2007 REVISION

of the

STATE IMPLEMENTATION PLAN

for the

ST. LOUIS 8-HOUR OZONE NONATTAINMENT AREA

Adoption Hearing — May 31, 2007

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List of Acronyms

ACT -	Alternate Control Techniques
CAAA -	Clean Air Act Amendments
CAIR -	Clean Air Interstate Rule
CAMR -	Clean Air Mercury Rule
CAMx -	Comprehensive Air Quality Model with Extensions
CMAQ -	Congestion Mitigation and Air Quality
CO -	Carbon Monoxide
CTG -	Control Techniques Guideline
EGU -	Electric Generating Unit
EIQ -	Emission Inventory Questionnaire
EMS -	Emissions Modeling System
EPA -	U.S. Environmental Protection Agency
GCAP -	Gateway Clean Air Program
I/M -	Automobile Inspection and Maintenance
IPM -	Integrated Planning Model
LAER -	Lowest Achievable Emission Rate
MACT -	Maximum Achievable Control Technology
MM5 -	Pennsylvania State University / National Center for Atmospheric Research Mesoscale Meteorological Model
MSA -	Metropolitan Statistical Area
NAAQS -	National Ambient Air Quality Standards
NOx -	Nitrogen Oxide
NSR -	New Source Review
OBD II -	second generation On Board Diagnostics
OTB -	On-the-Books
ppb –	parts per billion
ppm –	parts per million
psi -	pounds per square inch
RACM -	Reasonably Available Control Measures
RFG -	Reformulated Gasoline
RFP -	Reasonable Further Progress
ROP -	Rate Of Progress
RSMo –	Revised Statutes of Missouri
RVP -	Reid Vapor Pressure
SIP -	State Implementation Plan
TPD -	Tons Per Day
SMOKE -	Sparse Matrix Option Kernal Emissions
VOC -	Volatile Organic Compound
VMT -	Vehicle Miles Traveled

List of Appendices

1.) St. Louis 8-Hour Ozone Technical Support Document

2.) 2002 Base Year Emissions Inventory for the Missouri Portion of the St. Louis 8-Hour Ozone Nonattainment Area

3.) St. Louis 8-Hour Ozone Reasonable Further Progress Demonstration

1.0 Executive Summary

Federal clean air laws require areas with unhealthy levels of ozone, carbon monoxide, nitrogen dioxide, sulfur dioxide and inhalable particulate matter to develop plans, known as State Implementation Plans (SIPs), describing how they will attain National Ambient Air Quality Standards (NAAQS). The 1990 amendments to the federal Clean Air Act set new deadlines for attainment based on the severity of the pollution problem and launched a comprehensive planning process for attaining the NAAQS. The promulgation of the new national eight-hour ozone standard in 1997 led to the need for additional air quality planning efforts.

SIPs are not single documents, rather they are a compilation of new and previously submitted plans, programs (such as monitoring, modeling, permitting, etc.), state regulations and federal controls. Missouri's St. Louis ozone SIPs have relied on a series of core control strategies, including emission standards for cars and trucks, motor fuel regulations, industrial regulations, and rules that apply to small sources of ozone precursors. State law (RSMo 643.190) designates the Missouri Department of Natural Resources' Air Pollution Control Program as the lead agency for the development of SIPs. Federal regulation requires that all SIPs undergo a public participation process. Comments are received and addressed, and the revised plan is presented to the Missouri Air Conservation Commission for adoption. Once adopted, the proposed revision is forwarded to the U.S. Environmental Protection Agency (EPA) for approval and publication in the Federal Register. The Code of Federal Regulations Title 40, Chapter I, Part 52, Subpart Aa, Section 52.1320 lists all of the federally approved Missouri SIP actions.

This new plan demonstrates that the existing set of emission controls established in the St. Louis Nonattainment Area will be sufficient to demonstrate attainment of the 8-hour ozone standard.

Over the last two decades the emissions of ozone precursors have been dramatically reduced. Between 1993 and 2002 emissions of Volatile Organic Compounds (VOCs) decreased by nearly 48 percent, and during the same time period Nitrogen Oxide (NOx) decreased by 31 percent. These reductions have occurred even with the growth in population, the economy, and especially the dramatic increases in Vehicle Miles Traveled (VMT). The emission controls have improved the long-term air quality trends, clearly reducing ozone concentrations. Air quality in St. Louis has improved, and the area attained the old 1-hour ozone standard. Unfortunately, based on EPA's more protective 8-hour ozone standard, St. Louis residents continue to breath unhealthy levels of ozone during certain summertime episodes.

On April 15, 2004, EPA designated the St. Louis metropolitan area as a moderate nonattainment area for the new eight-hour ozone standard. This area includes the City of St. Louis, St. Louis, St. Charles, Jefferson and Franklin counties. The eight-hour ozone SIP submittal deadline is June 15, 2007, and this plan revision demonstrates that the St. Louis non-attainment area will reach attainment of the 8-hour ozone standard by 2010.

1.1 Attainment Deadline

This plan focuses on achieving the federal 8-hour ozone standard by the 2010 deadline established by the federal Clean Air Act for nonattainment areas with a classification of moderate.

1.2 Associated SIP Elements

The 8-hour ozone implementation rules were promulgated in two phases. Phase I was published on April 30, 2004 (69 FR23951) and became effective on June 15, 2004. Phase II was published on November 29, 2005 (70 FR 71612) and became effective on January 30, 2006. These rules provided specific obligations for state ozone plan revisions. These rules have been the subject of litigation, which may result in future modifications to certain obligations. Under the rules, the St. Louis 8-hour ozone nonattainment area is subject to a number of obligations as listed below.

1.2.1 Emission Inventory

Missouri was obligated to submit a rigorous inventory of emissions of ozone precursors. The deadline for this submittal was June 15, 2006. The inventory must detail the methodology and the data elements must be consistent with the emissions reporting rule. The base year of the inventory is 2002. The St. Louis 8-hour ozone emission inventory was adopted by the Missouri Air Conservation Commission on May 25, 2006, and submitted to EPA on June 13, 2006.

As a result of continued efforts a few minor improvements to the inventory need to be made. A revision incorporating these corrections is included with this plan as a separate document, and is included as an appendix.

1.2.2 Control Strategy

This plan provides for implementation of all emission control measures necessary to show attainment be implemented no later than the beginning of the 2009 ozone season. Section provides a description of some of the individual control strategies.

1.2.3 Attainment Demonstration

The 8-hour implementation rule requires a rigorous photochemical grid modeling analysis that estimates whether selected emission reductions will result in ambient air concentrations that meet the NAAQS. To document these technical efforts a technical support document has been prepared, and will be submitted with this plan as a stand-alone element. The “St. Louis 8-Hour Ozone Technical Support Document” is included as an appendix. The technical support document provides descriptions of the meteorological modeling, a description of the conceptual model of ozone formation in St. Louis, a discussion of model performance and improvements that were made to the photochemical modeling, and a formal presentation of the attainment test demonstrating that ongoing state and federal emission regulations will result in attainment of the 8-hour ozone standard by the 2010 attainment deadline.

1.2.4 Contingency Measures

Section 172(c)(9) of the Clean Air Act requires plan revisions to include specific contingency measures that can be implemented without further action by the state. Contingency measures are triggered if the state fails to meet defined Reasonable Further Progress (RFP) goals or if monitoring shows that the standard has not been attained.

Emissions from the motor vehicle category are expected to decrease in future years. These reductions are beyond those needed to demonstrate attainment of the ozone standard. These reductions are also beyond those needed to demonstrate RFP. Therefore, the expected decrease in emissions from motor vehicles as a result of ongoing federal motor vehicle controls can therefore be relied on as a contingency measure.

1.2.5 Coordination

The St. Louis metropolitan area is a multi-state ozone nonattainment area, and Section 182(j)(1)(A) of the Clean Air Act requires that neighboring states take reasonable steps to coordinate the revision of their 8-hour ozone plans. This plan has been developed working cooperatively in an integrated manner with the State of Illinois. Refer to Section 2 for a description of the planning and technical efforts.

1.2.6 Motor Vehicle Conformity Budgets

The 8-hour implementation rule requires the establishment of 2009 motor vehicle emission budget. This budget is given in Section 3. In a separate submittal Missouri and Illinois must show that transportation plans will meet these budgets.

In addition to the 2009 conformity budget, the state is obligated to establish a 2008 RFP budget. The RFP obligation is outlined in Section 3, and is provided in detail as an appendix.

1.2.7 Interstate Transport

Under the 8-hour ozone implementation rule, states that properly implement the NOx SIP call and the Clean Air Interstate Rule (CAIR) are presumed to have met their emission reduction responsibilities to states that are downwind. SIP revisions containing these obligations have already been provided to EPA in separate submittals, and Section 4 summarizes these documents.

1.2.8 Reasonably Available Control Measures (RACM)

Section 172(c)(1) of the Clean Air Act requires states to demonstrate that all control measures necessary to demonstrate attainment are being adopted as expeditiously as practicable. In practice, this is a negative test showing that there are no other measures that will advance the attainment date for one year or more. Given the long history of ozone planning in St. Louis,

there are no reasonable measures that would advance the attainment date. Section 3 outlines this finding.

1.2.9 Rate Of Progress (ROP) Plan Requirements

As part of the 8-hour ozone designation process Jersey County Illinois was added to the St. Louis ozone nonattainment area. The Code of Federal Regulations [51.910(a)1(iii)] provides two options for meeting the ROP obligation of reducing VOC emissions by 15 percent in situations where new geography has been added to the nonattainment area since the original 15 percent plans were approved. One option would be to submit a new 15 percent ROP for the entire area. The second option is to treat the nonattainment area as two separate parts with two separate targets. The Illinois Environmental Protection Agency will submit a 15 percent VOC ROP plan for Jersey County relying on emission reductions from other counties in the State of Illinois. The remainder of the nonattainment area can then rely on the previously approved 15 percent ROP plan. EPA approved Missouri's 15 percent ROP plan on May 18, 2000, and this satisfies this obligation.

1.2.10 Reasonable Further Progress (RFP)

The Code of Federal Regulations [51.910(a)(1)(ii)] establishes an obligation for Missouri to make reasonable further progress by reducing annual emissions from the 2002 base year to 2008 by 15 percent. This RFP obligation is a separate obligation from the ROP obligation that Missouri has already met. In addition, Missouri must establish a motor vehicle budget for 2008 for demonstration that the area will meet its RFP obligations. The RFP demonstration is provided as an appendix, and was included with the updated emission inventory because of the relationship between the emission inventory and the RFP calculations.

1.2.11 Reasonably Available Control Technology (RACT)

Sections 182(b)(2) and 182(f) of the Clean Air Act establish a requirement that states implement all reasonably available controls. RACT is defined as the lowest emissions limitation that a particular source category is capable of meeting by the application of control technology that is reasonably available considering technological and economic feasibility (44 FR 53762; September 17, 1979). In the preamble of phase II of the 8-hour implementation rule it notes that RACT must be met, either through a certification that RACT controls established under the previous 1-hour ozone standard represent RACT for 8-hour purposes or through new RACT determinations. All RACT provisions must be implemented no later than the beginning of the 2009 ozone season.

Missouri has prepared and submitted a separate RACT demonstration. This demonstration was adopted by the Missouri Air Conservation Commission on December 7, 2006, and was subsequently submitted to EPA. This submittal satisfies Missouri's RACT obligation.

1.2.12 New Source Review (NSR)

The federal regulations regarding construction permitting in nonattainment areas were modified. These regulations set the major source thresholds for VOC and NOx at 100 tons per year and the significant emission rates for these pollutants at forty tons per year. The federal regulations also require 1.15 to 1 offset ratio and requires that new sources be controlled to Lowest Achievable Emission Rates (LAER).

Missouri's current nonattainment area permitting rules meet these core obligations, so changes to current state regulations are not necessary. More information about nonattainment NSR obligations is provided in Section 3.

1.2.13 Automobile Inspection and Maintenance (I/M)

Missouri's centralized inspection and maintenance (I/M) program is in the process of being replaced by a decentralized program. The department plans to amend the I/M SIP in a separate action. For the purposes of the 8-hour ozone SIP, the basic performance standard for moderate nonattainment areas was assumed. This assumption applies to the inventory calculations regarding the attainment demonstration inventory and transportation conformity (2009) and RFP (2008).

In 2006, the department conducted a series of local planning meetings to identify specific program design features. These recommendations were forwarded to the Missouri General Assembly, which after some debate and modifications, were enacted becoming effective on August 28, 2006. This new statute authorizes the Missouri Air Conservation Commissions to develop a decentralized program to replace the current program beginning September 1, 2007.

The decentralized program would allow licensed test-only and test-and-repair businesses to provide second generation On Board Diagnostic (OBD II) testing for 1996 and newer model year gasoline-powered vehicles and 1997 and newer model year diesel-powered vehicles. 1995 and older model year vehicles will be subject to an enhanced safety inspection that would include a gas cap pressure test, a check for leaking fuel, and a visual inspection of the emissions control devices. The department met with the Missouri State Highway Patrol and the Office of Administration's Division of Purchasing and Materials Management to draft a request for proposals to implement the new program. The request for proposal was released on December 15, 2006 and it seeks to secure the services of one contractor to provide the testing equipment and data management services of the decentralized I/M program.

The department is also in the process of drafting a new I/M regulation (10 CSR 10-5.*381 On-Board diagnostics Motor Vehicle Emissions Inspection*). The department plans to submit an I/M SIP revision once the new program is fully designed, and the regulation is amended. The new program will be result in lower automobile emissions than the basic performance standard, so all planning assumptions associated with the attainment and RFP demonstrations are conservative.

1.2.14 Reformulated Gasoline (RFG)

The preamble of phase II of the 8-hour implementation rule reaffirms that the current opt-in rules remain in place after the 1-hour ozone standard was revoked. St. Louis, therefore, remains a

covered area and Missouri does not need to opt into the RFG program again. A more detailed discussion of RFG is presented in Section 4.

1.2.15 Clean Air Interstate Rule (CAIR) and Clean Air Mercury Rule (CAMR)

The department has proceeded with planning efforts to participate in the national cap and trade system. The first phase of emission reductions occurs in 2010. In the attainment demonstration modeling the modeling assumptions were based on national Integrated Planning Model (IPM) runs that estimated the emissions from electric generating units in 2009. These runs assumed no additional control on Missouri utilities in 2009. The attainment demonstration does not rely on CAIR reductions.

The department held workgroup meetings in August through December 2005 to determine how affected entities believed that Missouri should respond to CAIR and CAMR, and rules were developed within the workgroup process. These rules were presented for public hearing at the December 7, 2006 Missouri Air Conservation Commission meeting and were adopted on February 1, 2007. The department plans to submit these rule changes for inclusion in the Missouri SIP as a separate submittal. More information about Missouri's plans regarding CAIR and CAMR are presented in Section 4.

1.2.16 Section 110 Obligations

A plan meeting the requirements of Section 110(a)(1) of the Clean Air Act for areas of Missouri not included in the St. Louis or Kansas City 8-hour nonattainment areas was adopted by the Missouri Air Conservation Commission on February 1, 2007. The 110 plan provides the statewide authority and mechanism for implement, maintain, and enforce the NAAQS. The plan shows that the state has the necessary infrastructure, resources, and general authority to address the revised ozone and fine particle standards.

This plan revision was recently updated, and was formally submitted to EPA on February 22, 2007. The Section 110 obligations only apply to areas outside the St. Louis nonattainment area, and are therefore, not being included or addressed in this submittal.

1.3 Control Strategy

The attainment demonstration indicates that St. Louis will attain the 8-hour ozone standard by 2010 by maintaining a set of existing emission controls for ozone precursors. These controls include an automobile I/M program, RFG, Tier II federal motor vehicle controls, the NOx SIP call, and a variety of local RACT rules. A more complete list and description of these control measures is provided in Section 4.

2.0 Introduction: St. Louis Ozone Background, History and SIP Development

This section provides general information and a background history of St. Louis ozone planning.

2.1 General Ozone Information and Health Effects of Exposure

Ozone is a chemical oxidant that adversely impacts human health through effects on respiratory function. Ozone can also damage forests and crops. Ozone is not emitted directly by industrial sources or motor vehicles but instead, is formed in the lower atmosphere, the troposphere. Ozone is formed by a complex series of chemical reactions involving NOx, the result of combustion processes, and reactive organic gases referred to as VOCs. VOCs include many industrial solvents, toluene, xylene and hexane as well as the various hydrocarbons that are evaporated from the gasoline used by motor vehicles or emitted through the tailpipe following combustion. Additionally, VOCs are emitted by natural sources such as trees and crops. Ozone formation is promoted by strong sunlight, warm temperatures and light winds.

In St. Louis high ozone concentrations are episodic in nature and occur during the hot summer months. EPA mandates seasonal monitoring of ambient ozone concentrations in St. Louis from April 1 through October 31.

In 1997, EPA revised the national ambient air quality standard for ozone, changing the averaging time from one-hour to 8-hour. This change was based on scientific data that indicated that the 8-hour standard provides better protection of public health from longer-term exposures to moderate levels of ozone. To support this change, EPA provided information that indicated that even low levels of ozone can decrease lung capacity temporarily in some healthy adults and cause inflammation of lung tissues, aggravate asthma, and make people more susceptible to respiratory illnesses such as bronchitis and pneumonia.

Children are at a higher risk from exposure to ozone because they breathe more air per pound of body weight than adults do and because children's respiratory systems are still developing. Children also often spend more time out of doors during periods of high concentration than adults. Adults most at risk from ozone exposure are outdoor workers, people who exercise out of doors, and individuals suffering with respiratory diseases.

2.2 St. Louis Ozone SIP History

The Clean Air Act Amendments of 1990 required states with areas like St. Louis that were not in compliance with the NAAQS to develop SIPs to bring those areas into compliance. St. Louis was classified as a moderate ozone nonattainment area for the 1-hour standard. The Clean Air Act Amendments included very specific requirements for areas under each classification. The most important requirement for moderate areas is that attainment was to be achieved by 1996. Under the Amendments, failure to attain by the attainment date would result in reclassification to

the more demanding classification of "serious." Serious areas were subject to an additional set of mandatory requirements.

St. Louis was required to achieve a minimum of 15 percent reduction in emissions of VOCs, and submit this ROP plan for achieving that reduction. On November 15, 1993 the Missouri Department of Natural Resources' Air Pollution Control Program submitted an initial ROP plan. Subsequent amendments to the ROP plan were made in 1994, 1995, and 1996. These amendments were the result of refinements to inventory calculations and improvements in the documents.

Although the ROP requirement was one of the key obligations of the Clean Air Act Amendments, the primary obligation was a plan to achieve the national ozone standard in St. Louis. This obligation is referred to as an attainment demonstration. An attainment demonstration was prepared and submitted on October 25, 1995, which showed that the area would attain the standard by 1996. The St. Louis area, however, failed to attain the 1-Hour ozone standard by 1996. The States of Missouri and Illinois proceeded with a request to extend the attainment deadline. To qualify for this extension the states had to demonstrate that the area was significantly affected by ozone or ozone precursors transported from upwind sources, that all necessary local control measures have been implemented, and that the states had made the necessary administrative submittals. As part of this attainment date extension, additional photochemical grid modeling was conducted. This modeling included a number of regional control measures, in addition to the 15 percent ROP controls such as RFG and the enhanced I/M programs. The attainment demonstration submitted as part of the 1-hour extension request focused on the evaluation of emission reductions that were expected from electric generating utilities resulting from EPA's regional NOx SIP call. The SIP call applied to twenty-two states in the eastern United States, and included emission reductions from sources located in the eastern one-third of Missouri. The study showed that both Regional NOx controls and local VOC controls were necessary for attainment of the 1-hour standard, and that St. Louis was significantly affected by ozone transport and emissions from other states, and therefore, qualified for the attainment date extension. St. Louis was granted the extension, and subsequently attained the 1-hour ozone standard.

2.3 Ozone Precursors

Ozone is rarely emitted directly to the atmosphere. Instead, it is formed in the atmosphere by secondary reactions of precursors. The formation of ozone is largely attributable to two directly emitted precursors, NOx and VOCs. The relationship between NOx, VOC and ozone is driven by very complex nonlinear photochemical atmospheric reactions. Because of the photochemical nature of these reactions, ozone concentrations have daily peaks, with the highest concentrations typically occurring in the late afternoon. These ozone peaks can be classified into two distinct regimes. One regime is sometimes called NOx limited. During this regime the ratio of NOx to VOC is relatively low, and ozone formation is sensitive to changes in NOx concentrations but not to VOC concentrations. The opposite can also occur in a second regime sometimes called VOC limited. During VOC limited regimes the ratio of NOx to VOC is relatively high, and ozone formation is much more sensitive to changes in VOC concentration than NOx concentrations.

The sensitivity in these reactions is uncertain and varies with location and event, and the previous generalizations are somewhat superficial. Conditions in St. Louis are sometimes NOx limited and sometimes VOC limited. This has changed as the emission rates of VOCs have decreased in recent years. The ozone experienced in St. Louis is the result of precursor reactions in time and space. Conditions in the atmosphere vary over this time and space, and the local atmosphere is not regionally homogeneous. To add additional layers of complexity to the photochemical picture, certain VOC are much more photochemically reactive than other VOCs. Many VOCs are anthroprogenic, but others are biogenic. Biogenic VOCs tend to be highly reactive, and they play a significant role in St. Louis ozone formation.

In summary, ozone precursors participate in complex and sometimes competing reactions. For additional information on these processes refer to the technical support document which provides a discussion of the conceptual model of ozone formation.

2.4 Sources of Precursors

There are five different major categories of sources that contribute to the emission of ozone precursors, stationary, area, on-road, off road, and biogenic sources. Stationary or point sources are those sources that emit greater than a specified tonnage per year and the data is provided at the facility level. Area sources are those sources whose emissions are relatively small but due to the large number of these sources, the collective emissions could be significant (i.e., dry cleaners, service stations, etc.). These types of emissions are estimated on the county level. Off-road mobile sources are equipment that can move but are not typically operated on roadways. Examples include lawn mowers, backhoes and other construction equipment, railroad locomotives, and aircraft. The emissions from these sources, like stationary area sources, are estimated on the county level. On-road mobile sources are automobiles, trucks, and motorcycles that use the roadway system. The emissions from these sources are estimated by vehicle type and road type and are geographically tied to the local road system, and then summed to the county level. Biogenic sources are the natural sources like trees, crops, grasses and the natural decay of plants. The emissions from these sources are also estimated at the county level.

A rigorous inventory or emissions was submitted to EPA on June 13, 2006. This inventory presents an estimate of emissions of ozone precursors in the nonattainment area. Since the time of this submittal a number of minor corrections and improvements have been made to the inventory. A revised emission inventory is being submitted with this plan revision as a separate document.

2.5 8-Hour ozone Standard / Designation

EPA promulgated the 8-hour ozone standard in June 1997. The new standard is 0.08 parts per million (ppm) averaged over 8 hours. An exceedance of the 8-hour ozone standard occurs when a monitor measures ozone above 0.084 ppm (per the rounding convention). A violation of the standard occurs when the average of the annual fourth highest daily maximum 8-hour ozone values over three consecutive years is greater than or equal to 0.085 ppm. This three-year

average is termed the design value for the monitor. For the purposes of designation the three-year period from 1997-1999 were the years of record. Table 1 provides the fourth highest 8-hour ozone values from 1997 to 1999 and provides the design values for the period.

Table 1: 8-Hour Designation Monitoring Summary

Monitor	**4th Highest 8-hour Ozone Values (ppb)**			**'97-'99**
	1997	**1998**	**1999**	**Average**
West Alton	90	97	99	**95**
Arnold	83	91	102	**92**
Orchard Farm	84	92	98	**91**
Jerseyville (IL)	82	91	100	**91**
S. Lindbergh	80	92	95	**89**
Ferguson	87	89	93	**89**
Bonne Terre (upwind)	80	90	95	**88**
Edwardsville (IL)	82	88	92	**87**
St. Ann	82	92	88	**87**
Alton (IL)	91	79	90	**86**
Maryville (IL)	88	84	85	**85**
Wood River (IL)	88	84	84	**85**
Queeny Park	75	89	93	**85**
Newstead	84	79	87	83
Clayton - Hunter	78	84	85	82
E. St. Louis (IL)	80	78	84	80
Nilwood - IL (downwind)	76	79	85	80
S. Broadway	76	74	88	79
Clark & Tucker	77	76	81	78
Houston - IL (upwind)	72	82	82	78

BOLD denotes monitors that exceed the 85-ppb cutoff

Areas such as St. Louis that had design values that ranged from 92 to 107 ppb were classified as moderate ozone nonattainment areas.

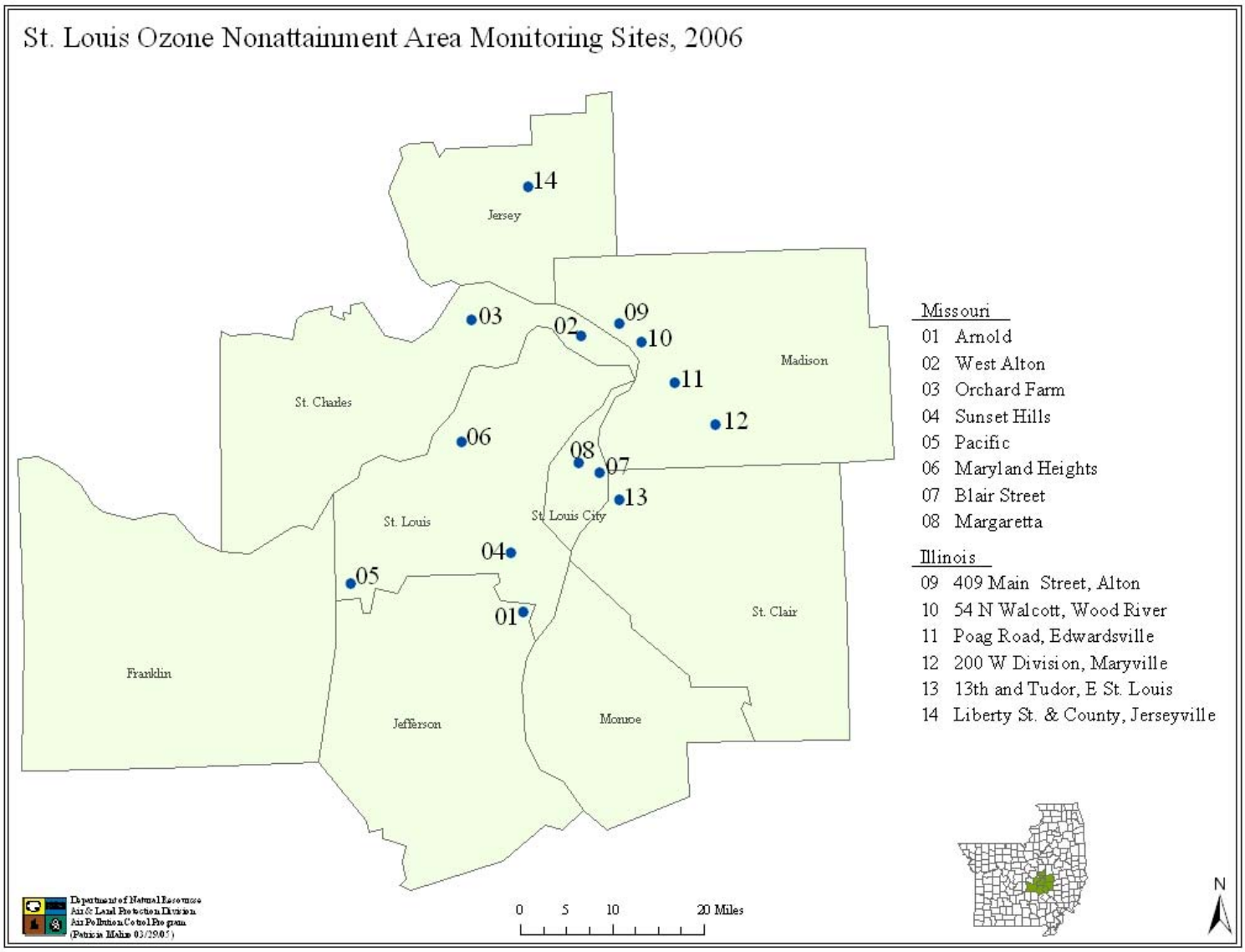
2.6 St. Louis Demographics

The population trends and demographics of the St. Louis area was examined as part of the 8-hour ozone nonattainment area designation process. As of 2005, the St. Louis Metropolitan Statistical Area (MSA) is 6,354 square miles with an estimated population of 2,706,117. An estimated 684,114 children live in the MSA (23.8 percent of the population), and approximately 12.3 percent of the population is aged 65 or older. Population in St. Louis has grown by an estimated 2.9 percent between 2000 and 2005. In 2004 the median age of the MSA was estimated to be 37.2. 96.9 percent of the population is native-born, but certain geographical areas in the MSA have relatively high concentrations of people who were foreign born, with just over half of those foreign born individuals relatively new to the area entering it after 1990.

2.7 Ozone Monitoring Network

In 2006, there were 14 ozone monitors located in the nonattainment counties in the St. Louis region: 8 in Missouri and 6 in Illinois. In addition, 4 monitors were located in the surrounding counties. The network was redesigned in 2005 to adapt the network from focusing on the 1-hour standard to the new 8-hour standard. Several sites in St. Louis County were moved west and two sites were discontinued. No changes to this network are planned for the near future.

