



STATE OF MISSOURI  
DEPARTMENT OF NATURAL RESOURCES

Jeremiah W. (Jay) Nixon, Governor • Sara Parker Pauley, Director

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OCT 28 2011

Mr. Karl Brooks  
Regional Administrator  
U.S. EPA, Region VII  
901 North Fifth Street  
Kansas City, KS 66101

Dear Mr. Brooks:

The Missouri Air Conservation Commission has recently revised or promulgated the following air quality plan contained in the Missouri State Implementation Plan (SIP). The following is enclosed for your review and approval into the SIP:

Redesignation Demonstration and Maintenance Plan for the Missouri Portion of the St. Louis Nonattainment Area for the 1997 8-Hour Ground-Level Ozone (O<sub>3</sub>) National Ambient Air Quality Standard (NAAQS).

This revision to the SIP provides the documentation to support Missouri's request that EPA redesignate the Missouri portion of St. Louis nonattainment area for the 1997 8-hour ground-level ozone NAAQS to attainment. The plan demonstrates that the area has met all of the requirements for redesignation. This plan revision also includes the maintenance plan for the area, which addresses how the area will continue to comply with this NAAQS. The maintenance plan establishes a transportation conformity emissions budget for on-road mobile emissions of nitrogen oxides (NO<sub>x</sub>) and volatile organic compounds (VOC). Also included in this plan revision is a comprehensive 2008 base year emissions inventory (Appendix E), which was placed on the Web for a 30-day public comment period beginning August 8, 2011.

The commission adopted the enclosed plan action on October 27, 2011, after considering comments received at public hearing. The commission has full legal authority to develop the Missouri SIP pursuant to Section 643.050 of the Missouri Air Conservation Law. The state followed all applicable administrative procedures in proposing and adopting the plan action. Enclosed are the required SIP submittal elements for determination of plan completeness per 40 CFR Part 51, Appendix V.

In order to comply with Attachment A of the "Regional Consistency for the Administrative Requirements of State Implementation Plan Submittals and the Use of 'Letter Notices'" memo dated April 6, 2011, a searchable pdf version of this document will be emailed to the EPA Regional Office and will be posted on our website at <http://dnr.mo.gov/env/apcp/stateplans.htm>.

Mr. Karl Brooks  
Page Two

Also, due to their size, the appendices of this document have been submitted via disk(s) that have been included with the paper copy of the main document of this SIP revision.

Thank you for your attention to this matter. If you have any questions regarding this submittal, please contact Ms. Wendy Vit with the Missouri Department of Natural Resources' Air Pollution Control Program at P.O. Box 176, Jefferson City, MO 65102 or by telephone at (573) 751-4817.

Sincerely,

AIR POLLUTION CONTROL PROGRAM

Original signed by Kyra L. Moore

Kyra L. Moore  
Director

KLM:mlc

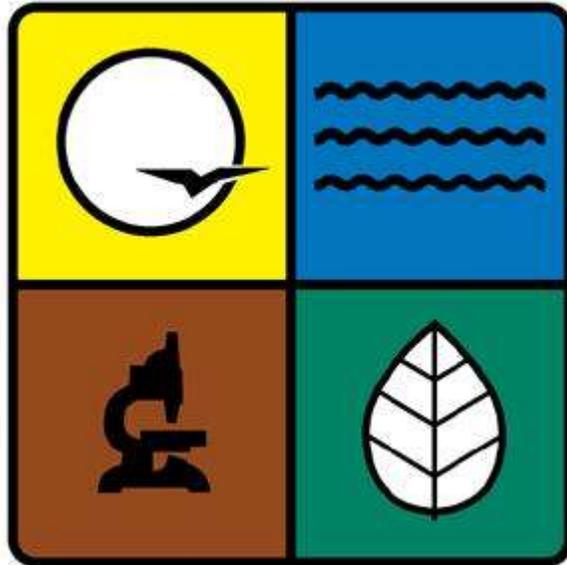
Enclosures:

Copy of plan (appendices on disk(s))  
Copy of commission signature page certifying Missouri Air Conservation Commission adoption  
Copy of public hearing newspaper notice  
Copy of public hearing transcript introductory statement  
Copy of public comments and responses  
Copy of the Webpage posting the Comprehensive 2008 Base Year Inventory for public notice

c: Missouri Air Conservation Commission

**Redesignation Demonstration  
and  
Maintenance Plan for the Missouri Portion of the  
St. Louis Nonattainment Area for the  
1997 8-Hour Ground-Level Ozone (O<sub>3</sub>)  
National Ambient Air Quality Standard**

**Prepared for the  
Missouri Air Conservation Commission**



**Adoption  
October 27, 2011**

**Missouri Department of Natural Resources  
Division of Environmental Quality  
Air Pollution Control Program  
Jefferson City, Missouri**

# TABLE OF CONTENTS

<b>EXECUTIVE SUMMARY .....</b>	<b>1</b>
<b>1. BACKGROUND/INTRODUCTION.....</b>	<b>2</b>
1.1 NATIONAL AMBIENT AIR QUALITY STANDARD FOR OZONE .....	2
1.2 OZONE AND ITS FORMATION.....	3
1.3 NEGATIVE EFFECTS OF OZONE .....	3
1.4 GEOGRAPHICAL DESCRIPTION OF THE ST. LOUIS NONATTAINMENT AREA .....	4
1.5 ST. LOUIS OZONE HISTORY.....	6
1.6 CURRENT STATUS / BACKGROUND SUMMARY.....	9
<b>2. REDESIGNATION AND MAINTENANCE PLAN REQUIREMENTS .....</b>	<b>10</b>
2.1 ATTAINMENT OF THE STANDARD.....	10
2.2 IMPLEMENTATION PLAN APPROVAL .....	11
2.3 PERMANENT AND ENFORCEABLE IMPROVEMENT.....	12
2.4 MAINTENANCE PLAN REQUIREMENTS .....	12
2.5 SECTION 110 AND PART D REQUIREMENTS .....	15
<b>3. OZONE MONITORING.....</b>	<b>16</b>
3.1 ST. LOUIS OZONE MONITORING NETWORK .....	16
3.2 AMBIENT AIR MONITORING DATA.....	17
3.3 ST. LOUIS OZONE MONITORING DATA ANALYSIS .....	22
3.4 MISSING DATA UNDER THE 1997 8-HOUR OZONE STANDARD .....	22
3.5 QUALITY ASSURANCE PROGRAM.....	23
3.6 CONTINUED MONITORING COMMITMENT .....	23
3.7 CLEAN DATA DETERMINATION.....	23
<b>4. REDESIGNATION REQUEST: EMISSION INVENTORY AND CONTROLS     FROM 2002 - 2008 .....</b>	<b>24</b>
4.1 BASE YEAR AND ATTAINMENT YEAR INVENTORIES .....	24
4.2 CONTROLS USED TO ATTAIN THE STANDARD .....	26
4.3 REASONABLY AVAILABLE CONTROL TECHNOLOGY (RACT).....	29
4.4 PERMANENT AND ENFORCEABLE CONTROLS .....	30
<b>5. MAINTENANCE PLAN DEMONSTRATION: EMISSION INVENTORY AND     CONTROLS FROM 2008 - 2022.....</b>	<b>32</b>
5.1 BASE/ATTAINMENT YEAR INVENTORY AND FUTURE YEAR EMISSION PROJECTIONS ....	32
5.2 INTERIM YEAR EMISSION INVENTORY: 2017 .....	35
5.3 CONTROLS TO REMAIN IN EFFECT.....	36
5.4 FUTURE FEDERAL CONTROL MEASURES.....	36
5.5 PROVISIONS FOR PERMITTING NEW OR MODIFIED EMISSIONS SOURCES.....	37
<b>6. TRANSPORTATION CONFORMITY.....</b>	<b>38</b>
<b>7. CONTINGENCY MEASURES.....</b>	<b>41</b>
<b>8. CONCLUSION.....</b>	<b>44</b>

## LIST OF TABLES

Table 3-1	2007-2010 St. Louis 8-Hour Design Values
Table 4-1	2002 VOC and NO <sub>x</sub> Emissions for the Missouri Side of the 1997 St. Louis 8-Hour Ozone Nonattainment Area (tons per ozone season day)
Table 4-2	2008 VOC and NO <sub>x</sub> Emissions for the Missouri Side of the 1997 St. Louis 8-Hour Ozone Nonattainment Area (tons per ozone season day)
Table 4-3	Comparison of 2002 and 2008 VOC and NO <sub>x</sub> Emissions for the Missouri Side of the 1997 St. Louis 8-Hour Ozone Nonattainment Area (tons per ozone season day)
Table 5-1	2008 VOC and NO <sub>x</sub> Emissions for the Missouri Side of the 1997 St. Louis 8-Hour Ozone Nonattainment Area (tons per ozone season day)
Table 5-2	2022 VOC and NO <sub>x</sub> Emissions for the Missouri Side of the 1997 St. Louis 8-Hour Ozone Nonattainment Area (tons per ozone season day)
Table 5-3	Comparison of 2008 and 2022 VOC and NO <sub>x</sub> Emissions for the Missouri Side of the 1997 St. Louis 8-Hour Ozone Nonattainment Area (tons per ozone season day)
Table 5-4	2017 VOC and NO <sub>x</sub> Emissions for the Missouri Side of the 1997 St. Louis 8-Hour Ozone Nonattainment Area (tons per ozone season day)
Table 6-1	Historical VMT in the Missouri Portion of the 1997 St. Louis 8-Hour Ozone Nonattainment Area (State Owned Roads Only)
Table 6-2	2008 and 2022 Annual VMT by County
Table 6-3	Motor Vehicle Emissions Budgets for the Missouri Portion of the 1997 St. Louis 8-Hour Ozone Nonattainment Area
Table 7-1	Contingency Plan for the Missouri Portion of the 1997 St. Louis 8-Hour Ozone Maintenance Area
Table 7-2	Potential Contingency Measures for the Missouri Portion of the 1997 St. Louis 8-Hour Ozone Maintenance Area

## **List of Figures**

- Figure 1-1 1997 8-Hour Ozone Nonattainment Area for St. Louis (MO-IL) region
- Figure 3-1 St. Louis Ozone Monitoring Network
- Figure 3-2 2001 – 2010 8-Hour Ozone Design Value Trends – MO
- Figure 3-3 2001 – 2010 8-Hour Ozone Design Value Trends – IL
- Figure 3-4 2001 – 2003 & 2008 – 2010 Design Value Comparison

## List of Appendices

Appendix A	2002 Emission Inventory Summary
Appendix B	2008 Emission Inventory Summary
Appendix C	2017 Emission Inventory
Appendix D	2022 Emission Inventory
Appendix E	2008 Base Year Emissions Inventory for the Missouri Portion of the St Louis Ozone Nonattainment Area
Appendix E-1	List of Statewide Point Source Emissions by Facility
Appendix E-2	List of Onroad Emissions by SCC for Franklin and Jefferson Counties
Appendix E-3	List of Onroad Emissions by SCC for St. Charles and St. Louis Counties and St. Louis City
Appendix E-4	Nonroad Inventory Documentation
Appendix E-5	Nonroad Emissions by SCC
Appendix E-6	Nonpoint ICI Combustion Methodology
Appendix E-7	Temporal Allocation
Appendix E-8	EIQ Forms
Appendix F	MEMC Agreement
Appendix G	Retired Unit Exemption Forms for Trigen and Anheuser Busch

## **EXECUTIVE SUMMARY**

This document outlines the State of Missouri's Maintenance Plan for Missouri's portion of the St. Louis ozone nonattainment area. Per the federal Clean Air Act Amendments of 1990, a maintenance plan is required before an area can be redesignated from nonattainment to attainment of a National Ambient Air Quality Standard (NAAQS). This document provides technical information required to support a request to redesignate the St. Louis nonattainment area to attainment of the 1997 8-hour ozone NAAQS. This maintenance plan will become part of the state's redesignation request submittal to the U.S. Environmental Protection Agency (EPA). The Missouri Department of Natural Resources has prepared this plan in consultation with the Illinois Environmental Protection Agency and the U.S. EPA. The Illinois EPA has prepared a similar plan for the Metro-East portion of the St. Louis nonattainment area.

