
301	4	4013	2012	53	1	103	1967	1980	1	13	Y	62.454
301	4	4013	2012	54	1	103	1967	1980	1	13	Y	62.454
301	4	4013	2012	61	1	103	1967	1980	1	13	Y	62.454
301	4	4013	2012	62	1	103	1967	1980	1	13	Y	62.454
302	4	4013	2012	21	1	103	1967	1980	1	13	Y	62.454
302	4	4013	2012	21	1	106	1981	1995	2	31	Y	69.4533
302	4	4013	2012	21	1	110	1996	2008	2	51	Y	90.7854
302	4	4013	2012	31	1	103	1967	1980	1	13	Y	62.454
302	4	4013	2012	31	1	106	1981	1995	2	31	Y	69.4533

302	4	4013	2012	31	1	110	1996	2008	2	51	Y	85.3383
302	4	4013	2012	32	1	103	1967	1980	1	13	Y	62.454
302	4	4013	2012	32	1	106	1981	1995	2	31	Y	69.4533
302	4	4013	2012	32	1	110	1996	2008	2	51	Y	79.8911
302	4	4013	2012	41	1	103	1967	1980	1	13	Y	62.454
302	4	4013	2012	42	1	103	1967	1980	1	13	Y	62.454
302	4	4013	2012	43	1	103	1967	1980	1	13	Y	62.454
302	4	4013	2012	51	1	103	1967	1980	1	13	Y	62.454
302	4	4013	2012	52	1	103	1967	1980	1	13	Y	62.454
302	4	4013	2012	53	1	103	1967	1980	1	13	Y	62.454
302	4	4013	2012	54	1	103	1967	1980	1	13	Y	62.454
302	4	4013	2012	61	1	103	1967	1980	1	13	Y	62.454
302	4	4013	2012	62	1	103	1967	1980	1	13	Y	62.454
101	4	4013	2012	41	1	104	1981	2008	2	13	Y	94.4565
101	4	4013	2012	42	1	104	1981	2008	2	13	Y	94.4565
101	4	4013	2012	43	1	104	1981	2008	2	13	Y	94.4565
101	4	4013	2012	51	1	104	1981	2008	2	13	Y	94.4565
101	4	4013	2012	52	1	104	1981	2008	2	13	Y	94.4565
101	4	4013	2012	53	1	104	1981	2008	2	13	Y	94.4565
101	4	4013	2012	54	1	104	1981	2008	2	13	Y	94.4565
101	4	4013	2012	61	1	104	1981	2008	2	13	Y	94.4565
101	4	4013	2012	62	1	104	1981	2008	2	13	Y	94.4565
102	4	4013	2012	41	1	104	1981	2008	2	13	Y	94.4565
102	4	4013	2012	42	1	104	1981	2008	2	13	Y	94.4565
102	4	4013	2012	43	1	104	1981	2008	2	13	Y	94.4565
102	4	4013	2012	51	1	104	1981	2008	2	13	Y	94.4565
102	4	4013	2012	52	1	104	1981	2008	2	13	Y	94.4565
102	4	4013	2012	53	1	104	1981	2008	2	13	Y	94.4565
102	4	4013	2012	54	1	104	1981	2008	2	13	Y	94.4565
102	4	4013	2012	61	1	104	1981	2008	2	13	Y	94.4565
102	4	4013	2012	62	1	104	1981	2008	2	13	Y	94.4565
201	4	4013	2012	41	1	104	1981	2008	2	13	Y	94.4565
201	4	4013	2012	42	1	104	1981	2008	2	13	Y	94.4565
201	4	4013	2012	43	1	104	1981	2008	2	13	Y	94.4565
201	4	4013	2012	51	1	104	1981	2008	2	13	Y	94.4565
201	4	4013	2012	52	1	104	1981	2008	2	13	Y	94.4565
201	4	4013	2012	53	1	104	1981	2008	2	13	Y	94.4565
201	4	4013	2012	54	1	104	1981	2008	2	13	Y	94.4565
201	4	4013	2012	61	1	104	1981	2008	2	13	Y	94.4565
201	4	4013	2012	62	1	104	1981	2008	2	13	Y	94.4565
202	4	4013	2012	41	1	104	1981	2008	2	13	Y	94.4565
202	4	4013	2012	42	1	104	1981	2008	2	13	Y	94.4565
202	4	4013	2012	43	1	104	1981	2008	2	13	Y	94.4565
202	4	4013	2012	51	1	104	1981	2008	2	13	Y	94.4565
202	4	4013	2012	52	1	104	1981	2008	2	13	Y	94.4565
202	4	4013	2012	53	1	104	1981	2008	2	13	Y	94.4565
202	4	4013	2012	54	1	104	1981	2008	2	13	Y	94.4565
202	4	4013	2012	61	1	104	1981	2008	2	13	Y	94.4565
202	4	4013	2012	62	1	104	1981	2008	2	13	Y	94.4565
301	4	4013	2012	41	1	104	1981	2008	2	13	Y	94.4565
301	4	4013	2012	42	1	104	1981	2008	2	13	Y	94.4565
301	4	4013	2012	43	1	104	1981	2008	2	13	Y	94.4565
301	4	4013	2012	51	1	104	1981	2008	2	13	Y	94.4565
301	4	4013	2012	52	1	104	1981	2008	2	13	Y	94.4565
301	4	4013	2012	53	1	104	1981	2008	2	13	Y	94.4565
301	4	4013	2012	54	1	104	1981	2008	2	13	Y	94.4565
301	4	4013	2012	61	1	104	1981	2008	2	13	Y	94.4565
301	4	4013	2012	62	1	104	1981	2008	2	13	Y	94.4565
302	4	4013	2012	41	1	104	1981	2008	2	13	Y	94.4565
302	4	4013	2012	42	1	104	1981	2008	2	13	Y	94.4565
302	4	4013	2012	43	1	104	1981	2008	2	13	Y	94.4565
302	4	4013	2012	51	1	104	1981	2008	2	13	Y	94.4565
302	4	4013	2012	52	1	104	1981	2008	2	13	Y	94.4565
302	4	4013	2012	53	1	104	1981	2008	2	13	Y	94.4565
302	4	4013	2012	54	1	104	1981	2008	2	13	Y	94.4565
302	4	4013	2012	61	1	104	1981	2008	2	13	Y	94.4565
302	4	4013	2012	62	1	104	1981	2008	2	13	Y	94.4565