Figure 1

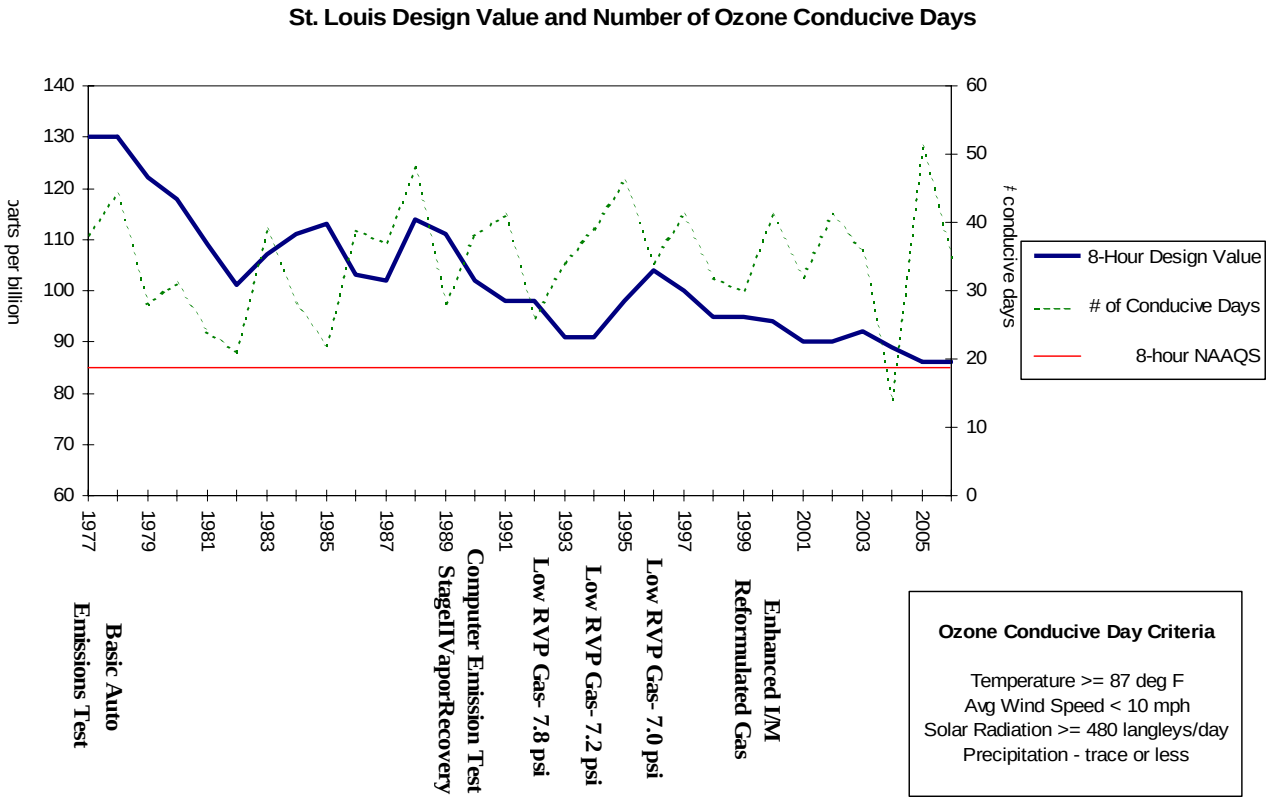


2.8 Air Quality Trends / Monitoring

The current EPA method for calculating the ozone National Ambient Air Quality Standard design value is to select the 4th highest daily maximum 8-hour value over the 3-year period. A design value below 0.08 ppm indicates compliance and a design value in excess of 0.08 ppm indicates non-compliance. Due to the rounding conventions dictated by regulation, a design value of 0.085 ppm is rounded up to 0.09 ppm, which is a violation. Design values of 0.084 ppm and less round down to 0.08 ppm and are not violations. The design value helps regulatory agencies judge how near to or far from compliance an area is and therefore what control measures are needed.

The design value of the St. Louis area has steadily decreased since the late 1980s. Through the late 1980s, the design value was substantially over the 0.08 ppm standard. This indicated a need for significant control measures such as Stage I & II Vapor Recovery systems, I/M, and use of Reformulated Gasoline. Significant decreases in the design value from the late 1980s through the 1990s coincide with these control measures. During this same period, the frequency of ozone conducive days, or days with weather conditions favorable for ozone formation, has remained relatively constant. This demonstrates progress in controlling ozone even though the area remained in violation of the NAAQS. Over the past few years, design values in the St. Louis have steadily decreased until reaching their present levels.

Figure 2



2.8.1 Summary of Recent Monitoring Results

The summer of 2004 was unusually mild and resulted in very low ozone values for all sites in the St. Louis area. Design values from 02-04 through 04-06 were low as a result and only two sites, West Alton and Orchard Farm were in violation at the end of 2006. The weather in 2006 was more typical and included a long period of very hot days, yet the ozone values in St. Louis were still low, except for the two sites mentioned.

Table 2

8-hour Design Values								
	4th High 8-hr Average (ppb)					Design Value		
Missouri	**2002**	**2003**	**2004**	**2005**	**2006**	**02-04**	**03-05**	**04-06**
Arnold	93	82	70	92	79	81	81	80
West Alton	99	91	77	89	91	89	85	85
Orchard Farm	98	90	76	92	92	88	86	86
Blair St.				89	76	*	*	*
Margaretta	98	90	72	91	76	86	84	79
Sunset Hills	98	88	70	89	80	85	82	79
Maryland Hts				88	84	*	*	*
Pacific				87	79	*	*	*
Bonne Terre**	92	83	70	84	77	81	79	77
Foley**				89	84	*	*	*
Illinois								
Jerseyville	100	83	73	83	75	85	79	77
Alton	94	89	74	91	79	85	84	81
Maryville	90	88	78	88	77	85	84	81
Wood River	84	83	73	87	77	80	81	79
East St. Louis	93	79	73	94	77	81	82	81
Houston**	85	77	64	74	72	75	71	70
Nilwood**	85	77	68	77	70	76	74	71

* = There is insufficient data to calculate a three-year average.
** = Site is outside Non-attainment area boundaries.

2.8.2 Quality Assurance Plan

The MODNR and IEPA have quality assured all monitoring data and reporting in accordance with 40 CFR 58 and USEPA guidance. MODNR and IEPA conduct ozone monitoring under approved Quality Assurance Project Plans and Standard Operating Procedures. MODNR and IEPA have recorded the data in the EPA's Air Quality System database, which is available to the public.

2.9 Nonattainment Area Designation, Description & Process

With the publication of the 8-hour ozone standard a process for designating areas to different classifications was outlined. The Missouri Department of Natural Resources' Air Pollution Control Program created a workgroup to assist in the development of a recommendation to EPA on the 8-hour ozone boundary. Through this process the department developed the "Technical Support Document for Determination of Nonattainment Boundaries in Missouri for the 8-Hour Ozone National Ambient Air Quality Standard." This document provided the information and recommendation to EPA for the current 8-hour ozone nonattainment boundary.

The boundary recommendation for the 8-hour standard was identical to the old 1-hour boundary. It included the City of St. Louis and the counties of St. Louis, Franklin, Jefferson, and St. Charles. This recommendation was based on an in-depth technical evaluation and was based on EPA guidance. The department sought stakeholder input. During the workgroup process many complex issues were raised and discussed. Some of the issues considered in this analysis were the ramification of new counties being designated nonattainment, and the important question of frequent and significant contribution to 8-hour ozone concentrations from each county was considered.

EPA published a guidance document titled "Boundary Guidance on Air Quality Designations for the 8-Hour Ozone National Ambient Air Quality Standards" on March 28, 2000. This guidance was written to assist states in recommending nonattainment areas under the 8-hour ozone standard. In that guidance, the EPA recommends that the consolidated Metropolitan Statistical Area (MSA) serve as the presumptive boundary for 8-hour ozone nonattainment areas. The Missouri portion of the St. Louis MSA is comprised of the 1-hour nonattainment area and Warren and Lincoln counties. To remove counties within the presumptive boundary or include counties outside the presumptive boundary, the guidance required an evaluation from the state addressing the following information as it relates to the boundary:

- Emissions and air quality in adjacent areas
- Population density and degree of urbanization including commercial development
- Monitoring data representing ozone concentrations in local areas and larger areas
- Location of emission sources
- Traffic and commuting patterns
- Expected growth
- Meteorology
- Geography/topography

- Jurisdictional boundaries
- Level of control of emissions sources
- Regional emission reductions

2.9.1 Process for Developing Recommendations

As stated previously, the department worked closely with county officials, representatives from various industry groups, local metropolitan planning organizations, and environmental groups in St. Louis to develop the boundary recommendations. The department received a number of requests to develop a workgroup in an effort to assist the state in developing the recommendation. In addition, EPA strongly recommended that each state coordinate and communicate with local partners and other stakeholders during this designation process. EWGCOG and the department's St. Louis Urban Outreach Office in St. Louis hosted several separate workgroup meetings for interested parties. The department sought public input during workgroup meetings and provided opportunities for participants to provide written comments as well. The department was committed to keeping stakeholders involved in the designation process.

2.9.2 Workgroup Discussion

In February 2003, the department conducted stakeholder meetings to discuss the boundary designation. Representatives from Ste. Genevieve, St. Francois, Lincoln, Warren, and Washington counties participated in these meetings and subsequent meetings as well as industry and environmental groups. The earlier roundtable discussions began by distributing information regarding the 8-hour designation process. Stakeholders expressed concerns about the process and potential inclusion of the MSA and surrounding counties in the boundary recommendation. The department received written comments expressing the desire of several counties not be included in the St. Louis 8-hour ozone nonattainment area. The workgroup requested a draft technical document. This document was prepared and discussed at the April 25, 2003, workgroup meeting. This discussion also focused on determining a path to develop a recommendation for the boundary. The consensus of this meeting was the workgroup needed a draft recommendation for their review. Therefore, based on stakeholder input and the technical support document, a draft recommendation for the workgroup to consider was provided. At the May 16, 2003, meeting, workgroup members were requested to submit to the department comments or language changes to the recommendation by May 20, 2003.

2.9.3 Criteria for Establishing Boundaries

Although every nonattainment area is unique, the recommendations for the St. Louis area was consistently guided by the following principles:
For former 1-hour ozone nonattainment/maintenance areas, the recommendation is to include them in the 8-hour ozone boundary.
For the counties surrounding the former 1-hour boundary, the recommendation was be based on one of the following circumstances:
1) Unless EPA grants an exception, any monitor that violates the 8-hour ozone standard would place the county in an 8-hour nonattainment area. Air monitoring data in 2003 was used to

determine compliance with the ozone standard prior to EPA's final designation decisions. This was consistent with the nonattainment area boundaries for the 1-hour ozone standard.
2) Using the department's technical support document, counties or portions of counties that exhibited a pattern of frequent and significant contribution were included in the nonattainment area. The review of contributing factors was conducted in a consistent manner. Due to the fact each of the counties had unique characteristics, the characteristic factors of each county were compared with the other counties and evaluated in a collective fashion. Any significant changes in one of the contributing factors such as future emission growth had the potential to alter the area boundary recommendation.

Section 107(d)(1)(A) of the Clean Air Act defines a nonattainment area as any area that does not meet or that contributes to nearby areas not meeting the ambient air quality standard. The EPA guidance allows states to consider at a minimum the above factors when establishing boundaries. The implementation of control strategies that will eventually be used in the attainment demonstrations for these areas is a separate process and was not a primary consideration in the boundary evaluation. It was premature to consider control strategies during the designation process.

To determine trends within and provide the most comprehensive set of information, the department chose to begin the evaluation with counties within each MSA and counties that border the MSA. Therefore, in St. Louis, the counties included for consideration were: Franklin, Jefferson, Lincoln, St. Charles, St. Louis, St. Louis City, and Warren inside the MSA and Crawford, Gasconade, Montgomery, Pike, St. Francois, Ste. Genevieve, and Washington outside of the MSA. The first consideration for area designation was based on air quality data to determine if the area violated the air quality standard. The monitoring data demonstrated that the St. Louis metropolitan area was not attaining the 8-hour standard based on 2000-2002 monitoring period. In addition, all counties in the one-hour maintenance area were included within the presumptive boundary. The violating counties within the one-hour maintenance area were St. Charles, Jefferson and St. Louis County and St. Louis City. Therefore, these counties are included in the 8-hr boundary.

The second consideration was to determine if an area contributed to nearby areas not meeting the ambient air quality. This consideration was much more difficult and required further evaluation of the factors included in the March 28, 2000, EPA guidance. In determining which areas were contributing, the department gathered information and analyzed it with respect to these factors. The proposed recommendation considered factors described in the technical document such as emission size and location, predominant meteorological conditions that lead to high ozone concentrations, population and urbanization of counties, traffic patterns and transportation corridors, existing jurisdictional boundaries, and population/emission growth. The question was whether the information gathered supported the assumption that the county had a frequent and significant contribution to downwind ozone concentrations that violate the 8-hour ozone standard. A close evaluation of the criteria indicated that if a county did not have a significant amount of precursor emissions, it should not have been included in the designated area. Also, the idea of collective contribution to ozone problems that was prevalent in the Ozone Transport Assessment Group and NOx SIP Call process led to the conclusion that all precursor emission sources contribute to ozone formation. Yet, EPA had decided that only "nearby areas" should be

designated nonattainment for downwind impacts. These two factors eliminated a number of counties in Missouri from inclusion in the nonattainment boundaries. Also, the incorporation of the former 1-hour area in the boundary was straightforward since the evaluation demonstrated a sizable contribution for each of these counties in Missouri, and EPA had stated that the 1-hour areas served as a starting point for the process.

In evaluating significant contribution, counties were compared to other counties within the MSA to determine order of potential contributions. In the Missouri portion of the St. Louis maintenance area, every county including the City of St. Louis recorded a violation with exception of Franklin County. There were no monitoring stations in Franklin County. The closest ozone monitor to Franklin County was the Queeny Park site, which was located approximately 20 miles northeast of the Franklin County border. This monitor had a design value of 88 ppb. Overall, in the St. Louis area, the majority of the emissions and population were within the St. Louis Maintenance area. Franklin County which had the least emissions and population of the counties on the Missouri side of the maintenance area accounted for approximately 4.5% of MSA VOC and 8% of the MSA NOx emissions and had a population over 90,000. Franklin County emission data indicated emissions (from various part of the county) were approximately 55 and 17 tons per day of NOx and VOC, respectively. These emissions were substantial especially given the proximity of Franklin County to the core metropolitan area. The connectivity of Franklin County to the remaining counties within the metropolitan area was considerable (31% of the working population of Franklin County worked in either St. Louis County or City and 95% in the 1-hour maintenance area) and the total number of employed residents was over 45,000. In general, counties with populations greater than 90,000 have been considered large population counties. Franklin County had a population of 93,807. In addition, Franklin County experienced population growth of 16% from 1990-2000 and is projected to continue to grow by 25% by 2020. While emissions and population were considered relatively large, both population density and emission density were low. EPA guidance stated that it was best to consider control on sources over a larger area due to the pervasive nature of ground level and transport of ozone and its precursors.

The collective evaluation of Franklin County included all this information and the rationale for inclusion was substantive, and in the end, the department recommended that the 8-hour boundary remain identical to the former 1-hour maintenance boundary.

2.9.4 Formal Designation Process and Final Boundary

In July 2000, on behalf of the Governor, the department sent a recommendation, in response to EPA's June 25, 1999 and March 28, 2000 guidance, regarding the classification of counties under the revised eight-hour ozone standard. The guidance from the EPA requested that all state governors submit their designation recommendations and supporting documentation to the EPA by June 30, 2000.

The department recommended the same boundary be used for the eight-hour nonattainment area as was used for the one-hour nonattainment area for the St. Louis area. The designation recommendation was based on 1997-1999 air quality data.

On May 30, 2002, representatives from nine environmental organizations filed a notice of a citizen suit under the Clean Air Act alleging that the EPA Administrator failed to promulgate air quality designations by the required statutory deadline. The U.S. District Court for the District of Columbia filed a Consent Decree on November 13, 2002. This Decree stated that the EPA and the environmental groups had agreed on a schedule for the EPA to promulgate the 8-hour ozone designations. This Decree set April 15, 2004, as the date that area designations for the eight-hour ozone NAAQS had to be finalized by EPA.

The EPA requested updated, revised, or new designation recommendations and documentation from each state governor be submitted to the Regional Administrator by July 15, 2003. These recommendations were to be based on 2000-2002 quality assured federal reference or equivalent air quality monitoring data. Additionally, in EPA's initial, informal response to the 2000 submittal, a closer scrutiny of Ste. Genevieve and St. Francois County was requested.

As outlined in detail above, in February 2003, the department conducted initial stakeholder meetings to discuss the boundary designation in St. Louis. Representatives from industry, environmental groups and the counties of Ste. Genevieve, St. Francois, Lincoln, Warren, and Washington participated in these and subsequent meetings.

Based on the input from stakeholders and the technical review the Air Pollution Control Program presented a proposed boundary recommendation to the Missouri Air Conservation Commission on June 26, 2003, and it was adopted on July 24, 2003. The recommended St. Louis area eight-hour ozone nonattainment boundary encompassed Jefferson, Franklin, St. Charles, and St. Louis counties as well as the City of St. Louis. The Department submitted the recommendation to EPA on August 2, 2003.

In letters received December 4 and 12, 2003, the EPA stated that they intend to modify the boundary recommendations for eight-hour ozone nonattainment areas. The EPA intended to modify the recommendation to include St. Genevieve County.

In response to EPA's proposal to include Ste. Genevieve County in the St. Louis nonattainment area, the department emphatically disagreed, citing updated information with regards to NOx emission growth, and refuting the key points EPA made for including the county. The department offered an alternative, and a Resolution signed by the Missouri Air Conservation Commission on March 25, 2004 committing the department to promulgate a rule controlling emissions from large NOx sources upwind and outside of the St. Louis nonattainment area. This rule was subsequently promulgated, becoming effective on December 30, 2006.

In a formal rulemaking on April 15, 2004, EPA named the St. Louis metropolitan area as a moderate nonattainment area for the new eight-hour ozone standard. This area includes the City of St. Louis, St. Louis, St. Charles, Jefferson and Franklin counties, and excluded Ste. Genevieve County.

2.10 Overview of SIP Development / Public Outreach

Early in the planning process it was recognized that the St. Louis 8-hour ozone planning process would require significant stakeholder involvement. The state was looking ahead at a set of potentially difficult choices for the St. Louis metropolitan area, and therefore, it was crucial to provide ample opportunities for local input and participation in decision-making. A natural place to seek public participation opportunities was with organizations that have successfully served in this role before. It was decided that the East-West Gateway Council of Governments (EWGCOG) would serve this role well.

EWCOG is a forum for cooperative planning and problem solving for issues that cross metropolitan boundaries in St. Louis. This organization serves as the metropolitan planning organization for the entire St. Louis region including the local governments on the Illinois side of the metropolitan area. In 1992, East-West Gateway Council of Governments created a standing committee called the Air Quality Advisory Committee. This committee functions in an advisory role to the East-West Gateway Board of Directors and serves as a public forum for the dissemination of information and receipt of feedback about air quality issues. This committee is very active and typically meets on a monthly basis.

The Air Quality Advisory Committee is comprised of individuals representing a very wide spectrum of interests. Because these various interests are so well represented in this committee, it became clear that this group would be ideal to serve as the overarching stakeholder group for the development of the St. Louis 8-hour ozone and fine particle SIPs. This body functioned well in both distributing information and sharing ideas and opinions from the community. This committee includes the states of Missouri and Illinois, and these meetings served as a forum for coordination between the states. The Committee served in an advisory capacity and provided feedback from a local perspective on the development of the SIP.

The Air Quality Advisory Committee served overarching interests, but more specific work groups were needed to move forward to produce specific work products. Two workgroups were formed, a Modeling Workgroup and a Control Strategy Workgroup.

2.10.1 Modeling Workgroup

The Modeling Workgroup was responsible for the planning and management of the technical work necessary to demonstrate attainment including air pollution emissions estimation, and meteorological and photochemical modeling. The Workgroup was also responsible for contractor selection, data analysis, coordination and communication of model results to the Air Quality Advisory Committee, the Control Strategy Development Workgroup, and the State Agency Air Directors. The Modeling and Data Analysis Workgroup met on a regular basis both in person and by phone conference to coordinate the performance of technical activities. Meetings were open to stakeholders and representatives from air pollution agencies having the technical expertise to contribute to work activities. Typically, the Modeling Workgroup was composed of staff from EPA, Missouri, and Illinois, as well as technical assistance contractors, industry, and academics.

2.10.2 Control Strategy Workgroup

The original vision of the Control Strategy Workgroup was to help with the identification and technical evaluation of control strategies needed to demonstrate attainment. It was envisioned that the Control Strategy Workgroup would also track other regulatory requirements; including the preparation of controlled inventories and future growth projections, tracking of federal requirements, identification of other control measures, and evaluation of feasibility and costs. In addition, it was hoped that the Control Strategy Workgroup would assist in developing the communication tools needed to explain control strategy options. The Workgroup met on an irregular basis, and served primarily as a forum to share ideas and collect opinions. Although the Workgroup was envisioned to have a technical role, in practice this did not occur. The Modeling Workgroup developed technical elements such as control strategy inventories and the like. About half way through the process, the Workgroups began meeting jointly, and that served the project well.

2.10.3 Outreach During SIP Development

The primary tools for sharing information and for soliciting public participation were the maintenance of web sites and active participation on the Air Quality Advisory Committee. The web address was http://www.dnr.mo.gov/env/apcp/SIPWORKGRP/SipGrpmain.htm.

2.10.4 Coordination

Through the EWGCOG Air Quality Advisory meetings and the Workgroup efforts, the states of Missouri and Illinois developed a strong working relationship. The development of a variety of technical products was the result of joint efforts, with a great deal of information sharing and coordination. These meetings and coordination served to meet the requirement that multi-state nonattainment areas coordinate their technical efforts, plans, and control strategies.

3.0 Clean Air Act Requirements

The state faces a number of regulatory obligations regarding 8-hour ozone planning in St. Louis. These obligations stem from phases I and II of the implementation rules, as well as obligations identified specifically in the Clean Air Act, and EPA guidance documents. Briefly, these obligations include:

- Section 110 Obligations: A demonstration indicating that the Missouri Air Conservation Commission has appropriate legal authorities to develop SIPs, and that the plans followed appropriate administrative procedures.
- Emission Inventory: Base year 2002 inventory or ozone precursors;
- Rate Of Progress: A statement showing that the 15 percent VOC rate of progress obligation met in the previous 1-hour ozone submittal meets the 8-hour ROP obligation;
- Reasonable Further Progress: A demonstration that reasonable progress is being made showing that VOC emissions will be reduced 15 percent between 2002 and 2008 (NOx substitution allowed);
- Control Measures: Regulations or mechanisms that make the selected controls enforceable and permanent;
- Attainment Demonstration: Technical analysis relying on a rigorous photochemical grid modeling demonstration that the selected control strategy will be sufficient to attain the 8-hour ozone standard;
- Reasonably Available Control Measures: A declaration that Plan must establish that all control measures necessary to demonstrate attainment are being adopted as expeditiously as practicable;
- Reasonably Available Control Technology: A demonstration that establishes that Missouri will implement by 2009 all reasonably available 8-hour ozone controls, either by certifying that RACT controls established under the previous 1-hour ozone standard represent RACT for 8-hour purposes or through new RACT determinations;
- Motor Vehicle Conformity Budgets: Declaration of motor vehicle emissions budgets for 2008 and 2009 for use in transportation plan conformity analyses;
- New Source Review: A demonstration that Missouri's construction permitting program meets the minimum federal requirements for an 8-hour ozone nonattainment area;
- Coordination: Documentation that multi-state areas cooperated to develop their plans;
- Interstate Transport: Obligation is met by Missouri participation in the national CAIR cap and trade program;
- Motor Vehicle Inspection and Maintenance: A demonstration that the I/M program meets or exceeds the federal requirements for 8-hour nonattainment areas;
- Reformulated Gasoline: A commitment to continue requiring reformulated gasoline in St. Louis during the ozone season; and
- Contingency Measures: Actions that will be taken if air quality problems continue after implementation of controls;

The details of each of these obligations are presented in this section.

3.1 Section 110 Obligations Element

Section 110 of the Clean Air Act provides a list of general SIP obligations. These requirements have not changed substantially since the enactment of the 1990 amendments to the Clean Air Act and that the Missouri SIP was fully approved under section 110(k). Some of the generic Section 110 requirements have been superseded by the specific 1-hour ozone nonattainment area requirements in part D subpart 2, which were added by the Clean Air Act Amendments of 1990.

The department has recently reviewed these obligations and submitted a 110 SIP that outlines how Missouri meets these obligations. This document was presented at a public hearing on December 7, 2006 before the Missouri Air Conservation Commission. The commission adopted the plan revision on February 1, 2007, and it was submitted to EPA for inclusion in the Missouri SIP on February 22, 2007. The primary purpose of the 110 SIP submittal was to specifically address Missouri's obligations related to the new NAAQS standards for ozone and fine particles. This plan revision concludes that Missouri has the necessary infrastructure, resources and general authority to address the revised ozone and PM_{10} standards and the new $PM_{2.5}$ standards.

A few specific obligations are addressed below.

3.1.1 Reasonable Notice and Public Hearing & Response to Comments

The SIP documents were made available for comment on March 27, 2007. Copies of the document were posted on the Department of Natural Resources' web site in the State Plan Actions on Public Notice web page:
http://www.dnr.mo.gov/env/apcp/stateplanrevisions.htm**.**

The public hearing is scheduled to be held on April 26, 2007 at 9:00 A.M. at the Elm Street Conference Center, 1738 East Elm Street, Lower Level, Roaring River Conference Room, Jefferson City, MO 65101

Response to comments will be presented at the adoption hearing scheduled for 9:00 A.M. on May 31, 2007, in St. Louis at the Holiday Inn Southwest and Viking Conference Center, 10709 Watson Road, Salons 2 and 3, St. Louis, MO 63127.

3.1.2 Provisions Establishing Appropriate Air Quality Monitoring

State rule 10 CSR 10-6.010 *Ambient Air Quality Standards* provides the basis for many of Missouri's regulatory efforts. The rule establishes ambient air concentration limits. The resources and facilities to monitor air for compliance with these limits have been long established in Missouri. The department's Air Pollution Control Program's Air Quality Analysis Section was created to and is maintained to fulfill this requirement. A discussion of the monitoring network is provided in Section 2, and the state has a long history of funding and operating a comprehensive ozone network. The department has agreements with EPA and plans to continue operating this network in the future and reporting results.

3.1.3 New Source Review

This Section 110 obligation is addressed in a later section.

3.1.4 Adequate Personnel, Funding and Authority

The Missouri Air Conservation Law (643.079, RSMo) requires the Missouri Air Conservation Commission to set an annual air pollution emission fee to fund the reasonable cost of administering this law. Section 643, RSMo also provides the authority necessary to carry out the state implementation plan requirements. The department's Air Pollution Control Program also has signed state and local agreements with St Louis City, St. Louis County, Kansas City and Springfield/and with the surrounding states fulfills the requirements of 110(a)(2)(E).

The Missouri Air Conservation Commission (MACC) is granted legal authority to develop and implement regulations regarding air pollution under section 643.050 of the Revised Statutes of Missouri (RSMo). The specific powers and duties of the state are outlined in section 643.050, RSMo "Powers and Duties of the Commission", 643.055, RSMo "Commission May Adopt Rules for Compliance with Federal Law", and 643.060, RSMo "Powers and Duties of Director".

The MACC is the air pollution control agency of the state and has the authority, pursuant to chapter 536, RSMo "Administrative Procedure and Review", to promulgate rules and regulations to establish standards and guidelines to ensure that the State of Missouri is in compliance with the provisions of the federal Clean Air Act.

These statutes grant the MACC and the director direct authority to implement any federal standards through state rules and procedures. The Missouri Air Conservation Law that pertains to the powers and duties of the commission and the director are in sections 643.010-643.070, RSMo. Missouri's complete air law is in sections 643.010-643.620, RSMo.

3.2 Emission Inventory Element

The Clean Air Act Section 182(a)(1) requires the Missouri Department of Natural Resources' Air Pollution Control Program to submit a comprehensive, accurate, and current inventory of actual emissions for all sources within the nonattainment area. Per 40 CFR 51.910(d), the baseline year for the emissions inventory is calendar year 2002. The 2002 base year inventory for the St. Louis 8-hour ozone nonattainment area was originally adopted by the Missouri Air Conservation Commission on May 25, 2006 and subsequently revised as documented in "2002 Base Year Emissions Inventory for the Missouri Portion of the St. Louis 8-Hour Ozone Nonattainment Area." This revision is included as an appendix.

The 2002 base year inventory includes all 2002 actual emissions of the pollutants that contribute to ozone formation in the St. Louis nonattainment area: VOC, NOx, and carbon monoxide (CO). It includes emissions from stationary point and area sources, onroad and offroad mobile sources, and biogenic sources within the St. Louis ozone nonattainment area. Both annual and ozone season day emissions are included. Ozone season day emissions are defined as emissions occurring during a typical weekday during the high ozone season, which is June through August.

The complete base year inventory document includes detailed documentation of the development of the base year inventory. A brief summary of how the emissions were estimated for each type of emission source is presented here:

- Point sources are large, stationary, identifiable sources of emissions. The department's Air Pollution Control Program defines point sources as sources with a Basic, Intermediate, or Part 70 operating permit that must report their actual emissions to the department on an annual basis. The 2002 point source inventory is based on information reported by facilities on Emission Inventory Questionnaires (EIQs). The 2002 emissions reported by facilities reflect any controls in place in the St. Louis area, including RACT rules.

- Area sources are stationary sources that do not qualify as point sources under the relevant emissions cutoffs. Area sources encompass more widespread sources that may be abundant but individually release small amounts of a given pollutant. Examples of area sources include autobody painting, fires, and consumer solvent use. Area source emissions are estimated based on a variety of methods, typically using population or employment information as surrogates for activity data that are hard to determine for such small, numerous, and widespread sources.

- Offroad mobile sources are mobile and portable internal-combustion powered equipment not generally licensed or certified for highway use. Offroad engines are classified according to distinct nonroad equipment categories, ranging from small lawn and garden equipment to heavy-duty construction equipment, large aircraft, and diesel locomotives. The majority of the offroad mobile emissions are calculated using the EPA's NONROAD model, which includes equipment populations and accounts for the impacts of any federal emission standards impacting offroad engines.

- Onroad mobile sources include motor vehicles such as cars, vans, trucks, buses, and motorcycles that are used for transportation of passengers and goods on public roads and streets. Onroad mobile emissions were calculated by multiplying emission rates generated using the EPA's MOBILE6.2 model by vehicle miles traveled. The MOBILE6 emission rates reflect local programs that were in place, including reformulated gasoline, the basic Inspection and Maintenance (I/M) program in Franklin County, and the enhanced I/M program in Jefferson, St. Charles, and St. Louis Counties and the City of St. Louis. The emission rates also account for the impacts of any federal emission standards.

Although the base year inventory is consistent in many ways with the modeling inventory, there are key differences. In particular, the onroad mobile emissions differ due to variations in the temperature inputs. Average temperature data are used in the base year inventory, but episode-specific meteorology is used in the modeling inventory. Another key difference is in the point source inventory. For large point sources, emissions in the base year inventory are based on typical operations, while day- and hour-specific Continuous Emissions Monitoring (CEM) data are used in the modeling inventory where available.

The base year inventory is the foundation for the RFP demonstration. RFP is a demonstration that incremental emission reductions will be achieved from 2002 through 2008 to provide steady progress toward attainment of the 8-hour ozone standard in the St. Louis area. The RFP inventory accounts for economic growth and emissions controls expected to occur from the base year to 2008, the year for which emission reduction targets must be met.

Table 3 summarizes total 2002 annual and ozone season day anthroprogenic emissions in the St. Louis nonattainment counties. Figures 3 and 4 present the ozone season day emissions in pie chart format for VOC and NOx, respectively.