Ozone air quality has dramatically improved in the St. Louis region as a result of implementation of State and Federal control measures since the designation of the St. Louis area as nonattainment in 2004. The entire St. Louis nonattainment area has at least three consecutive ozone seasons of complete, quality assured ambient air quality monitoring data for 2008-2010 demonstrating attainment with the 0.080 parts per million (ppm) 8-hour ozone NAAQS promulgated in 1997. These air quality improvements are due to permanent and enforceable emissions control measures.

This maintenance plan provides for continued attainment of the 1997 8-hour ozone air quality standard for the St. Louis nonattainment area for a period of ten years after the EPA has formally redesignated the area to attainment. The plan also provides assurances that, in the event of a subsequent violation of the air quality standard, additional control options listed in this plan, called contingency measures, can quickly be implemented to prevent any future violations. In addition, this plan demonstrates the observed actual emission reductions that have been achieved through permanent and enforceable control measures that brought the area back into attainment of the NAAQS. This plan also includes an emissions inventory analysis of the ozone precursors - Nitrogen Oxides (NO<sub>x</sub>) and Volatile Organic Compounds (VOCs) – for both the redesignation demonstration period (2002- 2008) and the maintenance plan period (2008 – 2022). This analysis includes on-road motor vehicle emissions budgets for the 2008 and 2022 for use in transportation conformity determinations to assure that any increases in emissions from this sector do not jeopardize continued attainment of the 1997 8-hour ozone standard during the ten-year maintenance period in the St. Louis nonattainment area.

# 1. BACKGROUND/INTRODUCTION

## *1.1 National Ambient Air Quality Standard for Ozone*

Congress first enacted the Clean Air Act (CAA) in 1970. It was last amended in 1990. The CAA requires the U.S. Environmental Protection Agency (EPA) to set National Ambient Air Quality Standards (NAAQS) for pollutants considered harmful to public health and the environment. There are two categories of NAAQS that are set by the EPA. The primary standards are health-based standards and are designed to establish limits to protect public health. The secondary standards are commonly referred to as “welfare-based standards” and are meant established to protect public welfare. These limits are intended to protect against decreased visibility, and damage to crops, animals, and buildings. Currently there are six pollutants with established primary level NAAQS. These pollutants are carbon monoxide, lead, total suspended particles, sulfur dioxide, nitrogen oxide, and ozone. These pollutants are referred to as “criteria” pollutants. The EPA establishes a standard for each criteria pollutant. If an area is found to exceed this value, it is classified as a nonattainment area for that specific pollutant. The states and/or tribes responsible for the affected area must then develop and carry out strategies and measures to attain the NAAQS. The goal is for any areas designated as “nonattainment” to be reclassified by the EPA to attainment for the pollutant.

The CAA requires that the EPA carry out a periodic review of NAAQS for the criteria pollutants. This review must include the scientific basis for (1) changing or reaffirming the NAAQS and (2) implementing the NAAQS. As required by the CAA, the EPA reviewed the one-hour NAAQS for ozone in the 1990’s and determined that a new standard was needed. This new standard was finalized in July of 1997. The replacement of the ozone NAAQS was pursuant to subpart 1 of the CAA, Title I, Part D.

The 1997 ozone standard is based on an eight-hour averaging period. This standard defines an area as in attainment of the 8-hour ozone standard when the three-year average of the annual fourth highest daily maximum 8-hour ozone concentration is less than or equal to 0.08 parts ppm) (or 80 parts per billion (ppb)). Due to rounding conventions in the 1997 standard, an 8-hour average ozone concentration above 0.085 ppm is considered an exceedance of standard. When the three-year average value is 0.085 ppm or greater, a violation of the ozone NAAQS has occurred. A violation of the eight-hour standard is determined on a per monitor basis. Monitor readings (and exceedances) at one location do not have any affect on the readings at another.

The EPA was challenged in court on the new 8-hour standard, and the one-hour standard was reinstated. The Supreme Court upheld the constitutionality of 8-hour standard, but ruled that the EPA could not implement the new standard under subpart 1 of the CAA without considering the CAA’s subpart 2 requirements. Subpart 2 specifies area classification for nonattainment areas with additional control strategy requirements for each classification. The rule was remanded to the EPA in order to develop a reasonable approach to implement the new standard while considering the roles of subparts 1 and 2 in the implementation.

Phase I of the Final Rule to Implement the 8-Hour Ozone National Ambient Air Quality Standard was released on April 30, 2004 and became effective on June 15, 2004. Phase II of the rule was published on November 29, 2005 and became effective on January 30, 2006. These two

rules provided specific obligations for state ozone plan revisions. Under these rules, the St. Louis 8-hour Ozone Nonattainment Area was subject to a number of obligations. All these obligations have been met and all required submitted revisions of the State Implementation Plan (SIP) for the St. Louis nonattainment area have been submitted to the EPA.

## ***1.2 Ozone and Its Formation***

Ozone is a reactive chemical compound. It is made up of three oxygen atoms and is identified by the chemical symbol O<sub>3</sub>. Ozone is a gas that occurs both in the Earth's upper atmosphere and at ground level. Depending on where ozone is found, it can be good or bad. When it occurs naturally in the upper atmosphere, ozone acts as a shield from the sun's harmful ultraviolet rays. However, ground-level ozone is a concern during the summer months when the weather conditions are favorable for producing ozone.

Unlike most other pollutants, ozone is not emitted directly into the air by specific sources, but is formed by a photochemical reaction. This reaction occurs between NO<sub>x</sub> and VOCs in the presence of sunlight and elevated ambient temperatures. There are numerous sources of NO<sub>x</sub> and VOC pollutants. These sources are divided into four types, including point, area, mobile and natural. Point sources include larger permitted industries and power plants. Area sources are small, stationary, non-transportation sources that collectively as a group can have a significant contribution to air pollution. Examples of area sources include gas stations, automotive shops and dry cleaners. Mobile sources are divided into two categories: on-road and off-road. Examples of on-road mobile sources include cars, trucks and buses. Off-road sources include trains, ships, boats, airplanes, lawn equipment, and construction equipment. Natural sources for VOCs are released from vegetation, such as trees. Natural NO<sub>x</sub> sources are rare, but include lightning, soil and some decomposition. Ozone is most commonly an urban air issue, but high ozone readings can also be found in rural areas. This is due to the fact that emissions of NO<sub>x</sub> and VOC from motor vehicles and stationary sources can be carried hundred of miles from their origins, and contribute to high ozone concentrations over very large, multi-state regions.

## ***1.3 Negative Effects of Ozone***

Ozone is a strong oxidizing agent, with the potential to damage or impair lung airways and cause inflammation. Sensitive populations such as children, the elderly, and people with respiratory problems are the most vulnerable to its effects, but even healthy people that are active outdoors can be affected when the quantity of ground level ozone is high. Even relatively low amounts of ozone can cause chest pain, shortness of breath, and coughing. Ozone can also worsen asthma, bronchitis, and emphysema. Repeated exposure to ozone pollution for several months may cause permanent lung damage.

Children are at a higher risk from exposure to ozone because they breathe more air per pound of body weight that 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.

Ground level ozone can also have negative effects on plants and other vegetation by interfering with their ability to produce and store food. It can also reduce agricultural productivity and

forest yields. Ozone also affects manufactured products. It causes or accelerates the deterioration of building materials, surface coatings, rubber, plastic products and textiles.

#### ***1.4 Geographical Description of the St. Louis Nonattainment Area***

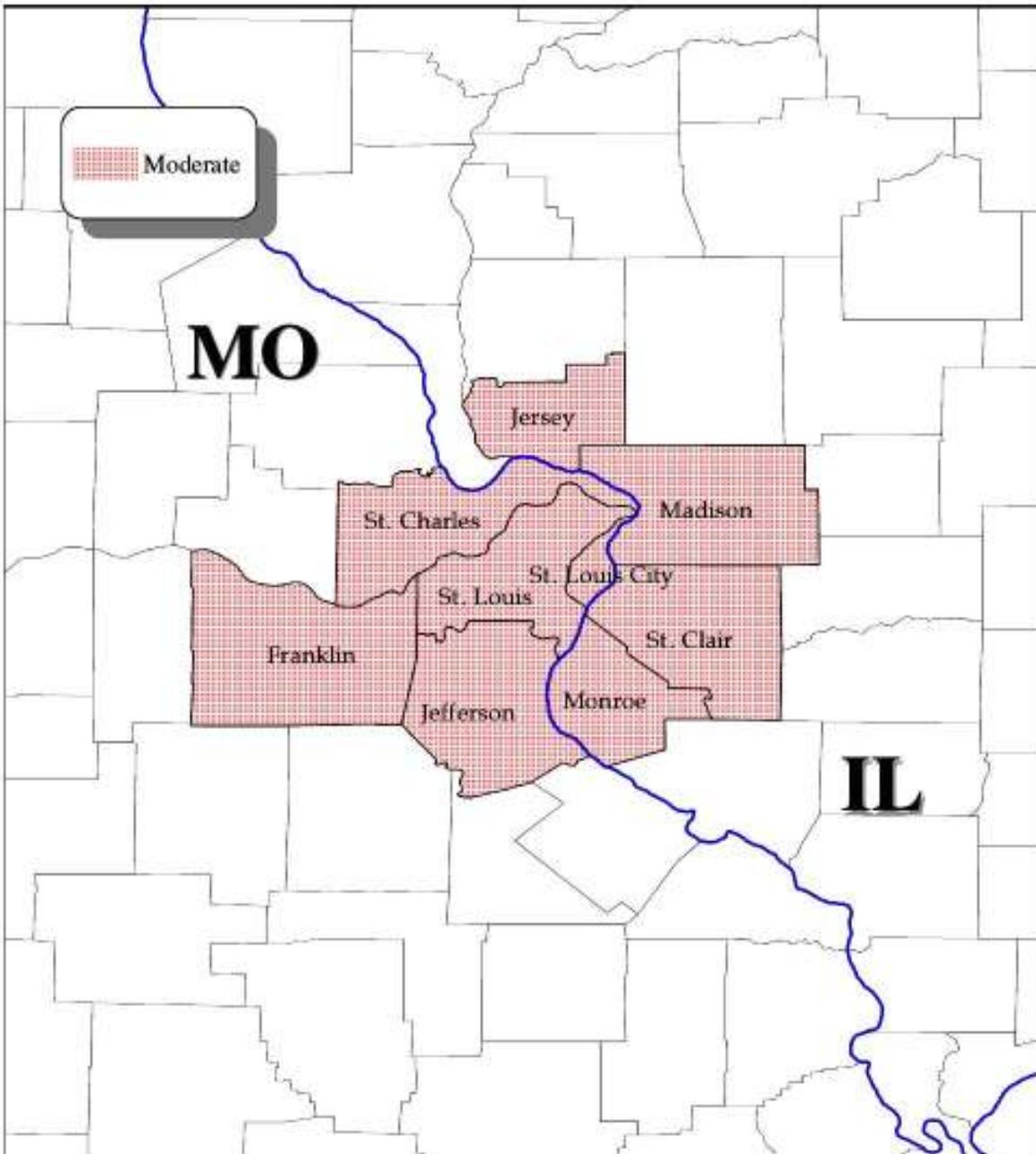
The St. Louis Ozone Area is a bi-state nonattainment area that violated the 1997 8-Hour Ozone Standard (see Figure 1-1). The following is a list of the counties contained in the St. Louis Missouri-Illinois 8-hour ozone nonattainment area:

- St. Louis County, MO
- St. Louis City, MO
- St Charles, MO
- Jefferson County, MO
- Franklin County, MO
- Madison County, IL
- St. Clair County, IL
- Monroe County, IL
- Jersey County, IL

As a result of the nonattainment designation and the accompanying classification as moderate, the St. Louis area was subject to new requirements, including development of a plan demonstrating that the area would meet the federal 8-hour ozone NAAQS by June 15, 2010.

Figure 1-1 1997 8-Hour Ozone Nonattainment Area for St. Louis (MO-IL) Region

## 8-Hour Ozone Nonattainment Area St. Louis, MO-IL



Source: USEPA, Office of Air Quality Planning and Standards, Green Book, August 03, 2004

## ***1.5 St. Louis Ozone History***

### **1.5.1 One Hour Ozone Standard**

The Clean Air Act Amendments of 1990 required states with nonattainment areas like St. Louis to develop revisions to the SIP 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 was that attainment was to be achieved by 1996. Under the Amendments, failure to attain by the assigned date would result in reclassification to the more demanding classification of “serious.” Serious areas were subject to an additional set of requirements.