[RoadType]

roadTypeID	rampFraction
2	0.089945
4	0.138238

[RoadTypeDistribution]

sourceTypeID	roadTypeID	roadTypeVMTFraction
11	1	0.00000
11	2	0.02797
11	3	0.07518
11	4	0.37368
11	5	0.52317
21	1	0.00000
21	2	0.02182
21	3	0.06629
21	4	0.36583
21	5	0.54605
31	1	0.00000
31	2	0.02262
31	3	0.07163
31	4	0.36231
31	5	0.54344
32	1	0.00000
32	2	0.02262
32	3	0.07163
32	4	0.36231
32	5	0.54344
41	1	0.00000
41	2	0.11947
41	3	0.12776
41	4	0.38067
41	5	0.37211
42	1	0.00000
42	2	0.11947
42	3	0.12776
42	4	0.38067
42	5	0.37211
43	1	0.00000
43	2	0.11947
43	3	0.12776
43	4	0.38067
43	5	0.37211
51	1	0.00000
51	2	0.04436
51	3	0.06630
51	4	0.52436
51	5	0.36497
52	1	0.00000
52	2	0.04436
52	3	0.06630
52	4	0.52436
52	5	0.36497
53	1	0.00000
53	2	0.04436
53	3	0.06630
53	4	0.52436
53	5	0.36497
54	1	0.00000
54	2	0.04436
54	3	0.06630
54	4	0.52436
54	5	0.36497
61	1	0.00000
61	2	0.25283
61	3	0.06441
61	4	0.47127
61	5	0.21148
62	1	0.00000
62	2	0.25283
62	3	0.06441
62	4	0.47127
62	5	0.21148

[MonthVMTFraction]

sourceTypeID	isLeapYear	monthID	monthVMTFraction
11	Y	6	0.082486
21	Y	6	0.082486
31	Y	6	0.082486
32	Y	6	0.082486
41	Y	6	0.082486
42	Y	6	0.082486
43	Y	6	0.082486
51	Y	6	0.082486
52	Y	6	0.082486
53	Y	6	0.082486
54	Y	6	0.082486
61	Y	6	0.082486
62	Y	6	0.082486

[DayVMTFraction]

sourceTypeID	monthID	dayID	dayVMTFraction by roadTypeID				
			1	2	3	4	5
11	6	5	0.786342	0.787604	0.785011	0.787604	0.785011
21	6	5	0.786342	0.787604	0.785011	0.787604	0.785011
31	6	5	0.786342	0.787604	0.785011	0.787604	0.785011
32	6	5	0.786342	0.787604	0.785011	0.787604	0.785011
41	6	5	0.786342	0.787604	0.785011	0.787604	0.785011
42	6	5	0.786342	0.787604	0.785011	0.787604	0.785011
43	6	5	0.786342	0.787604	0.785011	0.787604	0.785011
51	6	5	0.786342	0.787604	0.785011	0.787604	0.785011
52	6	5	0.786342	0.787604	0.785011	0.787604	0.785011
53	6	5	0.786342	0.787604	0.785011	0.787604	0.785011
54	6	5	0.786342	0.787604	0.785011	0.787604	0.785011
61	6	5	0.786342	0.787604	0.785011	0.787604	0.785011
62	6	5	0.786342	0.787604	0.785011	0.787604	0.785011