Table 3. 2002 Base Year Inventory -- anthroprogenic Emissions by Source Type in the St. Louis Nonattainment Area

Source Type	**VOC**	**VOC**	**NOx**	**NOx**
	tons/year	**tons/day**	**tons/year**	**tons/day**
Point	10,868.3	32.7	44,018.2	127.2
Area	28,212.4	71.4	10,014.2	19.4
Offroad Mobile	13,881.3	46.9	19,329.0	60.8
Onroad Mobile	25,973.0	68.1	60,311.7	159.0
Totals	**78,934.9**	**219.1**	**133,673.0**	**366.3**

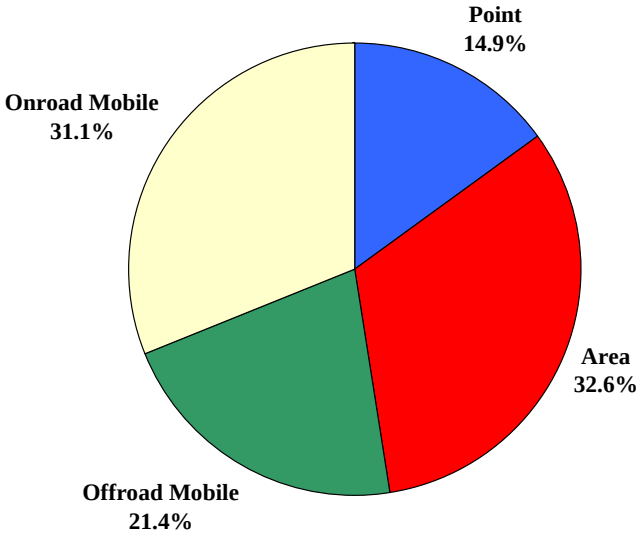


Figure 3. 2002 VOC Emissions for a Typical Summer Weekday in the St. Louis Nonattainment Area by Source Type -- Total 219.1 tons/day

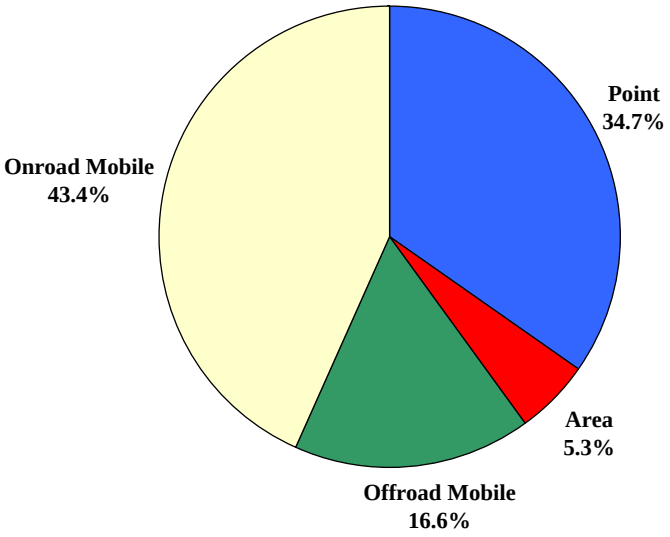


Figure 4. 2002 NOx Emissions for a Typical Summer Weekday in the St. Louis Nonattainment Area by Source Type -- Total 366.3 tons/day

3.3 Rate of Progress Plan Element

As part of the 8-hour ozone designation process Jersey County Illinois was added to the St. Louis ozone nonattainment area. The Code of Federal Regulations [51.910(a)1(iii)] provides two options for meeting the ROP obligation of reducing VOC emissions by 15 percent in situations where new geography has been added to the nonattainment area since the original 15 percent plans were approved. One option would be to submit a new 15 percent ROP for the entire area. The second option is to treat the nonattainment area as two separate parts with two separate targets. The Illinois Environmental Protection Agency will submit a 15 percent VOC ROP plan for Jersey County relying on emission reductions from other counties in the State of Illinois. The remainder of the nonattainment area can then rely on the previously approved 15 percent ROP plan. EPA approved Missouri's 15 percent ROP plan on May 18, 2000, and this satisfies this obligation.

3.4 Reasonable Further Progress (RFP) Element

The Code of Federal Regulations [51.910(a)(1)(ii)] establishes an obligation for Missouri to make reasonable further progress by reducing annual emissions from the 2002 base year to 2008 by 15 percent. This RFP obligation is a separate obligation from the ROP obligation that Missouri has already met. In addition, Missouri must establish a motor vehicle budget for 2008 for demonstration that the area will meet its RFP obligations.

Per 40 CFR 51.910(a)(1)(ii), areas have met Reasonable Further Progress (RFP) obligations under subpart 2 of the Clean Air Act Amendments (CAAA) if they have the same boundaries as an area for which EPA approved a 15% Rate of Progress (ROP) plan for the 1-hour ozone standard. For the 8-hour ozone standard, such areas are required to submit a RFP plan under the general nonattainment provisions in section 172(c)(2) of the CAA (subpart 1).

The Missouri side of the St. Louis 8-hour ozone nonattainment area encompasses the City of St. Louis and Franklin, Jefferson, St. Charles, and St. Louis Counties, an area that is geographically identical to the previous 1-hour ozone nonattainment area. EPA approved the St. Louis 15% rate of progress plan for the 1-hour ozone standard in February 2000 (65 FR 8083). Therefore, the subpart 2 requirements for RFP have been met for St. Louis, and the general RFP requirements in subpart 1 apply for the 8-hour ozone standard.

For nonattainment areas such as St. Louis with 8-hour ozone attainment dates beyond 5 years after designation, the RFP plan must provide for a 15% reduction in emissions of VOC and NOx from the baseline year within 6 years after the baseline. The baseline year for St. Louis is calendar year 2002, which establishes the RFP target year as 2008. The 2008 projected emissions inventory is intended to account for emissions growth and any local, state, or federal controls implemented between 2002 and 2008.

To fulfill these obligations, Missouri has prepared a document entitled, "St. Louis 8-Hour Ozone Reasonable Further Progress Demonstration." The purpose of this document is to demonstrate that VOC and NOx emissions in the Missouri portion of the St. Louis 8-hour ozone nonattainment area will decrease more than 15% from the 2002 base year through 2008.

According to the EPA's NOx Substitution Guidance (December, 1993), NOx emission reductions may be substituted for VOC reductions on a percentage basis (i.e., 1% NOx reduction = 1% VOC reduction), provided that the control strategies assumed in the RFP demonstration are consistent with the reductions required to demonstrate attainment of the ozone standard. As discussed in detail in Section IV of the demonstration, the 2008 inventory developed for RFP is as consistent as possible with the 2009 inventory that supports the St. Louis 8-hour ozone attainment demonstration.

Over the time period from 2002 through 2008, VOC and NOx emissions are projected to decrease 10.6% and 17.5%, respectively, in the St. Louis nonattainment area. The total percentage reduction of 28.1% exceeds the minimum 15% RFP requirement in the St. Louis nonattainment area. These emission reductions are primarily the result of the following mix of state and federal control measures that are being implemented or phased-in between the 2002 base year and 2008:

- the Missouri NOx State Implementation Plan (SIP) Call rule for industrial boilers,
- various federal Maximum Achievable Control Technology (MACT) standards,
- the federal Tier 2 rule, including light-duty motor vehicle engine standards and low-sulfur gasoline,
- the federal heavy-duty diesel engine standards and low-sulfur diesel, and
- the federal Tier 4 rule, including offroad mobile engine standards that cover most construction, agricultural, and industrial offroad equipment.

The RFP demonstration document is organized as follows. Section II summarizes the 2002 base year emissions inventory for RFP purposes. Section III adjusts the base year inventory by removing the non-creditable emissions reductions and accounting for a discrepancy in NONROAD model output. Section IV summarizes the 2008 RFP inventory and describes its preparation, which is as consistent as possible with the development of the 2009 inventory for the St. Louis 8-hour ozone attainment demonstration. Finally, Section V shows the RFP calculation demonstrating that the minimum 15% VOC and NOx emissions reduction requirement is met for the St. Louis ozone nonattainment counties between 2002 and 2008. Note that for the purpose of this document, "St. Louis nonattainment area" refers to the Missouri portion of the St. Louis ozone nonattainment area only. "St. Louis 8-Hour Ozone Reasonable Further Progress Demonstration" is included as an appendix.

3.5 Control Measures Element

The photochemical modeling analysis showed that the 8-hour ozone standard will be achieved by 2010 with control measures that are already on-the-books. A discussion of these controls is provided in Section 4. Missouri remains committed to the continuation of these regulations and their enforcement.

3.6 Attainment Demonstration Element

For a complete discussion regarding the meteorological and photochemical modeling please refer to the technical support document. The "St. Louis 8-Hour Ozone Technical Support Document" is included as an appendix. A summary of the attainment demonstration element is provided below.

One of the primary goals of the St. Louis 8-hour ozone modeling study was to develop photochemical modeling databases and allied analysis tools necessary to reliably simulate the processes responsible for 8-hour ozone exceedances in the region. This is done to assist in the development of realistic emissions reduction strategies. The St. Louis modeling study included episodic emissions, meteorological, and ozone simulations using a nested 36/12/4 km grid covering the central U.S. and centered on St. Louis. The modeling effort used the Sparse Matrix Option Kernal Emissions (SMOKE) emission model supplemented by the Emissions Modeling System (EMS) emissions model, the Pennsylvania State University / National Center for Atmospheric Research mesoscale meteorological model (MM5), and the Comprehensive Air Quality Model with Extensions (CAMx) and the Congestion Mitigation and Air Quality (CMAQ) air quality modeling systems for estimating ozone on the nested 36/12/4 km St. Louis grid during three 8-hour ozone episodes from the summer of 2002.

The 2002 Baseline CAMx and CMAQ modeling databases were evaluated against monitored ozone data from the St. Louis area in order to evaluate the fitness of the databases for use in the modeled attainment test. Initial simulations illustrated that the CMAQ modeling system exhibited a larger under-prediction ozone bias than CAMx. Given this large under-prediction bias, the higher computational efficiently of CAMx over CMAQ and the resource constraints of the study, the MDNR and IEPA elected to proceed with CAMx as the lead model and CMAQ as a corroborative model.

After several iterations of modeling inventories, meteorology, and modeling set-up, the modeling team reached a consensus regarding the appropriate inputs and model best and most accurate base case. On most episode days, the model achieved EPA's model performance evaluation goals for surface layer 8-hour and 1-hour ozone concentrations. Many of the days that did not meet these goals exhibited low ozone concentrations. These days were included in the modeling because they were bounded by two periods of high ozone concentrations or were needed as "ramp-up" days for the study. In general, the 1-hour and 8-hour ozone performance statistics suggest a systematic underestimation of ozone that is related to the over-estimation of ozone suppression by oxides of nitrogen in the St. Louis urban core, and the model's tendency to delay ozone formation in the St. Louis urban plume relative to observations. However, the St. Louis 2002 baseline model simulation exhibited sufficient skill in meeting most performance goals (especially on key days). Therefore, the modeling team decided that it may be used to project future-year ozone air quality and 8-hour ozone attainment, recognizing the inherent uncertainties in the atmospheric modeling process.

After detailed performance testing of the 2002 basecase simulation, the CAMx modeling system was exercised with a 2009 On-the-Books (OTB) emissions control scenario aimed at assessing the effects of future year emission control strategies on ozone in the St. Louis nonattainment

area. The projected 8-hour ozone design values (using observed 2000-2004 5-year baseline 8-hour ozone design values) in St. Louis for the 2009 OTB emission scenario were all below 85 ppb, thereby demonstrating attainment. However, the projected 2009 design value for one St. Louis monitor (Orchard Farm) was very nearly 82 ppb and therefore, a weight of evidence determination was completed to provide additional confidence in the study results. Note, the CMAQ modeling system never was able to meet the model performance evaluation goals using the final basecase inventory and was discarded from further consideration due to lack of performance.

The weight of evidence analyses lead to a determination that the St. Louis area will be in attainment of the NAAQS by 2010. Every one of the supplemental analyses performed was consistent in predicting attainment for St. Louis; not a single study suggested that the St. Louis area would not reach attainment by 2010. The evidence for attainment was therefore overwhelming and conclusive.

3.7 Reasonably Available Control Measures (RACM) Element

Section 172(c)(1) of the Clean Air Act requires states to demonstrate that all control measures necessary to demonstrate attainment are being adopted as expeditiously as practicable. EPA interprets Section 172(c)(1) as a requirement that states incorporate all reasonably available control measures that would advance a region's attainment date into their SIP.

In practice, this is a negative test showing that there are no other measures that will advance the attainment date for one year or more. EPA guidance provides a narrow definition of RACM. The guidance states that measures which can be implemented and produce sufficient benefits to advance the attainment date are RACM. The guidance states that cost can be a factor in determining whether a measure is reasonable. EPA guidance notes that measures that are not enforceable are not RACM.

The Program has engaged in a number of exercises reviewing potential controls. There have been a number of State Implementation Plan revisions that were made going as far back as 1982. After the 1990 Clean Air Act Amendments, Missouri addressed obligations involving the 1-hour ozone standard by preparing a 15 Percent Rate-Of-Progress Plan. Based on a review of a comprehensive list of emission controls, several controls were implemented that resulted in emission reductions of ozone precursors. In reviewing these options, the state considered technical feasibility, costs, and the time it would take to implement the reductions. Strategies that met these criteria were implemented. It was determined that other strategies did not meet these criteria, and these were not implemented.

During the development of this plan revision, staff prepared a list of emission controls for consideration of the stakeholders. The list was comprehensive, and was assembled based on similar reviews being conducted by other planning efforts, for example in Texas and the Lake Michigan Air Directors Consortium. Staff reviewed this list and presented it for discussion among stakeholders. This list was used to examine potential emission control strategies as well

as for suitable contingency measure controls. In addition to this effort, the Program also conducted a review of all Reasonably Available Control Technology. During these reviews, no measures that have not been implemented were found that met the criteria of being reasonable to install and expediting attainment.

This conclusion is not surprising given the long history of ozone planning in St. Louis. Missouri has concluded that all measures that were reasonably available and would expedite attainment have already been implemented.

3.8 Reasonably Available Control Technology (RACT) Element

Sections 182(b)(2) and 182(f) of the federal Clean Air Act require ozone nonattainment areas to implement RACT for sources that are subject to Control Techniques Guidelines (CTGs) issued by EPA and for "major sources" of VOC and NOx, which are ozone precursors. RACT is defined as the lowest emissions limitation that a particular source is capable of meeting by the application of control technology that is reasonably available considering technological and economic feasibility (44 FR 53762; September 17, 1979). RACT requirements were included in the Clean Air Act to assure that significant source categories at major sources of ozone precursor emissions are controlled to a "reasonable" extent, but not necessarily to LAER expected of new sources or Maximum Achievable Control Technology (MACT) levels.

Under phase II of the 8-hour ozone implementation rule areas may rely on previous analyses prepared for the one-hour ozone plans and EPA guidance documents when considering RACT requirements for ozone nonattainment areas. All RACT provisions must be implemented no later than the beginning of the 2009 ozone season.

To fulfill the RACT review requirement, Missouri prepared and submitted a RACT demonstration as a stand alone element. The document provided a two step approach for making the demonstration. The first step involved the identification of all source categories within St. Louis requiring RACT, including CTG sources (i.e., covered by an EPA Control Techniques Guideline document) and major non-CTG sources. The second step was to review source categories for which there are no facilities (major or minor) within the nonattainment area that are subject to particular CTGs and make a negative declaration.

This demonstration was adopted by the Missouri Air Conservation Commission on December 7, 2006, and was subsequently submitted to EPA. This submittal satisfies Missouri's RACT obligation.

3.9 Motor Vehicle Conformity Budgets Element

This section establishes motor vehicle emissions budgets for VOC and NOx emissions in the Missouri portion of the St. Louis 8-hour ozone nonattainment area, which includes Franklin, Jefferson, St. Charles, and St. Louis Counties and the City of St. Louis. As defined in 40 CFR 93.101, a motor vehicle emissions budget is:

"*...that portion of the total allowable emissions defined in the submitted or approved control strategy SIP revision or maintenance plan for a certain date for the purpose of meeting reasonable further progress milestones or demonstrating attainment or maintenance of the NAAQS, for any criteria pollutant or its precursors, allocated to highway and transit vehicle use and emissions.*"

The rules governing transportation conformity require certain transportation activities to be consistent with motor vehicle emissions budgets contained in the SIP. To demonstrate conformity to the motor vehicle emissions budgets, emissions from the implementation of a transportation plan or a transportation improvement must be less than or equal to the budget level.

In the St. Louis nonattainment area, transportation conformity for the 8-hour ozone standard will be based on these submitted motor vehicle budgets after the EPA determines that the budgets meet the adequacy criteria of the transportation conformity rule. Budgets are established for the attainment demonstration year of 2009 and the RFP year of 2008.

To develop the budgets, onroad mobile emissions were estimated for 2008 and 2009 by multiplying emission rates in units of mass/mile by VMT. The emission rates were generated using the EPA's MOBILE6.2 model, referred to as MOBILE6. East-West Gateway Coordinating Council provided the VMT data.

The 2002 typical weekday VMT from the base year inventory was projected to both 2008 and 2009 using a growth rate of 1.7% per year. This growth rate is consistent with the average region-wide (both Missouri and Illinois sides of the nonattainment area) growth assumed in the attainment demonstration modeling and the RFP demonstration. The growth rate is based on VMT data assembled by EPA for their most recent federal CAIR rulemaking. The chart below summarizes 2002, 2008, and 2009 VMT for the St. Louis nonattainment area and the growth factors applied.

Year	**Growth Factor (1.7%/yr)**	**Daily VMT**
2002	--	52,064,884
2008	1.102	57,375,503
2009	1.119	58,260,606

Emission factors were generated for July in 2008 and 2009 using MOBILE6 with the same average summer temperature inputs as used in the base year inventory. The local program specifications included reformulated gasoline and the basic I/M performance standard, consistent with the specifications in the attainment and RFP demonstrations. Although the local program and temperature specifications were identical, separate sets of inputs were created for Franklin County and the rest of the nonattainment area (Jefferson, St. Charles, and St. Louis Counties and City of St. Louis) in order to utilize the separate speed by VMT (SVMT) inputs for Franklin versus the rest of the nonattainment area and to be consistent with the way the 2002 VMT was

prepared for the base year inventory. In addition to the local motor vehicle programs, the MOBILE6 model accounts for the impacts of the federal rules in 2008 and 2009, such as the Tier 2 motor vehicle emission standards and low-sulfur gasoline. The MOBILE6 input files for both 2008 and 2009 are included below.

The MOBILE6 runs produced emission factors by pollutant (VOC and NOx), roadway type (freeway and arterial), and average speed (2.5 mph and 10 - 65 mph in 5 mph increments). The onroad mobile emissions were calculated by multiplying the projected VMT for a given speed, road type, and nonattainment area zone (Franklin County versus the rest of the nonattainment area) by the corresponding emission factor. This calculation procedure was applied to each pollutant, speed, road type, and nonattainment area zone (Franklin versus the rest of the nonattainment counties). The results for each pollutant were summed across all speeds, road types, and nonattainment area counties. This procedure was applied to both 2008 and 2009. A more detailed description of the calculations is included in the RFP demonstration document.

It is important to note that the 2009 onroad mobile emissions are different for the motor vehicle emissions budgets and the attainment demonstration. The attainment demonstration is based on meteorological conditions specific to the episode days modeled. The conformity budgets are based on average ozone season conditions rather than a specific episode.

Using the assumptions and methodology summarized here and described in greater detail in the base year inventory and RFP documents, the following are the motor vehicle emissions budgets for the St. Louis 8-hour ozone nonattainment area for use in transportation conformity analyses.

2008 Motor Vehicle Emissions Budgets

VOC Emissions: 47.3 tons/day

NOx Emissions: 109.2 tons/day

2009 Motor Vehicle Emissions Budgets

VOC Emissions: 45.2 tons/day

NOx Emissions: 101.2 tons/day

3.9.1 Inputs

MOBILE6.2 Input Files Used to Develop Motor Vehicle Emissions Budgets for Transportation Conformity

Input files used for calculating 2008 emissions

- ROP-2008.in –July 2008 input file for City of St. Louis and Jefferson, St. Charles, and St. Louis Counties
- ROPF-08.in – July 2008 input file for Franklin County
- STLSVMT.DEF –Speed by VMT (SVMT) file for City of St. Louis and Jefferson, St. Charles, St. Louis Counties
- FRNKSVMT.def – SVMT file for Franklin County
- VRegStl.d –St. Louis vehicle registration distribution file

Input files used for calculating 2009 emissions

- CM-2009.in – July 2009 input file for Jefferson, St. Charles, St. Louis Counties and City of St. Louis
- CMF-09.in – July 2009 input file for Franklin Co.

Note: The same STLSVMT.DEF, FRNKSVMT.def, VRegSt.d files used for 2008 emissions were used for calculating 2009 emissions.

ROP-2008.in

```
MOBILE6 INPUT FILE

POLLUTANTS        : HC CO NOX
SPREADSHEET       :

RUN DATA

* July 2008 LDGV Run
* BASIC I/M PERFORMANCE STANDARD

* ----------------------------------------------------------------
* JULY
* ----------------------------------------------------------------


NO REFUELING      :

MIN/MAX TEMP      : 71. 91.
FUEL RVP          : 7.0
ABSOLUTE HUMIDITY  : 60.4
REG DIST          : D:\Mobile62\Run\VREGSTL.D
SPEED VMT         : D:\Mobile62\Run\STLSVMT.DEF

FUEL PROGRAM      : 2 S

*Calendar year 2008.  SSI for LDGV 1968-1995 model years.
I/M PROGRAM       : 1 1983 2020 1 T/O IDLE
I/M MODEL YEARS   : 1 1968 1995
I/M VEHICLES      : 1 21111 11111111 1
I/M STRINGENCY    : 1 20.0
I/M COMPLIANCE    : 1 100.0
I/M WAIVER RATES  : 1 0.0 0.0

*Calendar year 2008.  Tailpipe OBD II for LDGV 1996-2009 model years.
I/M PROGRAM       : 2 1983 2020 1 T/O OBD I/M
I/M MODEL YEARS   : 2 1996 2008
I/M VEHICLES      : 2 21111 11111111 1
I/M STRINGENCY    : 2 20.0
I/M COMPLIANCE    : 2 100.0
I/M WAIVER RATES  : 2 0.0 0.0

* Calendar year 2008.  Evap OBD II for LDGV 1996-2008 model years.
I/M PROGRAM       : 3 1983 2020 1 T/O EVAP OBD
I/M MODEL YEARS   : 3 1996 2008
I/M VEHICLES      : 3 21111 11111111 1
I/M STRINGENCY    : 3 20.0
I/M COMPLIANCE    : 3 100.0
I/M WAIVER RATES  : 3 0.0 0.0

SCENARIO REC      : ST. LOUIS ENHANCED AREA - 2.5 Arterial
EVALUATION MONTH  : 7
CALENDAR YEAR     : 2008
AVERAGE SPEED     : 2.5 Arterial
```

SCENARIO REC : ST. LOUIS ENHANCED AREA - 5 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 5 Arterial

SCENARIO REC : ST. LOUIS ENHANCED AREA - 10 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 10 Arterial

SCENARIO REC : ST. LOUIS ENHANCED AREA - 15 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 15 Arterial

SCENARIO REC : ST. LOUIS ENHANCED AREA - 20 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 20 Arterial

SCENARIO REC : ST. LOUIS ENHANCED AREA - 25 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 25 Arterial

SCENARIO REC : ST. LOUIS ENHANCED AREA - 30 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 30 Arterial

SCENARIO REC : ST. LOUIS ENHANCED AREA - 35 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 35 Arterial

SCENARIO REC : ST. LOUIS ENHANCED AREA - 40 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 40 Arterial

SCENARIO REC : ST. LOUIS ENHANCED AREA - 45 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 45 Arterial

SCENARIO REC : ST. LOUIS ENHANCED AREA - 50 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 50 Arterial

SCENARIO REC : ST. LOUIS ENHANCED AREA - 55 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 55 Arterial

SCENARIO REC : ST. LOUIS ENHANCED AREA - 60 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 60 Arterial

SCENARIO REC : ST. LOUIS ENHANCED AREA - 65 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 65 Arterial

SCENARIO REC : ST. LOUIS ENHANCED AREA - 2.5 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 2.5 Freeway

SCENARIO REC : ST. LOUIS ENHANCED AREA - 5 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 5 Freeway

SCENARIO REC : ST. LOUIS ENHANCED AREA - 10 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 10 Freeway

SCENARIO REC : ST. LOUIS ENHANCED AREA - 15 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 15 Freeway

SCENARIO REC : ST. LOUIS ENHANCED AREA - 20 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 20 Freeway

SCENARIO REC : ST. LOUIS ENHANCED AREA - 25 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 25 Freeway

SCENARIO REC : ST. LOUIS ENHANCED AREA - 30 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 30 Freeway

SCENARIO REC : ST. LOUIS ENHANCED AREA - 35 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 35 Freeway

SCENARIO REC : ST. LOUIS ENHANCED AREA - 40 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 40 Freeway

SCENARIO REC : ST. LOUIS ENHANCED AREA - 45 Freeway

EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 45 Freeway

SCENARIO REC : ST. LOUIS ENHANCED AREA - 50 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 50 Freeway

SCENARIO REC : ST. LOUIS ENHANCED AREA - 55 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 55 Freeway

SCENARIO REC : ST. LOUIS ENHANCED AREA - 60 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 60 Freeway

SCENARIO REC : ST. LOUIS ENHANCED AREA - 65 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 65 Freeway

END OF RUN

ROPF-08.in

```
MOBILE6 INPUT FILE

POLLUTANTS        : HC CO NOX
SPREADSHEET       :

RUN DATA

* July 2008 LDGV Run
* BASIC I/M PERFORMANCE STANDARD

* ----------------------------------------------------------------
* JULY FRANKLIN COUNTY BASIC I/M
* ----------------------------------------------------------------


NO REFUELING      :

MIN/MAX TEMP      : 71. 91.
FUEL RVP          : 7.0
ABSOLUTE HUMIDITY  : 60.4
REG DIST          : D:\Mobile62\Run\VREGSTL.D
SPEED VMT         : D:\Mobile62\Run\FRNKSVMT.DEF

FUEL PROGRAM      : 2 S

STAGE II REFUELING : 89 1 97. 97.

*Calendar year 2008.  SSI for LDGV 1968-1995 model years.
I/M PROGRAM       : 1 1983 2020 1 T/O IDLE
I/M MODEL YEARS    : 1 1968 1995
I/M VEHICLES      : 1 21111 11111111 1
I/M STRINGENCY     : 1 20.0
I/M COMPLIANCE     : 1 100.0
I/M WAIVER RATES   : 1 0.0 0.0

*Calendar year 2008.  Tailpipe OBD II for LDGV 1996-2009 model years.
I/M PROGRAM       : 2 1983 2020 1 T/O OBD I/M
I/M MODEL YEARS    : 2 1996 2008
I/M VEHICLES      : 2 21111 11111111 1
I/M STRINGENCY     : 2 20.0
I/M COMPLIANCE     : 2 100.0
I/M WAIVER RATES   : 2 0.0 0.0

* Calendar year 2008.  Evap OBD II for LDGV 1996-2008 model years.
I/M PROGRAM       : 3 1983 2020 1 T/O EVAP OBD
I/M MODEL YEARS    : 3 1996 2008
I/M VEHICLES      : 3 21111 11111111 1
I/M STRINGENCY     : 3 20.0
I/M COMPLIANCE     : 3 100.0
I/M WAIVER RATES   : 3 0.0 0.0

SCENARIO REC      : FRANKLIN COUNTY AREA - 2.5 Arterial
EVALUATION MONTH   : 7
CALENDAR YEAR      : 2008
```

AVERAGE SPEED : 2.5 Arterial

SCENARIO REC : FRANKLIN COUNTY AREA - 5 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 5 Arterial

SCENARIO REC : FRANKLIN COUNTY AREA - 10 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 10 Arterial

SCENARIO REC : FRANKLIN COUNTY AREA - 15 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 15 Arterial

SCENARIO REC : FRANKLIN COUNTY AREA - 20 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 20 Arterial

SCENARIO REC : FRANKLIN COUNTY AREA - 25 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 25 Arterial

SCENARIO REC : FRANKLIN COUNTY AREA - 30 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 30 Arterial

SCENARIO REC : FRANKLIN COUNTY AREA - 35 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 35 Arterial

SCENARIO REC : FRANKLIN COUNTY AREA - 40 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 40 Arterial

SCENARIO REC : FRANKLIN COUNTY AREA - 45 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 45 Arterial

SCENARIO REC : FRANKLIN COUNTY AREA - 50 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 50 Arterial

SCENARIO REC : FRANKLIN COUNTY AREA - 55 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 55 Arterial

SCENARIO REC : FRANKLIN COUNTY AREA - 60 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 60 Arterial

SCENARIO REC : FRANKLIN COUNTY AREA - 65 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 65 Arterial

SCENARIO REC : FRANKLIN COUNTY AREA - 2.5 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 2.5 Freeway

SCENARIO REC : FRANKLIN COUNTY AREA - 5 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 5 Freeway

SCENARIO REC : FRANKLIN COUNTY AREA - 10 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 10 Freeway

SCENARIO REC : FRANKLIN COUNTY AREA - 15 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 15 Freeway

SCENARIO REC : FRANKLIN COUNTY AREA - 20 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 20 Freeway

SCENARIO REC : FRANKLIN COUNTY AREA - 25 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 25 Freeway

SCENARIO REC : FRANKLIN COUNTY AREA - 30 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 30 Freeway

SCENARIO REC : FRANKLIN COUNTY AREA - 35 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 35 Freeway

SCENARIO REC : FRANKLIN COUNTY AREA - 40 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 40 Freeway

SCENARIO REC : FRANKLIN COUNTY AREA - 45 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 45 Freeway

SCENARIO REC : FRANKLIN COUNTY AREA - 50 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 50 Freeway

SCENARIO REC : FRANKLIN COUNTY AREA - 55 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 55 Freeway

SCENARIO REC : FRANKLIN COUNTY AREA - 60 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 60 Freeway

SCENARIO REC : FRANKLIN COUNTY AREA - 65 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 65 Freeway