St. Louis was required to achieve a minimum of 15 percent reduction in emissions of VOCs, and submit this Rate of Progress (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 to develop a plan to achieve the national ozone standard in St. Louis. This plan is referred to as an attainment demonstration. An attainment demonstration was prepared and submitted to the EPA on October 25, 1995, which showed that the area would attain the air quality 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 an attainment deadline extension, Missouri and Illinois had to demonstrate three requirements: 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 Reformulated Gasoline (RFG) and the enhanced Vehicle Inspection/Maintenance (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. This SIP call resulted from EPA’s determination that ozone transport from one region to another interfered with some states’ ability to attain their ozone air quality goals. The NOx 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.

## 1.5.2 8-Hour Ozone Standard

### 1.5.2.1 8-Hour Ozone Designation

EPA promulgated the 8-hour ozone standard in June 1997. The new standard was set 0.08 parts per million (ppm) averaged over 8 hours and replaced the 1-hour ozone standard. 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 called the design value for the monitor. The three-year period from 1997-1999 were used for the purposes of designation. The design value for the St. Louis Area was based on the monitor in the region with the highest design value. This monitor is located in West Alton, MO and had a three year design value of 0.95 ppm. Areas such as St. Louis which had design values that ranged from 0.92 to 0.107 ppm were classified as moderate ozone nonattainment areas.

Boundary designation recommendations under the 1997 standard were developed using guidance published by EPA on March 28, 2000 and titled “*Boundary Guidance on Air Quality Designations for the 8-Hour Ozone National Ambient Air Quality Standards.*” 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 based on EPA guidance. The Department sought stakeholder input. During the workgroup process, many complex issues were raised and discussed.

In July 2000, on behalf of the Governor, the Department sent the original recommendation regarding the classification of counties under the revised ozone standard. These recommendations were based on EPA guidance released on June 25, 1999 and March 28, 2000. Based on 1997-1999 air quality data, the Department recommended the same boundary for the 8-hour ozone nonattainment area as was used for the previous one-hour ozone nonattainment area. Based on the litigation surrounding the 1997 NAAQS (discussed in section 1.1) no formal action was taken on the initial boundary designation submittal. 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 air quality monitoring data.

Based on the input from stakeholders and the technical review, the Department’s 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 nonattainment area boundary recommended remained unchanged from the 2000 recommendation and the 1-hour ozone designations. 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 this EPA comment, the Department offered an alternative, involving addressing upwind NOX emissions

rather than including all of Ste. Genevieve County. On March 25, 2004, the MACC signed a resolution committing the Department to promulgate a rule controlling emissions from large NO<sub>x</sub> sources upwind and outside of the St. Louis nonattainment area. This rule, 10 CSR 10-6.345 *Control of NO<sub>x</sub> Emissions From Upwind Sources*, was subsequently promulgated and became effective on December 30, 2006.

On April 15, 2004, EPA classified the St. Louis area as a moderate nonattainment area for the new eight-hour ozone standard. The area's boundaries were designated as recommended and excluded Ste. Genevieve County. The state then had three years to develop the St. Louis nonattainment area 8-Hour Ozone SIP Revision.

#### 1.5.2.2. 8-Hour Ozone Implementation Plan

The EPA's 8-hour ozone implementation rule required a number of elements for an approvable SIP revision. These elements included: an emissions inventory; attainment demonstration; Reasonably Available Control Technology (RACT) requirements; a ROP demonstration; a demonstration that New Source Review (NSR) permitting met all EPA requirements; motor vehicle emissions budgets to meet both the rate of progress and attainment; a discussion of specific individual area controls; and identification of contingency measures in case the area was not able to meet its attainment deadline.

Extensive work, effort and resources were required to develop all elements of the implementation plan within the time frame established by EPA. The final result of the evaluations and the modeling of available data showed that the St. Louis Nonattainment Area would attain the 1997 standard by the 2010 deadline.

Per the implementation rule, the RACT demonstration was required to be completed prior to other elements of the SIP revision. It was submitted to EPA following adoption by the MACC on December 6, 2006. All other required elements of the revision were submitted as part of, or concurrent with, the 2007 revision to the SIP. The I/M portion of the SIP was resubmitted as a separate revision at a later date due to subsequent changes that were made in the program as the result of new state laws.

A public hearing of the 8-Hour ozone nonattainment plan SIP revision was held on April 26, 2007, before the MACC. Comments were received from the EPA and the East-West Gateway Council of Governments. A number of document edits were made in response to these comments, but no substantive changes to control strategies were needed. These revisions were presented on May 31, 2007, and adopted by the Commission.

The eight-hour ozone plan was submitted to the EPA on June 13, 2007, meeting the June 15, 2007 federal deadline. The plan showed that the St. Louis non-attainment area will attain the 1997 NAAQS for ozone by the 2010 deadline.

Attainment of the 1997 NAAQS 8-Hour Ozone Standard was achieved following the 2009 ozone season, allowing for the development of a request for redesignation and maintenance plan.

## ***1.6 Current Status / Background Summary***

On June 9, 2011, EPA published a final clean data determination in the Federal Register stating that the St. Louis ozone nonattainment area covering both Missouri and Illinois has attained the 1997 8-hour ozone standard based on three consecutive ozone seasons of quality assured ambient air monitoring data (76 FR 33647, June 9, 2011). Information regarding the air monitoring network and air quality monitoring data are included in Section 3.0 of this document.

Section 107 of the Clean Air Act (CAA) establishes specific requirements to be met in order for a nonattainment area to be considered for redesignation. Clean air quality data is one of those requirements. The state must demonstrate that the improvement in air quality is due to permanent and enforceable reductions in emissions resulting from implementation of the SIP and other federal requirements. The development of a maintenance plan is another. This document addresses the maintenance plan requirements, and includes additional information on the permanent and enforceable measures used to demonstrate attainment and continued compliance with the 1997 8-hour ozone NAAQS.

## **2. Redesignation and Maintenance Plan Requirements**

An area designated as nonattainment for a pollutant can be redesignated to attainment if specific conditions are met. Missouri has followed the EPA published Memorandum entitled, “Procedures for Requests to Redesignate Areas to Attainment”, from John Calgani, Director, Air Quality Management Division, dated September 4, 1992, in preparing the redesignation demonstration and the maintenance plan. The memorandum provides guidance regarding the processing of requests for redesignation of nonattainment areas to attainment for ozone, carbon monoxide, particulate matter, sulfur dioxide, nitrogen dioxide, and lead.

Furthermore, the CAA, lists five (5) obligations that the EPA must meet during the redesignation process. Section 107(d)(3)(E) states:

The Administrator may not promulgate a redesignation of a nonattainment area (or portion thereof) to attainment unless –

- (i) the Administrator determines that the area has attained the national ambient air quality standard;
- (ii) the Administrator has fully approved the applicable implementation plan for the area under section 110(k);
- (iii) the Administrator determines that the improvement in air quality is due to permanent and enforceable reductions in emissions resulting from implementation of the applicable implementation plan and applicable Federal air pollutant control regulations and other permanent and enforceable reductions;
- (iv) the Administrator has fully approved a maintenance plan for the area as meeting the requirements of section 175A; and
- (v) the State containing such area has met all requirements applicable to the area under section 110 and part D.

These five (5) obligations must be met before redesignation to attainment status; however, a state may submit both the redesignation request and the maintenance plan at the same time so that rulemaking on both may proceed on a parallel track. This document outlines Missouri’s redesignation request and demonstrates how the state supports EPA’s promulgation obligations towards the redesignation of the St. Louis nonattainment area to attainment under the 1997 ozone NAAQS.

### ***2.1 Attainment of the Standard***

Requirement (i) for redesignation states that EPA must determine that the area is attaining the applicable NAAQS. For the 1997 8-hour ozone NAAQS, this determination must be demonstrated using the design value based on the average of the last three (3) years’ 4<sup>th</sup> highest maximum daily 8-hour average concentrations. This design value must be lower than the level of the NAAQS, 0.08 ppm. The state submitted a Clean Data Request to the EPA on December 4, 2009. On June 9, 2011, EPA published a final clean data determination in the Federal Register stating that the St. Louis ozone nonattainment area covering both Missouri and Illinois has attained the 1997 8-hour ozone standard based on three years of quality assured ambient air monitoring data (76 FR 33647, June 9, 2011). Section 3 presents information that demonstrates the St. Louis nonattainment area has attained the 1997 8-hour ozone NAAQS. This demonstration is based on three consecutive ozone seasons of quality assured monitoring data as specified in 40 CFR 58.

## **2.2 Implementation Plan Approval**

Requirement (ii) for redesignation states that the EPA administrator must have fully approved the applicable implementation plan for the area under section 110(k) of the CAA. *The 2007 Revision of the State Implementation Plan for the St. Louis 8-HOUR Ozone Nonattainment Area* was proposed for public hearing on April 26, 2007; was adopted by the Missouri Air Conservation Commission (MACC) on May 31, 2007 and was submitted to the EPA on June 13, 2007. This ozone SIP was deemed to be complete on December 21, 2007.

As stated earlier, EPA has published a final rule in the Federal Register stating that the St. Louis ozone nonattainment area covering both Missouri and Illinois has attained the 1997 8-hour ozone standard based on three years of quality assured ambient air quality data (76 FR 33647, June 9, 2011). Once an area attains the standard for a criteria pollutant, certain SIP element requirements that are developed to demonstrate and achieve attainment become unnecessary because the area has already attained the standard. These SIP elements that are tied to demonstration of attainment are no longer required as long as the area does not violate the standard again. These particular SIP elements would never be required once the area is redesignated to a maintenance area for the pollutant. Guidance on this subject is found on page 6 of the EPA's Memorandum, *Procedures for Requests to Redesignate Areas to Attainment*, from John Calgani, Director, Air Quality Management Division, dated September 4, 1992 which states "requirements for reasonable further progress ... will not apply for redesignations because they only have meaning for areas not attaining the standard."

This guidance is reaffirmed in EPA's May 10, 1995 Memorandum from John S. Seitz, Director, Office of Air Quality Planning and Standards, titled *Reasonable Further Progress, Attainment Demonstration, and Related Requirements of Ozone Nonattainment Areas Meeting the Ozone National Ambient Air Quality Standard*. Page 6 of the 1995 Seitz memo details that suspensions are only valid while the area is in compliance with the standard and how the suspended requirements are relieved:

*Thus, a determination that an area need not submit one of the SIP submittals amounts to no more than a suspension of the requirement for so long as the area continues to attain the standard. If EPA ultimately redesignates the area to attainment, then the area will be entirely relieved of these requirements to the extent the maintenance plan for the area does not rely on them.*

As such, on June 21, 2011, the state withdrew the above mentioned 8-hour Ozone Attainment Demonstration and Reasonable Further Progress Demonstration, because the area has already attained the NAAQS. All controls and regulations that are included in Missouri's approved SIP will continue to remain in place to ensure that the air quality improvements that have resulted from these controls remain permanent and enforceable. By withdrawing the attainment demonstration, the EPA administrator will no longer be required to approve or disapprove this plan. The attainment demonstration is no longer applicable because the area has attained the standard and therefore, only SIP elements that include permanent and enforceable control measures, such as regulations and consent agreements need to be approved in order to satisfy this requirement for redesignation. Missouri has adopted all other necessary provisions to ensure the protection of the standard including the Prevention of Significant Deterioration Program (PSD),

under State rule *10 CSR 10-6.060, Construction Permits Required*. Additional information about the control measures used to attain the 1997 8-hour ozone standard can be found in Section 4 of this document.

### ***2.3 Permanent and Enforceable Improvement***

Requirement (iii) for redesignation states that EPA must determine that the improvement in air quality is due to permanent and enforceable reductions in emissions resulting from implementation of the applicable implementation plan and applicable Federal air pollutant control regulations and other permanent and enforceable reductions. Therefore, EPA must show that the improvement in air quality between the year violations occurred and the attainment year is attributed to permanent and enforceable emission reductions. Section 4 of this document presents the emission reductions that were achieved from federal and state measures in the St. Louis area. The emission reductions are not based on temporary shutdowns or adverse economic conditions, but due to permanent and enforceable control measures. This maintenance plan and redesignation request includes a state commitment to continue to enforce all applicable requirements of past revisions to the SIP after the St. Louis ozone nonattainment area is redesignated to attainment.