[HourVMTFraction]

sourceTypeID	dayID	hourID	hourVMTFraction by roadTypeID				
			1	2	3	4	5
11~62	5	1	0.0080	0.0098	0.0061	0.0098	0.0061
	5	2	0.0055	0.0070	0.0040	0.0070	0.0040
	5	3	0.0052	0.0069	0.0034	0.0069	0.0034
	5	4	0.0074	0.0107	0.0040	0.0107	0.0040
	5	5	0.0219	0.0336	0.0096	0.0336	0.0096
	5	6	0.0380	0.0496	0.0257	0.0496	0.0257
	5	7	0.0539	0.0585	0.0490	0.0585	0.0490
	5	8	0.0653	0.0608	0.0700	0.0608	0.0700
	5	9	0.0608	0.0585	0.0633	0.0585	0.0633
	5	10	0.0521	0.0538	0.0503	0.0538	0.0503
	5	11	0.0503	0.0507	0.0498	0.0507	0.0498
	5	12	0.0533	0.0518	0.0550	0.0518	0.0550
	5	13	0.0565	0.0547	0.0584	0.0547	0.0584
	5	14	0.0597	0.0614	0.0580	0.0614	0.0580
	5	15	0.0638	0.0637	0.0640	0.0637	0.0640
	5	16	0.0667	0.0607	0.0730	0.0607	0.0730
	5	17	0.0684	0.0589	0.0785	0.0589	0.0785
	5	18	0.0685	0.0566	0.0812	0.0566	0.0812
	5	19	0.0565	0.0496	0.0639	0.0496	0.0639
	5	20	0.0409	0.0389	0.0430	0.0389	0.0430
	5	21	0.0338	0.0338	0.0338	0.0338	0.0338
	5	22	0.0292	0.0309	0.0275	0.0309	0.0275
	5	23	0.0210	0.0240	0.0179	0.0240	0.0179
	5	24	0.0132	0.0156	0.0107	0.0156	0.0107

[AvgSpeedDistribution]