END OF RUN

STLSVMT.DEF

```
SPEED VMT
1 1  0.0000 0.0055 0.0015 0.0054 0.0023 0.0060 0.0124 0.0125 0.0295 0.1030 0.2164 0.3817 0.1593 0.0644
1 2  0.0000 0.0055 0.0015 0.0054 0.0023 0.0060 0.0124 0.0125 0.0295 0.1030 0.2164 0.3817 0.1593 0.0644
1 3  0.0000 0.0055 0.0015 0.0054 0.0023 0.0060 0.0124 0.0125 0.0295 0.1030 0.2164 0.3817 0.1593 0.0644
1 4  0.0001 0.0011 0.0018 0.0017 0.0055 0.0019 0.0111 0.0094 0.0107 0.0467 0.1522 0.4061 0.2651 0.0866
1 5  0.0001 0.0011 0.0018 0.0017 0.0055 0.0019 0.0111 0.0094 0.0107 0.0467 0.1522 0.4061 0.2651 0.0866
1 6  0.0001 0.0011 0.0018 0.0017 0.0055 0.0019 0.0111 0.0094 0.0107 0.0467 0.1522 0.4061 0.2651 0.0866
1 7  0.0001 0.0011 0.0018 0.0017 0.0055 0.0019 0.0111 0.0094 0.0107 0.0467 0.1522 0.4061 0.2651 0.0866
1 8  0.0001 0.0011 0.0018 0.0017 0.0055 0.0019 0.0111 0.0094 0.0107 0.0467 0.1522 0.4061 0.2651 0.0866
1 9  0.0004 0.0087 0.0062 0.0020 0.0052 0.0149 0.0269 0.0259 0.0589 0.1014 0.2103 0.3659 0.1150 0.0582
1 10 0.0004 0.0087 0.0062 0.0020 0.0052 0.0149 0.0269 0.0259 0.0589 0.1014 0.2103 0.3659 0.1150 0.0582
1 11 0.0004 0.0087 0.0062 0.0020 0.0052 0.0149 0.0269 0.0259 0.0589 0.1014 0.2103 0.3659 0.1150 0.0582
1 12 0.0004 0.0087 0.0062 0.0020 0.0052 0.0149 0.0269 0.0259 0.0589 0.1014 0.2103 0.3659 0.1150 0.0582
1 13 0.0004 0.0087 0.0062 0.0020 0.0052 0.0149 0.0269 0.0259 0.0589 0.1014 0.2103 0.3659 0.1150 0.0582
1 14 0.0001 0.0004 0.0006 0.0001 0.0025 0.0018 0.0089 0.0106 0.0104 0.0290 0.0871 0.2325 0.5240 0.0920
1 15 0.0001 0.0004 0.0006 0.0001 0.0025 0.0018 0.0089 0.0106 0.0104 0.0290 0.0871 0.2325 0.5240 0.0920
1 16 0.0001 0.0004 0.0006 0.0001 0.0025 0.0018 0.0089 0.0106 0.0104 0.0290 0.0871 0.2325 0.5240 0.0920
1 17 0.0001 0.0004 0.0006 0.0001 0.0025 0.0018 0.0089 0.0106 0.0104 0.0290 0.0871 0.2325 0.5240 0.0920
1 18 0.0001 0.0004 0.0006 0.0001 0.0025 0.0018 0.0089 0.0106 0.0104 0.0290 0.0871 0.2325 0.5240 0.0920
1 19 0.0001 0.0004 0.0006 0.0001 0.0025 0.0018 0.0089 0.0106 0.0104 0.0290 0.0871 0.2325 0.5240 0.0920
1 20 0.0001 0.0004 0.0006 0.0001 0.0025 0.0018 0.0089 0.0106 0.0104 0.0290 0.0871 0.2325 0.5240 0.0920
1 21 0.0001 0.0004 0.0006 0.0001 0.0025 0.0018 0.0089 0.0106 0.0104 0.0290 0.0871 0.2325 0.5240 0.0920
1 22 0.0001 0.0004 0.0006 0.0001 0.0025 0.0018 0.0089 0.0106 0.0104 0.0290 0.0871 0.2325 0.5240 0.0920
1 23 0.0001 0.0004 0.0006 0.0001 0.0025 0.0018 0.0089 0.0106 0.0104 0.0290 0.0871 0.2325 0.5240 0.0920
1 24 0.0001 0.0004 0.0006 0.0001 0.0025 0.0018 0.0089 0.0106 0.0104 0.0290 0.0871 0.2325 0.5240 0.0920
2 1  0.0000 0.0017 0.0024 0.0013 0.0089 0.0492 0.2565 0.3233 0.1555 0.0706 0.0545 0.0392 0.0194 0.0175
2 2  0.0000 0.0017 0.0024 0.0013 0.0089 0.0492 0.2565 0.3233 0.1555 0.0706 0.0545 0.0392 0.0194 0.0175
2 3  0.0000 0.0017 0.0024 0.0013 0.0089 0.0492 0.2565 0.3233 0.1555 0.0706 0.0545 0.0392 0.0194 0.0175
2 4  0.0000 0.0006 0.0060 0.0076 0.0067 0.0311 0.2137 0.3073 0.1772 0.0759 0.0513 0.0610 0.0523 0.0093
2 5  0.0000 0.0006 0.0060 0.0076 0.0067 0.0311 0.2137 0.3073 0.1772 0.0759 0.0513 0.0610 0.0523 0.0093
2 6  0.0000 0.0006 0.0060 0.0076 0.0067 0.0311 0.2137 0.3073 0.1772 0.0759 0.0513 0.0610 0.0523 0.0093
2 7  0.0000 0.0006 0.0060 0.0076 0.0067 0.0311 0.2137 0.3073 0.1772 0.0759 0.0513 0.0610 0.0523 0.0093
2 8  0.0000 0.0006 0.0060 0.0076 0.0067 0.0311 0.2137 0.3073 0.1772 0.0759 0.0513 0.0610 0.0523 0.0093
2 9  0.0002 0.0060 0.0042 0.0054 0.0120 0.0646 0.2861 0.3087 0.1327 0.0678 0.0405 0.0386 0.0156 0.0176
2 10 0.0002 0.0060 0.0042 0.0054 0.0120 0.0646 0.2861 0.3087 0.1327 0.0678 0.0405 0.0386 0.0156 0.0176
2 11 0.0002 0.0060 0.0042 0.0054 0.0120 0.0646 0.2861 0.3087 0.1327 0.0678 0.0405 0.0386 0.0156 0.0176
2 12 0.0002 0.0060 0.0042 0.0054 0.0120 0.0646 0.2861 0.3087 0.1327 0.0678 0.0405 0.0386 0.0156 0.0176
2 13 0.0002 0.0060 0.0042 0.0054 0.0120 0.0646 0.2861 0.3087 0.1327 0.0678 0.0405 0.0386 0.0156 0.0176
2 14 0.0000 0.0000 0.0003 0.0006 0.0037 0.0206 0.1943 0.3303 0.2170 0.0850 0.0530 0.0558 0.0192 0.0201
2 15 0.0000 0.0000 0.0003 0.0006 0.0037 0.0206 0.1943 0.3303 0.2170 0.0850 0.0530 0.0558 0.0192 0.0201
2 16 0.0000 0.0000 0.0003 0.0006 0.0037 0.0206 0.1943 0.3303 0.2170 0.0850 0.0530 0.0558 0.0192 0.0201
2 17 0.0000 0.0000 0.0003 0.0006 0.0037 0.0206 0.1943 0.3303 0.2170 0.0850 0.0530 0.0558 0.0192 0.0201
2 18 0.0000 0.0000 0.0003 0.0006 0.0037 0.0206 0.1943 0.3303 0.2170 0.0850 0.0530 0.0558 0.0192 0.0201
2 19 0.0000 0.0000 0.0003 0.0006 0.0037 0.0206 0.1943 0.3303 0.2170 0.0850 0.0530 0.0558 0.0192 0.0201
2 20 0.0000 0.0000 0.0003 0.0006 0.0037 0.0206 0.1943 0.3303 0.2170 0.0850 0.0530 0.0558 0.0192 0.0201
2 21 0.0000 0.0000 0.0003 0.0006 0.0037 0.0206 0.1943 0.3303 0.2170 0.0850 0.0530 0.0558 0.0192 0.0201
2 22 0.0000 0.0000 0.0003 0.0006 0.0037 0.0206 0.1943 0.3303 0.2170 0.0850 0.0530 0.0558 0.0192 0.0201
2 23 0.0000 0.0000 0.0003 0.0006 0.0037 0.0206 0.1943 0.3303 0.2170 0.0850 0.0530 0.0558 0.0192 0.0201
2 24 0.0000 0.0000 0.0003 0.0006 0.0037 0.0206 0.1943 0.3303 0.2170 0.0850 0.0530 0.0558 0.0192 0.0201
```

* THIS IS THE SVMT FOR THE ST. LOUIS I/M AREA (NOT INCLUDING FRANKLIN COUNTY)

FRNKSVMT.def

```
SPEED VMT
1 1  0.0000 0.0000 0.0000 0.0000 0.0000 0.0013 0.0000 0.0005 0.0018 0.0007 0.0002 0.0376 0.1435 0.8145
1 2  0.0000 0.0000 0.0000 0.0000 0.0000 0.0013 0.0000 0.0005 0.0018 0.0007 0.0002 0.0376 0.1435 0.8145
1 3  0.0000 0.0000 0.0000 0.0000 0.0000 0.0013 0.0000 0.0005 0.0018 0.0007 0.0002 0.0376 0.1435 0.8145
1 4  0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0003 0.0011 0.0004 0.0001 0.0534 0.1702 0.7745
1 5  0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0003 0.0011 0.0004 0.0001 0.0534 0.1702 0.7745
1 6  0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0003 0.0011 0.0004 0.0001 0.0534 0.1702 0.7745
1 7  0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0003 0.0011 0.0004 0.0001 0.0534 0.1702 0.7745
1 8  0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0003 0.0011 0.0004 0.0001 0.0534 0.1702 0.7745
1 9  0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0008 0.0021 0.0007 0.0015 0.0000 0.0715 0.9234
1 10 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0008 0.0021 0.0007 0.0015 0.0000 0.0715 0.9234
1 11 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0008 0.0021 0.0007 0.0015 0.0000 0.0715 0.9234
1 12 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0008 0.0021 0.0007 0.0015 0.0000 0.0715 0.9234
1 13 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0008 0.0021 0.0007 0.0015 0.0000 0.0715 0.9234
1 14 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0013 0.0027 0.0009 0.0004 0.0016 0.0000 0.9932
1 15 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0013 0.0027 0.0009 0.0004 0.0016 0.0000 0.9932
1 16 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0013 0.0027 0.0009 0.0004 0.0016 0.0000 0.9932
1 17 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0013 0.0027 0.0009 0.0004 0.0016 0.0000 0.9932
1 18 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0013 0.0027 0.0009 0.0004 0.0016 0.0000 0.9932
1 19 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0013 0.0027 0.0009 0.0004 0.0016 0.0000 0.9932
1 20 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0013 0.0027 0.0009 0.0004 0.0016 0.0000 0.9932
1 21 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0013 0.0027 0.0009 0.0004 0.0016 0.0000 0.9932
1 22 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0013 0.0027 0.0009 0.0004 0.0016 0.0000 0.9932
1 23 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0013 0.0027 0.0009 0.0004 0.0016 0.0000 0.9932
1 24 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0013 0.0027 0.0009 0.0004 0.0016 0.0000 0.9932
2 1  0.0000 0.0000 0.0000 0.0002 0.0059 0.0028 0.0530 0.0394 0.0518 0.1136 0.3062 0.4271 0.0000 0.0000
2 2  0.0000 0.0000 0.0000 0.0002 0.0059 0.0028 0.0530 0.0394 0.0518 0.1136 0.3062 0.4271 0.0000 0.0000
2 3  0.0000 0.0000 0.0000 0.0002 0.0059 0.0028 0.0530 0.0394 0.0518 0.1136 0.3062 0.4271 0.0000 0.0000
2 4  0.0000 0.0000 0.0000 0.0002 0.0052 0.0014 0.0431 0.0405 0.0400 0.0971 0.2289 0.5436 0.0000 0.0000
2 5  0.0000 0.0000 0.0000 0.0002 0.0052 0.0014 0.0431 0.0405 0.0400 0.0971 0.2289 0.5436 0.0000 0.0000
2 6  0.0000 0.0000 0.0000 0.0002 0.0052 0.0014 0.0431 0.0405 0.0400 0.0971 0.2289 0.5436 0.0000 0.0000
2 7  0.0000 0.0000 0.0000 0.0002 0.0052 0.0014 0.0431 0.0405 0.0400 0.0971 0.2289 0.5436 0.0000 0.0000
2 8  0.0000 0.0000 0.0000 0.0002 0.0052 0.0014 0.0431 0.0405 0.0400 0.0971 0.2289 0.5436 0.0000 0.0000
2 9  0.0000 0.0000 0.0000 0.0002 0.0067 0.0017 0.0556 0.0409 0.0429 0.1048 0.3193 0.4279 0.0000 0.0000
2 10 0.0000 0.0000 0.0000 0.0002 0.0067 0.0017 0.0556 0.0409 0.0429 0.1048 0.3193 0.4279 0.0000 0.0000
2 11 0.0000 0.0000 0.0000 0.0002 0.0067 0.0017 0.0556 0.0409 0.0429 0.1048 0.3193 0.4279 0.0000 0.0000
2 12 0.0000 0.0000 0.0000 0.0002 0.0067 0.0017 0.0556 0.0409 0.0429 0.1048 0.3193 0.4279 0.0000 0.0000
2 13 0.0000 0.0000 0.0000 0.0002 0.0067 0.0017 0.0556 0.0409 0.0429 0.1048 0.3193 0.4279 0.0000 0.0000
2 14 0.0000 0.0000 0.0000 0.0003 0.0071 0.0017 0.0546 0.0466 0.0278 0.1110 0.1201 0.6309 0.0000 0.0000
2 15 0.0000 0.0000 0.0000 0.0003 0.0071 0.0017 0.0546 0.0466 0.0278 0.1110 0.1201 0.6309 0.0000 0.0000
2 16 0.0000 0.0000 0.0000 0.0003 0.0071 0.0017 0.0546 0.0466 0.0278 0.1110 0.1201 0.6309 0.0000 0.0000
2 17 0.0000 0.0000 0.0000 0.0003 0.0071 0.0017 0.0546 0.0466 0.0278 0.1110 0.1201 0.6309 0.0000 0.0000
2 18 0.0000 0.0000 0.0000 0.0003 0.0071 0.0017 0.0546 0.0466 0.0278 0.1110 0.1201 0.6309 0.0000 0.0000
2 19 0.0000 0.0000 0.0000 0.0003 0.0071 0.0017 0.0546 0.0466 0.0278 0.1110 0.1201 0.6309 0.0000 0.0000
2 20 0.0000 0.0000 0.0000 0.0003 0.0071 0.0017 0.0546 0.0466 0.0278 0.1110 0.1201 0.6309 0.0000 0.0000
2 21 0.0000 0.0000 0.0000 0.0003 0.0071 0.0017 0.0546 0.0466 0.0278 0.1110 0.1201 0.6309 0.0000 0.0000
2 22 0.0000 0.0000 0.0000 0.0003 0.0071 0.0017 0.0546 0.0466 0.0278 0.1110 0.1201 0.6309 0.0000 0.0000
2 23 0.0000 0.0000 0.0000 0.0003 0.0071 0.0017 0.0546 0.0466 0.0278 0.1110 0.1201 0.6309 0.0000 0.0000
2 24 0.0000 0.0000 0.0000 0.0003 0.0071 0.0017 0.0546 0.0466 0.0278 0.1110 0.1201 0.6309 0.0000 0.0000
```

*This is the SVMT file for Franklin County area

VRegStl.d

```
REG DIST
*
* This file contains the combined St. Louis vehicle registration for
* LDGV, LDGT1 & 2, and LDGT3 & 4 with the default MOBILE6 values for the distribution of
* vehicles by age for July of any calendar year.  The St. Louis data is from July 2002.
* There are sixteeen (16) sets of values representing 16 combined gasoline/diesel vehicle class
* distributions.  These distributions are split for gasoline and diesel
* using the separate input (or default) values for diesel sales fractions.
* Each distribution contains 25 values which represent the fraction of
* all vehicles in that class (gasoline and diesel) of that age in July.
* The first number is for age 1 (calendar year minus model year plus one)
* and the last number is for age 25.  The last age includes all vehicles
* of age 25 or older.  The first number in each distribution is an integer
* which indicates which of the 16 vehicle classes are represented by the
* distribution.  The sixteen vehicle classes are:
*
*  1  LDV    Light-Duty Vehicles (Passenger Cars)
*  2  LDT1   Light-Duty Trucks 1 (0-6,000 lbs. GVWR, 0-3750 lbs. LVW)
*  3  LDT2   Light Duty Trucks 2 (0-6,001 lbs. GVWR, 3751-5750 lbs. LVW)
*  4  LDT3   Light Duty Trucks 3 (6,001-8500 lbs. GVWR, 0-3750 lbs. LVW)
*  5  LDT4   Light Duty Trucks 4 (6,001-8500 lbs. GVWR, 3751-5750 lbs. LVW)
*  6  HDV2B  Class 2b Heavy Duty Vehicles (8501-10,000 lbs. GVWR)
*  7  HDV3   Class 3 Heavy Duty Vehicles (10,001-14,000 lbs. GVWR)
*  8  HDV4   Class 4 Heavy Duty Vehicles (14,001-16,000 lbs. GVWR)
*  9  HDV5   Class 5 Heavy Duty Vehicles (16,001-19,500 lbs. GVWR)
* 10  HDV6   Class 6 Heavy Duty Vehicles (19,501-26,000 lbs. GVWR)
* 11  HDV7   Class 7 Heavy Duty Vehicles (26,001-33,000 lbs. GVWR)
* 12  HDV8A  Class 8a Heavy Duty Vehicles (33,001-60,000 lbs. GVWR)
* 13  HDV8B  Class 8b Heavy Duty Vehicles (>60,000 lbs. GVWR)
* 14  HDBS   School Busses
* 15  HDBT   Transit and Urban Busses
* 16  MC     Motorcycles (All)
*
* The 25 age values are arranged in two rows of 10 values followed by a row
* with the last 5 values.  Comments (such as this one) are indicated by
* an asterisk in the first column. Empty rows are ignored.  Values are
* read "free format," meaning any number may appear in any row with as
* many characters as needed (including a decimal) as long as 25 values
* follow the initial integer value separated by a space.
*
* If all 28 vehicle classes do not need to be altered from the default
* values, then only the vehicle classes that need to be changed need to
* be included in this file.  The order in which the vehicle classes are
* read does not matter, however each vehicle class set must contain 25
* values and be in the proper age order.
*
* LDV
 1 0.0484 0.0757 0.0819 0.0822 0.0735 0.0682 0.0611 0.0662 0.0565 0.0525
   0.0468 0.0438 0.0400 0.0382 0.0330 0.0267 0.0235 0.0190 0.0135 0.0079
   0.0046 0.0036 0.0031 0.0046 0.0253
* LDT1
 2 0.0331 0.0648 0.0678 0.0747 0.0736 0.0676 0.0527 0.0563 0.0639 0.0482
   0.0438 0.0428 0.0346 0.0399 0.0384 0.0334 0.0324 0.0239 0.0182 0.0118
   0.0089 0.0067 0.0053 0.0109 0.0465
```

```
* LDT2
 3 0.0331 0.0648 0.0678 0.0747 0.0736 0.0676 0.0527 0.0563 0.0639 0.0482
   0.0438 0.0428 0.0346 0.0399 0.0384 0.0334 0.0324 0.0239 0.0182 0.0118
   0.0089 0.0067 0.0053 0.0109 0.0465
* LDT3
 4 0.0495 0.0846 0.0839 0.0822 0.0566 0.0694 0.0535 0.0620 0.0511 0.0360
   0.0329 0.0277 0.0336 0.0360 0.0335 0.0244 0.0272 0.0259 0.0191 0.0121
   0.0099 0.0079 0.0086 0.0164 0.0558
* LDT4
 5 0.0495 0.0846 0.0839 0.0822 0.0566 0.0694 0.0535 0.0620 0.0511 0.0360
   0.0329 0.0277 0.0336 0.0360 0.0335 0.0244 0.0272 0.0259 0.0191 0.0121
   0.0099 0.0079 0.0086 0.0164 0.0558
* HDV2B
 6 0.0503 0.0916 0.0833 0.0758 0.0690 0.0627 0.0571 0.0519 0.0472 0.0430
   0.0391 0.0356 0.0324 0.0294 0.0268 0.0244 0.0222 0.0202 0.0184 0.0167
   0.0152 0.0138 0.0126 0.0114 0.0499
* HDV3
 7 0.0503 0.0916 0.0833 0.0758 0.0690 0.0627 0.0571 0.0519 0.0472 0.0430
   0.0391 0.0356 0.0324 0.0294 0.0268 0.0244 0.0222 0.0202 0.0184 0.0167
   0.0152 0.0138 0.0126 0.0114 0.0499
* HDV4
 8 0.0388 0.0726 0.0679 0.0635 0.0594 0.0556 0.0520 0.0486 0.0455 0.0425
   0.0398 0.0372 0.0348 0.0326 0.0304 0.0285 0.0266 0.0249 0.0233 0.0218
   0.0204 0.0191 0.0178 0.0167 0.0797
* HDV5
 9 0.0388 0.0726 0.0679 0.0635 0.0594 0.0556 0.0520 0.0486 0.0455 0.0425
   0.0398 0.0372 0.0348 0.0326 0.0304 0.0285 0.0266 0.0249 0.0233 0.0218
   0.0204 0.0191 0.0178 0.0167 0.0797
* HDV6
10 0.0388 0.0726 0.0679 0.0635 0.0594 0.0556 0.0520 0.0486 0.0455 0.0425
   0.0398 0.0372 0.0348 0.0326 0.0304 0.0285 0.0266 0.0249 0.0233 0.0218
   0.0204 0.0191 0.0178 0.0167 0.0797
* HDV7
11 0.0388 0.0726 0.0679 0.0635 0.0594 0.0556 0.0520 0.0486 0.0455 0.0425
   0.0398 0.0372 0.0348 0.0326 0.0304 0.0285 0.0266 0.0249 0.0233 0.0218
   0.0204 0.0191 0.0178 0.0167 0.0797
* HDV8a
12 0.0388 0.0726 0.0679 0.0635 0.0594 0.0556 0.0520 0.0486 0.0455 0.0425
   0.0398 0.0372 0.0348 0.0326 0.0304 0.0285 0.0266 0.0249 0.0233 0.0218
   0.0204 0.0191 0.0178 0.0167 0.0797
* HDV8b
13 0.0388 0.0726 0.0679 0.0635 0.0594 0.0556 0.0520 0.0486 0.0455 0.0425
   0.0398 0.0372 0.0348 0.0326 0.0304 0.0285 0.0266 0.0249 0.0233 0.0218
   0.0204 0.0191 0.0178 0.0167 0.0797
* HDBS
14 0.0393 0.0734 0.0686 0.0641 0.0599 0.0559 0.0522 0.0488 0.0456 0.0426
   0.0398 0.0372 0.0347 0.0324 0.0303 0.0283 0.0264 0.0247 0.0231 0.0216
   0.0201 0.0188 0.0176 0.0165 0.0781
* HDBT
15 0.0307 0.0614 0.0614 0.0614 0.0614 0.0614 0.0614 0.0614 0.0614 0.0613
   0.0611 0.0607 0.0595 0.0568 0.0511 0.0406 0.0254 0.0121 0.0099 0.0081
   0.0066 0.0054 0.0044 0.0037 0.0114
* Motorcycles
16 0.1440 0.1680 0.1350 0.1090 0.0880 0.0700 0.0560 0.0450 0.0360 0.0290
   0.0230 0.0970 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
```

CM-2009.in

```
MOBILE6 INPUT FILE

POLLUTANTS        : HC CO NOX
SPREADSHEET       :

RUN DATA

* July 2009 LDGV Run
* BASIC I/M PERFORMANCE STANDARD

* ----------------------------------------------------------------
* JULY
* ----------------------------------------------------------------


NO REFUELING      :

MIN/MAX TEMP      : 71. 91.
FUEL RVP          : 7.0
ABSOLUTE HUMIDITY  : 60.4
REG DIST          : D:\Mobile62\Run\VREGSTL.D
SPEED VMT         : D:\Mobile62\Run\STLSVMT.DEF

FUEL PROGRAM      : 2 S

*Calendar year 2009.  SSI for LDGV 1968-1995 model years.
I/M PROGRAM       : 1 1983 2020 1 T/O IDLE
I/M MODEL YEARS   : 1 1968 1995
I/M VEHICLES      : 1 21111 11111111 1
I/M STRINGENCY    : 1 20.0
I/M COMPLIANCE    : 1 100.0
I/M WAIVER RATES  : 1 0.0 0.0

*Calendar year 2009.  Tailpipe OBD II for LDGV 1996-2009 model years.
I/M PROGRAM       : 2 1983 2020 1 T/O OBD I/M
I/M MODEL YEARS   : 2 1996 2009
I/M VEHICLES      : 2 21111 11111111 1
I/M STRINGENCY    : 2 20.0
I/M COMPLIANCE    : 2 100.0
I/M WAIVER RATES  : 2 0.0 0.0

* Calendar year 2009.  Evap OBD II for LDGV 1996-2009 model years.
I/M PROGRAM       : 3 1983 2020 1 T/O EVAP OBD
I/M MODEL YEARS   : 3 1996 2009
I/M VEHICLES      : 3 21111 11111111 1
I/M STRINGENCY    : 3 20.0
I/M COMPLIANCE    : 3 100.0
I/M WAIVER RATES  : 3 0.0 0.0

SCENARIO REC      : ST. LOUIS ENHANCED AREA - 2.5 Arterial
EVALUATION MONTH  : 7
CALENDAR YEAR     : 2009
AVERAGE SPEED     : 2.5 Arterial
```

SCENARIO REC : ST. LOUIS ENHANCED AREA - 5 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2009
AVERAGE SPEED : 5 Arterial

SCENARIO REC : ST. LOUIS ENHANCED AREA - 10 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2009
AVERAGE SPEED : 10 Arterial

SCENARIO REC : ST. LOUIS ENHANCED AREA - 15 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2009
AVERAGE SPEED : 15 Arterial

SCENARIO REC : ST. LOUIS ENHANCED AREA - 20 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2009
AVERAGE SPEED : 20 Arterial

SCENARIO REC : ST. LOUIS ENHANCED AREA - 25 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2009
AVERAGE SPEED : 25 Arterial

SCENARIO REC : ST. LOUIS ENHANCED AREA - 30 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2009
AVERAGE SPEED : 30 Arterial

SCENARIO REC : ST. LOUIS ENHANCED AREA - 35 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2009
AVERAGE SPEED : 35 Arterial

SCENARIO REC : ST. LOUIS ENHANCED AREA - 40 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2009
AVERAGE SPEED : 40 Arterial

SCENARIO REC : ST. LOUIS ENHANCED AREA - 45 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2009
AVERAGE SPEED : 45 Arterial

SCENARIO REC : ST. LOUIS ENHANCED AREA - 50 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2009
AVERAGE SPEED : 50 Arterial

SCENARIO REC : ST. LOUIS ENHANCED AREA - 55 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2009
AVERAGE SPEED : 55 Arterial

SCENARIO REC : ST. LOUIS ENHANCED AREA - 60 Arterial

EVALUATION MONTH : 7
CALENDAR YEAR : 2009
AVERAGE SPEED : 60 Arterial

SCENARIO REC : ST. LOUIS ENHANCED AREA - 65 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2009
AVERAGE SPEED : 65 Arterial

SCENARIO REC : ST. LOUIS ENHANCED AREA - 2.5 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2009
AVERAGE SPEED : 2.5 Freeway

SCENARIO REC : ST. LOUIS ENHANCED AREA - 5 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2009
AVERAGE SPEED : 5 Freeway

SCENARIO REC : ST. LOUIS ENHANCED AREA - 10 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2009
AVERAGE SPEED : 10 Freeway

SCENARIO REC : ST. LOUIS ENHANCED AREA - 15 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2009
AVERAGE SPEED : 15 Freeway

SCENARIO REC : ST. LOUIS ENHANCED AREA - 20 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2009
AVERAGE SPEED : 20 Freeway

SCENARIO REC : ST. LOUIS ENHANCED AREA - 25 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2009
AVERAGE SPEED : 25 Freeway

SCENARIO REC : ST. LOUIS ENHANCED AREA - 30 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2009
AVERAGE SPEED : 30 Freeway

SCENARIO REC : ST. LOUIS ENHANCED AREA - 35 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2009
AVERAGE SPEED : 35 Freeway

SCENARIO REC : ST. LOUIS ENHANCED AREA - 40 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2009
AVERAGE SPEED : 40 Freeway

SCENARIO REC : ST. LOUIS ENHANCED AREA - 45 Freeway
EVALUATION MONTH : 7

CALENDAR YEAR : 2009
AVERAGE SPEED : 45 Freeway

SCENARIO REC : ST. LOUIS ENHANCED AREA - 50 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2009
AVERAGE SPEED : 50 Freeway

SCENARIO REC : ST. LOUIS ENHANCED AREA - 55 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2009
AVERAGE SPEED : 55 Freeway

SCENARIO REC : ST. LOUIS ENHANCED AREA - 60 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2009
AVERAGE SPEED : 60 Freeway

SCENARIO REC : ST. LOUIS ENHANCED AREA - 65 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2009
AVERAGE SPEED : 65 Freeway

END OF RUN

CMF-09.in

```
MOBILE6 INPUT FILE

POLLUTANTS        : HC CO NOX
SPREADSHEET       :

RUN DATA

* July 2009 LDGV Run
* BASIC I/M PERFORMANCE STANDARD

* ----------------------------------------------------------------
* JULY FRANKLIN COUNTY BASIC I/M
* ----------------------------------------------------------------


NO REFUELING      :

MIN/MAX TEMP      : 71. 91.
FUEL RVP          : 7.0
ABSOLUTE HUMIDITY  : 60.4
REG DIST          : D:\Mobile62\Run\VREGSTL.D
SPEED VMT         : D:\Mobile62\Run\FRNKSVMT.DEF

FUEL PROGRAM      : 2 S

STAGE II REFUELING : 89 1 97. 97.

*Calendar year 2009.  SSI for LDGV 1968-1995 model years.
I/M PROGRAM       : 1 1983 2020 1 T/O IDLE
I/M MODEL YEARS    : 1 1968 1995
I/M VEHICLES      : 1 21111 11111111 1
I/M STRINGENCY     : 1 20.0
I/M COMPLIANCE     : 1 100.0
I/M WAIVER RATES   : 1 0.0 0.0

*Calendar year 2009.  Tailpipe OBD II for LDGV 1996-2009 model years.
I/M PROGRAM       : 2 1983 2020 1 T/O OBD I/M
I/M MODEL YEARS    : 2 1996 2009
I/M VEHICLES      : 2 21111 11111111 1
I/M STRINGENCY     : 2 20.0
I/M COMPLIANCE     : 2 100.0
I/M WAIVER RATES   : 2 0.0 0.0

* Calendar year 2009.  Evap OBD II for LDGV 1996-2009 model years.
I/M PROGRAM       : 3 1983 2020 1 T/O EVAP OBD
I/M MODEL YEARS    : 3 1996 2009
I/M VEHICLES      : 3 21111 11111111 1
I/M STRINGENCY     : 3 20.0
I/M COMPLIANCE     : 3 100.0
I/M WAIVER RATES   : 3 0.0 0.0

SCENARIO REC      : FRANKLIN COUNTY AREA - 2.5 Arterial
EVALUATION MONTH   : 7
CALENDAR YEAR      : 2009
```

AVERAGE SPEED : 2.5 Arterial

SCENARIO REC : FRANKLIN COUNTY AREA - 5 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2009
AVERAGE SPEED : 5 Arterial

SCENARIO REC : FRANKLIN COUNTY AREA - 10 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2009
AVERAGE SPEED : 10 Arterial

SCENARIO REC : FRANKLIN COUNTY AREA - 15 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2009
AVERAGE SPEED : 15 Arterial

SCENARIO REC : FRANKLIN COUNTY AREA - 20 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2009
AVERAGE SPEED : 20 Arterial

SCENARIO REC : FRANKLIN COUNTY AREA - 25 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2009
AVERAGE SPEED : 25 Arterial

SCENARIO REC : FRANKLIN COUNTY AREA - 30 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2009
AVERAGE SPEED : 30 Arterial

SCENARIO REC : FRANKLIN COUNTY AREA - 35 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2009
AVERAGE SPEED : 35 Arterial

SCENARIO REC : FRANKLIN COUNTY AREA - 40 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2009
AVERAGE SPEED : 40 Arterial

SCENARIO REC : FRANKLIN COUNTY AREA - 45 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2009
AVERAGE SPEED : 45 Arterial

SCENARIO REC : FRANKLIN COUNTY AREA - 50 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2009
AVERAGE SPEED : 50 Arterial

SCENARIO REC : FRANKLIN COUNTY AREA - 55 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2009
AVERAGE SPEED : 55 Arterial

SCENARIO REC : FRANKLIN COUNTY AREA - 60 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2009
AVERAGE SPEED : 60 Arterial

SCENARIO REC : FRANKLIN COUNTY AREA - 65 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2009
AVERAGE SPEED : 65 Arterial

SCENARIO REC : FRANKLIN COUNTY AREA - 2.5 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2009
AVERAGE SPEED : 2.5 Freeway

SCENARIO REC : FRANKLIN COUNTY AREA - 5 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2009
AVERAGE SPEED : 5 Freeway

SCENARIO REC : FRANKLIN COUNTY AREA - 10 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2009
AVERAGE SPEED : 10 Freeway

SCENARIO REC : FRANKLIN COUNTY AREA - 15 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2009
AVERAGE SPEED : 15 Freeway

SCENARIO REC : FRANKLIN COUNTY AREA - 20 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2009
AVERAGE SPEED : 20 Freeway

SCENARIO REC : FRANKLIN COUNTY AREA - 25 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2009
AVERAGE SPEED : 25 Freeway

SCENARIO REC : FRANKLIN COUNTY AREA - 30 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2009
AVERAGE SPEED : 30 Freeway

SCENARIO REC : FRANKLIN COUNTY AREA - 35 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2009
AVERAGE SPEED : 35 Freeway

SCENARIO REC : FRANKLIN COUNTY AREA - 40 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2009
AVERAGE SPEED : 40 Freeway

SCENARIO REC : FRANKLIN COUNTY AREA - 45 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2009
AVERAGE SPEED : 45 Freeway

SCENARIO REC : FRANKLIN COUNTY AREA - 50 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2009
AVERAGE SPEED : 50 Freeway

SCENARIO REC : FRANKLIN COUNTY AREA - 55 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2009
AVERAGE SPEED : 55 Freeway

SCENARIO REC : FRANKLIN COUNTY AREA - 60 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2009
AVERAGE SPEED : 60 Freeway

SCENARIO REC : FRANKLIN COUNTY AREA - 65 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2009
AVERAGE SPEED : 65 Freeway

END OF RUN

3.10 New Source Review Element

Missouri finalized 10 CSR 10-6.060 *Construction Permits Required* in the early 1980's. This regulation, after approval by the Environmental Protection Agency (EPA), established the new source review program for Missouri. Nonattainment new source review for the St. Louis nonattainment area was developed in response to violations of the ozone National Ambient Air Quality standards (NAAQS). Missouri developed section (7) of 10 CSR 10-6.360 to establish the required criteria.