### ***2.4 Maintenance Plan Requirements***

Requirement (iv) for redesignation states that EPA must have fully approved a maintenance plan for the area as meeting the requirements of section 175A of the Clean Air Act. Under Section 175A of the Clean Air Act, this 8-Hour Ozone Maintenance Plan is the state's SIP revision to provide for continued attainment of the 1997 8-hour ozone NAAQS for the St. Louis nonattainment area for a period of at least ten years after EPA has formally redesignated the area to attainment. To be approvable, the state is required to have a public hearing on the maintenance plan prior to adoption. The maintenance plan must contain the following elements:

- A comprehensive emissions inventory of the precursors of ozone completed for the “attainment year”;
- A projection of the emissions inventory forward to a year at least ten years after redesignation and a demonstration that the projected level of emissions is sufficient to maintain attainment of the ozone NAAQS;
- A commitment that, once redesignated, the state will continue to operate an appropriate monitoring network to verify maintenance of the attainment status;
- A demonstration of legal authority to implement and enforce all control measures contained in the SIP;
- Provisions for future updates of the inventory to enable tracking of emissions levels, including an annual emissions statement from major sources;
- Motor vehicle emissions budgets for transportation conformity for the ten-year maintenance period;

- A commitment to submit a revised Maintenance Plan eight years after redesignation;
- A commitment to enact and implement additional contingency control measures expeditiously in the event that future violations of the NAAQS occur;
- A list of potential contingency measures that would be implemented in such an event.

This Maintenance Plan and redesignation request has been prepared in accordance with the requirements specified in U.S. EPA's guidance document and additional guidance received from EPA staff. The following subsections of this document describe how these requirements have been met.

### **2.4.1 Public Participation**

In accordance with Section 110(a)(2) of the CAA, the Missouri is required to hold a public hearing prior to adoption of this maintenance plan and the subsequent submittal to the EPA. The Department will notify the public and other interested parties of an upcoming public hearing and comment period thirty (30) days prior to holding such hearing for this maintenance plan as follows:

- Notice of availability of the redesignation request and maintenance plan was posted on the Department of Natural Resources' Air Pollution Control Program website on August 26, 2011: <http://www.dnr.mo.gov/env/apcp/stateplanrevisions.htm>
- The public hearing date to receive comments on the redesignation request and maintenance plan is to be held on September 29, 2011, beginning at 9:00 am at the Holiday Inn Southeast, Grand Ballroom A, B and C, 9103 East 39<sup>th</sup> Street, Kansas City, MO 64133.
- A public comment period was open after the redesignation request and maintenance plan was posted on Department of Natural Resources' Air Pollution Control Program website on August 26, 2011, and closes on October 6, 2011, seven (7) days after the public hearing.
- Notice of availability of the 2008 St. Louis Ozone Nonattainment Area Base Year Inventory was posted on the Department of Natural Resources' Air Pollution Control Program website by August 9, 2011: <http://www.dnr.mo.gov/env/apcp/stateplanrevisions.htm>
- A public comment period was open after the 2008 St. Louis Ozone Nonattainment Area Base Year Inventory was posted on the Department of Natural Resources' Air Pollution Control Program website by August 8, 2011, and allowed for a public hearing to be held in regards to the document if requested. The public comment period for this inventory closes on September 7, 2011.
- No public hearing was requested for the 2008 St. Louis Ozone Nonattainment Area Base Year Inventory

## **2.4.2 Comprehensive “Attainment Year” Emissions Inventory of Ozone Precursors**

The state has developed a comprehensive emission inventory for the St. Louis ozone nonattainment area which includes the emissions from the following four source categories: point sources, area sources, on-road mobile sources and off-road mobile sources. The attainment year emission inventory, as required in the maintenance plan, is detailed in Section 5 of this document.

## **2.4.3 Projected Emission Inventory for 2022**

The state has compiled a list of growth and control factors and developed a county level emission inventory for the future year of 2022 for the Missouri portion of the St. Louis nonattainment area. These projected emissions show substantial decreases between 2008 and 2022 in cumulative emissions that contribute to ground-level ozone concentrations in the ambient air. This future year emission inventory is detailed in Section 5 of this document and the state asserts that these projected future emission levels are sufficient to maintain attainment of the 1997 8-hour ozone NAAQS.

## **2.4.4 Continued Monitoring Commitment**

The State of Missouri is committed to continue monitoring ground-level ozone concentrations in the St. Louis area and throughout the state in accordance with 40 CFR Part 58 and EPA approved Annual Monitoring Plans. Missouri will continue to quality assure the ambient air monitoring data in accordance with 40 CFR 58 and submit the data into the AQS in a timely fashion. Detailed information about the ground-level ozone monitoring network in the St. Louis nonattainment area, along with further discussion about the state’s continued monitoring commitment, can be found in Section 3 of this document.

## **2.4.5 Legal Authority to Implement and Enforce**

The Missouri Air Conservation Commission has the legal authority to develop, implement, and enforce regulations regarding air pollution including the requirements of this SIP submittal under section 643.050 of the Revised Statutes of Missouri, also known as the Missouri Air Conservation Law.

## **2.4.6 Provisions for Future Updates to the Emission Inventory**

The State of Missouri is committed to provide future updates of the inventory to enable tracking of emissions levels during the 10-year maintenance period. State Regulation *10 CSR 10-6.110, Reporting Emissions Data, Emission Fees, and Process Information*, requires that all installations located in the state that are required to obtain air quality construction or operating permits must report their annual emissions to the department. The methods for calculating and reporting their emissions are detailed in each installation’s applicable permit. The data collected on emissions inventory questionnaires from permitted sources form the basis of the point source emissions inventory that is compiled on an annual basis. In addition, in compliance with the

Federal Air Emission Reporting Rule (73 FR 76539), the Air program develops a comprehensive emissions inventory of point, area, and mobile sources every three years.

#### **2.4.7 Motor Vehicle Emission Budgets**

The State of Missouri is has developed motor vehicle emissions budgets that will be used in Transportation Conformity Determinations in the St. Louis area through 2022. Section 6 of this document details the Transportation Conformity Process in the St. Louis area and specifies the 2022 motor vehicle emissions budgets for NO<sub>x</sub> and VOC emissions.

#### **2.4.8 Commitment to Revise Plan**

Under Section 175A of the Clean Air Act, an area designated as maintenance for a NAAQS is required to submit a second maintenance plan eight (8) years after redesignation of any area as an attainment area under Section 107(d). This second maintenance plan is intended to maintain the NAAQS for ten (10) years after the expiration of the initial ten year period. The Department's Air Pollution Control Program recognizes the importance of an up-to-date, current maintenance plan, and commits to updating it as necessary.

#### **2.4.9 Contingency Measures**

The State of Missouri is committed to maintaining compliance with the 1997 8-hour ozone standard. If future violations of the standard take place, the state will enact contingency measures as expeditiously as possible, that will allow for the area to come back in compliance with the standard as quickly as feasible. Further information about this commitment to enact contingency measures, and a potential list of contingency measures that would be evaluated if the area falls out of compliance with this standard in the future are located in Section 7 of this document.

### **2.5 Section 110 and Part D Requirements**

Requirement (v) for redesignation states that, all the requirements of the section 110 and part D of the CAA that were applicable prior to submittal of a complete redesignation request must be met. These requirements include an emissions inventory for a representative base year. However, certain requirements are suspended when a nonattainment area achieves the NAAQS because these requirements are correlated to the attainment of the air quality goal and thus the intention of these requirements has been fulfilled with achievement of the NAAQS without the necessity of further submittals as long as the area does not violate the standard again. The requirements for reasonable further progress that are needed for attainment are suspended for redesignation requests as long as an area is in attainment. Guidance on this subject is found on page 6 of the EPA's Memorandum, *Procedures for Requests to Redesignate Areas to Attainment*, from John Calgani, Director, Air Quality Management Division, dated September 4, 1992 which states "requirements for reasonable further progress ... will not apply for redesignations because they only have meaning for areas not attaining the standard." Applicable section 110 and Part D requirements that specifically apply to the maintenance plan are addressed in this document.

### **3. OZONE MONITORING**

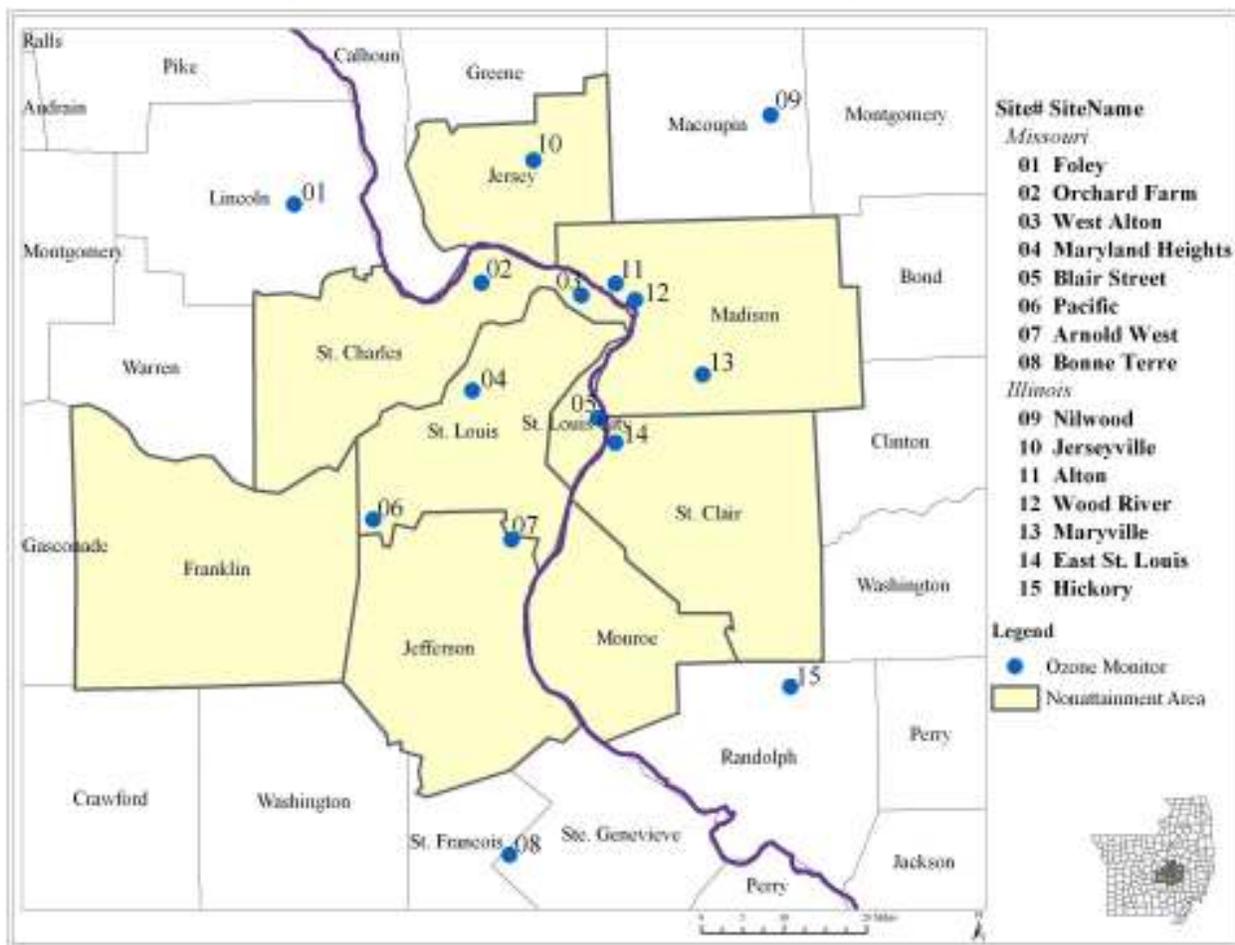
This section presents monitoring information that demonstrates St. Louis has attained the 1997 8-hour ozone standard of 0.08 ppm. This demonstration is based on three consecutive ozone seasons of quality assured data monitored at the St. Louis ozone monitoring network as specified in 40 CFR 58. The demonstration uses ambient air quality monitoring data to demonstrate that the area is attaining the applicable NAAQS consistent with methods cited in the EPA guidance document “Procedures for Processing Request to Redesignate Areas to Attainment”. The following are requirements regarding the use of ambient air monitoring data in demonstrating that the area is attaining the applicable NAAQS, as one of the conditions:

- Monitoring data must show that the non-attainment area is attaining the NAAQS.
- The data should be collected and quality assured in accordance with 40 CFR 58 and recorded in the U.S. EPA Air Quality System (AQS) database in order for it to be available to the public for review.