roadTypeID	sourceTypeID	hourDayID	avgSpeedFraction by avgSpeedBinID															
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
2	11,21,31	15~65	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0011	0.0279	0.0000	0.0000	0.0697	0.0549	0.0987	0.1393	0.6035	0.0049
		75~95	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0440	0.0000	0.0000	0.1104	0.0014	0.1658	0.0629	0.1069	0.4979	0.0109
		105~155	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0564	0.9436	0.0000
		165~185	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1057	0.8943	0.0000
		195~245	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0011	0.0279	0.0000	0.0000	0.0697	0.0549	0.0987	0.1393	0.6035	0.0049
	32	15~65	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0009	0.0360	0.0000	0.0000	0.1058	0.0458	0.1177	0.1543	0.5395	0.0000
		75~95	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0420	0.0000	0.0000	0.1272	0.0007	0.1354	0.0695	0.0971	0.5281	0.0000
		105~155	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1401	0.8599	0.0000
		165~185	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.2240	0.7760	0.0000
		195~245	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0009	0.0360	0.0000	0.0000	0.1058	0.0458	0.1177	0.1543	0.5395	0.0000
	41,42,43, 51,52,53,54	15~65	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0204	0.0000	0.0000	0.0620	0.0284	0.0603	0.0937	0.7347	0.0000
		75~95	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0231	0.0000	0.0000	0.0721	0.0005	0.0656	0.0415	0.0535	0.7438	0.0000
		105~155	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0709	0.9291	0.0000
		165~185	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.1423	0.8577	0.0000
		195~245	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0006	0.0204	0.0000	0.0000	0.0620	0.0284	0.0603	0.0937	0.7347	0.0000
	61,62	15~65	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0086	0.0000	0.0000	0.0282	0.0093	0.0183	0.0510	0.8845	0.0000
		75~95	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0107	0.0000	0.0000	0.0360	0.0002	0.0181	0.0208	0.0321	0.8823	0.0000
		105~155	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0337	0.9663	0.0000
		165~185	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0543	0.9457	0.0000
		195~245	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0002	0.0086	0.0000	0.0000	0.0282	0.0093	0.0183	0.0510	0.8845	0.0000
3	11,21,31	15~65	0.0000	0.0001	0.0037	0.0278	0.0623	0.1051	0.3083	0.1662	0.2392	0.0112	0.0146	0.0615	0.0000	0.0000	0.0000	0.0000
		75~95	0.0000	0.0001	0.0026	0.0411	0.1105	0.0997	0.2909	0.1251	0.2328	0.0174	0.0202	0.0598	0.0000	0.0000	0.0000	0.0000
		105~155	0.0000	0.0000	0.0000	0.0022	0.0092	0.0324	0.2966	0.1585	0.3629	0.0522	0.0160	0.0698	0.0000	0.0000	0.0000	0.0000
		165~185	0.0000	0.0000	0.0000	0.0041	0.0128	0.0467	0.2896	0.1823	0.3469	0.0328	0.0154	0.0693	0.0000	0.0000	0.0000	0.0000
		195~245	0.0000	0.0001	0.0037	0.0278	0.0623	0.1051	0.3083	0.1662	0.2392	0.0112	0.0146	0.0615	0.0000	0.0000	0.0000	0.0000
	32	15~65	0.0000	0.0000	0.0038	0.0184	0.0427	0.0770	0.2424	0.1785	0.2759	0.0157	0.0265	0.1190	0.0000	0.0000	0.0000	0.0000
		75~95	0.0000	0.0000	0.0017	0.0222	0.0679	0.0638	0.2307	0.1333	0.3026	0.0247	0.0405	0.1125	0.0000	0.0000	0.0000	0.0000
		105~155	0.0000	0.0000	0.0000	0.0020	0.0069	0.0300	0.2157	0.1462	0.3735	0.0655	0.0201	0.1400	0.0000	0.0000	0.0000	0.0000
		165~185	0.0000	0.0000	0.0000	0.0033	0.0109	0.0407	0.2219	0.1668	0.3596	0.0421	0.0191	0.1355	0.0000	0.0000	0.0000	0.0000
		195~245	0.0000	0.0000	0.0038	0.0184	0.0427	0.0770	0.2424	0.1785	0.2759	0.0157	0.0265	0.1190	0.0000	0.0000	0.0000	0.0000
	41,42,43, 51,52,53,54	15~65	0.0000	0.0000	0.0027	0.0140	0.0331	0.0570	0.2034	0.1406	0.3080	0.0174	0.0229	0.2009	0.0000	0.0000	0.0000	0.0000
		75~95	0.0000	0.0000	0.0012	0.0164	0.0522	0.0463	0.1866	0.1017	0.3266	0.0230	0.0466	0.1993	0.0000	0.0000	0.0000	0.0000
		105~155	0.0000	0.0000	0.0000	0.0016	0.0049	0.0198	0.1641	0.0971	0.3864	0.0566	0.0199	0.2497	0.0000	0.0000	0.0000	0.0000
		165~185	0.0000	0.0000	0.0000	0.0033	0.0083	0.0324	0.1954	0.1313	0.3735	0.0413	0.0199	0.1945	0.0000	0.0000	0.0000	0.0000
		195~245	0.0000	0.0000	0.0027	0.0140	0.0331	0.0570	0.2034	0.1406	0.3080	0.0174	0.0229	0.2009	0.0000	0.0000	0.0000	0.0000
	61,62	15~65	0.0000	0.0000	0.0017	0.0077	0.0176	0.0319	0.1178	0.1046	0.2988	0.0166	0.0199	0.3835	0.0000	0.0000	0.0000	0.0000
		75~95	0.0000	0.0000	0.0008	0.0097	0.0321	0.0269	0.1197	0.0790	0.2962	0.0226	0.0696	0.3434	0.0000	0.0000	0.0000	0.0000
		105~155	0.0000	0.0000	0.0000	0.0010	0.0033	0.0107	0.0883	0.0507	0.3406	0.0500	0.0202	0.4351	0.0000	0.0000	0.0000	0.0000
		165~185	0.0000	0.0000	0.0000	0.0017	0.0044	0.0142	0.0888	0.0578	0.3473	0.0292	0.0192	0.4376	0.0000	0.0000	0.0000	0.0000
		195~245	0.0000	0.0000	0.0017	0.0077	0.0176	0.0319	0.1178	0.1046	0.2988	0.0166	0.0199	0.3835	0.0000	0.0000	0.0000	0.0000
4	11,21,31	15~65	0.0000	0.0000	0.0036	0.0009	0.0144	0.0646	0.0864	0.1263	0.0982	0.0884	0.0988	0.1195	0.0952	0.1010	0.0865	0.0162
		75~95	0.0000	0.0000	0.0023	0.0181	0.0494	0.0664	0.1297	0.1045	0.0792	0.0739	0.0771	0.0914	0.0875	0.0942	0.1087	0.0178
		105~155	0.0000	0.0000	0.0000	0.0000	0.0016	0.0006	0.0004	0.0011	0.0255	0.0689	0.1061	0.1788	0.1854	0.1941	0.2372	0.0001
		165~185	0.0000	0.0000	0.0000	0.0000	0.0007	0.0013	0.0000	0.0009	0.0085	0.0547	0.0919	0.1570	0.2033	0.2176	0.2640	0.0001
		195~245	0.0000	0.0000	0.0036	0.0009	0.0144	0.0646	0.0864	0.1263	0.0982	0.0884	0.0988	0.1195	0.0952	0.1010	0.0865	0.0162
	32	15~65	0.0000	0.0000	0.0049	0.0007	0.0131	0.0550	0.0777	0.1129	0.0938	0.1005	0.1046	0.1374	0.1142	0.1018	0.0835	0.0000
		75~95	0.0000	0.0000	0.0023	0.0142	0.0348	0.0504	0.0969	0.0861	0.0642	0.0687	0.0877	0.0953	0.1066	0.1372	0.1556	0.0000
		105~155	0.0000	0.0000	0.0000	0.0000	0.0014	0.0008	0.0004	0.0011	0.0235	0.0643	0.1074	0.1741	0.1879	0.1923	0.2467	0.0001
		165~185	0.0000	0.0000	0.0000	0.0000	0.0008	0.0012	0.0000	0.0008	0.0071	0.0527	0.0924	0.1523	0.2045	0.2145	0.2735	0.0001
		195~245	0.0000	0.0000	0.0049	0.0007	0.0131	0.0550	0.0777	0.1129	0.0938	0.1005	0.1046	0.1374	0.1142	0.1018	0.0835	0.0000
	41,42,43, 51,52,53,54	15~65	0.0000	0.0000	0.0051	0.0008	0.0132	0.0584	0.0818	0.1227	0.0979	0.1030	0.1095	0.1406	0.1070	0.0903	0.0698	0.0000
		75~95	0.0000	0.0000	0.0028	0.0139	0.0342	0.0539	0.1060	0.0907	0.0650	0.0700	0.0901	0.0968	0.1097	0.1316	0.1352	0.0000
		105~155	0.0000	0.0000	0.0000	0.0000	0.0017	0.0008	0.0004	0.0013	0.0267	0.0704	0.1205	0.1897	0.1964	0.1795	0.2126	0.0001
		165~185	0.0000	0.0000	0.0000	0.0000	0.0008	0.0015	0.0000	0.0009	0.0076	0.0573	0.1048	0.1665	0.2226	0.2033	0.2347	0.0001
		195~245	0.0000	0.0000	0.0051	0.0008	0.0132	0.0584	0.0818	0.1227	0.0979	0.1030	0.1095	0.1406	0.1070	0.0903	0.0698	0.0000
	61,62	15~65	0.0000	0.0000	0.0054	0.0007	0.0177	0.0662	0.0892	0.1195	0.0866	0.0991	0.1031	0.1343	0.1015	0.0918	0.0848	0.0000
		75~95	0.0000	0.0000	0.0022	0.0186	0.0417	0.0669	0.1065	0.0820	0.0572	0.0669	0.0805	0.0924	0.1075	0.1345	0.1432	0.0000
		105~155	0.0000	0.0000	0.0000	0.0000	0.0012	0.0012	0.0005	0.0011	0.0286	0.0732	0.1318	0.1798	0.1810	0.1620	0.2395	0.0001
		165~185	0.0000	0.0000	0.0000	0.0000	0.0012	0.0011	0.0000	0.0009	0.0074	0.0647	0.1138	0.1696	0.1970	0.1836	0.2605	0.0001
		195~245	0.0000	0.0000	0.0054	0.0007	0.0177	0.0662	0.0892	0.1195	0.0866	0.0991	0.1031	0.1343	0.1015	0.0918	0.0848	0.0000