The federal regulations regarding construction permitting in nonattainment areas were modified. These regulations set the major source thresholds for VOC and NOx at 100 tons per year and the significant emission rates for these pollutants at forty tons per year. The federal regulations also require 1.15 to 1 offset ratio and requires that new sources be controlled to LAER.

Section (7) is at least as protective as is required by 40 CFR 51.165. Missouri has not adopted the changes in EPA's 2002 new source review reform rule into section 7. However, any netting analysis allowed by the 2002 reforms can be done by using Missouri's definition of netting in 10 CSR 10-6.020. Section (7) meets the remaining criteria set forth in 40 CFR 51.165 by incorporating the requirements of Section 173(a)(1)(A) of the Clean Air Act by reference and also the general permitting requirements for all permitting programs. Missouri is a delegated permitting state with the authority to permit all sources.

Section (7) of Missouri rule 10 CSR 10.6.060 also meets the requirements of 40 CFR 52.24. Missouri has adopted all of the required elements into this section. Missouri does not have a transport region and therefore is not required to address the elements for transport regions. Missouri has never had a permitting prohibition and retained the provisions of the federally approved 1-hour ozone NAAQS new source review regulations for the St. Louis ozone nonattainment area.

For these reasons, the current New Source Review program applicable to the St. Louis 8-hour nonattainment area meets or exceeds the minimum federal requirements for moderate nonattainment areas.

3.11 Ambient Monitoring Commitment Element

The EPA designated St. Louis as a moderate non-attainment area for 8-hour ozone. The code of federal regulations sets minimum monitoring requirements for moderate non-attainment areas - 2 sites for a city between .35 and 4 million residents. Due to the geographic size of the St. Louis area, this number is insufficient. The current network has been adapted from the previous 1-hour network to ensure detection of exceedances over the entire area. It is the department's intention to maintain monitoring for ozone in a way that is adequate to evaluate current and future health and welfare standards and meet any federal requirements.

3.12 Automobile Inspection and Maintenance (I/M) Element

Missouri's centralized I/M program is in the process of being replaced by a decentralized program. The department plans to amend the I/M SIP in a separate action. For the purposes of this 8-hour ozone plan revision, the basic performance standard for moderate nonattainment areas was assumed. This assumption applies to the inventory calculations regarding the attainment demonstration inventory and transportation conformity (2009) and RFP (2008).

In 2006, the department conducted a series of local planning meetings to identify specific program design features. These recommendations were forwarded to the Missouri General Assembly, which after some debate and modifications, was enacted becoming effective on August 28, 2006. This new statute authorizes the Missouri Air Conservation Commission to develop a decentralized program to replace the current program beginning September 1, 2007.

The decentralized program would allow licensed test-only and test-and-repair businesses to provide second generation On Board Diagnostic (OBD II) testing for 1996 and newer model year gasoline-powered vehicles and 1997 and newer model year diesel-powered vehicles. 1995 and older model year vehicles will be subject to an enhanced safety inspection that would include a gas cap pressure test, a check for leaking fuel, and a visual inspection of the emissions control devices. The department met with the Missouri State Highway Patrol and the Office of Administration's Division of Purchasing and Materials Management to draft a request for proposals to implement the new program. The RFP was released on December 15, 2006 and it seeks to secure the services of one contractor to provide the testing equipment and data management services of the decentralized I/M program.

The department is also in the process of drafting anew I/M regulation (10 CSR 10-5.381 *On-Board diagnostics Motor Vehicle Emissions Inspection*). The department plans to submit an I/M SIP revision once the new program is fully designed, and the regulation is amended.

3.13 Contingency Measures Element

Section 172(c)(9) of the Clean Air Act requires plan revisions to include specific contingency measures that can be implemented without further action by the state. Contingency measures are triggered if the state fails to meet defined (RFP) goals or if monitoring shows that the standard has not been attained.

Emissions from the motor vehicle category are expected to decrease in future years. These reductions are beyond those needed to demonstrate attainment of the ozone standard and RFP, and can therefore be relied on as the contingency measure.

The department expects to amend and update the contingency measures element to include local controls when they are promulgated. These controls will include an architectural and industrial maintenance coatings rule and a diesel anti-idling regulation. At this time, the department is not committing to including these measures as contingencies, but instead is just communicating an intention to move forward with a revision at some point in the future.

For contingency measure purposes, the emission reductions associated with federal motor vehicle control programs were calculated by subtracting 2010 onroad mobile emissions from 2008 mobile emissions. The non-creditable emission reductions attributable to pre-1990 CAAA motor vehicle controls occurring over the 2008 – 2010 time period were then subtracted from the result. This section provides a summary of the approach used to the estimate the benefits from federal motor vehicle controls. The calculation procedures are consistent with the preparation of the 2002 base year inventory and the 2008 RFP demonstration. See those two documents for more information on how the base year and 2008 onroad mobile emissions were estimated.

Based on the calculations presented below, the creditable emission benefit of federal motor vehicle controls is estimated to be 4.4 tons per ozone weekday for VOCs and 15.4 tons per ozone weekday for NOx. EPA guidance requires that moderate ozone nonattainment areas like St. Louis must include contingency measures to be implemented during the year after RFP or attainment failure is identified, sufficient to achieve a 3 percent reduction from base-year emissions. Base year anthroprogenic emissions were estimated to be 219.1 and 366.3 tons per ozone weekday of VOC and NOx respectively. The federal motor vehicle controls will achieve a 2.01 percent reduction in VOC and 4.20 percent reduction in NOx. These reductions occur after the RFP obligation. Therefore, this contingency measure is sufficient to meet the 3 percent reduction from base-year test.

3.13.1 Calculation of 2010 Onroad Mobile Emissions

Average weekday VMT was projected to 2010 by multiplying the 2002 VMT by a growth rate of 1.7% per year (i.e., a growth factor of 1.136). The growth rate of 1.7% per year is consistent with the average region-wide growth rate for the St. Louis nonattainment area counties wide (both Missouri and Illinois sides) used in the 2009 attainment demonstration modeling and the 2008 RFP inventory. The average growth rate assumed in the 2009 attainment demonstration for the Missouri-side counties is about 2% per year, as derived from VMT data assembled by EPA for their most recent Clean Air Interstate Rule (CAIR) rulemaking. According to the East-West Gateway Coordinating Council, VMT growth in the St. Louis region is expected to be in the range of 1 – 1.5% per year. For estimating 2010 emissions, the department's Air Pollution Control Program chose to use the region-wide growth of 1.7% per year rather than the Missouri-side growth of 2% per year because 1.7% is closer to the actual rate of expected growth in the region.

The VMT projection calculations were applied by speed and road type (freeway and arterial). The VMT calculations were also done separately for Franklin County and the rest of the nonattainment area (Jefferson, St. Charles, St. Louis Counties and the City of St. Louis) to be consistent with the way the VMT was prepared in the 2002 base year inventory. Table 4 summarizes the 2010 projected VMT by speed bin and road type.

Emission factors for July 2010 were generated using the EPA's MOBILE6.2 model (referred to as MOBILE6) with the same temperature inputs as used in the base year inventory. The local program specifications for the 2010 run were the same as the settings used in the 2008 RFP inventory: reformulated gasoline, the basic I/M performance standard, and Stage II vapor

recovery. Although the local program and temperature specifications were identical, separate sets of inputs were created for Franklin County and the rest of the nonattainment area (Jefferson, St. Charles, and St. Louis Counties and City of St. Louis) in order to utilize the separate speed by VMT (SVMT) inputs for Franklin versus the rest of the nonattainment area and to be consistent with the way the 2002 VMT was prepared for the base year inventory. In addition to the local motor vehicle programs, the MOBILE6 model accounts for the impacts of the federal rules, such as the Tier 2 motor vehicle emission standards and low-sulfur gasoline. The MOBILE6 input files for both 2008 and 2010 are included below.

The MOBILE6 runs produced emission factors by pollutant (VOC and NOx), roadway type (freeway and arterial), and average speed (2.5 mph and 10 - 65 mph in 5 mph increments). The 2010 onroad mobile emissions were calculated by multiplying 2010 VMT for a given speed, road type, and nonattainment area zone (Franklin County versus the rest of the nonattainment area) by the corresponding emission factor. This calculation procedure was applied to each pollutant, speed, road type, and nonattainment area zone (Franklin versus the rest of the nonattainment counties). The results for each pollutant were summed across all speeds, road types, and nonattainment area counties. Table 5 lists the 2010 emission factors in grams/mile by speed and road type, and Table 6 summarizes the 2010 emissions in tons/day by speed and road type. As shown in Table 6, total 2010 onroad mobile emissions for the St. Louis nonattainment are 42.8 tons/day VOC and 92.7 tons/day NOx.

3.13.2 Calculation of Non-Creditable Reductions

The MOBILE6 model was run for July for both 2008 and 2010 with the same temperature inputs as used in the 2002 base year inventory but with all post-1990 CAAA measures turned off. The I/M specification was set to the basic I/M program and gasoline Reid vapor pressure (RVP) was set to 9.0 pounds per square inch (psi), which reflect the programs that were in place in St. Louis in 1990. Although the program and temperature specifications were identical, separate sets of inputs were created for Franklin County and the rest of the nonattainment area (Jefferson, St. Charles, and St. Louis Counties and City of St. Louis) in order to utilize the separate speed by VMT (SVMT) inputs for Franklin versus the rest of the nonattainment area and to be consistent with the way the 2002 VMT was prepared for the base year inventory. The MOBILE6 input files for the 2008 and 2010 runs without the post-1990 CAAA measures are included below.

The MOBILE6 runs produced emission factors by pollutant (VOC and NOx), roadway type (freeway and arterial), and average speed (2.5 mph and 10 - 65 mph in 5 mph increments). The non-creditable emission reduction adjustment was calculated by multiplying the difference between the 2008 and 2010 emission factors without the post-CAAA controls by the projected 2008 VMT that had been prepared for the 2008 RFP inventory. The 2008 VMT was used in this set of calculations because the reductions attributable to the pre-1990 CAAA controls occurring between 2002 and 2008 had already been accounted for in the RFP demonstration. Table 7 summarizes the 2008 VMT, and Table 8 presents the emission factors used to calculate the non-creditable emission reductions between 2008 and 2010.

This calculation procedure was applied to each pollutant, speed, road type, and nonattainment area zone (Franklin County and the rest of the nonattainment counties). The results for each

pollutant were then summed across all speeds, road types, and nonattainment area counties. This represents the VOC and NOx reductions that will occur between 2008 and 2010 without the benefits of the post-1990 CAAA measures, i.e., the non-creditable reductions occurring over this time period. The resulting adjustment factors are summarized in Table 9. For the St. Louis nonattainment counties, the non-creditable VOC and NOx emission reductions from 2008 and 2010 total 0.047 tons/day and 1.149 tons/day, respectively.

3.13.3 Estimation of Emissions Benefits Due to Federal Motor Vehicle Programs

The benefits of federal motor vehicle controls were calculated using the following equation:

$$BENEFIT = EMISS_{2008} - EMISS_{2010} - ADJFACT$$

Where:

BENEFIT = emission reductions due to federal motor vehicle programs from 2008-2010 (tons/day)

$EMISS_{2008}$ = 2008 onroad mobile emissions (tons/day)

$EMISS_{2010}$ = 2010 onroad mobile emissions (tons/day)

ADJFACT = Post-1990 CAAA control adjustment factor representing non-creditable emission reductions between 2008 and 2010

From the 2008 RFP inventory, the 2008 onroad mobile emissions totals for the St. Louis nonattainment area are 47.3 tons/day VOC and 109.2 tons/day NOx. The emission benefit calculations for contingency measure purposes are below.

VOC BENEFIT = 47.3 tons/day - 42.8 tons/day - 0.047 tons/day
VOC BENEFIT = 4.4 tons/day

NOx BENEFIT = 109.2 tons/day - 92.7 tons/day - 1.149 tons/day
NOx BENEFIT = 15.4 tons/day NOx

Table 4. 2010 VMT by Speed Bin and Road Type

	Bin 1	Bin 2	Bin 3	Bin 4	Bin 5	Bin 6	Bin 7	Bin 8	Bin 9	Bin 10	Bin 11	Bin 12	Bin 13	Bin 14	VMT Sum – All Speed Bins
2010 Jefferson, St. Charles, St. Louis Co., City of St. Louis															
Arterial	2,246	68,784	89,213	106,377	209,927	1,104,373	5,880,719	7,431,779	3,794,125	1,722,507	1,133,554	1,111,186	630,513	371,399	23,656,702
Freeway	5,814	142,801	97,839	72,586	135,120	228,036	520,325	501,513	984,207	2,332,857	5,499,503	11,302,575	7,077,641	2,270,454	31,171,272
Total VMT – Jefferson, St. Charles, St. Louis Co., City of St. Louis															**54,827,974**
2010 Franklin County															
Arterial	0	0	0	457	12,579	3,718	104,858	84,694	86,337	215,843	542,157	1,006,264	0	0	2,056,909
Freeway	0	0	0	0	0	490	15	1,183	3,703	1,252	1,243	70,748	280,591	1,901,603	2,260,826
Total VMT – Franklin County															**4,317,735**
2010 St. Louis Nonattainment Area Totals															**59,145,709**

Table 5. MOBILE6 Emission Factors for Calculating 2010 Emissions

The 2010 emission factors are based on the same basic I/M performance standard for all counties in the nonattainment area. A separate set of emission factors was generated for Franklin County in 2008 because two separate speed by VMT (SVMT) files were used for Franklin Co. versus the rest of the nonattainment area (Jefferson, St. Charles, St. Louis Counties and the City of St. Louis). July was specified for all MOBILE6 runs. See the complete set of MOBILE6 input files for more details on parameters used to generate the emission factors.

2010 BASE														
Arterial- NAA no Franklin	2.5 mph	5 mph	10 mph	15 mph	20 mph	25 mph	30 mph	35 mph	40 mph	45 mph	50 mph	55 mph	60 mph	65 mph
VOC (g/mile)	4.673	1.944	1.164	0.946	0.826	0.758	0.715	0.682	0.661	0.644	0.629	0.616	0.607	0.6
NOx (g/mile)	2.274	2.012	1.67	1.453	1.329	1.253	1.209	1.195	1.216	1.258	1.322	1.415	1.545	1.73
Freeway-NAA no Franklin	2.7 mph	5 mph	10 mph	15 mph	20 mph	25 mph	30 mph	35 mph	40 mph	45 mph	50 mph	55 mph	60 mph	65 mph
VOC (g/mile)	4.355	2.035	1.143	0.909	0.81	0.755	0.718	0.685	0.665	0.648	0.632	0.62	0.612	0.611
NOx (g/mile)	2.246	2.023	1.612	1.384	1.315	1.278	1.259	1.255	1.279	1.328	1.408	1.531	1.718	1.746
Arterial- Franklin	2.5 mph	5 mph	10 mph	15 mph	20 mph	25 mph	30 mph	35 mph	40 mph	45 mph	50 mph	55 mph	60 mph	65 mph
VOC (g/mile)	4.686	1.957	1.177	0.959	0.839	0.771	0.728	0.695	0.674	0.657	0.642	0.629	0.62	0.613
NOx (g/mile)	2.274	2.012	1.67	1.453	1.329	1.253	1.209	1.195	1.216	1.258	1.322	1.415	1.545	1.73
Freeway-Franklin	2.7 mph	5 mph	10 mph	15 mph	20 mph	25 mph	30 mph	35 mph	40 mph	45 mph	50 mph	55 mph	60 mph	65 mph
VOC (g/mile)	4.368	2.048	1.156	0.922	0.823	0.768	0.731	0.698	0.678	0.661	0.645	0.633	0.625	0.624
NOx (g/mile)	2.246	2.023	1.612	1.384	1.315	1.278	1.259	1.255	1.279	1.328	1.408	1.531	1.718	1.746

Table 6. 2010 Typical Summer Weekday Onroad Mobile Emissions by Speed and Road Type

	Bin 1	Bin 2	Bin 3	Bin 4	Bin 5	Bin 6	Bin 7	Bin 8	Bin 9	Bin 10	Bin 11	Bin 12	Bin 13	Bin 14	Emissions –All Speed Bins	
															VOC (tpd)	NOx (tpd)
Arterial - Jefferson, St. Charles, St. Louis Co., City of St. Louis																
VOC (tpd)	0.012	0.147	0.114	0.111	0.191	0.923	4.635	5.587	2.764	1.223	0.786	0.755	0.422	0.246	17.915	
NOx (tpd)	0.006	0.153	0.164	0.170	0.308	1.525	7.837	9.789	5.086	2.389	1.652	1.733	1.074	0.708		32.594
Freeway- Freeway- Jefferson, St. Charles, St. Louis Co., City of St. Louis																
VOC (tpd)	0.028	0.320	0.123	0.073	0.121	0.190	0.412	0.379	0.721	1.666	3.831	7.724	4.775	1.529	21.892	
NOx (tpd)	0.014	0.318	0.174	0.111	0.196	0.321	0.722	0.694	1.388	3.415	8.535	19.074	13.403	4.370		52.736
Totals -- Freeway- Jefferson, St. Charles, St. Louis Co., City of St. Louis															**39.808**	**85.329**
Arterial-Franklin																
VOC (tpd)	0.000	0.000	0.000	0.000	0.012	0.003	0.084	0.065	0.064	0.156	0.384	0.698	0.000	0.000	1.466	
NOx (tpd)	0.000	0.000	0.000	0.001	0.018	0.005	0.140	0.112	0.116	0.299	0.790	1.570	0.000	0.000		3.050
Freeway-Franklin																
VOC (tpd)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.003	0.001	0.001	0.049	0.193	1.308	1.557	
NOx (tpd)	0.000	0.000	0.000	0.000	0.000	0.001	0.000	0.002	0.005	0.002	0.002	0.119	0.531	3.660		4.322
Totals -- Franklin															**3.023**	**7.372**
Totals – St. Louis Nonattainment Area															**42.830**	**92.702**

Table 7. 2008 VMT by Speed Bin and Roadway Type

	Bin 1	Bin 2	Bin 3	Bin 4	Bin 5	Bin 6	Bin 7	Bin 8	Bin 9	Bin 10	Bin 11	Bin 12	Bin 13	Bin 14	VMT Sum All Speed Bins
2008 Jefferson, St. Charles, St. Louis Co., City of St. Louis															
Arterial	2,179	66,725	86,543	103,193	203,644	1,071,319	5,704,711	7,209,349	3,680,569	1,670,953	1,099,627	1,077,929	611,642	360,283	22,948,667
Freeway	5,640	138,527	94,911	70,413	131,076	221,211	504,752	486,503	954,750	2,263,035	5,334,905	10,964,294	6,865,810	2,202,500	30,238,329
Total VMT – Jefferson, St. Charles, St. Louis Co, City of St. Louis															**53,186,996**
2008 Franklin															
Arterial	0	0	0	443	12,202	3,607	101,720	82,160	83,753	209,383	525,931	976,147	0	0	1,995,346
Freeway	0	0	0	0	0	475	14	1,147	3,593	1,214	1,206	68,630	272,193	1,844,688	2,193,161
Total VMT - Franklin															**4,188,507**
2008 Total Combined VMT (All St. Louis Nonattainment Counties)															
Arterial	2,179	66,725	86,543	103,636	215,847	1,074,926	5,806,431	7,291,509	3,764,322	1,880,336	1,625,558	2,054,076	611,642	360,283	24,944,014
Freeway	5,640	138,527	94,911	70,413	131,076	221,686	504,767	487,650	958,342	2,264,250	5,336,111	11,032,924	7,138,003	4,047,189	32,431,490
2008 St. Louis Nonattainment Area Totals															**57,375,503**

Table 8. MOBILE6 Emission Factors for Calculating Non-creditable Reductions from 2008 - 2010

The 2002 and 2008 emission factors for calculating the non-creditable emission reductions for all nonattainment area counties are based on basic I/M and other specifications based on programs in place in 1990. Separate sets of emission factors were generated for Franklin County versus the other nonattainment counties because a separate SVMT file was used for Franklin County. However, the resulting emission factors for the two different sets of counties were identical. The month of July was specified for all MOBILE6 runs. See the complete set of MOBILE6 input files for more details on the parameters used to generate the emission factors.

2008 Post-CAA Run, No Stage II, FRANKLIN AND REST OF NAA IDENTICAL														
Arterial- NAA no Franklin	2.5 mph	5 mph	10 mph	15 mph	20 mph	25 mph	30 mph	35 mph	40 mph	45 mph	50 mph	55 mph	60 mph	65 mph
VOC (g/mile)	15.862	5.99	3.26	2.476	1.992	1.791	1.661	1.557	1.488	1.429	1.377	1.335	1.304	1.279
NOx (g/mile)	4.655	4.12	3.43	2.994	2.742	2.588	2.499	2.473	2.512	2.595	2.722	2.906	3.168	3.539
Freeway- NAA no Franklin	2.7 mph	5 mph	10 mph	15 mph	20 mph	25 mph	30 mph	35 mph	40 mph	45 mph	50 mph	55 mph	60 mph	65 mph
VOC (g/mile)	14.724	6.329	3.215	2.388	1.969	1.788	1.672	1.572	1.502	1.442	1.39	1.35	1.32	1.316
NOx (g/mile)	4.571	4.117	3.296	2.84	2.695	2.618	2.577	2.565	2.611	2.708	2.867	3.113	3.49	3.545
Arterial-Franklin	2.5 mph	5 mph	10 mph	15 mph	20 mph	25 mph	30 mph	35 mph	40 mph	45 mph	50 mph	55 mph	60 mph	65 mph
VOC (g/mile)	15.862	5.99	3.26	2.476	1.992	1.791	1.661	1.557	1.488	1.429	1.377	1.335	1.304	1.279
NOx (g/mile)	4.655	4.12	3.43	2.994	2.742	2.588	2.499	2.473	2.512	2.595	2.722	2.906	3.168	3.539
Freeway- Franklin	2.7 mph	5 mph	10 mph	15 mph	20 mph	25 mph	30 mph	35 mph	40 mph	45 mph	50 mph	55 mph	60 mph	65 mph
VOC (g/mile)	14.724	6.329	3.215	2.388	1.969	1.788	1.672	1.572	1.502	1.442	1.39	1.35	1.32	1.316
NOx (g/mile)	4.571	4.117	3.296	2.84	2.695	2.618	2.577	2.565	2.611	2.708	2.867	3.113	3.49	3.545
2010 Post-CAA Run, No Stage II, FRANKLIN AND REST OF NAA IDENTICAL														
Arterial- NAA no Franklin	2.5 mph	5 mph	10 mph	15 mph	20 mph	25 mph	30 mph	35 mph	40 mph	45 mph	50 mph	55 mph	60 mph	65 mph
VOC (g/mile)	15.825	5.97	3.248	2.467	1.987	1.787	1.659	1.556	1.488	1.429	1.378	1.335	1.303	1.278
NOx (g/mile)	4.645	4.112	3.422	2.987	2.735	2.582	2.492	2.467	2.506	2.589	2.716	2.9	3.161	3.531
Freeway- NAA no Franklin	2.7 mph	5 mph	10 mph	15 mph	20 mph	25 mph	30 mph	35 mph	40 mph	45 mph	50 mph	55 mph	60 mph	65 mph
VOC (g/mile)	14.69	6.309	3.202	2.379	1.963	1.784	1.67	1.57	1.502	1.442	1.39	1.35	1.319	1.316
NOx (g/mile)	4.541	4.088	3.268	2.812	2.668	2.591	2.55	2.539	2.584	2.682	2.84	3.086	3.462	3.517
Arterial-Franklin	2.5 mph	5 mph	10 mph	15 mph	20 mph	25 mph	30 mph	35 mph	40 mph	45 mph	50 mph	55 mph	60 mph	65 mph
VOC (g/mile)	15.825	5.97	3.248	2.467	1.987	1.787	1.659	1.556	1.488	1.429	1.378	1.335	1.303	1.278
NOx (g/mile)	4.645	4.112	3.422	2.987	2.735	2.582	2.492	2.467	2.506	2.589	2.716	2.9	3.161	3.531
Freeway-Franklin	2.7 mph	5 mph	10 mph	15 mph	20 mph	25 mph	30 mph	35 mph	40 mph	45 mph	50 mph	55 mph	60 mph	65 mph
VOC (g/mile)	14.69	6.309	3.202	2.379	1.963	1.784	1.67	1.57	1.502	1.442	1.39	1.35	1.319	1.316
NOx (g/mile)	4.541	4.088	3.268	2.812	2.668	2.591	2.55	2.539	2.584	2.682	2.84	3.086	3.462	3.517
CAA Adjustment Diff (08 minus 10)														
Arterial- NAA no Franklin	2.5 mph	5 mph	10 mph	15 mph	20 mph	25 mph	30 mph	35 mph	40 mph	45 mph	50 mph	55 mph	60 mph	65 mph
VOC (g/mile)	0.037	0.02	0.012	0.009	0.005	0.004	0.002	0.001	0	0	-0.001	0	0.001	0.001
NOx (g/mile)	0.01	0.008	0.008	0.007	0.007	0.006	0.007	0.006	0.006	0.006	0.006	0.006	0.007	0.008
Freeway- NAA no Franklin	2.7 mph	5 mph	10 mph	15 mph	20 mph	25 mph	30 mph	35 mph	40 mph	45 mph	50 mph	55 mph	60 mph	65 mph
VOC (g/mile)	0.034	0.02	0.013	0.009	0.006	0.004	0.002	0.002	0	0	0	0	0.001	0
NOx (g/mile)	0.03	0.029	0.028	0.028	0.027	0.027	0.027	0.026	0.027	0.026	0.027	0.027	0.028	0.028

Table 9. RFP Post-1990 Clean Air Act Control Adjustment Factors for 2008 through 2010

	Bin 1	**Bin 2**	**Bin 3**	**Bin 4**	**Bin 5**	**Bin 6**	**Bin 7**	**Bin 8**	**Bin 9**	**Bin 10**	**Bin 11**	**Bin 12**	**Bin 13**	**Bin 14**	**Emissions Sum – All Speed Bins**	
															VOC (tpd)	**NOx (tpd)**
Arterial- Jefferson, St. Charles, St. Louis Co., City of St. Louis																
VOC (tpd)	0.000	0.001	0.001	0.001	0.001	0.005	0.013	0.008	0.000	0.000	-0.001	0.000	0.001	0.000	0.030	
NOx (tpd)	0.000	0.001	0.001	0.001	0.002	0.007	0.044	0.048	0.024	0.011	0.007	0.007	0.005	0.003		0.160
Freeway- Jefferson, St. Charles, St. Louis Co., City of St. Louis																
VOC (tpd)	0.000	0.003	0.001	0.001	0.001	0.001	0.001	0.001	0.000	0.000	0.000	0.000	0.008	0.000	0.017	
NOx (tpd)	0.000	0.004	0.003	0.002	0.004	0.007	0.015	0.014	0.028	0.065	0.159	0.326	0.212	0.068		0.907
Total -- Jefferson, St. Charles, St. Louis Co., City of St. Louis															**0.047**	**1.068**
Arterial-Franklin																
VOC (tpd)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-0.001	0.000	0.000	0.000	0.000	
NOx (tpd)	0.000	0.000	0.000	0.000	0.000	0.000	0.001	0.001	0.001	0.001	0.003	0.006	0.000	0.000		0.013
Freeway-Franklin																
VOC (tpd)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
NOx (tpd)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.002	0.008	0.057		0.068
Totals -- Franklin															**0.000**	**0.081**
Totals – St. Louis Nonattainment Counties															**0.047**	**1.149**

3.13.4 MOBILE6.2 Input Files Used to Estimate Emission Reductions from the Federal Motor Vehicle Control Contingency Measure

Input files used for calculating 2008 emissions

- ROP-2008.in –July 2008 input file for City of St. Louis and Jefferson, St. Charles,and St. Louis Counties
- ROPF-08.in – July 2008 input file for Franklin County
- STLSVMT.DEF –Speed by VMT (SVMT) file for City of St. Louis and Jefferson, St. Charles, St. Louis Counties
- FRNKSVMT.def – SVMT file for Franklin County
- VRegStl.d –St. Louis vehicle registration distribution file

Input files used for calculating 2010 emissions

- CM-2010.in – July 2010 input file for Jefferson, St. Charles, St. Louis Counties and City of St. Louis
- CMF-2010.in – July 2010 input file for Franklin Co.

Note: The same STLSVMT.DEF, FRNKSVMT.def, VRegSt.d files used for 2008 emissions were used for calculating 2010 emissions.