#### ***3.1 St. Louis Ozone Monitoring Network***

There are currently 15 sites that monitor ozone in the St. Louis Region. 11 sites are located within the St. Louis nonattainment area; 6 in Missouri and 5 in Illinois. In addition, Missouri and Illinois operate at least a monitor upwind and downwind of the nonattainment area. The upwind monitors are located in Bonne Terre, Ste. Genevieve County, Missouri and in Hickory, Randolph County, Illinois. Downwind monitors outside of the nonattainment area are located in Foley, Lincoln County, Missouri and Nilwood, Macoupin County, Illinois. Figure 3-1 shows all monitors in the St. Louis Ozone Monitoring Network.

**Figure 3-1 St. Louis Ozone Monitoring Network**



### 3.2 Ambient Air Monitoring Data

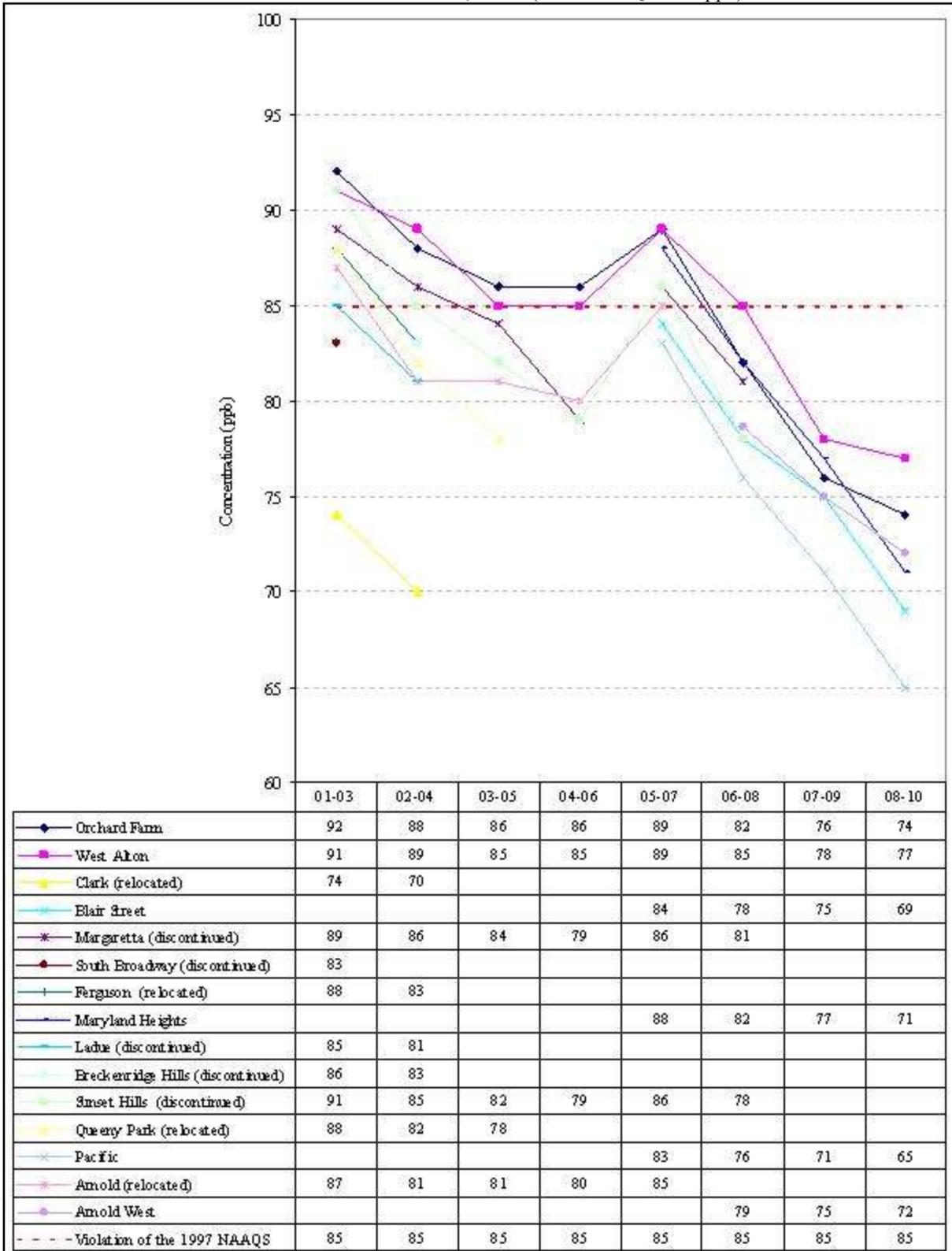
As previously mentioned, exceedances of the standard are determined on a per monitor basis. An exceedance of the standard occurs any time that an 8-hour average value is greater than 0.084 ppm. A monitor can exceed the 8-hour standard and not violate the standard. A violation of the standard at a specific monitor is determined by taking the fourth-highest, eight-hour average reading at a monitor for each of three consecutive years and averaging them together. The eight-hour ozone standard is 0.08 ppm and, due to rounding, a monitor must have a fourth highest eight-hour, three-year average reading of 0.085 ppm (85 parts per billion, or ppb) or higher for it to be considered a violation of the standard.

Design values are calculated by averaging the annual fourth-highest daily maximum 8-hour ozone concentrations over the three consecutive years (40 CFR Part 50). The standard at a site is met when the site's design value is less than or equal to 0.084 ppm (84 ppb). Design values are used as indicators of a region's air quality. The higher a design value for a monitor, the poorer the air quality is in that area. Along the same lines, if an area shows an increasing design value over a number of years, monitoring data is indicating that the air quality is worsening.

Figures 3-2 and 3-3 show the design value trends for the monitors in the Missouri portion of the St. Louis nonattainment area and the Illinois portion of the St. Louis nonattainment area, respectively. As indicated by the trends in the figures, ozone concentrations have decreased at all monitors, indicating improved air quality throughout the St. Louis region. Within the Missouri portion of the St. Louis nonattainment area, there were a total of 11 sites that violated the 1997 standard according to 2001-2003 air monitoring data (Figure 3-2). During the same time period of 2001-2003, two sites in the Illinois portion of the St. Louis nonattainment area also violated the 1997 standard (Figure 3-3). All sites in the area, are now in compliance of the standard, as shown by the design value data in Figures 3-2 and 3-3, as well as the comparison maps in Figure 3-4. Sites that have been discontinued or relocated show design values below the standard at the time of discontinuance or relocation (Figures 3-2 and 3-3).

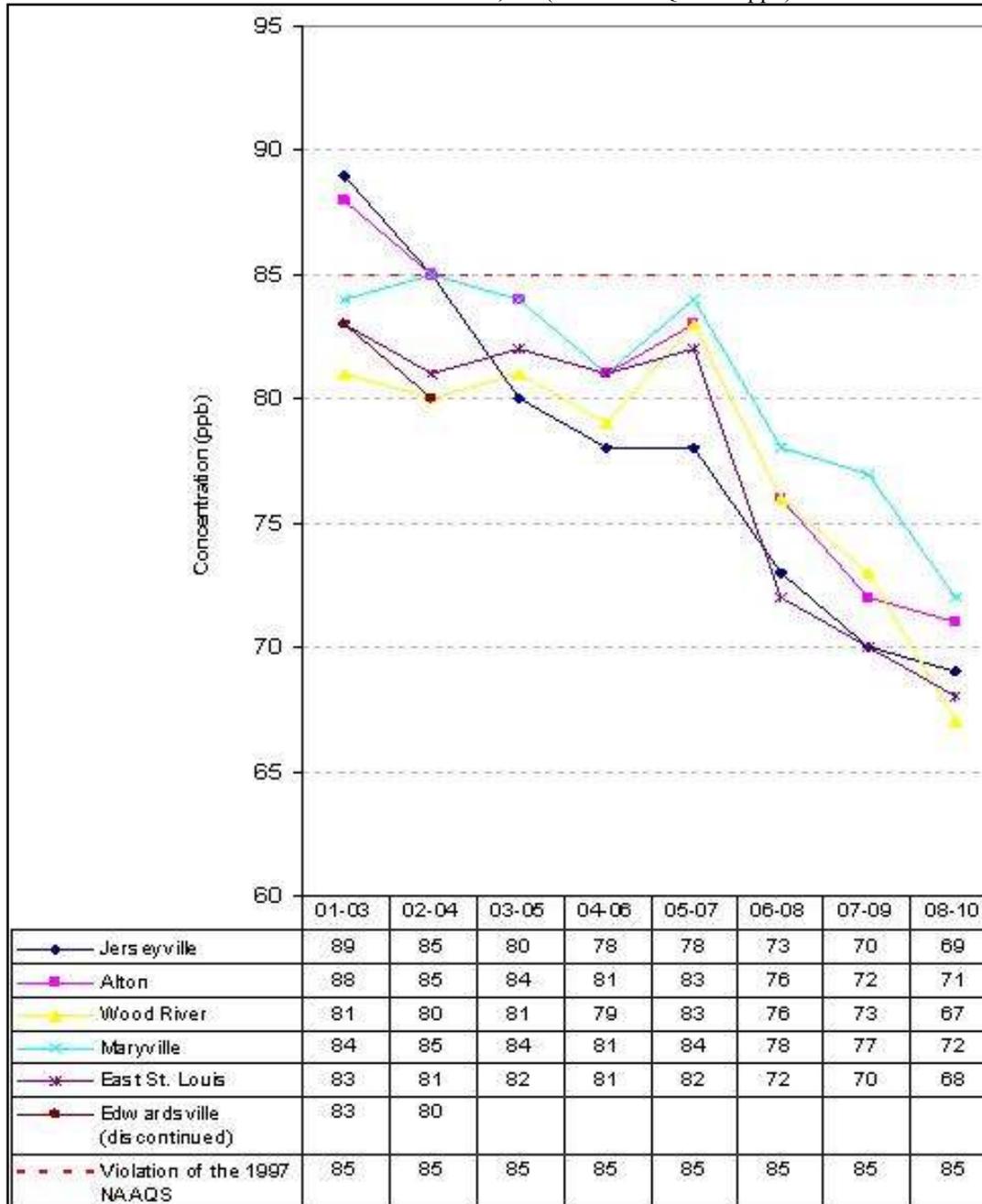
**Figure 3-2 2001-2010 8-hour Ozone Design Value Trends - MO**

St. Louis Nonattainment Area, MO (1997 NAAQS = 84 ppb)