road TypeID	sourceTypeID	hourDayID	avgSpeedFraction by avgSpeedBinID															
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
5	11,21,31	15~65	0.0000	0.0051	0.0124	0.0654	0.1821	0.3679	0.2266	0.1124	0.0265	0.0013	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000
		75~95	0.0000	0.0075	0.0192	0.0813	0.1910	0.3265	0.1869	0.1425	0.0428	0.0012	0.0011	0.0000	0.0000	0.0000	0.0000	0.0000
		105~155	0.0000	0.0005	0.0040	0.0235	0.1132	0.2758	0.2457	0.2591	0.0741	0.0024	0.0016	0.0000	0.0000	0.0000	0.0000	0.0000
		165~185	0.0000	0.0005	0.0065	0.0217	0.1122	0.2729	0.2466	0.2602	0.0750	0.0028	0.0014	0.0000	0.0000	0.0000	0.0000	0.0000
		195~245	0.0000	0.0051	0.0124	0.0654	0.1821	0.3679	0.2266	0.1124	0.0265	0.0013	0.0004	0.0000	0.0000	0.0000	0.0000	0.0000
	32	15~65	0.0000	0.0050	0.0106	0.0573	0.1677	0.3556	0.2470	0.1237	0.0298	0.0025	0.0007	0.0000	0.0000	0.0000	0.0000	0.0000
		75~95	0.0000	0.0056	0.0140	0.0616	0.1645	0.3033	0.2034	0.1841	0.0588	0.0021	0.0025	0.0000	0.0000	0.0000	0.0000	0.0000
		105~155	0.0000	0.0002	0.0049	0.0197	0.0999	0.2604	0.2556	0.2754	0.0766	0.0040	0.0034	0.0001	0.0000	0.0000	0.0000	0.0000
		165~185	0.0000	0.0002	0.0080	0.0184	0.1044	0.2619	0.2563	0.2693	0.0745	0.0043	0.0026	0.0001	0.0000	0.0000	0.0000	0.0000
		195~245	0.0000	0.0050	0.0106	0.0573	0.1677	0.3556	0.2470	0.1237	0.0298	0.0025	0.0007	0.0000	0.0000	0.0000	0.0000	0.0000
	41,42,43, 51,52,53,54	15~65	0.0000	0.0048	0.0100	0.0736	0.1952	0.3398	0.2399	0.1099	0.0242	0.0020	0.0005	0.0000	0.0000	0.0000	0.0000	0.0000
		75~95	0.0000	0.0051	0.0143	0.0752	0.1912	0.2852	0.2117	0.1669	0.0466	0.0019	0.0021	0.0000	0.0000	0.0000	0.0000	0.0000
		105~155	0.0000	0.0008	0.0051	0.0300	0.1297	0.2368	0.2681	0.2611	0.0625	0.0032	0.0026	0.0000	0.0000	0.0000	0.0000	0.0000
		165~185	0.0000	0.0009	0.0069	0.0280	0.1336	0.2374	0.2709	0.2554	0.0614	0.0037	0.0018	0.0000	0.0000	0.0000	0.0000	0.0000
		195~245	0.0000	0.0048	0.0100	0.0736	0.1952	0.3398	0.2399	0.1099	0.0242	0.0020	0.0005	0.0000	0.0000	0.0000	0.0000	0.0000
	61,62	15~65	0.0000	0.0048	0.0095	0.0771	0.2063	0.3395	0.2320	0.1064	0.0222	0.0018	0.0006	0.0000	0.0000	0.0000	0.0000	0.0000
		75~95	0.0000	0.0049	0.0138	0.0766	0.2038	0.2846	0.2080	0.1617	0.0429	0.0019	0.0018	0.0000	0.0000	0.0000	0.0000	0.0000
		105~155	0.0000	0.0010	0.0056	0.0344	0.1465	0.2344	0.2601	0.2557	0.0572	0.0030	0.0021	0.0000	0.0000	0.0000	0.0000	0.0000
		165~185	0.0000	0.0011	0.0075	0.0316	0.1501	0.2333	0.2647	0.2485	0.0582	0.0036	0.0014	0.0000	0.0000	0.0000	0.0000	0.0000
		195~245	0.0000	0.0048	0.0095	0.0771	0.2063	0.3395	0.2320	0.1064	0.0222	0.0018	0.0006	0.0000	0.0000	0.0000	0.0000	0.0000