Input files used for calculating non-creditable emission reductions

- CAA-2.in –July 2008 input for City of St. Louis and Jefferson, St. Charles, St. Louis Counties with post-CAA measures removed
- CAAF-2.in – July 2008 input for Franklin County with post-CAA measures removed
- CAA-2010.in – July 2010 input for City of St. Louis and Jefferson, St. Charles, St. Louis Counties with post-CAA measures removed
- CAAF-2010.in – July 2010 input for Franklin County with post-CAA measures removed

Note: The same STLSVMT.DEF, FRNKSVMT.def, VRegSt.d files used in the 2008 and 2010 runs were used for calculating the non-creditable emission reductions.

MOBILE6.2 Input Files Used to Estimate Emission Reductions from the Federal Motor Vehicle Control Contingency Measure

Input files used for calculating 2008 emissions

- ROP-2008.in –July 2008 input file for City of St. Louis and Jefferson, St. Charles, and St. Louis Counties
- ROPF-08.in – July 2008 input file for Franklin County
- STLSVMT.DEF –Speed by VMT (SVMT) file for City of St. Louis and Jefferson, St. Charles, St. Louis Counties
- FRNKSVMT.def – SVMT file for Franklin County
- VRegStl.d –St. Louis vehicle registration distribution file

Input files used for calculating 2010 emissions

- CM-2010.in – July 2010 input file for Jefferson, St. Charles, St. Louis Counties and City of St. Louis
- CMF-2010.in – July 2010 input file for Franklin Co.

Note: The same STLSVMT.DEF, FRNKSVMT.def, VRegSt.d files used for 2008 emissions were used for calculating 2010 emissions.

Input files used for calculating non-creditable emission reductions

- CAA-2.in –July 2008 input for City of St. Louis and Jefferson, St. Charles, St. Louis Counties with post-CAA measures removed
- CAAF-2.in – July 2008 input for Franklin County with post-CAA measures removed
- CAA-2010.in – July 2010 input for City of St. Louis and Jefferson, St. Charles, St. Louis Counties with post-CAA measures removed
- CAAF-2010.in – July 2010 input for Franklin County with post-CAA measures removed

Note: The same STLSVMT.DEF, FRNKSVMT.def, VRegSt.d files used in the 2008 and 2010 runs were used for calculating the non-creditable emission reductions.

ROP-2008.in

MOBILE6 INPUT FILE

```
POLLUTANTS        : HC CO NOX
SPREADSHEET       :

RUN DATA

* July 2008 LDGV Run
* BASIC I/M PERFORMANCE STANDARD

* ----------------------------------------------------------------
* JULY
* ----------------------------------------------------------------


NO REFUELING      :

MIN/MAX TEMP      : 71. 91.
FUEL RVP          : 7.0
ABSOLUTE HUMIDITY  : 60.4
REG DIST          : D:\Mobile62\Run\VREGSTL.D
SPEED VMT         : D:\Mobile62\Run\STLSVMT.DEF

FUEL PROGRAM      : 2 S

*Calendar year 2008.  SSI for LDGV 1968-1995 model years.
I/M PROGRAM       : 1 1983 2020 1 T/O IDLE
I/M MODEL YEARS   : 1 1968 1995
I/M VEHICLES      : 1 21111 11111111 1
I/M STRINGENCY    : 1 20.0
I/M COMPLIANCE    : 1 100.0
I/M WAIVER RATES  : 1 0.0 0.0

*Calendar year 2008.  Tailpipe OBD II for LDGV 1996-2009 model years.
I/M PROGRAM       : 2 1983 2020 1 T/O OBD I/M
I/M MODEL YEARS   : 2 1996 2008
I/M VEHICLES      : 2 21111 11111111 1
I/M STRINGENCY    : 2 20.0
I/M COMPLIANCE    : 2 100.0
I/M WAIVER RATES  : 2 0.0 0.0

* Calendar year 2008.  Evap OBD II for LDGV 1996-2008 model years.
I/M PROGRAM       : 3 1983 2020 1 T/O EVAP OBD
I/M MODEL YEARS   : 3 1996 2008
I/M VEHICLES      : 3 21111 11111111 1
I/M STRINGENCY    : 3 20.0
I/M COMPLIANCE    : 3 100.0
I/M WAIVER RATES  : 3 0.0 0.0

SCENARIO REC      : ST. LOUIS ENHANCED AREA - 2.5 Arterial
EVALUATION MONTH  : 7
CALENDAR YEAR     : 2008
AVERAGE SPEED     : 2.5 Arterial
```

SCENARIO REC : ST. LOUIS ENHANCED AREA - 5 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 5 Arterial

SCENARIO REC : ST. LOUIS ENHANCED AREA - 10 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 10 Arterial

SCENARIO REC : ST. LOUIS ENHANCED AREA - 15 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 15 Arterial

SCENARIO REC : ST. LOUIS ENHANCED AREA - 20 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 20 Arterial

SCENARIO REC : ST. LOUIS ENHANCED AREA - 25 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 25 Arterial

SCENARIO REC : ST. LOUIS ENHANCED AREA - 30 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 30 Arterial

SCENARIO REC : ST. LOUIS ENHANCED AREA - 35 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 35 Arterial

SCENARIO REC : ST. LOUIS ENHANCED AREA - 40 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 40 Arterial

SCENARIO REC : ST. LOUIS ENHANCED AREA - 45 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 45 Arterial

SCENARIO REC : ST. LOUIS ENHANCED AREA - 50 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 50 Arterial

SCENARIO REC : ST. LOUIS ENHANCED AREA - 55 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 55 Arterial

SCENARIO REC : ST. LOUIS ENHANCED AREA - 60 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 60 Arterial

SCENARIO REC : ST. LOUIS ENHANCED AREA - 65 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 65 Arterial

SCENARIO REC : ST. LOUIS ENHANCED AREA - 2.5 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 2.5 Freeway

SCENARIO REC : ST. LOUIS ENHANCED AREA - 5 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 5 Freeway

SCENARIO REC : ST. LOUIS ENHANCED AREA - 10 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 10 Freeway

SCENARIO REC : ST. LOUIS ENHANCED AREA - 15 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 15 Freeway

SCENARIO REC : ST. LOUIS ENHANCED AREA - 20 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 20 Freeway

SCENARIO REC : ST. LOUIS ENHANCED AREA - 25 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 25 Freeway

SCENARIO REC : ST. LOUIS ENHANCED AREA - 30 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 30 Freeway

SCENARIO REC : ST. LOUIS ENHANCED AREA - 35 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 35 Freeway

SCENARIO REC : ST. LOUIS ENHANCED AREA - 40 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 40 Freeway

SCENARIO REC : ST. LOUIS ENHANCED AREA - 45 Freeway

EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 45 Freeway

SCENARIO REC : ST. LOUIS ENHANCED AREA - 50 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 50 Freeway

SCENARIO REC : ST. LOUIS ENHANCED AREA - 55 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 55 Freeway

SCENARIO REC : ST. LOUIS ENHANCED AREA - 60 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 60 Freeway

SCENARIO REC : ST. LOUIS ENHANCED AREA - 65 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 65 Freeway

END OF RUN

ROPF-08.in

```
MOBILE6 INPUT FILE

POLLUTANTS        : HC CO NOX
SPREADSHEET       :

RUN DATA

* July 2008 LDGV Run
* BASIC I/M PERFORMANCE STANDARD

* ----------------------------------------------------------------
* JULY FRANKLIN COUNTY BASIC I/M
* ----------------------------------------------------------------


NO REFUELING      :

MIN/MAX TEMP      : 71. 91.
FUEL RVP          : 7.0
ABSOLUTE HUMIDITY  : 60.4
REG DIST          : D:\Mobile62\Run\VREGSTL.D
SPEED VMT         : D:\Mobile62\Run\FRNKSVMT.DEF

FUEL PROGRAM      : 2 S

STAGE II REFUELING : 89 1 97. 97.

*Calendar year 2008.  SSI for LDGV 1968-1995 model years.
I/M PROGRAM       : 1 1983 2020 1 T/O IDLE
I/M MODEL YEARS   : 1 1968 1995
I/M VEHICLES      : 1 21111 11111111 1
I/M STRINGENCY    : 1 20.0
I/M COMPLIANCE    : 1 100.0
I/M WAIVER RATES  : 1 0.0 0.0

*Calendar year 2008.  Tailpipe OBD II for LDGV 1996-2009 model years.
I/M PROGRAM       : 2 1983 2020 1 T/O OBD I/M
I/M MODEL YEARS   : 2 1996 2008
I/M VEHICLES      : 2 21111 11111111 1
I/M STRINGENCY    : 2 20.0
I/M COMPLIANCE    : 2 100.0
I/M WAIVER RATES  : 2 0.0 0.0

* Calendar year 2008.  Evap OBD II for LDGV 1996-2008 model years.
I/M PROGRAM       : 3 1983 2020 1 T/O EVAP OBD
I/M MODEL YEARS   : 3 1996 2008
I/M VEHICLES      : 3 21111 11111111 1
I/M STRINGENCY    : 3 20.0
I/M COMPLIANCE    : 3 100.0
I/M WAIVER RATES  : 3 0.0 0.0

SCENARIO REC      : FRANKLIN COUNTY AREA - 2.5 Arterial
EVALUATION MONTH  : 7
CALENDAR YEAR     : 2008
```

AVERAGE SPEED : 2.5 Arterial

SCENARIO REC : FRANKLIN COUNTY AREA - 5 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 5 Arterial

SCENARIO REC : FRANKLIN COUNTY AREA - 10 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 10 Arterial

SCENARIO REC : FRANKLIN COUNTY AREA - 15 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 15 Arterial

SCENARIO REC : FRANKLIN COUNTY AREA - 20 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 20 Arterial

SCENARIO REC : FRANKLIN COUNTY AREA - 25 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 25 Arterial

SCENARIO REC : FRANKLIN COUNTY AREA - 30 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 30 Arterial

SCENARIO REC : FRANKLIN COUNTY AREA - 35 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 35 Arterial

SCENARIO REC : FRANKLIN COUNTY AREA - 40 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 40 Arterial

SCENARIO REC : FRANKLIN COUNTY AREA - 45 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 45 Arterial

SCENARIO REC : FRANKLIN COUNTY AREA - 50 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 50 Arterial

SCENARIO REC : FRANKLIN COUNTY AREA - 55 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 55 Arterial

SCENARIO REC : FRANKLIN COUNTY AREA - 60 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 60 Arterial

SCENARIO REC : FRANKLIN COUNTY AREA - 65 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 65 Arterial

SCENARIO REC : FRANKLIN COUNTY AREA - 2.5 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 2.5 Freeway

SCENARIO REC : FRANKLIN COUNTY AREA - 5 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 5 Freeway

SCENARIO REC : FRANKLIN COUNTY AREA - 10 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 10 Freeway

SCENARIO REC : FRANKLIN COUNTY AREA - 15 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 15 Freeway

SCENARIO REC : FRANKLIN COUNTY AREA - 20 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 20 Freeway

SCENARIO REC : FRANKLIN COUNTY AREA - 25 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 25 Freeway

SCENARIO REC : FRANKLIN COUNTY AREA - 30 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 30 Freeway

SCENARIO REC : FRANKLIN COUNTY AREA - 35 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 35 Freeway

SCENARIO REC : FRANKLIN COUNTY AREA - 40 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 40 Freeway

SCENARIO REC : FRANKLIN COUNTY AREA - 45 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 45 Freeway

SCENARIO REC : FRANKLIN COUNTY AREA - 50 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 50 Freeway

SCENARIO REC : FRANKLIN COUNTY AREA - 55 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 55 Freeway

SCENARIO REC : FRANKLIN COUNTY AREA - 60 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 60 Freeway

SCENARIO REC : FRANKLIN COUNTY AREA - 65 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 65 Freeway

END OF RUN

STLSVMT.DEF

```
SPEED VMT
1 1  0.0000 0.0055 0.0015 0.0054 0.0023 0.0060 0.0124 0.0125 0.0295 0.1030 0.2164 0.3817 0.1593
0.0644
1 2  0.0000 0.0055 0.0015 0.0054 0.0023 0.0060 0.0124 0.0125 0.0295 0.1030 0.2164 0.3817 0.1593
0.0644
1 3  0.0000 0.0055 0.0015 0.0054 0.0023 0.0060 0.0124 0.0125 0.0295 0.1030 0.2164 0.3817 0.1593
0.0644
1 4  0.0001 0.0011 0.0018 0.0017 0.0055 0.0019 0.0111 0.0094 0.0107 0.0467 0.1522 0.4061 0.2651
0.0866
1 5  0.0001 0.0011 0.0018 0.0017 0.0055 0.0019 0.0111 0.0094 0.0107 0.0467 0.1522 0.4061 0.2651
0.0866
1 6  0.0001 0.0011 0.0018 0.0017 0.0055 0.0019 0.0111 0.0094 0.0107 0.0467 0.1522 0.4061 0.2651
0.0866
1 7  0.0001 0.0011 0.0018 0.0017 0.0055 0.0019 0.0111 0.0094 0.0107 0.0467 0.1522 0.4061 0.2651
0.0866
1 8  0.0001 0.0011 0.0018 0.0017 0.0055 0.0019 0.0111 0.0094 0.0107 0.0467 0.1522 0.4061 0.2651
0.0866
1 9  0.0004 0.0087 0.0062 0.0020 0.0052 0.0149 0.0269 0.0259 0.0589 0.1014 0.2103 0.3659 0.1150
0.0582
1 10 0.0004 0.0087 0.0062 0.0020 0.0052 0.0149 0.0269 0.0259 0.0589 0.1014 0.2103 0.3659 0.1150
0.0582
1 11 0.0004 0.0087 0.0062 0.0020 0.0052 0.0149 0.0269 0.0259 0.0589 0.1014 0.2103 0.3659 0.1150
0.0582
1 12 0.0004 0.0087 0.0062 0.0020 0.0052 0.0149 0.0269 0.0259 0.0589 0.1014 0.2103 0.3659 0.1150
0.0582
1 13 0.0004 0.0087 0.0062 0.0020 0.0052 0.0149 0.0269 0.0259 0.0589 0.1014 0.2103 0.3659 0.1150
0.0582
1 14 0.0001 0.0004 0.0006 0.0001 0.0025 0.0018 0.0089 0.0106 0.0104 0.0290 0.0871 0.2325 0.5240
0.0920
1 15 0.0001 0.0004 0.0006 0.0001 0.0025 0.0018 0.0089 0.0106 0.0104 0.0290 0.0871 0.2325 0.5240
0.0920
1 16 0.0001 0.0004 0.0006 0.0001 0.0025 0.0018 0.0089 0.0106 0.0104 0.0290 0.0871 0.2325 0.5240
0.0920
1 17 0.0001 0.0004 0.0006 0.0001 0.0025 0.0018 0.0089 0.0106 0.0104 0.0290 0.0871 0.2325 0.5240
0.0920
1 18 0.0001 0.0004 0.0006 0.0001 0.0025 0.0018 0.0089 0.0106 0.0104 0.0290 0.0871 0.2325 0.5240
0.0920
1 19 0.0001 0.0004 0.0006 0.0001 0.0025 0.0018 0.0089 0.0106 0.0104 0.0290 0.0871 0.2325 0.5240
0.0920
1 20 0.0001 0.0004 0.0006 0.0001 0.0025 0.0018 0.0089 0.0106 0.0104 0.0290 0.0871 0.2325 0.5240
0.0920
1 21 0.0001 0.0004 0.0006 0.0001 0.0025 0.0018 0.0089 0.0106 0.0104 0.0290 0.0871 0.2325 0.5240
0.0920
1 22 0.0001 0.0004 0.0006 0.0001 0.0025 0.0018 0.0089 0.0106 0.0104 0.0290 0.0871 0.2325 0.5240
0.0920
1 23 0.0001 0.0004 0.0006 0.0001 0.0025 0.0018 0.0089 0.0106 0.0104 0.0290 0.0871 0.2325 0.5240
0.0920
1 24 0.0001 0.0004 0.0006 0.0001 0.0025 0.0018 0.0089 0.0106 0.0104 0.0290 0.0871 0.2325 0.5240
0.0920
2 1  0.0000 0.0017 0.0024 0.0013 0.0089 0.0492 0.2565 0.3233 0.1555 0.0706 0.0545 0.0392 0.0194
0.0175
2 2  0.0000 0.0017 0.0024 0.0013 0.0089 0.0492 0.2565 0.3233 0.1555 0.0706 0.0545 0.0392 0.0194
0.0175
```

2 3 0.0000 0.0017 0.0024 0.0013 0.0089 0.0492 0.2565 0.3233 0.1555 0.0706 0.0545 0.0392 0.0194 0.0175
2 4 0.0000 0.0006 0.0060 0.0076 0.0067 0.0311 0.2137 0.3073 0.1772 0.0759 0.0513 0.0610 0.0523 0.0093
2 5 0.0000 0.0006 0.0060 0.0076 0.0067 0.0311 0.2137 0.3073 0.1772 0.0759 0.0513 0.0610 0.0523 0.0093
2 6 0.0000 0.0006 0.0060 0.0076 0.0067 0.0311 0.2137 0.3073 0.1772 0.0759 0.0513 0.0610 0.0523 0.0093
2 7 0.0000 0.0006 0.0060 0.0076 0.0067 0.0311 0.2137 0.3073 0.1772 0.0759 0.0513 0.0610 0.0523 0.0093
2 8 0.0000 0.0006 0.0060 0.0076 0.0067 0.0311 0.2137 0.3073 0.1772 0.0759 0.0513 0.0610 0.0523 0.0093
2 9 0.0002 0.0060 0.0042 0.0054 0.0120 0.0646 0.2861 0.3087 0.1327 0.0678 0.0405 0.0386 0.0156 0.0176
2 10 0.0002 0.0060 0.0042 0.0054 0.0120 0.0646 0.2861 0.3087 0.1327 0.0678 0.0405 0.0386 0.0156 0.0176
2 11 0.0002 0.0060 0.0042 0.0054 0.0120 0.0646 0.2861 0.3087 0.1327 0.0678 0.0405 0.0386 0.0156 0.0176
2 12 0.0002 0.0060 0.0042 0.0054 0.0120 0.0646 0.2861 0.3087 0.1327 0.0678 0.0405 0.0386 0.0156 0.0176
2 13 0.0002 0.0060 0.0042 0.0054 0.0120 0.0646 0.2861 0.3087 0.1327 0.0678 0.0405 0.0386 0.0156 0.0176
2 14 0.0000 0.0000 0.0003 0.0006 0.0037 0.0206 0.1943 0.3303 0.2170 0.0850 0.0530 0.0558 0.0192 0.0201
2 15 0.0000 0.0000 0.0003 0.0006 0.0037 0.0206 0.1943 0.3303 0.2170 0.0850 0.0530 0.0558 0.0192 0.0201
2 16 0.0000 0.0000 0.0003 0.0006 0.0037 0.0206 0.1943 0.3303 0.2170 0.0850 0.0530 0.0558 0.0192 0.0201
2 17 0.0000 0.0000 0.0003 0.0006 0.0037 0.0206 0.1943 0.3303 0.2170 0.0850 0.0530 0.0558 0.0192 0.0201
2 18 0.0000 0.0000 0.0003 0.0006 0.0037 0.0206 0.1943 0.3303 0.2170 0.0850 0.0530 0.0558 0.0192 0.0201
2 19 0.0000 0.0000 0.0003 0.0006 0.0037 0.0206 0.1943 0.3303 0.2170 0.0850 0.0530 0.0558 0.0192 0.0201
2 20 0.0000 0.0000 0.0003 0.0006 0.0037 0.0206 0.1943 0.3303 0.2170 0.0850 0.0530 0.0558 0.0192 0.0201
2 21 0.0000 0.0000 0.0003 0.0006 0.0037 0.0206 0.1943 0.3303 0.2170 0.0850 0.0530 0.0558 0.0192 0.0201
2 22 0.0000 0.0000 0.0003 0.0006 0.0037 0.0206 0.1943 0.3303 0.2170 0.0850 0.0530 0.0558 0.0192 0.0201
2 23 0.0000 0.0000 0.0003 0.0006 0.0037 0.0206 0.1943 0.3303 0.2170 0.0850 0.0530 0.0558 0.0192 0.0201
2 24 0.0000 0.0000 0.0003 0.0006 0.0037 0.0206 0.1943 0.3303 0.2170 0.0850 0.0530 0.0558 0.0192 0.0201

* THIS IS THE SVMT FOR THE ST. LOUIS I/M AREA (NOT INCLUDING FRANKLIN COUNTY)

FRNKSVMT.def

```
SPEED VMT
1 1  0.0000 0.0000 0.0000 0.0000 0.0000 0.0013 0.0000 0.0005 0.0018 0.0007 0.0002 0.0376 0.1435
0.8145
1 2  0.0000 0.0000 0.0000 0.0000 0.0000 0.0013 0.0000 0.0005 0.0018 0.0007 0.0002 0.0376 0.1435
0.8145
1 3  0.0000 0.0000 0.0000 0.0000 0.0000 0.0013 0.0000 0.0005 0.0018 0.0007 0.0002 0.0376 0.1435
0.8145
1 4  0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0003 0.0011 0.0004 0.0001 0.0534 0.1702
0.7745
1 5  0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0003 0.0011 0.0004 0.0001 0.0534 0.1702
0.7745
1 6  0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0003 0.0011 0.0004 0.0001 0.0534 0.1702
0.7745
1 7  0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0003 0.0011 0.0004 0.0001 0.0534 0.1702
0.7745
1 8  0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0003 0.0011 0.0004 0.0001 0.0534 0.1702
0.7745
1 9  0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0008 0.0021 0.0007 0.0015 0.0000 0.0715
0.9234
1 10 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0008 0.0021 0.0007 0.0015 0.0000 0.0715
0.9234
1 11 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0008 0.0021 0.0007 0.0015 0.0000 0.0715
0.9234
1 12 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0008 0.0021 0.0007 0.0015 0.0000 0.0715
0.9234
1 13 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0008 0.0021 0.0007 0.0015 0.0000 0.0715
0.9234
1 14 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0013 0.0027 0.0009 0.0004 0.0016 0.0000
0.9932
1 15 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0013 0.0027 0.0009 0.0004 0.0016 0.0000
0.9932
1 16 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0013 0.0027 0.0009 0.0004 0.0016 0.0000
0.9932
1 17 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0013 0.0027 0.0009 0.0004 0.0016 0.0000
0.9932
1 18 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0013 0.0027 0.0009 0.0004 0.0016 0.0000
0.9932
1 19 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0013 0.0027 0.0009 0.0004 0.0016 0.0000
0.9932
1 20 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0013 0.0027 0.0009 0.0004 0.0016 0.0000
0.9932
1 21 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0013 0.0027 0.0009 0.0004 0.0016 0.0000
0.9932
1 22 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0013 0.0027 0.0009 0.0004 0.0016 0.0000
0.9932
1 23 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0013 0.0027 0.0009 0.0004 0.0016 0.0000
0.9932
1 24 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0000 0.0013 0.0027 0.0009 0.0004 0.0016 0.0000
0.9932
2 1  0.0000 0.0000 0.0000 0.0002 0.0059 0.0028 0.0530 0.0394 0.0518 0.1136 0.3062 0.4271 0.0000
0.0000
2 2  0.0000 0.0000 0.0000 0.0002 0.0059 0.0028 0.0530 0.0394 0.0518 0.1136 0.3062 0.4271 0.0000
0.0000
```

2 3 0.0000 0.0000 0.0000 0.0002 0.0059 0.0028 0.0530 0.0394 0.0518 0.1136 0.3062 0.4271 0.0000 0.0000
2 4 0.0000 0.0000 0.0000 0.0002 0.0052 0.0014 0.0431 0.0405 0.0400 0.0971 0.2289 0.5436 0.0000 0.0000
2 5 0.0000 0.0000 0.0000 0.0002 0.0052 0.0014 0.0431 0.0405 0.0400 0.0971 0.2289 0.5436 0.0000 0.0000
2 6 0.0000 0.0000 0.0000 0.0002 0.0052 0.0014 0.0431 0.0405 0.0400 0.0971 0.2289 0.5436 0.0000 0.0000
2 7 0.0000 0.0000 0.0000 0.0002 0.0052 0.0014 0.0431 0.0405 0.0400 0.0971 0.2289 0.5436 0.0000 0.0000
2 8 0.0000 0.0000 0.0000 0.0002 0.0052 0.0014 0.0431 0.0405 0.0400 0.0971 0.2289 0.5436 0.0000 0.0000
2 9 0.0000 0.0000 0.0000 0.0002 0.0067 0.0017 0.0556 0.0409 0.0429 0.1048 0.3193 0.4279 0.0000 0.0000
2 10 0.0000 0.0000 0.0000 0.0002 0.0067 0.0017 0.0556 0.0409 0.0429 0.1048 0.3193 0.4279 0.0000 0.0000
2 11 0.0000 0.0000 0.0000 0.0002 0.0067 0.0017 0.0556 0.0409 0.0429 0.1048 0.3193 0.4279 0.0000 0.0000
2 12 0.0000 0.0000 0.0000 0.0002 0.0067 0.0017 0.0556 0.0409 0.0429 0.1048 0.3193 0.4279 0.0000 0.0000
2 13 0.0000 0.0000 0.0000 0.0002 0.0067 0.0017 0.0556 0.0409 0.0429 0.1048 0.3193 0.4279 0.0000 0.0000
2 14 0.0000 0.0000 0.0000 0.0003 0.0071 0.0017 0.0546 0.0466 0.0278 0.1110 0.1201 0.6309 0.0000 0.0000
2 15 0.0000 0.0000 0.0000 0.0003 0.0071 0.0017 0.0546 0.0466 0.0278 0.1110 0.1201 0.6309 0.0000 0.0000
2 16 0.0000 0.0000 0.0000 0.0003 0.0071 0.0017 0.0546 0.0466 0.0278 0.1110 0.1201 0.6309 0.0000 0.0000
2 17 0.0000 0.0000 0.0000 0.0003 0.0071 0.0017 0.0546 0.0466 0.0278 0.1110 0.1201 0.6309 0.0000 0.0000
2 18 0.0000 0.0000 0.0000 0.0003 0.0071 0.0017 0.0546 0.0466 0.0278 0.1110 0.1201 0.6309 0.0000 0.0000
2 19 0.0000 0.0000 0.0000 0.0003 0.0071 0.0017 0.0546 0.0466 0.0278 0.1110 0.1201 0.6309 0.0000 0.0000
2 20 0.0000 0.0000 0.0000 0.0003 0.0071 0.0017 0.0546 0.0466 0.0278 0.1110 0.1201 0.6309 0.0000 0.0000
2 21 0.0000 0.0000 0.0000 0.0003 0.0071 0.0017 0.0546 0.0466 0.0278 0.1110 0.1201 0.6309 0.0000 0.0000
2 22 0.0000 0.0000 0.0000 0.0003 0.0071 0.0017 0.0546 0.0466 0.0278 0.1110 0.1201 0.6309 0.0000 0.0000
2 23 0.0000 0.0000 0.0000 0.0003 0.0071 0.0017 0.0546 0.0466 0.0278 0.1110 0.1201 0.6309 0.0000 0.0000
2 24 0.0000 0.0000 0.0000 0.0003 0.0071 0.0017 0.0546 0.0466 0.0278 0.1110 0.1201 0.6309 0.0000 0.0000

*This is the SVMT file for Franklin County area

VRegStl.d

```
REG DIST
*
* This file contains the combined St. Louis vehicle registration for
* LDGV, LDGT1 & 2, and LDGT3 & 4 with the default MOBILE6 values for the distribution of
* vehicles by age for July of any calendar year.  The St. Louis data is from July 2002.
* There are sixteeen (16) sets of values representing 16 combined gasoline/diesel vehicle class
* distributions.  These distributions are split for gasoline and diesel
* using the separate input (or default) values for diesel sales fractions.
* Each distribution contains 25 values which represent the fraction of
* all vehicles in that class (gasoline and diesel) of that age in July.
* The first number is for age 1 (calendar year minus model year plus one)
* and the last number is for age 25.  The last age includes all vehicles
* of age 25 or older.  The first number in each distribution is an integer
* which indicates which of the 16 vehicle classes are represented by the
* distribution.  The sixteen vehicle classes are:
*
*  1  LDV    Light-Duty Vehicles (Passenger Cars)
*  2  LDT1   Light-Duty Trucks 1 (0-6,000 lbs. GVWR, 0-3750 lbs. LVW)
*  3  LDT2   Light Duty Trucks 2 (0-6,001 lbs. GVWR, 3751-5750 lbs. LVW)
*  4  LDT3   Light Duty Trucks 3 (6,001-8500 lbs. GVWR, 0-3750 lbs. LVW)
*  5  LDT4   Light Duty Trucks 4 (6,001-8500 lbs. GVWR, 3751-5750 lbs. LVW)
*  6  HDV2B  Class 2b Heavy Duty Vehicles (8501-10,000 lbs. GVWR)
*  7  HDV3   Class 3 Heavy Duty Vehicles (10,001-14,000 lbs. GVWR)
*  8  HDV4   Class 4 Heavy Duty Vehicles (14,001-16,000 lbs. GVWR)
*  9  HDV5   Class 5 Heavy Duty Vehicles (16,001-19,500 lbs. GVWR)
* 10  HDV6   Class 6 Heavy Duty Vehicles (19,501-26,000 lbs. GVWR)
* 11  HDV7   Class 7 Heavy Duty Vehicles (26,001-33,000 lbs. GVWR)
* 12  HDV8A  Class 8a Heavy Duty Vehicles (33,001-60,000 lbs. GVWR)
* 13  HDV8B  Class 8b Heavy Duty Vehicles (>60,000 lbs. GVWR)
* 14  HDBS   School Busses
* 15  HDBT   Transit and Urban Busses
* 16  MC     Motorcycles (All)
*
* The 25 age values are arranged in two rows of 10 values followed by a row
* with the last 5 values.  Comments (such as this one) are indicated by
* an asterisk in the first column. Empty rows are ignored.  Values are
* read "free format," meaning any number may appear in any row with as
* many characters as needed (including a decimal) as long as 25 values
* follow the initial integer value separated by a space.
*
* If all 28 vehicle classes do not need to be altered from the default
* values, then only the vehicle classes that need to be changed need to
* be included in this file.  The order in which the vehicle classes are
* read does not matter, however each vehicle class set must contain 25
* values and be in the proper age order.
*
* LDV
 1 0.0484 0.0757 0.0819 0.0822 0.0735 0.0682 0.0611 0.0662 0.0565 0.0525
   0.0468 0.0438 0.0400 0.0382 0.0330 0.0267 0.0235 0.0190 0.0135 0.0079
   0.0046 0.0036 0.0031 0.0046 0.0253
* LDT1
 2 0.0331 0.0648 0.0678 0.0747 0.0736 0.0676 0.0527 0.0563 0.0639 0.0482
   0.0438 0.0428 0.0346 0.0399 0.0384 0.0334 0.0324 0.0239 0.0182 0.0118
   0.0089 0.0067 0.0053 0.0109 0.0465
```

```
* LDT2
 3 0.0331 0.0648 0.0678 0.0747 0.0736 0.0676 0.0527 0.0563 0.0639 0.0482
   0.0438 0.0428 0.0346 0.0399 0.0384 0.0334 0.0324 0.0239 0.0182 0.0118
   0.0089 0.0067 0.0053 0.0109 0.0465
* LDT3
 4 0.0495 0.0846 0.0839 0.0822 0.0566 0.0694 0.0535 0.0620 0.0511 0.0360
   0.0329 0.0277 0.0336 0.0360 0.0335 0.0244 0.0272 0.0259 0.0191 0.0121
   0.0099 0.0079 0.0086 0.0164 0.0558
* LDT4
 5 0.0495 0.0846 0.0839 0.0822 0.0566 0.0694 0.0535 0.0620 0.0511 0.0360
   0.0329 0.0277 0.0336 0.0360 0.0335 0.0244 0.0272 0.0259 0.0191 0.0121
   0.0099 0.0079 0.0086 0.0164 0.0558
* HDV2B
 6 0.0503 0.0916 0.0833 0.0758 0.0690 0.0627 0.0571 0.0519 0.0472 0.0430
   0.0391 0.0356 0.0324 0.0294 0.0268 0.0244 0.0222 0.0202 0.0184 0.0167
   0.0152 0.0138 0.0126 0.0114 0.0499
* HDV3
 7 0.0503 0.0916 0.0833 0.0758 0.0690 0.0627 0.0571 0.0519 0.0472 0.0430
   0.0391 0.0356 0.0324 0.0294 0.0268 0.0244 0.0222 0.0202 0.0184 0.0167
   0.0152 0.0138 0.0126 0.0114 0.0499
* HDV4
 8 0.0388 0.0726 0.0679 0.0635 0.0594 0.0556 0.0520 0.0486 0.0455 0.0425
   0.0398 0.0372 0.0348 0.0326 0.0304 0.0285 0.0266 0.0249 0.0233 0.0218
   0.0204 0.0191 0.0178 0.0167 0.0797
* HDV5
 9 0.0388 0.0726 0.0679 0.0635 0.0594 0.0556 0.0520 0.0486 0.0455 0.0425
   0.0398 0.0372 0.0348 0.0326 0.0304 0.0285 0.0266 0.0249 0.0233 0.0218
   0.0204 0.0191 0.0178 0.0167 0.0797
* HDV6
10 0.0388 0.0726 0.0679 0.0635 0.0594 0.0556 0.0520 0.0486 0.0455 0.0425
   0.0398 0.0372 0.0348 0.0326 0.0304 0.0285 0.0266 0.0249 0.0233 0.0218
   0.0204 0.0191 0.0178 0.0167 0.0797
* HDV7
11 0.0388 0.0726 0.0679 0.0635 0.0594 0.0556 0.0520 0.0486 0.0455 0.0425
   0.0398 0.0372 0.0348 0.0326 0.0304 0.0285 0.0266 0.0249 0.0233 0.0218
   0.0204 0.0191 0.0178 0.0167 0.0797
* HDV8a
12 0.0388 0.0726 0.0679 0.0635 0.0594 0.0556 0.0520 0.0486 0.0455 0.0425
   0.0398 0.0372 0.0348 0.0326 0.0304 0.0285 0.0266 0.0249 0.0233 0.0218
   0.0204 0.0191 0.0178 0.0167 0.0797
* HDV8b
13 0.0388 0.0726 0.0679 0.0635 0.0594 0.0556 0.0520 0.0486 0.0455 0.0425
   0.0398 0.0372 0.0348 0.0326 0.0304 0.0285 0.0266 0.0249 0.0233 0.0218
   0.0204 0.0191 0.0178 0.0167 0.0797
* HDBS
14 0.0393 0.0734 0.0686 0.0641 0.0599 0.0559 0.0522 0.0488 0.0456 0.0426
   0.0398 0.0372 0.0347 0.0324 0.0303 0.0283 0.0264 0.0247 0.0231 0.0216
   0.0201 0.0188 0.0176 0.0165 0.0781
* HDBT
15 0.0307 0.0614 0.0614 0.0614 0.0614 0.0614 0.0614 0.0614 0.0614 0.0613
   0.0611 0.0607 0.0595 0.0568 0.0511 0.0406 0.0254 0.0121 0.0099 0.0081
   0.0066 0.0054 0.0044 0.0037 0.0114
* Motorcycles
16 0.1440 0.1680 0.1350 0.1090 0.0880 0.0700 0.0560 0.0450 0.0360 0.0290
   0.0230 0.0970 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
```