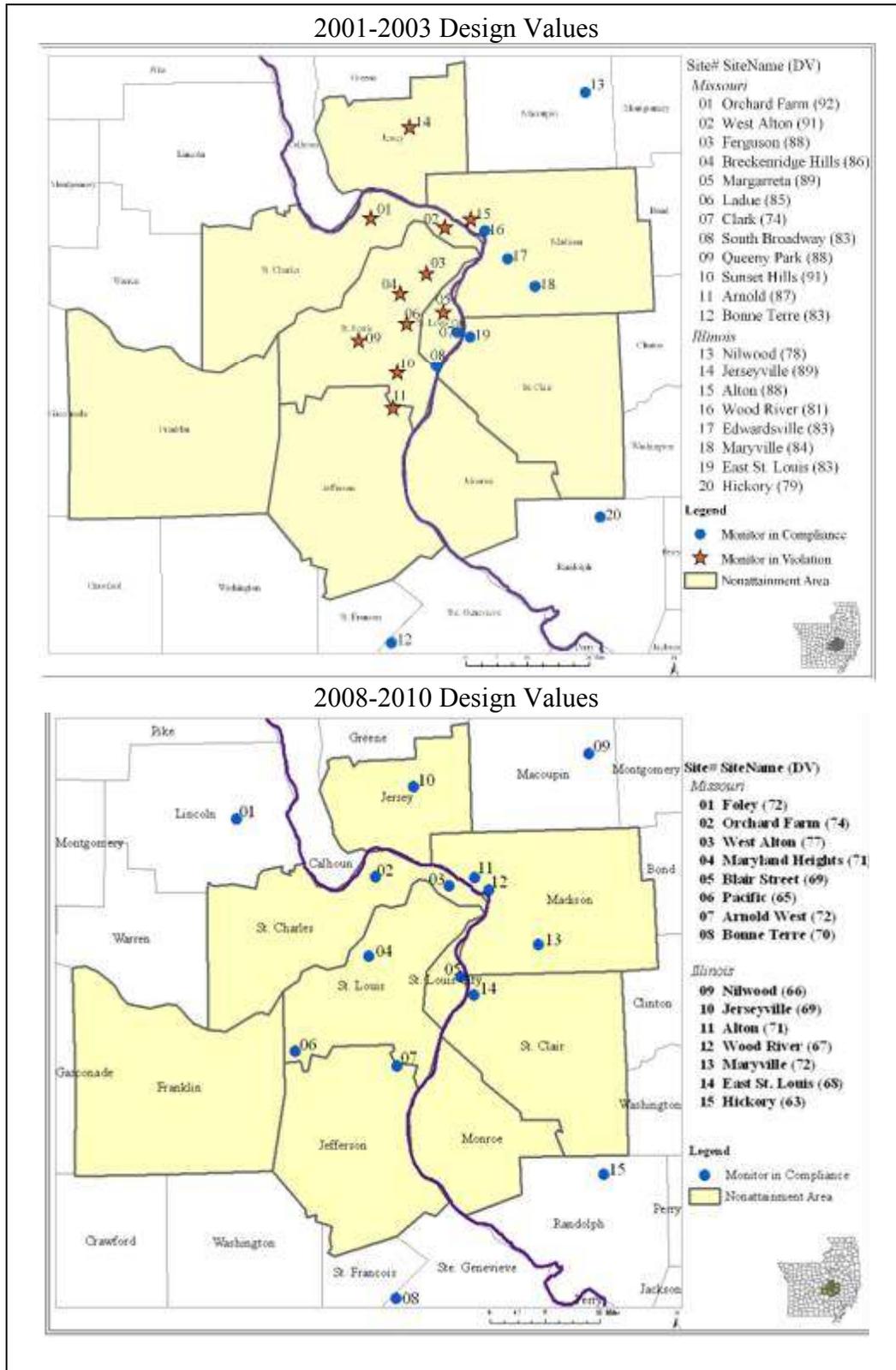


**Figure 3-3 2001-2010 8-hour Ozone Design Value Trends - IL**

St. Louis Nonattainment Area, IL (1997 NAAQS = 84 ppb)



**Figure 3-4 2001-2003 & 2008-2010 Design Values Comparison**  
 St. Louis Nonattainment Area 8-hour Ozone Design Values (1997 NAAQS = 84 ppb)



### 3.3 *St. Louis Ozone Monitoring Data Analysis*

The St. Louis area’s compliance with the 1997 ozone NAAQS is determined by comparing the area’s calculated design values to the ozone standard. As described previously, design values are calculated at each monitor by averaging the annual fourth-highest daily maximum 8-hour ozone concentrations over the three consecutive years (40 CFR Part 50). The standard at a site is met when the site’s design value is less than or equal to 84 ppb.

The design value for the entire St. Louis nonattainment area is determined by comparing all of the design values for the monitors in the nonattainment area. The area’s design value is determined by the single highest individual monitor’s design value for each three consecutive ozone season averaging period. The area’s status of attainment or nonattainment is determined by this design value. For the eight-hour ozone standard, the design value at all monitors for the three-year time periods from 2008 through 2010 do not exceed 0.084 ppm, and thus achieve attainment for the St. Louis nonattainment area. The calculated 2008-2010 8-hour design values for sites in the St. Louis nonattainment area are presented in Table 3-1. As shown in the table, all sites three year design values are less than the 1997 standard, demonstrating that the St. Louis area has attained the 8-hour air quality standard. The St. Louis nonattainment area’s design value monitor would be the West Alton monitor, due to its design value being the highest. The West Alton monitor is bold in Table 3-1.

**Table 3-1 2007-2009 St. Louis 8-Hour Design Values**

(1997 NAAQS = 84 ppb)

County	Monitoring Sites	2008 4 <sup>th</sup> High	2009 4 <sup>th</sup> High	2010 4 <sup>th</sup> High	2008-2010 Design Value
Missouri					
St. Charles	Orchard Farm	72	73	77	74
<b>St. Charles</b>	<b>West Alton</b>	<b>76</b>	<b>71</b>	<b>84</b>	<b>77</b>
St. Louis City	Blair Street	73	65	71	69
St. Louis	Maryland Heights	69	70	76	71
St. Louis	Pacific	64	64	69	65
Jefferson	Arnold West	70	70	77	72

### 3.4 *Missing Data Under the 1997 8-Hour Ozone Standard*

Eight-hour ozone attainment is determined by a three-year average of the annual fourth highest daily maximum. Missing days are of importance only in determining whether sufficient data was sampled to determine compliance. A monitoring day must include 18 valid eight-hour averages for a daily maximum to be determined. To calculate a design value, an average of 90% of the possible daily maximums over a three year period must be complete, with no single year having less than 75% completeness. The final result is that no more than 53 missed days in one year, or 64 missed days total for the three-year period are allowed. If these criteria are not met, then compliance with the 8-hour ozone standard cannot be established. To date, acceptable

monitoring has been maintained and exceeded in the Missouri portion of the St. Louis nonattainment area for the 8-hour ozone standard.

### ***3.5 Quality Assurance Program***

Ambient air monitoring data from the Missouri ozone network is quality assured in accordance with 40 CFR Part 58 and the Missouri Quality Assurance Project Plan (QAPP). The QAPP outlines standard operating procedures for operating the network and validating the data. In addition the network is reviewed annually through the Annual Monitoring Plans, according to 40 CFR Part 58.10. A site can either be discontinued or relocated based on the annual review and with an approval from the EPA. The quality assured data collected at the sites is submitted in the Air Quality System (AQS) and is available for public review as outlined in 40 CFR Part 58. Illinois EPA follows a similar quality assurance system.

### ***3.6 Continued Monitoring Commitment***

The State of Missouri is committed to continue operating the appropriate ozone network in the St. Louis area, in accordance with 40 CFR 58 and approved Annual Monitoring Plans, to verify the attainment status of the area. Missouri will continue to quality assure the ambient air monitoring data in accordance with 40 CFR 58 and submit the data to AQS in timely fashion. The St. Louis Metropolitan Statistical Area (MSA) satisfies and exceeds the minimum monitoring requirement for ozone (40 CFR 58 Appendix D, Table 2), revisions to the Ambient Air Monitoring Regulations (71 Federal Register 61240, October 17, 2006) note “While the final rule of regulations requires fewer monitors than are now operating for ozone and PM<sub>2.5</sub>, as did the pre-existing monitoring rule, EPA does not intend to encourage net reductions in the number of ozone and PM<sub>2.5</sub> monitoring sites in the U.S. as a whole. The surplus in the existing networks relative to minimum requirements gives States more flexibility to choose where to apply monitoring resources for ozone and PM<sub>2.5</sub>”. The State of Missouri commitment is to continue working with the EPA to ensure that the ozone monitoring network is sufficiently meeting the monitoring requirement of 40 CFR 58 and its monitoring objectives.

### ***3.7 Clean Data Determination***

On June 9, 2011, EPA published a final clean data determination in the Federal Register stating that the St. Louis ozone nonattainment area covering both Missouri and Illinois has attained the 1997 8-hour ozone standard based on three years of quality assured ambient air monitoring data (76 FR 33647, June 9, 2011).

## **4. Redesignation Request: Emission Inventory and Controls from 2002 - 2008**

A redesignation request must contain a demonstration that the improvement in air quality between the year that violations occurred and the year that attainment was achieved is based on permanent and enforceable emissions reductions. As described previously in Section 3, three consecutive ozone season monitoring periods are used to evaluate whether actual air quality attainment has been achieved. In this section, the “attainment year” refers to the first year (2008) of the three-year period (2008-2010) used to demonstrate attainment, and the base year refers to the mid-point year (2002) of the three year period used to determine the designation of the nonattainment area. The inventories detailed in this section for 2002 and 2008 include data categories for point, area, and mobile emissions for NO<sub>x</sub> and VOC. Additional details for the base and attainment year inventories for 2002 and 2008 are found in Appendices A and B, respectively.

### ***4.1 Base Year and Attainment Year Inventories***

Table 4.1 is a comprehensive emissions inventory for the Missouri side of the St. Louis nonattainment area, including point, area, on-road mobile, and off-road mobile sources for precursors of ground-level ozone (NO<sub>x</sub> and VOC) for the base year, 2002. Table 4.2 is a comprehensive emissions inventory for the Missouri side of the St. Louis nonattainment area for NO<sub>x</sub>, and VOC for the attainment year, 2008. Both the 2002 and 2008 inventories are based on actual activity levels.

The emissions inventories listed in this section are listed in tons/ozone season day. In order to calculate the emissions in tons/ozone season day for the Missouri portion of the ozone nonattainment area, the Air Program followed the methods listed in Appendix E of this document. Briefly, for point sources ozone season day emissions are calculated on the EIQ form 2.0Z, Ozone Season Information. The facility reported maximum daily throughput during the ozone season is multiplied by the pollutant emission factor and reduced by control device to reach the ozone season daily emissions. For area sources, ozone season day emissions were calculated from (Emissions Modeling Clearinghouse) EMCH temporal allocation profiles that are SCC-specific. Ozone season day emissions are typical of a Tuesday in July. See Appendix E-7 for the temporal allocation method and calculation tables. Appendix E-7 outlines this procedure for area sources, and gives an example. Off-Road ozone season day emissions were calculated by EPA Region 7, and additional information can be found in Appendix E-4. Finally, for on-road mobile sources, emissions were calculated using mobile emission models for the months of April-October, and then divided by 214 (the number of days in the ozone season) to get the average ozone season day emissions.

The 2002 base year inventory includes emissions from point, area, on-road mobile and off-road mobile emissions. Table 4.2 states the 2002 emissions in tons/ozone season day, and summarizes the emissions by major source category and by pollutant for the St. Louis nonattainment area. On May 31, 2007, EPA approved Missouri’s 2002 Base Year Inventory for the Missouri Portion of the 1997 St. Louis Ozone Nonattainment area. Some minor corrections have been made to this inventory since EPA approved it in 2007. The revised 2002 base year

inventory was adopted by the Missouri Air Conservation Commission on May 31, 2007 and submitted to EPA on June 13, 2007. This revised inventory, which details all of the changes from the original 2002 base year inventory, is now being resubmitted to EPA along with this redesignation request and maintenance plan. Summary tables of the 2002 anthropogenic emissions inventory for the St. Louis ozone nonattainment area may be found in Appendix A.

For the 2008 “attainment year” emissions inventory, the documentation of the development of the emissions inventories for point, area, and off-road mobile categories are described in detail in Appendix E, and also summarized in Appendix B. Point source emissions for the pollutants of concern were compiled from Missouri’s Air Emissions Database. Area source emissions were calculated using the most recently available methodologies and emissions factors from U.S. EPA along with activity data (typically population, employment, fuel use, etc.) specific to 2008. Off-road mobile source emissions were developed by EPA Region VII staff, who utilized the NONROAD 2008a model in order to estimate the off-road mobile source emissions for an ozone season day. Biogenic emissions were not included in these summaries.

For Section 4 of this document, the 2008 mobile emissions were created using Mobile6.2 via the National Mobile Inventory Model (NMIM) with 2008 vehicle miles traveled (VMT) data provided by the East West Gateway Council of Governments in coordination with the Interagency Council of Governments. The 2008 VMT data was generated from East-West Gateway's Traffic Demand Model and then compared to Highway Performance Monitoring System (HPMS) data. Through this comparison, calibration factors were developed and then applied to the VMT data from the Traffic Demand Model in order to estimate the actual 2008 VMT for the St. Louis nonattainment area. The NMIM National County Database (NCD) was updated with Missouri specific data. Please see Appendix B-2 for additional details regarding the 2008 on-road mobile emissions calculated using Mobile 6.2 via NMIM.

The EPA’s Mobile6.2 emissions model was used to generate the mobile source emissions in this section in order to allow for a useful comparison between 2002 and 2008 mobile emissions. The mobile emissions generated for the 2002 emissions inventory used Mobile6.2, and it was necessary to use the same mobile emission model to compare the base and attainment year mobile source emissions. However, in Section 5 of this document, the 2008 and 2022 mobile source emissions were generated using EPA’s Motor Vehicle Emissions Simulator (MOVES) 2010a. More information about the use of these two different emission models can be found in Section 5 and Appendix B of this document.