[AVFT]

sourceTypeID	modelYearID	engTechID	fuelEngFraction by fuelTypeID		
			1	2	3
42	1960	1	0.0000	1.0000	0.0000
42	1961	1	0.0000	1.0000	0.0000
42	1962	1	0.0000	1.0000	0.0000
42	1963	1	0.0000	1.0000	0.0000
42	1964	1	0.0000	1.0000	0.0000
42	1965	1	0.0000	1.0000	0.0000
42	1966	1	0.0000	1.0000	0.0000
42	1967	1	0.0000	1.0000	0.0000
42	1968	1	0.0000	1.0000	0.0000
42	1969	1	0.0000	1.0000	0.0000
42	1970	1	0.0000	1.0000	0.0000
42	1971	1	0.0000	1.0000	0.0000
42	1972	1	0.0000	1.0000	0.0000
42	1973	1	0.0000	1.0000	0.0000
42	1974	1	0.0000	1.0000	0.0000
42	1975	1	0.0000	1.0000	0.0000
42	1976	1	0.0000	1.0000	0.0000
42	1977	1	0.0000	1.0000	0.0000
42	1978	1	0.0000	1.0000	0.0000
42	1979	1	0.0000	1.0000	0.0000
42	1980	1	0.0000	1.0000	0.0000
42	1981	1	0.0000	1.0000	0.0000
42	1982	1	0.0000	1.0000	0.0000
42	1983	1	0.0000	1.0000	0.0000
42	1984	1	0.0000	1.0000	0.0000
42	1985	1	0.0000	1.0000	0.0000
42	1986	1	0.0000	1.0000	0.0000
42	1987	1	0.0000	1.0000	0.0000
42	1988	1	0.0000	1.0000	0.0000
42	1989	1	0.0000	1.0000	0.0000
42	1990	1	0.0000	0.9930	0.0070
42	1991	1	0.0000	0.9820	0.0180
42	1992	1	0.0100	0.9440	0.0460
42	1993	1	0.0100	0.9140	0.0760
42	1994	1	0.0100	0.9050	0.0850
42	1995	1	0.0100	0.8370	0.1530
42	1996	1	0.0100	0.8920	0.0980
42	1997	1	0.0000	1.0000	0.0000
42	1998	1	0.0000	0.0000	1.0000
42	1999	1	0.0000	0.0000	1.0000
42	2000	1	0.0000	0.0000	1.0000
42	2001	1	0.0000	0.0000	1.0000
42	2002	1	0.0000	0.0000	1.0000
42	2003	1	0.0000	0.0000	1.0000