CM-2010.in

```
MOBILE6 INPUT FILE

POLLUTANTS        : HC CO NOX
SPREADSHEET       :

RUN DATA

* July 2010 LDGV Run
* BASIC I/M PERFORMANCE STANDARD

* ----------------------------------------------------------------
* JULY
* ----------------------------------------------------------------


NO REFUELING      :

MIN/MAX TEMP      : 71. 91.
FUEL RVP          : 7.0
ABSOLUTE HUMIDITY  : 60.4
REG DIST          : D:\Mobile62\Run\VREGSTL.D
SPEED VMT         : D:\Mobile62\Run\STLSVMT.DEF

FUEL PROGRAM      : 2 S

*Calendar year 2010.  SSI for LDGV 1968-1995 model years.
I/M PROGRAM       : 1 1983 2020 1 T/O IDLE
I/M MODEL YEARS   : 1 1968 1995
I/M VEHICLES      : 1 21111 11111111 1
I/M STRINGENCY    : 1 20.0
I/M COMPLIANCE    : 1 100.0
I/M WAIVER RATES  : 1 0.0 0.0

*Calendar year 2010.  Tailpipe OBD II for LDGV 1996-2010 model years.
I/M PROGRAM       : 2 1983 2020 1 T/O OBD I/M
I/M MODEL YEARS   : 2 1996 2010
I/M VEHICLES      : 2 21111 11111111 1
I/M STRINGENCY    : 2 20.0
I/M COMPLIANCE    : 2 100.0
I/M WAIVER RATES  : 2 0.0 0.0

* Calendar year 2010.  Evap OBD II for LDGV 1996-2010 model years.
I/M PROGRAM       : 3 1983 2020 1 T/O EVAP OBD
I/M MODEL YEARS   : 3 1996 2010
I/M VEHICLES      : 3 21111 11111111 1
I/M STRINGENCY    : 3 20.0
I/M COMPLIANCE    : 3 100.0
I/M WAIVER RATES  : 3 0.0 0.0

SCENARIO REC      : ST. LOUIS ENHANCED AREA - 2.5 Arterial
EVALUATION MONTH  : 7
CALENDAR YEAR     : 2010
AVERAGE SPEED     : 2.5 Arterial
```

SCENARIO REC : ST. LOUIS ENHANCED AREA - 5 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2010
AVERAGE SPEED : 5 Arterial

SCENARIO REC : ST. LOUIS ENHANCED AREA - 10 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2010
AVERAGE SPEED : 10 Arterial

SCENARIO REC : ST. LOUIS ENHANCED AREA - 15 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2010
AVERAGE SPEED : 15 Arterial

SCENARIO REC : ST. LOUIS ENHANCED AREA - 20 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2010
AVERAGE SPEED : 20 Arterial

SCENARIO REC : ST. LOUIS ENHANCED AREA - 25 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2010
AVERAGE SPEED : 25 Arterial

SCENARIO REC : ST. LOUIS ENHANCED AREA - 30 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2010
AVERAGE SPEED : 30 Arterial

SCENARIO REC : ST. LOUIS ENHANCED AREA - 35 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2010
AVERAGE SPEED : 35 Arterial

SCENARIO REC : ST. LOUIS ENHANCED AREA - 40 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2010
AVERAGE SPEED : 40 Arterial

SCENARIO REC : ST. LOUIS ENHANCED AREA - 45 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2010
AVERAGE SPEED : 45 Arterial

SCENARIO REC : ST. LOUIS ENHANCED AREA - 50 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2010
AVERAGE SPEED : 50 Arterial

SCENARIO REC : ST. LOUIS ENHANCED AREA - 55 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2010
AVERAGE SPEED : 55 Arterial

SCENARIO REC : ST. LOUIS ENHANCED AREA - 60 Arterial

EVALUATION MONTH : 7
CALENDAR YEAR : 2010
AVERAGE SPEED : 60 Arterial

SCENARIO REC : ST. LOUIS ENHANCED AREA - 65 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2010
AVERAGE SPEED : 65 Arterial

SCENARIO REC : ST. LOUIS ENHANCED AREA - 2.5 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2010
AVERAGE SPEED : 2.5 Freeway

SCENARIO REC : ST. LOUIS ENHANCED AREA - 5 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2010
AVERAGE SPEED : 5 Freeway

SCENARIO REC : ST. LOUIS ENHANCED AREA - 10 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2010
AVERAGE SPEED : 10 Freeway

SCENARIO REC : ST. LOUIS ENHANCED AREA - 15 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2010
AVERAGE SPEED : 15 Freeway

SCENARIO REC : ST. LOUIS ENHANCED AREA - 20 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2010
AVERAGE SPEED : 20 Freeway

SCENARIO REC : ST. LOUIS ENHANCED AREA - 25 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2010
AVERAGE SPEED : 25 Freeway

SCENARIO REC : ST. LOUIS ENHANCED AREA - 30 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2010
AVERAGE SPEED : 30 Freeway

SCENARIO REC : ST. LOUIS ENHANCED AREA - 35 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2010
AVERAGE SPEED : 35 Freeway

SCENARIO REC : ST. LOUIS ENHANCED AREA - 40 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2010
AVERAGE SPEED : 40 Freeway

SCENARIO REC : ST. LOUIS ENHANCED AREA - 45 Freeway
EVALUATION MONTH : 7

CALENDAR YEAR : 2010
AVERAGE SPEED : 45 Freeway

SCENARIO REC : ST. LOUIS ENHANCED AREA - 50 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2010
AVERAGE SPEED : 50 Freeway

SCENARIO REC : ST. LOUIS ENHANCED AREA - 55 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2010
AVERAGE SPEED : 55 Freeway

SCENARIO REC : ST. LOUIS ENHANCED AREA - 60 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2010
AVERAGE SPEED : 60 Freeway

SCENARIO REC : ST. LOUIS ENHANCED AREA - 65 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2010
AVERAGE SPEED : 65 Freeway

END OF RUN

CMF-2010.in

```
MOBILE6 INPUT FILE

POLLUTANTS        : HC CO NOX
SPREADSHEET       :

RUN DATA

* July 2010 LDGV Run
* BASIC I/M PERFORMANCE STANDARD

* ----------------------------------------------------------------
* JULY FRANKLIN COUNTY BASIC I/M
* ----------------------------------------------------------------


NO REFUELING      :

MIN/MAX TEMP      : 71. 91.
FUEL RVP          : 7.0
ABSOLUTE HUMIDITY  : 60.4
REG DIST          : D:\Mobile62\Run\VREGSTL.D
SPEED VMT         : D:\Mobile62\Run\FRNKSVMT.DEF

FUEL PROGRAM      : 2 S

STAGE II REFUELING : 89 1 97. 97.

*Calendar year 2010.  SSI for LDGV 1968-1995 model years.
I/M PROGRAM       : 1 1983 2020 1 T/O IDLE
I/M MODEL YEARS   : 1 1968 1995
I/M VEHICLES      : 1 21111 11111111 1
I/M STRINGENCY    : 1 20.0
I/M COMPLIANCE    : 1 100.0
I/M WAIVER RATES  : 1 0.0 0.0

*Calendar year 2010.  Tailpipe OBD II for LDGV 1996-2010 model years.
I/M PROGRAM       : 2 1983 2020 1 T/O OBD I/M
I/M MODEL YEARS   : 2 1996 2010
I/M VEHICLES      : 2 21111 11111111 1
I/M STRINGENCY    : 2 20.0
I/M COMPLIANCE    : 2 100.0
I/M WAIVER RATES  : 2 0.0 0.0

* Calendar year 2010.  Evap OBD II for LDGV 1996-2010 model years.
I/M PROGRAM       : 3 1983 2020 1 T/O EVAP OBD
I/M MODEL YEARS   : 3 1996 2010
I/M VEHICLES      : 3 21111 11111111 1
I/M STRINGENCY    : 3 20.0
I/M COMPLIANCE    : 3 100.0
I/M WAIVER RATES  : 3 0.0 0.0

SCENARIO REC      : FRANKLIN COUNTY AREA - 2.5 Arterial
EVALUATION MONTH  : 7
CALENDAR YEAR     : 2010
```

AVERAGE SPEED : 2.5 Arterial

SCENARIO REC : FRANKLIN COUNTY AREA - 5 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2010
AVERAGE SPEED : 5 Arterial

SCENARIO REC : FRANKLIN COUNTY AREA - 10 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2010
AVERAGE SPEED : 10 Arterial

SCENARIO REC : FRANKLIN COUNTY AREA - 15 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2010
AVERAGE SPEED : 15 Arterial

SCENARIO REC : FRANKLIN COUNTY AREA - 20 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2010
AVERAGE SPEED : 20 Arterial

SCENARIO REC : FRANKLIN COUNTY AREA - 25 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2010
AVERAGE SPEED : 25 Arterial

SCENARIO REC : FRANKLIN COUNTY AREA - 30 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2010
AVERAGE SPEED : 30 Arterial

SCENARIO REC : FRANKLIN COUNTY AREA - 35 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2010
AVERAGE SPEED : 35 Arterial

SCENARIO REC : FRANKLIN COUNTY AREA - 40 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2010
AVERAGE SPEED : 40 Arterial

SCENARIO REC : FRANKLIN COUNTY AREA - 45 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2010
AVERAGE SPEED : 45 Arterial

SCENARIO REC : FRANKLIN COUNTY AREA - 50 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2010
AVERAGE SPEED : 50 Arterial

SCENARIO REC : FRANKLIN COUNTY AREA - 55 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2010
AVERAGE SPEED : 55 Arterial

SCENARIO REC : FRANKLIN COUNTY AREA - 60 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2010
AVERAGE SPEED : 60 Arterial

SCENARIO REC : FRANKLIN COUNTY AREA - 65 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2010
AVERAGE SPEED : 65 Arterial

SCENARIO REC : FRANKLIN COUNTY AREA - 2.5 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2010
AVERAGE SPEED : 2.5 Freeway

SCENARIO REC : FRANKLIN COUNTY AREA - 5 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2010
AVERAGE SPEED : 5 Freeway

SCENARIO REC : FRANKLIN COUNTY AREA - 10 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2010
AVERAGE SPEED : 10 Freeway

SCENARIO REC : FRANKLIN COUNTY AREA - 15 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2010
AVERAGE SPEED : 15 Freeway

SCENARIO REC : FRANKLIN COUNTY AREA - 20 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2010
AVERAGE SPEED : 20 Freeway

SCENARIO REC : FRANKLIN COUNTY AREA - 25 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2010
AVERAGE SPEED : 25 Freeway

SCENARIO REC : FRANKLIN COUNTY AREA - 30 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2010
AVERAGE SPEED : 30 Freeway

SCENARIO REC : FRANKLIN COUNTY AREA - 35 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2010
AVERAGE SPEED : 35 Freeway

SCENARIO REC : FRANKLIN COUNTY AREA - 40 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2010
AVERAGE SPEED : 40 Freeway

SCENARIO REC : FRANKLIN COUNTY AREA - 45 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2010
AVERAGE SPEED : 45 Freeway

SCENARIO REC : FRANKLIN COUNTY AREA - 50 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2010
AVERAGE SPEED : 50 Freeway

SCENARIO REC : FRANKLIN COUNTY AREA - 55 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2010
AVERAGE SPEED : 55 Freeway

SCENARIO REC : FRANKLIN COUNTY AREA - 60 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2010
AVERAGE SPEED : 60 Freeway

SCENARIO REC : FRANKLIN COUNTY AREA - 65 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2010
AVERAGE SPEED : 65 Freeway

END OF RUN

CAA-2.in

```
MOBILE6 INPUT FILE

POLLUTANTS        : HC NOX
SPREADSHEET       :

RUN DATA

* July 2008 LDGV Run
* BASIC I/M PERFORMANCE STANDARD

* ----------------------------------------------------------------
* JULY 2008 RUN WITH POST-CAA MEASURES REMOVED
* ----------------------------------------------------------------


NO REFUELING      :
NO CLEAN AIR ACT  :

MIN/MAX TEMP      : 71. 91.
FUEL RVP          : 9.0
ABSOLUTE HUMIDITY  : 60.4
REG DIST          : D:\Mobile62\Run\VREGSTL.D
SPEED VMT         : D:\Mobile62\Run\STLSVMT.DEF

*SSI for LDGV 1968-1995 model years.
I/M PROGRAM       : 1 1983 2020 1 T/O IDLE
I/M MODEL YEARS   : 1 1968 2020
I/M VEHICLES      : 1 21111 11111111 1
I/M STRINGENCY    : 1 20.0
I/M COMPLIANCE    : 1 100.0
I/M WAIVER RATES  : 1 0.0 0.0

SCENARIO REC      : ST. LOUIS ENHANCED AREA - 2.5 Arterial
EVALUATION MONTH  : 7
CALENDAR YEAR     : 2008
AVERAGE SPEED     : 2.5 Arterial

SCENARIO REC      : ST. LOUIS ENHANCED AREA - 5 Arterial
EVALUATION MONTH  : 7
CALENDAR YEAR     : 2008
AVERAGE SPEED     : 5 Arterial

SCENARIO REC      : ST. LOUIS ENHANCED AREA - 10 Arterial
EVALUATION MONTH  : 7
CALENDAR YEAR     : 2008
AVERAGE SPEED     : 10 Arterial

SCENARIO REC      : ST. LOUIS ENHANCED AREA - 15 Arterial
EVALUATION MONTH  : 7
CALENDAR YEAR     : 2008
AVERAGE SPEED     : 15 Arterial

SCENARIO REC      : ST. LOUIS ENHANCED AREA - 20 Arterial
EVALUATION MONTH  : 7
```

CALENDAR YEAR : 2008
AVERAGE SPEED : 20 Arterial

SCENARIO REC : ST. LOUIS ENHANCED AREA - 25 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 25 Arterial

SCENARIO REC : ST. LOUIS ENHANCED AREA - 30 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 30 Arterial

SCENARIO REC : ST. LOUIS ENHANCED AREA - 35 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 35 Arterial

SCENARIO REC : ST. LOUIS ENHANCED AREA - 40 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 40 Arterial

SCENARIO REC : ST. LOUIS ENHANCED AREA - 45 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 45 Arterial

SCENARIO REC : ST. LOUIS ENHANCED AREA - 50 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 50 Arterial

SCENARIO REC : ST. LOUIS ENHANCED AREA - 55 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 55 Arterial

SCENARIO REC : ST. LOUIS ENHANCED AREA - 60 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 60 Arterial

SCENARIO REC : ST. LOUIS ENHANCED AREA - 65 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 65 Arterial

SCENARIO REC : ST. LOUIS ENHANCED AREA - 2.5 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 2.5 Freeway

SCENARIO REC : ST. LOUIS ENHANCED AREA - 5 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2008

AVERAGE SPEED : 5 Freeway

SCENARIO REC : ST. LOUIS ENHANCED AREA - 10 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 10 Freeway

SCENARIO REC : ST. LOUIS ENHANCED AREA - 15 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 15 Freeway

SCENARIO REC : ST. LOUIS ENHANCED AREA - 20 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 20 Freeway

SCENARIO REC : ST. LOUIS ENHANCED AREA - 25 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 25 Freeway

SCENARIO REC : ST. LOUIS ENHANCED AREA - 30 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 30 Freeway

SCENARIO REC : ST. LOUIS ENHANCED AREA - 35 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 35 Freeway

SCENARIO REC : ST. LOUIS ENHANCED AREA - 40 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 40 Freeway

SCENARIO REC : ST. LOUIS ENHANCED AREA - 45 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 45 Freeway

SCENARIO REC : ST. LOUIS ENHANCED AREA - 50 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 50 Freeway

SCENARIO REC : ST. LOUIS ENHANCED AREA - 55 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 55 Freeway

SCENARIO REC : ST. LOUIS ENHANCED AREA - 60 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 60 Freeway

SCENARIO REC : ST. LOUIS ENHANCED AREA - 65 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 65 Freeway

END OF RUN

CAAF-2.in

```
MOBILE6 INPUT FILE

POLLUTANTS        : HC NOX
SPREADSHEET       :

RUN DATA

* July 2008 LDGV Run
* BASIC I/M PERFORMANCE STANDARD

* ----------------------------------------------------------------
* JULY 2008 RUN WITH POST-CAA MEASURES REMOVED FOR FRANKLIN COUNTY
* ----------------------------------------------------------------


NO REFUELING      :
NO CLEAN AIR ACT  :

MIN/MAX TEMP      : 71. 91.
FUEL RVP          : 9.0
ABSOLUTE HUMIDITY  : 60.4
REG DIST          : D:\Mobile62\Run\VREGSTL.D
SPEED VMT         : D:\Mobile62\Run\FRNKSVMT.DEF

*SSI for LDGV 1968-1995 model years.
I/M PROGRAM       : 1 1983 2020 1 T/O IDLE
I/M MODEL YEARS   : 1 1968 2020
I/M VEHICLES      : 1 21111 11111111 1
I/M STRINGENCY    : 1 20.0
I/M COMPLIANCE    : 1 100.0
I/M WAIVER RATES  : 1 0.0 0.0

SCENARIO REC      : FRANKLIN COUNTY AREA - 2.5 Arterial
EVALUATION MONTH  : 7
CALENDAR YEAR     : 2008
AVERAGE SPEED     : 2.5 Arterial

SCENARIO REC      : FRANKLIN COUNTY AREA - 5 Arterial
EVALUATION MONTH  : 7
CALENDAR YEAR     : 2008
AVERAGE SPEED     : 5 Arterial

SCENARIO REC      : FRANKLIN COUNTY AREA - 10 Arterial
EVALUATION MONTH  : 7
CALENDAR YEAR     : 2008
AVERAGE SPEED     : 10 Arterial

SCENARIO REC      : FRANKLIN COUNTY AREA - 15 Arterial
EVALUATION MONTH  : 7
CALENDAR YEAR     : 2008
AVERAGE SPEED     : 15 Arterial

SCENARIO REC      : FRANKLIN COUNTY AREA - 20 Arterial
EVALUATION MONTH  : 7
```

CALENDAR YEAR : 2008
AVERAGE SPEED : 20 Arterial

SCENARIO REC : FRANKLIN COUNTY AREA - 25 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 25 Arterial

SCENARIO REC : FRANKLIN COUNTY AREA - 30 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 30 Arterial

SCENARIO REC : FRANKLIN COUNTY AREA - 35 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 35 Arterial

SCENARIO REC : FRANKLIN COUNTY AREA - 40 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 40 Arterial

SCENARIO REC : FRANKLIN COUNTY AREA - 45 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 45 Arterial

SCENARIO REC : FRANKLIN COUNTY AREA - 50 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 50 Arterial

SCENARIO REC : FRANKLIN COUNTY AREA - 55 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 55 Arterial

SCENARIO REC : FRANKLIN COUNTY AREA - 60 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 60 Arterial

SCENARIO REC : FRANKLIN COUNTY AREA - 65 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 65 Arterial

SCENARIO REC : FRANKLIN COUNTY AREA - 2.5 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 2.5 Freeway

SCENARIO REC : FRANKLIN COUNTY AREA - 5 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2008

AVERAGE SPEED : 5 Freeway

SCENARIO REC : FRANKLIN COUNTY AREA - 10 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 10 Freeway

SCENARIO REC : FRANKLIN COUNTY AREA - 15 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 15 Freeway

SCENARIO REC : FRANKLIN COUNTY AREA - 20 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 20 Freeway

SCENARIO REC : FRANKLIN COUNTY AREA - 25 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 25 Freeway

SCENARIO REC : FRANKLIN COUNTY AREA - 30 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 30 Freeway

SCENARIO REC : FRANKLIN COUNTY AREA - 35 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 35 Freeway

SCENARIO REC : FRANKLIN COUNTY AREA - 40 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 40 Freeway

SCENARIO REC : FRANKLIN COUNTY AREA - 45 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 45 Freeway

SCENARIO REC : FRANKLIN COUNTY AREA - 50 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 50 Freeway

SCENARIO REC : FRANKLIN COUNTY AREA - 55 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 55 Freeway

SCENARIO REC : FRANKLIN COUNTY AREA - 60 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 60 Freeway

SCENARIO REC : FRANKLIN COUNTY AREA - 65 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2008
AVERAGE SPEED : 65 Freeway

END OF RUN

CAA-2010.in

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MOBILE6 INPUT FILE

POLLUTANTS        : HC NOX
SPREADSHEET       :

RUN DATA

* July 2010 LDGV Run
* BASIC I/M PERFORMANCE STANDARD

* ----------------------------------------------------------------
* JULY 2010 RUN WITH POST-CAA MEASURES REMOVED
* ----------------------------------------------------------------


NO REFUELING      :
NO CLEAN AIR ACT  :

MIN/MAX TEMP      : 71. 91.
FUEL RVP          : 9.0
ABSOLUTE HUMIDITY  : 60.4
REG DIST          : D:\Mobile62\Run\VREGSTL.D
SPEED VMT         : D:\Mobile62\Run\STLSVMT.DEF

*SSI for LDGV 1968-1995 model years.
I/M PROGRAM       : 1 1983 2020 1 T/O IDLE
I/M MODEL YEARS   : 1 1968 2020
I/M VEHICLES      : 1 21111 11111111 1
I/M STRINGENCY    : 1 20.0
I/M COMPLIANCE    : 1 100.0
I/M WAIVER RATES  : 1 0.0 0.0

SCENARIO REC      : ST. LOUIS ENHANCED AREA - 2.5 Arterial
EVALUATION MONTH  : 7
CALENDAR YEAR     : 2010
AVERAGE SPEED     : 2.5 Arterial

SCENARIO REC      : ST. LOUIS ENHANCED AREA - 5 Arterial
EVALUATION MONTH  : 7
CALENDAR YEAR     : 2010
AVERAGE SPEED     : 5 Arterial

SCENARIO REC      : ST. LOUIS ENHANCED AREA - 10 Arterial
EVALUATION MONTH  : 7
CALENDAR YEAR     : 2010
AVERAGE SPEED     : 10 Arterial

SCENARIO REC      : ST. LOUIS ENHANCED AREA - 15 Arterial
EVALUATION MONTH  : 7
CALENDAR YEAR     : 2010
AVERAGE SPEED     : 15 Arterial

SCENARIO REC      : ST. LOUIS ENHANCED AREA - 20 Arterial
EVALUATION MONTH  : 7
```

CALENDAR YEAR : 2010
AVERAGE SPEED : 20 Arterial

SCENARIO REC : ST. LOUIS ENHANCED AREA - 25 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2010
AVERAGE SPEED : 25 Arterial

SCENARIO REC : ST. LOUIS ENHANCED AREA - 30 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2010
AVERAGE SPEED : 30 Arterial

SCENARIO REC : ST. LOUIS ENHANCED AREA - 35 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2010
AVERAGE SPEED : 35 Arterial

SCENARIO REC : ST. LOUIS ENHANCED AREA - 40 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2010
AVERAGE SPEED : 40 Arterial

SCENARIO REC : ST. LOUIS ENHANCED AREA - 45 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2010
AVERAGE SPEED : 45 Arterial

SCENARIO REC : ST. LOUIS ENHANCED AREA - 50 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2010
AVERAGE SPEED : 50 Arterial

SCENARIO REC : ST. LOUIS ENHANCED AREA - 55 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2010
AVERAGE SPEED : 55 Arterial

SCENARIO REC : ST. LOUIS ENHANCED AREA - 60 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2010
AVERAGE SPEED : 60 Arterial

SCENARIO REC : ST. LOUIS ENHANCED AREA - 65 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2010
AVERAGE SPEED : 65 Arterial

SCENARIO REC : ST. LOUIS ENHANCED AREA - 2.5 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2010
AVERAGE SPEED : 2.5 Freeway

SCENARIO REC : ST. LOUIS ENHANCED AREA - 5 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2010

AVERAGE SPEED : 5 Freeway

SCENARIO REC : ST. LOUIS ENHANCED AREA - 10 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2010
AVERAGE SPEED : 10 Freeway

SCENARIO REC : ST. LOUIS ENHANCED AREA - 15 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2010
AVERAGE SPEED : 15 Freeway

SCENARIO REC : ST. LOUIS ENHANCED AREA - 20 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2010
AVERAGE SPEED : 20 Freeway

SCENARIO REC : ST. LOUIS ENHANCED AREA - 25 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2010
AVERAGE SPEED : 25 Freeway

SCENARIO REC : ST. LOUIS ENHANCED AREA - 30 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2010
AVERAGE SPEED : 30 Freeway

SCENARIO REC : ST. LOUIS ENHANCED AREA - 35 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2010
AVERAGE SPEED : 35 Freeway

SCENARIO REC : ST. LOUIS ENHANCED AREA - 40 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2010
AVERAGE SPEED : 40 Freeway

SCENARIO REC : ST. LOUIS ENHANCED AREA - 45 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2010
AVERAGE SPEED : 45 Freeway

SCENARIO REC : ST. LOUIS ENHANCED AREA - 50 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2010
AVERAGE SPEED : 50 Freeway

SCENARIO REC : ST. LOUIS ENHANCED AREA - 55 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2010
AVERAGE SPEED : 55 Freeway

SCENARIO REC : ST. LOUIS ENHANCED AREA - 60 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2010
AVERAGE SPEED : 60 Freeway

SCENARIO REC : ST. LOUIS ENHANCED AREA - 65 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2010
AVERAGE SPEED : 65 Freeway

END OF RUN

CAAF-2010.in

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MOBILE6 INPUT FILE

POLLUTANTS        : HC NOX
SPREADSHEET       :

RUN DATA

* July 2010 LDGV Run
* BASIC I/M PERFORMANCE STANDARD

* ----------------------------------------------------------------
* JULY 2010 RUN WITH POST-CAA MEASURES REMOVED FOR FRANKLIN COUNTY
* ----------------------------------------------------------------


NO REFUELING      :
NO CLEAN AIR ACT  :

MIN/MAX TEMP      : 71. 91.
FUEL RVP          : 9.0
ABSOLUTE HUMIDITY  : 60.4
REG DIST          : D:\Mobile62\Run\VREGSTL.D
SPEED VMT         : D:\Mobile62\Run\FRNKSVMT.DEF

*SSI for LDGV 1968-1995 model years.
I/M PROGRAM       : 1 1983 2020 1 T/O IDLE
I/M MODEL YEARS   : 1 1968 2020
I/M VEHICLES      : 1 21111 11111111 1
I/M STRINGENCY    : 1 20.0
I/M COMPLIANCE    : 1 100.0
I/M WAIVER RATES  : 1 0.0 0.0

SCENARIO REC      : FRANKLIN COUNTY AREA - 2.5 Arterial
EVALUATION MONTH  : 7
CALENDAR YEAR     : 2010
AVERAGE SPEED     : 2.5 Arterial

SCENARIO REC      : FRANKLIN COUNTY AREA - 5 Arterial
EVALUATION MONTH  : 7
CALENDAR YEAR     : 2010
AVERAGE SPEED     : 5 Arterial

SCENARIO REC      : FRANKLIN COUNTY AREA - 10 Arterial
EVALUATION MONTH  : 7
CALENDAR YEAR     : 2010
AVERAGE SPEED     : 10 Arterial

SCENARIO REC      : FRANKLIN COUNTY AREA - 15 Arterial
EVALUATION MONTH  : 7
CALENDAR YEAR     : 2010
AVERAGE SPEED     : 15 Arterial

SCENARIO REC      : FRANKLIN COUNTY AREA - 20 Arterial
EVALUATION MONTH  : 7
```

CALENDAR YEAR : 2010
AVERAGE SPEED : 20 Arterial

SCENARIO REC : FRANKLIN COUNTY AREA - 25 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2010
AVERAGE SPEED : 25 Arterial

SCENARIO REC : FRANKLIN COUNTY AREA - 30 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2010
AVERAGE SPEED : 30 Arterial

SCENARIO REC : FRANKLIN COUNTY AREA - 35 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2010
AVERAGE SPEED : 35 Arterial

SCENARIO REC : FRANKLIN COUNTY AREA - 40 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2010
AVERAGE SPEED : 40 Arterial

SCENARIO REC : FRANKLIN COUNTY AREA - 45 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2010
AVERAGE SPEED : 45 Arterial

SCENARIO REC : FRANKLIN COUNTY AREA - 50 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2010
AVERAGE SPEED : 50 Arterial

SCENARIO REC : FRANKLIN COUNTY AREA - 55 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2010
AVERAGE SPEED : 55 Arterial

SCENARIO REC : FRANKLIN COUNTY AREA - 60 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2010
AVERAGE SPEED : 60 Arterial

SCENARIO REC : FRANKLIN COUNTY AREA - 65 Arterial
EVALUATION MONTH : 7
CALENDAR YEAR : 2010
AVERAGE SPEED : 65 Arterial

SCENARIO REC : FRANKLIN COUNTY AREA - 2.5 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2010
AVERAGE SPEED : 2.5 Freeway

SCENARIO REC : FRANKLIN COUNTY AREA - 5 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2010

AVERAGE SPEED : 5 Freeway

SCENARIO REC : FRANKLIN COUNTY AREA - 10 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2010
AVERAGE SPEED : 10 Freeway

SCENARIO REC : FRANKLIN COUNTY AREA - 15 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2010
AVERAGE SPEED : 15 Freeway

SCENARIO REC : FRANKLIN COUNTY AREA - 20 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2010
AVERAGE SPEED : 20 Freeway

SCENARIO REC : FRANKLIN COUNTY AREA - 25 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2010
AVERAGE SPEED : 25 Freeway

SCENARIO REC : FRANKLIN COUNTY AREA - 30 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2010
AVERAGE SPEED : 30 Freeway

SCENARIO REC : FRANKLIN COUNTY AREA - 35 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2010
AVERAGE SPEED : 35 Freeway

SCENARIO REC : FRANKLIN COUNTY AREA - 40 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2010
AVERAGE SPEED : 40 Freeway

SCENARIO REC : FRANKLIN COUNTY AREA - 45 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2010
AVERAGE SPEED : 45 Freeway

SCENARIO REC : FRANKLIN COUNTY AREA - 50 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2010
AVERAGE SPEED : 50 Freeway

SCENARIO REC : FRANKLIN COUNTY AREA - 55 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2010
AVERAGE SPEED : 55 Freeway

SCENARIO REC : FRANKLIN COUNTY AREA - 60 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2010
AVERAGE SPEED : 60 Freeway

SCENARIO REC : FRANKLIN COUNTY AREA - 65 Freeway
EVALUATION MONTH : 7
CALENDAR YEAR : 2010
AVERAGE SPEED : 65 Freeway

END OF RUN

4.0 Control Measures

The attainment demonstration indicates that St. Louis will attain the 8-hour ozone standard by 2010 (the deadline for moderate nonattainment areas) with emission controls that are already on-the-books. In an effort to be complete, this section outlines many of the more significant emission controls that are in place in St. Louis that are contributing to this finding. The emission inventory provides the technical calculations showing how each control measure was applied to each associated category. The purpose of this discussion is to summarize and highlight some of the individual controls.