Tables 4-1 and 4-2 summarize the 2002 and 2008 average daily ozone season NO<sub>x</sub> and VOC emissions from the Missouri side of the St. Louis ozone nonattainment area, respectively. Table 4.3 shows the differences in inventories between these two years for each source category and pollutant of concern. As seen in Table 4-3, emissions of NO<sub>x</sub> emissions decreased by 138 tons per ozone season day, while VOC emissions remained relatively stable. The substantial reduction in NO<sub>x</sub> emissions between 2002 and 2008, along with other regional controls have resulted in the improved monitored ground-level ozone concentrations in the St. Louis nonattainment area.

**Table 4-1. 2002 VOC and NO<sub>x</sub> Emissions for the Missouri Side of the 1997 St. Louis 8-Hour Ozone Nonattainment Area (tons per ozone season day)**

<b>Source Category</b>	<b>NO<sub>x</sub></b>	<b>VOC</b>
Point Sources	127.2	32.7
Area Sources	19.4	71.3
On-Road Mobile Sources	159.0	68.1
Off-Road Mobile Sources	60.7	47.0
<b>Total</b>	<b>366.3</b>	<b>219.1</b>

**Table 4-2. 2008 VOC and NO<sub>x</sub> Emissions for the Missouri Side of the 1997 St. Louis 8-Hour Ozone Nonattainment Area (tons per ozone season day)**

<b>Source Category</b>	<b>NO<sub>x</sub></b>	<b>VOC</b>
Point Sources	88.8	18.0
Area Sources	6.5	98.7
On-Road Mobile Sources	96.2	57.9
Off-Road Mobile Sources	60.9	46.4
<b>Total</b>	<b>252.4</b>	<b>221.0</b>

**Table 4-3. Comparing 2002 and 2008 VOC and NO<sub>x</sub> Emissions for the Missouri Side of the 1997 St. Louis 8-Hour Ozone Nonattainment Area (tons per ozone season day)**

<b>Source Category</b>	<b>NO<sub>x</sub></b>	<b>VOC</b>
Point Sources*	- 38.4	- 14.7
Area Sources*	- 12.9	+ 27.4
On-Road Mobile Sources*	- 62.8	- 10.2
Off-Road Mobile Sources*	+0.2	- 0.6
<b>Total*</b>	<b>- 113.9</b>	<b>+ 1.9</b>

\*Note: A negative value indicates a decrease in emissions from 2002 to 2008.  
A positive value indicates an increase in emissions from 2002 to 2008.

## **4.2 Controls Used to Attain the Standard**

The St. Louis area was designated as nonattainment of the 1997 8-hour ozone NAAQS in 2004. Since that time, the implementation of permanent and enforceable reductions of NO<sub>x</sub> and VOC emissions have contributed to improvements in ground level ozone concentrations and to the attainment of the 1997 8-hour ozone NAAQS. The primary control measures used to attain the 1997 8-hour ozone standard include:

- New Source Performance Standards (NSPS)
- National Emissions Standards for Hazardous Air Pollutants (NESHAPS)/Maximum Achievable Control Technology (MACT) Standards
- Federal gasoline detergent additive rule
- NO<sub>x</sub> SIP Call
- Clean Air Interstate Rule (CAIR)
- Heavy-Duty Diesel Engine Standards

- Tier 2 Rule-Vehicle Standards
- Tier 4 Rule-Off Road Mobile Engine Standards
- Reformulated Gasoline (RFG)
- Gateway Vehicle Inspection Program
- National VOC Emission Standards for Consumer and Commercial Products (Part 59)
  - Automobile Refinishing Rule
  - Architectural and Industrial maintenance coating rule
  - Consumer Products solvent control rule
- Missouri State Rules (see Subsection 4.2.3)

#### ***4.2.1 Federal Emission Trading Programs***

The NO<sub>x</sub> SIP Call and CAIR are federal emission trading programs that were designed to reduce the transport of emissions that have significant impacts on downwind nonattainment and maintenance areas. The first year in which sources were required to comply with the NO<sub>x</sub> SIP Call was 2003. In Missouri, the NO<sub>x</sub> SIP Call only affected the eastern third of the state. The NO<sub>x</sub> SIP Call greatly reduced ozone season NO<sub>x</sub> emissions from large sources such as EGUs. According to data from CAMD's Website, the total ozone season NO<sub>x</sub> emissions from EGUs located in the St. Louis nonattainment area have reduced by 4,942 tons (approx. 32.3 tons/ozone season day) from 2002 to 2008. These reductions are almost exclusively attributed to the NO<sub>x</sub> SIP Call. Additionally, the NO<sub>x</sub> SIP Call limited NO<sub>x</sub> emissions from non-EGU boilers including those located at Anheuser Busch and Trigen Ashley Street Station. From 2002 to 2008, the NO<sub>x</sub> emission reductions from all point sources in the nonattainment area totaled 38.4 tons /ozone season day.

CAIR replaced the NO<sub>x</sub> SIP Call and first became effective in 2009. CAIR limited the amount of annual and ozone season NO<sub>x</sub> emissions from EGUs in the entire state of Missouri. In regards to the EGUs located in the St. Louis nonattainment area, the requirements in CAIR were no more stringent than the requirements under the NO<sub>x</sub> SIP Call other than the fact that the annual NO<sub>x</sub> emissions had to be controlled in addition to ozone season NO<sub>x</sub> emissions. However, CAIR had a significant impact on the EGUs located in the western two-thirds of the state, who were now required to significantly reduce their annual and ozone season NO<sub>x</sub> emissions. Some of the facilities in the western two-thirds of the state installed controls earlier than 2009 in anticipation of CAIR. While the NO<sub>x</sub> controls added in the western two-thirds of the state do not affect the NO<sub>x</sub> emissions inventory for the St. Louis nonattainment area, they did have a positive impact in reducing the regional contribution of NO<sub>x</sub> emissions to the ozone monitors located in the nonattainment area.

#### ***4.2.2 Federal Mobile Source Emission Controls***

Federal and state regulations for mobile sources have been phased in since 2002 have had a positive impact on the emissions inventory in all three pollutant categories for both on-road and off-road mobile sources. Mobile source regulations including Heavy-Duty Diesel Engine Standards and Low-Sulfur Diesel, Tier 2 Rule-Vehicle Standards, Tier 4 Rule-Off Road Mobile Engine Standards, Reformulated Gasoline (RFG), and the Gateway Vehicle Inspection Program

have reduced the NO<sub>x</sub> and VOC emissions from the mobile sector in the St. Louis nonattainment area.

Overall, the retirement of older higher polluting vehicles and the phasing in of federal on-road mobile source standards from 2002 to 2008 have contributed to a decrease of 62.8 tons/ozone season day of direct NO<sub>x</sub> emissions, and 10.2 tons/ozone season day of VOC emissions. These on-road mobile source emission reductions have significantly contributed to attainment of the 1997 8-hour ozone NAAQS in the St. Louis area.

#### ***4.2.3 State Regulations***

Several new state regulations that have been adopted since 2002 have resulted in reductions in both NO<sub>x</sub> and VOC emissions. These include the restriction of heavy duty diesel engine idling, the Gateway Vehicle Inspection Program, and the control of NO<sub>x</sub> emissions from cement kilns and stationary internal combustion engines. The Federal NO<sub>x</sub> SIP Call Rule and the associated emission reductions are discussed in detail in Subsection 4.2.1. State Regulation 10 CSR 10-6.360 was the rule written to address the NO<sub>x</sub> SIP Call requirements, which has had a significant effect on ozone season NO<sub>x</sub> emissions from EGUs in the nonattainment area. State Regulation 10 CSR 10-6.350 is the statewide NO<sub>x</sub> rule, which limited emissions of NO<sub>x</sub> both inside the St. Louis nonattainment area along with the rest of the state. State Regulation 10 CSR 10-6.364 was written to comply with the ozone season NO<sub>x</sub> portion of CAIR. Implementation of the seasonal NO<sub>x</sub> portion of CAIR began in 2009 and replaced both the NO<sub>x</sub> SIP call and the statewide NO<sub>x</sub> rule. These six rules are listed below along with the dates they became effective.

*10 CSR 10-5.381 On-Board Diagnostics Motor Vehicle Emissions Inspection,*  
Original Effective Date: 8/30/07,

*10 CSR 10-6.350 Emission Limitations and Emissions Trading of Oxides of Nitrogen,*  
Original Effective Date: 9/30/00, Compliance Date: 5/1/04,

*10 CSR 10-6.360 Controlling NO<sub>x</sub> Emissions From Electric Generating Units and Non-Electric Generating Boilers,*  
Original Effective Date: 10/30/05,

*10 CSR 10-6.364 Clean Air Interstate Rule Seasonal NO<sub>x</sub> Trading program,*  
Original Effective Date: 5/30/07,

*10 CSR 10-6.380 Control of NO<sub>x</sub> Emissions From Portland Cement Kilns,*  
Original Effective Date: 10/30/05, and

*10 CSR 10-6.390 Control of NO<sub>x</sub> Emissions From Large Stationary Internal Combustion Engines*  
Original Effective Date: 10/30/05

### **4.3 Reasonably Available Control Technology (RACT)**

Pursuant to Sections 172, 182(b) and (f) of the CAA, RACT is required for all existing major sources of the applicable criteria pollutant and its precursors located in nonattainment areas. The EPA defines RACT 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 feasibility and economic reasonableness (70 FR 71612; November 29, 2005). The major source threshold for moderate nonattainment areas is defined as 100 tons per year (tpy) of NO<sub>x</sub> or VOCs. A source generally consists of several units that emit pollutants. The sum of emissions from all units at the source determines if a unit is major and thus subject to RACT requirements.

On April 20, 2011, the Air Program requested an exemption for sources of nitrogen oxides (NO<sub>x</sub>) in the Missouri portion of the St. Louis metropolitan 8-hour ozone nonattainment area from the Clean Air Act (CAA) for NO<sub>x</sub> Reasonably Available Control Technology (RACT) for purposes of attaining the 1997 8-hour ozone National Ambient Air Quality Standard (NAAQS). The waiver demonstrates that additional reductions of NO<sub>x</sub> emissions in the area would not contribute to attainment of the 1997 8-hour ozone (NAAQS). EPA published this exemption as a direct final rule and received no comments on this rule (76 FR 43598). The rule became effective September 19, 2011. This NO<sub>x</sub> waiver alleviates the requirements for a demonstration that NO<sub>x</sub> RACT obligations have been met. Therefore, only VOC RACT demonstration requirements will be necessary for redesignation.

Also Sections 172, 182(b)(2), and 182(f) of the CAA require implementation of RACT for sources that are subject to Control Techniques Guidelines (CTGs) documents that are promulgated by the EPA. The EPA has issued CTGs defining presumptive RACT for those categories of sources that emit the greatest amounts of VOC emissions. In 2006-2008, the EPA issued 12 new CTG's in three groups. The 2006 CTG's addressed industrial cleaning solvents, offset lithographic printing and letterpress printing, flexible package printing, and flat wood paneling coatings. The 2007 CTG's address paper, film, and foil coatings, large appliance coatings, and metal furniture coatings. The 2008 CTG's address miscellaneous metal and plastic parts coatings, fiberglass boat manufacturing materials, miscellaneous industrial adhesives, and automobile and light-duty truck assembly coatings. Per the CAA, CTG's establish presumptive RACT for the VOC sources they cover. CTG RACT can apply to sources at a level much lower than the 100 tpy threshold employed for other RACT sources in moderate ozone nonattainment areas. In fact, some of these newly-issued CTGs apply to sources with emissions as low as 2.5 tpy. Any state with moderate ozone nonattainment areas must implement equivalent RACT for all promulgated CTGs prior to redesignation of those areas. The Department developed amendments to four VOC rules to address these new CTGs for which there are existing applicable sources in the St. Louis nonattainment area.

Three of the new rulemakings to address the new CTGs were proposed for public hearing March 31, 2011, and were adopted by the MACC on April 28, 2011. The adoption of these CTGs was a necessary element to allow the St. Louis area to be redesignated to attainment for the 1997 ozone standard. The three rules that have been amended to account for these new CTGs include:

- 10 CSR 10-5.330 *Control of Emissions From Industrial Surface Coating Operations*

- 10 CSR 10-5.340 *Control of Emissions From Rotogravure and Flexographic Printing*
- 10 CSR 10-5.442 *Control of Emissions from Lithographic Printing Operations*

The three rules listed above were submitted to EPA for inclusion in the state implementation plan following their April 28, 2011 MACC adoption. One other rule is currently being amended to address CTG requirements in the St. Louis area. 10 CSR 10-5.455 *Control of Emissions from Solvent Cleanup Operations*, is currently in the process of being amended. This rule is expected to be adopted by the MACC in 2012 with an anticipated EPA SIP submittal in April of 2012.