sourceTypeID	modelYearID	engTechID	fuelEngFraction by fuelTypeID		
			1	2	3
42	2004	1	0.0000	0.3881	0.6119
42	2005	1	0.0000	1.0000	0.0000
42	2006	1	0.0513	0.1538	0.7949
42	2007	1	0.2161	0.7839	0.0000
42	2008	1	0.0814	0.3256	0.5930
42	2009	1	0.1951	0.1220	0.6829
42	2010	1	0.0000	1.0000	0.0000
42	2011	1	0.0488	0.4146	0.5366
42	2012	1	0.0000	0.0000	1.0000
42	2013	1	0.0000	1.0000	0.0000
42	2014	1	0.0000	1.0000	0.0000
42	2015	1	0.0000	1.0000	0.0000
42	2016	1	0.0000	1.0000	0.0000
42	2017	1	0.0000	1.0000	0.0000
42	2018	1	0.0000	1.0000	0.0000
42	2019	1	0.0000	1.0000	0.0000
42	2020	1	0.0000	1.0000	0.0000
42	2021	1	0.0000	1.0000	0.0000
42	2022	1	0.0000	1.0000	0.0000
42	2023	1	0.0000	1.0000	0.0000
42	2024	1	0.0000	1.0000	0.0000
42	2025	1	0.0000	1.0000	0.0000
42	2026	1	0.0000	1.0000	0.0000
42	2027	1	0.0000	1.0000	0.0000
42	2028	1	0.0000	1.0000	0.0000
42	2029	1	0.0000	1.0000	0.0000
42	2030	1	0.0000	1.0000	0.0000
42	2031	1	0.0000	1.0000	0.0000
42	2032	1	0.0000	1.0000	0.0000
42	2033	1	0.0000	1.0000	0.0000
42	2034	1	0.0000	1.0000	0.0000
42	2035	1	0.0000	1.0000	0.0000
42	2036	1	0.0000	1.0000	0.0000
42	2037	1	0.0000	1.0000	0.0000
42	2038	1	0.0000	1.0000	0.0000
42	2039	1	0.0000	1.0000	0.0000
42	2040	1	0.0000	1.0000	0.0000
42	2041	1	0.0000	1.0000	0.0000
42	2042	1	0.0000	1.0000	0.0000
42	2043	1	0.0000	1.0000	0.0000
42	2044	1	0.0000	1.0000	0.0000
42	2045	1	0.0000	1.0000	0.0000
42	2046	1	0.0000	1.0000	0.0000
42	2047	1	0.0000	1.0000	0.0000
42	2048	1	0.0000	1.0000	0.0000
42	2049	1	0.0000	1.0000	0.0000
42	2050	1	0.0000	1.0000	0.0000

APPENDIX A

EXHIBIT 2:

Arizona Revised Statutes Listed in Table 1-1

ARIZONA REVISED STATUTES LISTED IN TABLE 1-1

41-2131. Definitions

4. “Stage I vapor recovery system” means a combination of pipes and hoses that creates a closed system between the vapor spaces of an unloading gasoline cargo tank and a receiving storage tank so that vapors displaced from the storage tank are transferred to the gasoline cargo tank being unloaded.

5. “Stage II vapor recovery system” means a system where at least ninety per cent by weight of the gasoline vapors that are displaced or drawn from a vehicle fuel tank during refueling are transferred to a vapor-tight holding system or vapor control system.

41-2132. Stage I vapor recovery systems

A. A person shall not offer for sale, sell, install or use a new gasoline stage I vapor recovery system, or any new or rebuilt component parts of the system, unless the system or component part has been certified by the California air resources board as of March 31, 2001 or after that date, or has been approved by a third party accredited to test equipment and recognized by industry and the department, and has not been rejected by the department. The department shall maintain and keep current a list of stage I vapor recovery systems and component parts that are approved by the department. Only those systems that are approved shall be used in this state. All certified vapor recovery components must be clearly identified by a permanent identification affixed by the certified manufacturer or rebuilder.

B. For gasoline dispensing sites with a throughput of over ten thousand gallons per month in area A or area B as defined in section 49-541, a person shall not transfer or allow the transfer of gasoline into storage tanks at gasoline dispensing sites unless the storage tank is equipped with a stage I vapor recovery system consisting of a vapor-tight return line from the storage tank or its vent to the gasoline transport vehicle.

C. An owner or operator of a gasoline storage tank, gasoline transport vehicle or gasoline dispensing site subject to stage I vapor recovery requirements shall comply with the following:

1. Install all necessary stage I vapor recovery systems and make any modifications necessary to comply with the requirements.

2. Provide adequate training and written instructions to the operator of the affected gasoline dispensing site and the gasoline transport vehicle.

3. Replace, repair or modify any worn or ineffective component or design element to ensure the vapor-tight integrity and efficiency of the stage I vapor recovery systems.

4. Connect and ensure proper operation of the stage I vapor recovery systems whenever gasoline is being loaded, unloaded or dispensed.

5. In area A and other geographical areas as provided by subsection G of this section, have the stage I vapor recovery system tested annually by a registered service representative licensed by the department.

D. Before the initial installation or modification of any stage I vapor recovery system, the owner or operator of a gasoline storage tank, gasoline transport vehicle or gasoline dispensing site shall obtain a plan review and approval from the department.

Application for the plan review and approval shall be on forms prescribed and provided by the department.

E. The department of weights and measures in consultation with the department of environmental quality and the state fire marshal shall establish by rule standards for the installation and operation of stage I vapor recovery systems. The department of weights and measures shall establish by rule plan review and approval fees. In establishing those rules and standards, the director shall consider requirements in other states to ensure that only state of the art technology is used.

F. Approval of a stage I vapor recovery system by the department does not relieve the owner or operator of the responsibility to comply with other applicable statutes, codes and rules pertaining to fire prevention, environmental quality and safety matters.

41-2133. Compliance schedules

Notwithstanding section 41-2132, subsection I relating to schedules of compliance:

1. Gasoline dispensing facilities located in area A or in any other geographical area as provided in section 41-2132, subsection G for which construction began after the certification of rules adopted pursuant to section 41-2132 shall be constructed to include stage I vapor recovery systems that meet the minimum standards set forth in this chapter and department rules.