4.1 Controls to Remain in Effect

The department provides assurance that all of the control measures adopted by state rules and listed in previous St. Louis plan revisions or this document will be enforced. Any revisions to the control measures included as part of this plan revision or revised in the future will be submitted as a SIP revision to EPA for approval. Any future revision will comply with the anti-backsliding provisions in the Clean Air Act Sections 110(l) and 193.

4.2 Existing Controls.

This section identifies control strategies that have been evaluated in previous SIP actions and implemented by the department. It is reasonable to attribute the improvement in the ambient ozone concentration in the St. Louis Metropolitan area to emission reductions, which are permanent and enforceable. The existing control measures identified in the previous ROP plans and 1-hour ozone maintenance plans, including federal and state measures, which brought the area in attainment 1-hour standard, will remain in effect. These on-the-books control measures as well as expected federal measures were relied on in the attainment demonstration analysis to show attainment by 2010.

4.2.1 Rate of Progress Plan Controls

The 1990 CAAA required states with areas that were not in compliance with the NAAQS to develop SIP revisions to bring those areas into compliance. Accordingly, the St. Louis ROP plan was developed to describe how the area will achieve a minimum of fifteen percent (15%) VOC emission reduction. The ROP plan included a comprehensive strategy to reach this reduction target level by 1996.

In the 1999-revised ROP plan, the department's Air Pollution Control Program revised the ozone precursor emission levels for the baseline year (1990). In addition, the ROP plan incorporated legislative changes to the automobile I/M and RFG programs. The emission estimate changes were due to a slight increase in emissions from area and mobile sources and significant emissions decrease from off-road sources. In calculating the emission reduction target, new emission growth factors and the adjusted baseline inventory were utilized. The adjusted inventory did not include biogenic emission category because it cannot be part of an enforceable control strategy. The revised ROP

plan demonstrated that the 15 percent reduction targets were met, and that projected VOC emissions remained below the ROP target level.

The primary controls in the revised ROP plan were the automobile I/M and RFG programs. Combined, these measures were expected to reduce VOC emissions from 1990 to 1996 by 32.28 tons per day (tpd). Additional federal and state measures were included in the ROP plan. The following are lists of state and federal regulations and programs adopted since 1990 and were included in the ROP plan.

State Rules

Open Burning Restrictions (amendment)
Control of Petroleum Liquid Storage, Loading and Transfer (amendment)
Control of Emissions from Aerospace Manufacture and Rework Facilities
Control of Emissions from Solvent Metal Cleaning (amendment)
Control of Emissions from Rotogravure and Flexographic Printing Facilities (amendment)
Motor Vehicle Emissions Inspection (amendment)
Control of Emissions from Bakery Ovens
Control of Emissions from Lithographic Printing Operations
Control of Gasoline RVP (new rule and amendment)
Control of VOC Emissions from Traffic Coatings
Control of Emissions from Aluminum Foil Rolling
Control of Emissions from Solvent Cleanup Operations
Municipal Solid Waste Landfills
Control of Emissions from Volatile Organic Liquid Storage
Control of VOC Emissions from Wood Furniture Manufacturing Operations
Control of Emissions from Batch Process Operations
Control of VOC Emissions from Reactor Processes and Distillation Operations Processes in the Synthetic Organic Chemical Manufacturing Industry

State Mobile Source Controls

Phase II RFG
Vehicle inspection and maintenance program

Federal Control Measures

Hazardous Organic National Emissions Standards for Hazardous Air Pollutants (NESHAP)
Benzene NESHAP
Federal motor vehicle control program
Architectural and industrial maintenance coatings rule
Automobile refinishing rule
Federal gasoline detergent additive rule
Federal off-road engine, equipment and vehicle program

Consumer and commercial products solvent control

4.2.2 RACT Corrections

Much progress has been made over the last ten years to reduce VOC emissions. During this time several RACT categories were reviewed and regulations were adopted to bring these evaluations current. This process has sometimes been referred to as the RACT "fix up" process. Major sources were controlled to achieve RACT levels. In addition, Missouri identified and adopted controls using Alternative Control Technique (ACT) documents for many non-major sources. These rules were identified in the ROP plan.

As part of the ROP SIP development process, Missouri identified 13 uncontrolled sources that had potential VOC emissions greater than 100 TPY in 1990. In consultation with the EPA, MDNR determined that these 13 sources had to be controlled through RACT fix-up rules. Two sources require a source-specific RACT rule. The other eleven sources require an industry-specific RACT rule.

J.W. Aluminum

J.W. Aluminum is a metal foil rolling operation located in the City of St. Louis. J.W. Aluminum's main operation is aluminum foil rolling. The facility mainly consists of smelting furnaces, metal extruding, and several rolling mills. The facility was not identified as a major source until 1993. The reason for the late determination was the removal of the low vapor pressure exemption from the federal definition of VOCs in 1989.

J.W. Aluminum 's primary VOC emissions are the result of the volatilization of a heavy rolling oil which is used in large quantities in each of the rolling mills. Prior to the change in the VOC definition, the rolling oil was not considered a VOC due to its extremely low vapor pressure. The rolling oil was emitted at an estimated rate of 3948 TPY in 1992 and 3399 TPY in 1993. These figures translate to approximately 12.50 TPD of VOC emissions.

The department in cooperation with Alumax (the former owner of this facility developed a RACT rule). Alumax submitted an information package covering all of the methods of control that are possible for aluminum foil rolling. The department determined that the operation and procedures in place constituted RACT. RACT involved a process material substitution. The substitution involved using heavy rolling oil with a high boiling point to reduce the volatilization of the rolling lubricant. This heavy rolling oil was already in use during the preparation of the ROP plan. Therefore, very small VOC reductions were credited for implementing RACT on this source (approximately 0.30 TPD of VOC reduction).

Offset Lithographic Printing

Offset lithography is a planographic method of printing. The printing and nonprinting areas are essentially in the same plane on the surface of a thin metal printing plate. The distinction between the two areas is maintained chemically. The image area is rendered water repellent, and the nonimage area is rendered water receptive. The printing substrate is either fed in a web (continuous roll) or in a sheetfed system. The primary forms of lithographic printing presses are heatset web presses, nonheatset web presses (including newspaper), and sheetfed presses. VOCs are emitted from several sources involved in this type of operation. Inks, fountain solutions (alcohol solutions), and cleanup solvents are the primary sources of VOCs that may be emitted to the atmosphere via evaporation.

The offset lithography rule resulted in a reduction of 0.80 TPD of VOC emissions. A reduction of this magnitude represented an approximate 57 percent control from this category. The regulation limited fountain solution alcohol usage, required low VOC or low vapor pressure cleanup solvents, and required add-on control equipment for heatset web offset presses with actual VOC emissions greater than 10 TPY. The control measures in the rule were essentially derived from a draft Control Technique Guideline (CTG) document developed by EPA. Eleven sources, all major sources with potential emissions greater than 100 TPY, were captured by this rulemaking.

Continental Baking Company

During 1993, MDNR determined that Continental Baking Company was a major source. Prior to that date this source had not been subject to RACT. The department promulgated a regulation to control the VOC emissions from this bakery. The rule was 10 CSR 10-5.440 "Control of Emissions from Bakery Ovens" (effective may 28, 1995, amendment effective December 30, 1996). The facility's actual VOC emissions from bakery ovens in 1993 were 71 TPY. The rule required the facility to install a control device to achieve an overall VOC emission reduction of 98 percent from its baking ovens. The VOC emissions reductions produced from this regulation were estimated to be 0.20 TPD.

Wood Furniture

10 CSR 10-5.530 *Control of Volatile Organic Compound Emissions From Wood Furniture Manufacturing Operations* limited VOC emissions from wood furniture manufacturing operations. The rule applied to all wood furniture manufacturing installations in the entire St. Louis metropolitan area that had the potential to emit equal to or greater than 25 tons per year of VOC. Adhesives were not considered coatings or finishings for the purposes of the rule. The limitations were established by incorporating RACT as required by the CAAA. The NESHAP requirements were considered in the RACT determination decisions. Emission restriction requirements are based on two reference control technologies: waterborne topcoats; and higher solids sealers and topcoats. The rule was thought to affect three facilities. VOC emissions from affected facilities were expected to be reduced by 0.06 TPD.

Batch Processes

10 CSR 10-5.540 *Control of Emissions from Batch Process Operations*, limited the emission of VOC from batch process operations by incorporating RACT as required by the CAAA of 1990.

The rule is applicable throughout the City of St. Louis, St. Charles, St. Louis, Jefferson, and Franklin counties. In this area, the rule regulated all batch process operations that had the potential to emit equal to or greater 100 TPY of VOC. The control requirements in this rule applied to process vents associated with batch operations at sources identified by seven specific standard industrial classification (SIC) codes. The control requirements did not apply to certain single unit operations and batch process trains that were considered to be *de minimis*. However, these single unit operations and batch process trains were required to follow the record keeping and reporting guidelines listed in the rule. Formulas were included in the rule to establish applicability. Explanation of test methods for compliance was also provided. The VOC emission reduction estimates are based on EPA guidance documents. It was assumed that this regulation would bring a 20 percent VOC reduction from the affected sources, for a total VOC reduction of 0.05 TPD.

Reactor and Distillation Operations

Rule 10 CSR 10-5.550 *Control of Volatile Organic Compound Emissions from Reactor Processes and Distillation Operations Processes in the Synthetic Organic Chemical Manufacturing Industry* affected two sources in the St. Louis area. VOC reductions from the two affected sources were estimated to be 0.28 TPD. The VOC reduction was based upon information provided by the Emission Inventory Questionnaires. The two sources had actual VOC emissions of 73.37 and 32.35 TPY for a combined total of 105.72 TPY or 0.29 TPD. One of the VOC control requirements in the rule called for a 98% weight reduction, yielding an estimated 0.28 TPD VOC reduction

Volatile Organic Liquid Storage

This rule limited the VOC emissions from installations with volatile organic liquid (VOL) storage vessels by incorporating RACT as required by the CAAA of 1990. The rule applied to all storage containers of VOL with a maximum true vapor pressure of one-half pound per square inch or greater in any stationary tank, reservoir or other container of forty thousand gallon capacity or greater, with certain exceptions. Certain control equipment was required, such as: internal floating roofs, gasketed doors and vents, and pressurized tanks. Different levels of control were required based on vapor pressure of the fluid and the tank storage capacity. The rule also included record keeping and reporting guidelines that should be followed.

Aerospace Coatings

This rulemaking established maximum VOC densities for coatings and solvents used in the manufacture and or repair of aerospace vehicles and or components. This rule was anticipated to affect three facilities in the St. Louis ozone nonattainment area (4300-0230 The Boeing Company, 4300-1173 Trans World Airlines, and 2280-0114 Aero Metal Finishing). Emission reductions were not expected as a result of implementing this rulemaking since these facilities already complied with 40 CFR Part 63 Subpart GG National Emission Standard for Aerospace Manufacture and Rework Facilities.

Generic VOC RACT

10 CSR 10-5.520 *Control of Volatile Organic Compound Emissions From Existing Major Sources* was adopted on February 29,2000. This rulemaking required any facility in the St. Louis ozone nonattainment area that was a major source for VOC and is not affected by a present reasonably available control technology regulation to conduct a study of the available control technologies and determine what RACT level control is. The rulemaking outlined the requirements of the RACT study and the timeframe for both submittal and implementation. At the time of its proposal, the department estimated that the rule would result in a reduction of VOC emissions by 0.65 TPD.

4.3 Significant Control Measures

There are several emission control measures that are worthy of additional information or discussion. These are presented below.

4.3.1 Stage I and II

The Stage I and Stage II vapor recovery programs in St. Louis has been very effective in reducing gasoline vapor emissions. These systems capture vapors that ordinarily are released during the refueling of vehicles. The department is committed to improving the effectiveness of these VOC control programs. Over the years, the department has developed these programs to control gasoline emissions. Improvements include improved and regular inspections by better-informed and trained inspectors, performance testing and permitting of individual Stage II vapor recovery gasoline dispensing systems, and the use of the Missouri Performance Evaluation Testing Procedures for performance testing,

By conducting this testing on vapor recovery systems the department has increased its knowledge of which systems work well, and which need improvement. The department has protected the many gas station owners from purchasing expensive vapor recovery systems that fail to meet efficiency and durability requirements. Vapor assist systems seemed innovative early in the history of vapor recovery, but have been found to be ineffective and frequently in need of costly improvements. The department has been instrumental in discovering problems with individual components and component systems.

4.3.2 RFG

Federal RFG is a year-round program that reduces evaporative and exhaust emissions by improving the quality and adjusting the quantities of certain components found in conventional gasoline. RFG is an emissions-based program with performance standard requirements for reduced ozone precursors (VOCs and NO_x) and air toxics emissions. RFG achieves these emissions reductions through oxygen content requirements and limits on olefins, sulfur, distillation temperatures, aromatics and benzene.

The Clean Air Act Amendments of 1990 established emissions-based performance standards for RFG. For Phase I (1995-1999), RFG was required to achieve a minimum 15 percent reduction in VOC emissions over conventional gasoline, a minimum 15 percent reduction in air toxics emissions on a year-round basis and no increase in NO_x emissions. For Phase II (2000 and beyond), RFG must achieve a minimum of 25 percent VOC reductions, a 20 percent reduction in air toxics and a five to seven percent reduction in NO_x emissions.

RFG is currently required in areas of 17 states and the District of Columbia and represents approximately 30 percent of all gasoline sold in the United States. Areas using RFG have realized air emissions benefits such as lower VOC and carbon monoxide emissions and significantly lower air toxics emissions. RFG has (along with other emissions control measures) improved air quality in these areas.

The EPA estimates Phase II RFG costs from four to eight cents more per gallon to produce compared to conventional gasoline. Studies from Bonner & Moore Associates and Oak Ridge National Laboratory confirm these estimates.

The Clean Air Act initially required the use of oxygen-containing compounds in RFG, such as alcohols (typically ethanol) and ethers (typically methyl tertiary butyl ether or MTBE). These compounds, commonly known as oxygenates, enable gasoline to burn more completely. Both the EPA and the EPA-appointed Blue Ribbon Panel on Oxygenates in Gasoline have recommended that Congress change federal statutes to remove or decrease the minimum oxygen content requirement of federal RFG. In addition, EPA has proposed to reduce or eliminate the use of MTBE in gasoline per the Toxic Substances Control Act.

4.3.3 Tier 2

Tier 2 standards are federal emission standards for passenger cars, light trucks, and larger passenger vehicles. The program is designed to focus on reducing the emissions most responsible for the ozone and particulate matter (PM) impact from these vehicles -- NOx and non-methane organic gases, consisting primarily of hydrocarbons and contributing to ambient volatile organic compounds (VOC). The program also applies the same set of federal standards to all passenger cars, light trucks, and medium-duty passenger vehicles. The program thus ensures that essentially all vehicles designed for passenger use in the

future will be very clean vehicles. The Tier 2 standards will reduce new vehicle NOx levels to an average of 0.07 grams per mile. For new passenger cars and light duty trucks, these standards were phased in starting in 2004, and the standards were fully phased in by 2007. For heavy trucks and similar vehicles, the Tier 2 standards will be phased in beginning in 2008, with full compliance in 2009.

During the phase-in period from 2004-2007, all passenger cars and light trucks not certified to the primary Tier 2 standards had to meet an interim average standard of 0.30 g/mi NOx. During the period 2004-2008, heavy trucks and similar vehicles not certified to the final Tier 2 standards will phase in to an interim program with an average standard of 0.20 g/mi NOx, with those not covered by the phase-in meeting a per-vehicle standard (i.e., an emissions "cap") of 0.60 g/mi NOx trucks and 0.09 for similar vehicles.

The average standards for NOx will allow manufacturers to comply with the very stringent new standards in a flexible way, assuring that the average emissions of a company's production meet the target emission levels while allowing the manufacturer to choose from several more- and less-stringent emission categories for certification.

4.3.4 Tier 4

EPA's Clean Air Nonroad Diesel Rule (Tier 4) requires stringent pollution controls on diesel engines used in industries such as construction, agriculture and mining, and it will slash sulfur content of diesel fuel. This rule is the latest in a series of actions that are designed to reduce emissions from nearly every type of diesel vehicle and equipment. This nonroad diesel program combines cleaner engine technologies with cleaner fuel -- similar to the on-highway diesel program. The new standards will cut emissions from nonroad diesel engines by over 90 percent. Nonroad diesel equipment, as described in this rule, currently accounts for 47 percent of diesel particulate matter (PM) and 25 percent of nitrogen oxides (NOx) from mobile sources nationwide.

Sulfur levels will also be reduced in nonroad diesel fuel by 99 percent from current levels (from approximately 3,000 parts per million [ppm] now to 15 ppm in 2010). The lower sulfur fuel will also reduce PM from engines in existing nonroad equipment. It makes it possible for engine manufacturers to use advanced clean technologies, similar to catalytic technologies used in passenger cars. The new engine standards take effect, based on engine horsepower, starting in 2008.

Over 650,000 pieces of nonroad diesel equipment sold in the United States each year will be covered by this rulemaking. Currently about six million pieces of nonroad diesel equipment are in use in the United States. Based on average expected equipment lifetime, this entire inventory should be upgraded by 2030.

4.3.5 NOx SIP Call

The NO_x SIP call was designed to assist downwind ozone areas in attaining the one-hour and 8-hour ozone NAAQS by providing upwind NO_x emission control. This rulemaking

was developed through the EPA's interpretation of the Ozone Transport Assessment Group recommendations and subsequent modeling and cost analysis of NO_x controls to reduce ozone transport. The final NO_x SIP call was published in the *Federal Register* on October 27, 1998. The following states were included in the finding of significant contribution control region (subject to control): Alabama, Connecticut, Delaware, District of Columbia, Georgia, Illinois, Indiana, Kentucky, Massachusetts, Maryland, Michigan, Missouri, North Carolina, New Jersey, New York, Ohio, Pennsylvania, Rhode Island, South Carolina, Tennessee, Virginia, West Virginia, and Wisconsin.

During January and February of 1999, the department held 10 meetings to discuss the requirements and implementation of the NO_x SIP call with stakeholders. These meetings resulted in the development of draft regulations for a NO_x budget trading program and for control of portland cement kilns and stationary internal combustion engines.

In May 1999, the Federal Court of Appeals for the District of Columbia circuit stayed the implementation of the NO_x SIP call until the court ruled on pending litigation or until April 24, 2000.

In July and August 1999, the EPA hosted a series of meetings with the states involved in the NO_x SIP call in an attempt to reach a compromise. The meetings resulted in several proposals from EPA and the states but no compromise was reached. Throughout July and August, the department met with EPA and stakeholder workgroups and discussed control strategies and offered proposals to address the NO_x SIP call.

The department developed an attainment demonstration for the St. Louis one-hour ozone nonattainment area based on controlling electrical generating units to a level of 0.25 pounds of NO_x per mmBtu in the eastern one-third of Missouri and 0.35 pounds of NO_x per mmBtu in the western two-thirds of Missouri. In November of 1999, the Missouri Air Conservation Commission adopted this demonstration.

The department hosted meetings in January 2000 to begin developing a statewide NO_x rule to meet the requirements of the St. Louis attainment demonstration.

On March 3, 2000, the U.S. Federal Court of Appeals for the District of Columbia ruled on the NO_x SIP call. The court revoked the ruling with respect to Missouri, but did reaffirm the ruling for all states that did not include coarse-grid areas. The court also delayed the NOx SIP Call implementation date to May 31, 2004.

In the March 15, 2000 Missouri Register, the department published proposed rule 10 CSR 10-6.350 *Emissions Limitations and Emissions Trading of Oxides of Nitrogen*. This rulemaking proposed to develop a NO_x trading program based on the emission rates present in the St. Louis attainment demonstration. The commission adopted rule 10 CSR 10-6.350 on May 25, 2000. On September 30, 2000, Rule 10 CSR 10-6.*350 Emissions Limitations and Emissions Trading of Oxides of Nitrogen* became effective. This rulemaking required control to be implemented by May 1, 2003.

The department presented a revised St. Louis attainment demonstration to the commission on August 31, 2000.

The EPA proposed approval of 10 CSR 10-6.*350 Emission Limitations and Emissions Trading of Oxides of Nitrogen* in the December 28, 2000, Federal Register. The EPA published final approval of 10 CSR 10-6.350 in the January 29, 2001, Federal Register.

On February 22, 2002, the NO_x SIP call for Missouri was published in the Federal Register. The proposed rule was originally open for public comment until April 15, 2002, however the date was extended until April 29, 2002.

The proposed SIP call was applicable to sources in the eastern one-third of Missouri. It established a budget for these NO_x sources to meet. It also set a timeline for the state submittal. Missouri submitted the state NO_x rule in lieu of a SIP for the eastern 1/3 of Missouri, with a compliance date of May 1, 2005.

A revision of State rule 10 CSR 10-6.*350 Emission Limitations and Emissions Trading of Oxides of Nitrogen* was adopted by the commission on April 24, 2003. The rule amendment reestablishes emission limitation on electric generating units that burn tire-derived fuels in the western 2/3 of Missouri while it allows tighter emission limitations for some power plants in the St. Louis area.

Electric generating units in the eastern one-third are subject to 0.25 lbs NO_x /mmbtu emission limitation. The revised rule will reduce the emission rate to 0.18 lb/mmbtu heat input for Labadie, Rush Island, and Meramec power plants.

Electric generating units in the western two-third of the sate are limited to an emission rate of 0.35 lbs NO_x/mmbtu of heat input. Cyclone boilers (Sibley and Asbury power plants) that burn tire derived fuels are allowed to meet 0.68 lbs NO_x/mmbtu heat input. The changes to the emission rates for both eastern 1/3 and western 2/3 area further decreased NO_x emissions. The compliance date was changed to May 1, 2004 from May 1, 2003 as result of rule revision.

On April 21, 2004 the EPA finalized the second phase of NO_x SIP call. This action completes EPA's response to several decisions from the United States Court of Appeals for the District of Columbia Circuit relating to EPA's rules to reduce ozone in the eastern United States. Phase II of the rule addresses the Court's outstanding issues and affects Missouri with the following requirements: Sets April 1, 2005 as the date for Missouri to submit a SIP meeting the full NO_x SIP Call; Excludes the portion known as the "coarse grid" of Missouri (the western 2/3) from the NO_x SIP Call; Defines the area of the eastern 1/3 portion of Missouri to include the same counties as established in 10 CSR 10-6.350, with the one exception of not including Phelps County; Revises the cap for NO_x emissions from the previous statewide budget of 114,532 tons of NO_x per ozone season to a partial state budget of 61,406 tons of NO_x per ozone season in the eastern 1/3 of Missouri.

The budget assumes control levels of: 0.15 lbs/mmBtu for electric generating units; 82 percent emissions reductions for large natural gas-fired stationary internal combustion engines; 90 percent emissions reductions for diesel and dual fuel stationary internal combustion engines; 60 percent emissions reductions for non-utility boilers and turbines; and 30 percent emissions reductions for cement manufacturing plants; Defines "electric generating units" (EGU) to exclude small cogeneration units from the NO_x SIP Call. Small cogeneration units are units that supply one-third or less of their potential electrical output capacity, or 25 megawatts or less, to any utility power distribution system for sale.

The NOx SIP call is expected to achieve a 15% greater emissions reduction in the eastern 1/3 of Missouri than the revised state rule 10 CSR 10-6.350. However, the revised state rule achieves a ten-percent (10%) greater emissions reduction from the entire state. The rule sets a compliance date of May 1, 2007, for all sources in the eastern 1/3 of Missouri. However, the revised state rule 10 CSR 10-6.350 achieves the emissions reductions much earlier, having a deadline of May 1, 2004. The rule provides a model Multi-State NOx Budget Trading Program that will allow the eastern 1/3 of Missouri to trade with other states participating in the trading program. The facilities in the eastern 1/3 of Missouri would not be able to trade with those in the western 2/3 of the state.

The EPA also states the NO_x SIP Call offers flexibility by not mandating which sources must reduce pollution, but allowing the states to choose. However, this did not provide much flexibility for Missouri, as the eastern 1/3 does not contain any internal combustion engines that were large enough to be regulated, nor can any further reductions be expected from cement kilns.

Phase II requires the eastern one-third of Missouri to participate in the NOx SIP Call. Consequently, the department is required to submit to EPA a NOx SIP for the eastern one-third of Missouri no later than April 1, 2005. EPA's NOx SIP call rule establishes May 1, 2007, as the compliance date for sources that are subject to the rulemaking.

In order for Missouri to meet the requirements of the NO_x SIP Call, State rule 10 CSR 10-6.350 can be revised. EPA has several outstanding issues with regards to this rule meeting the requirements of the NOx SIP Call. Instead of attempting to revise this rule to meet the requirements of the NOx SIP Call, the Air Program proposed a cleaner method—promulgating a new rule supported by the utility representatives. EPA also agreed that the majority of the issues preventing their approval of state rule 10 CSR 10-6.350 would be resolved by promulgating a new rule that met the requirements of the NOx SIP Call.

Stakeholders provided comments to the model rule proposed by EPA in 40 CFR part 96, with some alterations for Missouri. The Air Program held several meetings in October, November, and December of 2004 to discuss the proposed rule language, fiscal impacts, and timelines. During these meetings, an energy efficiency and renewable resources set-aside was included in the proposed rule language. In addition, the EPA model rule was changed to include industrial boilers in Missouri's trading rule.

The Air Program developed 10 CSR 10-6.360 *Control of NOx Emissions from Electric Generating Units and Non-Electric Generating Boilers*, 10 CSR 10-6.*380 Control of NOx Emissions from Portland Cement Kilns*, and 10 CSR 10-6.*390 Control of NOx Emission from Large Stationary Internal Combustion Engines*. This set of three rules constitutes Missouri's response to EPA's NOx SIP Call. These rules were presented at public hearing on April 28, 2005 and were adopted at the May 26, 2005 Missouri Air Conservation Commission meeting.

The Air Program drafted a NOx demonstration document as required by EPA's NOx SIP Call. This document was presented for public hearing at the May 26, 2005 Missouri Air Conservation Commission meeting and was adopted by the commission at the June 30, 2005 meeting. The department submitted the NOx SIP Call demonstration to EPA Region VII on August 1, 2005. EPA has found the demonstration complete. In the June 5, 2006 Federal Register EPA proposed to approve Missouri's NOx SIP Call. In the August 15, 2006 Federal Register EPA published the final Missouri NOx SIP Call approval.

4.3.6 Clean Air Interstate Rule

EPA signed CAIR on March 10, 2005. Missouri was required to develop a state implementation plan in response to CAIR within 18 months. The department held workgroup meetings in August through December 2005 to determine how affected entities believed that Missouri should respond to CAIR. Draft rules were developed within the workgroup process. The program took comments on these draft rules until August 28, 2006.

The program presented these rules for public hearing at the December 7, 2006 Missouri Air Conservation Commission Meeting and they were adopted at the February 1, 2007, Missouri Air Conservation Commission Meeting. The rule establishes a cap and trade system for NOx and sulfur dioxide emissions, and Missouri sources will be included in the national program.

For the attainment demonstration 2009 emissions from Electric Generating Units (EGUs) were based on estimates provided by the Midwest Regional Planning Organization. These estimates were produced using the Integrated Planning Model (IPM). The IPM predicted that local utilities would comply with CAIR cap and trade limits primarily through purchase of NOx credits, not through the installation of local controls.

The department has questioned the validity of these predictions based on discussions with local EGU's. The department expects many local utilities to install emission controls to comply with CAIR limits. The analysis, however, is based on the conservative assumptions of the IPM model. NOx reductions beyond those predicted by the IPM model would further improve air quality and provide additional assurance that the area will attain.