2. All gasoline dispensing sites located in area A or in any other geographical area as provided in section 41-2132, subsection G that begin underground storage tank replacement and that apply for a permit pursuant to title 49, chapter 3, article 3 or 5 on or after September 30, 1992 shall be in compliance within six months after the effective date of the rules adopted pursuant to section 41-2132. Compliance with this article is a condition of the permit.

41-2135. Stage II vapor recovery systems

A. A person shall not offer for sale, sell, install or use a new gasoline vapor recovery system, or any new or rebuilt component parts of the system, unless the system or component part has been certified by the California air resources board as of March 31, 2001 or after that date, or has been approved by a third party accredited to test equipment and recognized by industry and the department, and has not been rejected by the department. The department shall maintain and keep current a list of stage II vapor recovery systems and component parts that are approved by the department. Only those systems that are approved shall be used in this state. All certified vapor recovery components must be clearly identified by a permanent identification affixed by the certified manufacturer or rebuilder.

B. In an ozone nonattainment area designated as moderate, serious, severe or extreme by the United States environmental protection agency under section 107(d) of the clean air act or area A, an owner or operator of a gasoline dispensing site shall not transfer or allow the transfer of gasoline into a motor vehicle fuel tank at a gasoline dispensing site unless the gasoline dispensing site is equipped with a stage II vapor recovery system, unless the stage II equipment has been decommissioned in accordance with the procedures established pursuant to subsection H of this section. This subsection does not apply to gasoline dispensing sites with a throughput of less than ten thousand gallons per month, or to a gasoline dispensing site with a throughput of less than fifty thousand gallons per month in the case of an independent small business marketer of gasoline as defined

in section 324 of the clean air act or to a gasoline dispensing site that is located on a manufacturer's proving ground. This subsection applies to gasoline dispensing sites that are located within area A but outside the Phoenix area Maricopa county ozone nonattainment area as defined in 40 Code of Federal Regulations section 81.303.

C. An owner or operator of a gasoline storage tank, gasoline transport vehicle or gasoline dispensing site subject to stage II vapor recovery requirements shall comply with the following:

1. Install all necessary stage II vapor recovery systems and make any modifications necessary to comply with the requirements.

2. Provide adequate training and written instructions to the operator of the affected gasoline dispensing site and the gasoline transport vehicle.

3. Replace, repair or modify any worn or ineffective component or design element to ensure the vapor-tight integrity and efficiency of the stage II vapor recovery systems.

4. Connect and ensure proper operation of the stage II vapor recovery systems whenever gasoline is being loaded, unloaded or dispensed.

5. Have the stage II vapor recovery system tested annually by a registered service representative licensed by the department.

D. Before the modification of any stage II vapor recovery system, the owner or operator of a gasoline storage tank, gasoline transport vehicle or gasoline dispensing site shall obtain a plan review and approval from the department. The department shall prescribe forms for the application for the plan review and approval.

E. The operator of each gasoline dispensing site using a stage II vapor recovery system shall conspicuously post operating instructions for the system in the gasoline or oxygenated fuel dispensing area. The instructions shall clearly describe how to fuel vehicles correctly with the vapor recovery nozzles used at the station and shall include a warning that topping off may result in spillage or recirculation of gasoline or oxygenated fuel and is prohibited.

F. The department of weights and measures in consultation with the department of environmental quality and the state fire marshal shall establish by rule standards for the installation and operation of stage II vapor recovery systems. The department of weights and measures shall establish by rule plan review and approval fees. In establishing those rules and standards, the director shall consider requirements in other states to ensure that only state of the art technology is used.

G. Approval of a stage II vapor recovery system by the department does not relieve the owner or operator of the responsibility to comply with other applicable statutes, codes and rules pertaining to fire prevention, environmental quality and safety matters.

H. The department of weights and measures in consultation with the department of environmental quality and the state fire marshal shall establish by rule standards for decommissioning stage II vapor recovery systems on or after October 1, 2016 but not later than September 30, 2018, or such dates as approved by the United States environmental protection agency in the state implementation plan revision for the removal of stage II vapor recovery systems submitted under section 110(l) of the clean air act, whichever is later. The rules must require removal of stage II vapor recovery systems no later than September 30, 2018, or the final removal date approved by the United States environmental protection agency in the state implementation plan revision for the removal

of stage II vapor recovery systems submitted under section 110(l) of the clean air act, whichever is later. The department shall prescribe forms for the application for the plan review and approval. The department shall establish by rule plan review and approval fees.

I. All stage II vapor recovery systems and testing must remain in place until such systems are decommissioned pursuant to subsection H of this section.

J. The requirements prescribed for stage II vapor recovery systems pursuant to subsections A through E of this section do not apply to a retail station if the construction begins after the effective date of this section.

K. The requirements for stage II vapor recovery systems prescribed in subsections A through E of this section do not apply to an owner or operator who has decommissioned stage II vapor recovery equipment in accordance with the standards established by the department pursuant to subsection H of this section.

APPENDIX B

APPENDIX B

EXHIBIT 1:

Public Hearing Process Documentation

APPENDIX B

EXHIBIT 2:

Certification of Adoption