RACT is not a new requirement for the 1997 8-hour ozone NAAQS. Missouri has previously addressed RACT requirements in the St. Louis nonattainment area in developing attainment plans for the 1-hour ozone standard. For the 1997 8-hour standard, the Department developed a RACT demonstration as an element to the ozone SIP revision. Per the federal implementation rule for the 1997 ozone standard, the RACT demonstration was to be submitted as a separate element prior to the submittal of the attainment demo and other elements of the SIP revision. On September 28, 2006, the MACC held a public hearing for the proposed RACT demonstration. The RACT plan was adopted on December 7, 2006 and submitted to the EPA on January 5, 2007.

Since these new CTGs were not considered in the 2006 RACT demonstration, and in an effort to ensure that RACT determinations for the St. Louis nonattainment area are ongoing and continuous, the Department developed an update to the 2006 RACT demonstration to support this redesignation request. This updated RACT demonstration will show how RACT has been upgraded as appropriate since the last RACT submittal. This updated RACT document was adopted by the MACC on April 28, 2011 and submitted to EPA on May 25, 2011.

For a more detailed discussion of RACT issues, please refer to the updated RACT demonstration adopted April 28, 2011, which can be found at <http://dnr.mo.gov/env/apcp/sips.htm#ozone>

#### **4.4 *Permanent and Enforceable Controls***

The Air Program provides assurance that all of the control measures adopted by state rules and listed in this document that have been used to attain the 1997 8-hour ozone standard are permanent and enforceable. Any revisions to the control measures included in this document will be submitted as a SIP revision to EPA for approval.

The NO<sub>x</sub> SIP Call included rules for the control of NO<sub>x</sub> emissions from four different source groups including electric generating units, non-electric generating boilers, Portland cement kilns, and stationary internal combustion engines. The rule written to comply with the NO<sub>x</sub> SIP Call requirements for EGUs and was *10 CSR 10-6.360 Controlling NO<sub>x</sub> Emissions From Electric Generating Units and Non-Electric Generating Boilers*, however this rule was replaced when implementation of the Clean Air Interstate Rule (CAIR) began in 2009 and CAIR will be replaced by the federal Cross-State Air Pollution Rule (CSAPR) in 2012 as discussed in the following paragraph. CSAPR does not include regulations for non-EGU boilers, specifically Trigen Units 5 and 6 and Anheuser Busch Unit 6. However these three units have all been

retired, and received retired unit exemptions that prohibit these units from operating. The signed EPA retired unit exemption forms for these three units are included in this document as Appendix G. The rules written to comply with the NO<sub>x</sub> SIP Call requirements for Portland cement kilns, and stationary internal combustion engines are *10 CSR 10-6.380 Control of NO<sub>x</sub> Emissions From Portland Cement Kilns*, *10 CSR 10-6.390 Control of NO<sub>x</sub> Emissions From Large Stationary Internal Combustion Engines*, both of which currently remain permanent and enforceable in Missouri's SIP.

EPA issued the Clean Air Interstate Rule (CAIR) on May 12, 2005 and the CAIR federal implementation plans on April 26, 2006. In 2008, the US Court of Appeals for the DC Circuit remanded CAIR to EPA. EPA's CSAPR will replace the 2005 CAIR in 2012 using new approaches consistent with the court's opinion. A supplement to CSAPR was proposed on July 6, 2011, which adds Missouri and five other states to the ozone season NO<sub>x</sub> trading program established through CSAPR. The supplemental proposal is expected to be finalized in November 2011. Both CAIR and CSAPR establish ozone season NO<sub>x</sub> emissions caps for large electric utilities in Eastern states throughout the country. The CAIR requirements for ozone season NO<sub>x</sub> pollution reductions currently remain in effect and the CAIR regional control programs will continue operating until January 2012, when implementation of CSAPR begins. When the supplemental proposal is final, CSAPR will ensure that ozone season NO<sub>x</sub> emission reductions established by CAIR are permanent and enforceable over the life of this maintenance plan.

Federal regulations for the control of mobile sources are expected to be tightened in the future. The mobile source control measures have resulted in the significant reductions in both NO<sub>x</sub> and VOC emissions. The continued tightening of federal mobile source standards and phase out of older higher polluting vehicles will continue to contribute to maintenance of the 1997 8-hour ozone NAAQS

Additionally, there are numerous other rules that provide permanent and enforceable controls for NO<sub>x</sub> and VOC emissions in the St. Louis nonattainment area. The rules in Title 10 Division 10 Chapters 5 and 6 of the Missouri Code of State Regulations include permanent and enforceable control measures for ozone precursor emissions in the St. Louis nonattainment area. These controls include control technique guidelines for numerous VOC sources, open burning restrictions, and emission standards for incinerators. For additional information on state regulations to control VOC emissions in the St. Louis area, see the 2011 Reasonably Available Control Technology Demonstration Update for the 1997 8-Hour Ozone Standard in the St. Louis Area.

## **5. Maintenance Plan Demonstration: Emission Inventory and Controls from 2008 - 2022**

This section provides a detailed emissions inventory for 2008 and a projected emission inventory for 2022. This section also includes a discussion of regulations that have become effective since 2008, and a list of expected future regulations that will help to continue to control NO<sub>x</sub> and VOC emissions in the St. Louis area. The Air Program commits to keeping all previously adopted control measures in effect after redesignation. In addition, Prevention of Significant Deterioration (PSD) requirements will apply to construction of new major sources and to significant modifications of existing sources. Future transportation plans will also be required to conform to the conformity plan budgets. These existing and future control measures identified in the maintenance plan are relied upon to maintain the 1997 8-hour ozone NAAQS.

### ***5.1 Base/Attainment Year Inventory and Future Year Emission Projections***

A Maintenance Plan must contain a demonstration that the levels of emissions projected for the ten-year period following redesignation are sufficient to maintain the NAAQS. Accordingly, the Air Program has projected NO<sub>x</sub> and VOC emissions for the St. Louis nonattainment area for 2022. Emissions for this projection year are compared to emissions levels in 2008 to determine if emissions levels are sufficient to maintain the NAAQS during this period.

For the purposes of this section, a modified 2008 emission inventory was developed. The 2008 inventory in this section will act as the base year compared to the 2022 inventory detailed in this section. The alternative 2008 inventory will include all point, area, on-road mobile, and off-road mobile source categories. The emissions from point, area, and off-road mobile source categories are identical to the attainment year inventory listed in the previous section. However, the on-road mobile source inventory is dramatically different. This is due to the fact that a different mobile emission model was used to develop the inventory in this section of the document.

For this Section of this document, on-road motor vehicle emissions were estimated using U.S. EPA's MOVES 2010A motor vehicle emissions model and VMT data from East-West Gateway Council of Government in coordination with the St. Louis Transportation Conformity Interagency Consultation Group. MOVES 2010A is a completely redesigned model, not just an updated version of the previous mobile model. The way MOVES calculates emissions has changed to reflect EPA's more current understanding of the emissions produced by vehicles and the various factors that affect the emissions. NO<sub>x</sub> emissions were found to be higher because of the larger portion that extended idling of heavy duty vehicles contributes to the emissions total. VOC emissions calculated with MOVES are comparable to VOC emissions calculated with Mobile 6.2, however they are slightly higher. As a result of these changes to the model, MOVES produced higher emissions estimates for both 2008 and 2022 than were originally created with Mobile 6.2 via NMIM. Therefore, in addition to running a projected emissions budget for 2022 for on-road emissions, 2008 base year emissions were also run using MOVES. This allows for a meaningful comparison in emissions from 2008 to 2022. By using MOVES to calculate the 2008 and 2022 mobile emission inventories, a smooth transition can occur to new the mobile model that must be used in future SIPs and transportation conformity determinations. Additional

details about the development of the 2008 and 2022 on-road mobile emissions inventories are located in Appendices B and C of this document, respectively.

The projected point and area source emissions in the St. Louis area for 2022 were estimated using the 2008 base year inventory and growth factors appropriate for each source category. The 2008 and 2022 emissions from point, area, on-road mobile, and off-road mobile source categories are listed in Tables 5-1 and 5-2. Growth factors were created from the EGAS model (<http://www.epa.gov/ttnecas1/egas5.htm>) using economic growth projections from the Policy Insight® Model for Regional Economic Model, Inc (REMI). An adjustment was made for a consent agreement between the Air Program and MEMC Electronics Materials Incorporated for the company to continue to operate their scrubbers for the control of NO<sub>x</sub> from their acid bath/etching process. This consent agreement has been submitted to EPA for inclusion in Missouri's SIP. Finally, based on a review of the Federal CSAPR and consultation with Ameren UE, the owner of the four largest point source emitters of NO<sub>x</sub> in the nonattainment area, future projections of NO<sub>x</sub> emissions from these sources were determined by using the allowances listed in the proposed supplement to CSAPR along with a 21% variability factor, which was included in the final CSAPR for the ozone season trading program. CSAPR was finalized July 6, 2011, and the supplement to CSAPR, which adds Missouri into the ozone season NO<sub>x</sub> trading program, is expected to be finalized in November 2011. Using a 21% variability factor is very conservative and not expected to be reached in any year by these four facilities combined. Detailed information about the development of the point and area source inventories for the future year, 2022, can be found in Appendix D of this document.

Off-road emissions projections for 2022 were developed using the growth factors contained in U.S. EPA's NONROAD model. The NONROAD model also includes control factors for federal controls that have been promulgated. The on-road mobile source emissions listed in Tables 5-1 and 5-2 were calculated using MOVES 2010A. The VMT data was provided by East-West Gateway Council of Government in coordination with the St. Louis Transportation Conformity Interagency Consultation Group. The figures assume the continued use of reformulated gasoline, the continued phase-in of the Tier 2 motor vehicle emissions standards, and the continuing operation of a basic vehicle inspection and maintenance program. Total VMT for 2022 were assumed to increase at a rate of 1.5 percent per year from 2008, as provided by East West Gateway Council of Governments in coordination with the St. Louis Transportation Conformity Interagency Consultation Group. Detailed information about the development of the on-road and off-road mobile source inventories for future year, 2022, can be found in Appendix C of this document.

**Table 5-1. 2008 VOC and NO<sub>x</sub> Emissions for the Missouri Side of the 1997 St. Louis 8-Hour Ozone Nonattainment Area (tons per ozone season day)**

Source Category	NO <sub>x</sub>	VOC
Point Sources	88.84	18.0
Area Sources	6.52	98.74
On-Road Mobile Sources	160.38	58.53
Off-Road Mobile Sources	60.85	46.44
<b>Total</b>	<b>316.59</b>	<b>221.71</b>

**Table 5-2. 2022 VOC and NO<sub>x</sub> Emissions for the Missouri Side of the 1997 St. Louis 8-Hour Ozone Nonattainment Area (tons per ozone season day)**

Source Category	NO <sub>x</sub>	VOC
Point Sources	92.81	25.79
Area Sources	6.77	121.19
On-Road Mobile Sources	44.57	21.20
Off-Road Mobile Sources	44.37	28.21
<b>Total</b>	<b>188.52</b>	<b>196.39</b>

Table 5-3 provides a comparison of emissions for the years 2008 and 2022, using the 2008 on-road mobile source emissions listed in Table 5-1 to reflect the MOVES values for consistent comparison purposes. The table shows the differences by source category along with the total changes in emissions for each pollutant listed. As shown in the table, both NO<sub>x</sub> and VOC emissions within the nonattainment area are expected to decrease significantly between 2008 and 2022. Based on these emissions trends of NO<sub>x</sub> and VOC it is expected that air quality will continue to meet the 1997 8-hour ozone NAAQS throughout the maintenance period.

**Table 5-3. Comparison of 2008 and 2022 VOC and NO<sub>x</sub> Emissions for the Missouri Side of the 1997 St. Louis 8-Hour Ozone Nonattainment Area (tons per ozone season day)**

Source Category	NO <sub>x</sub>	VOC
Point Sources*	+ 3.97	+ 7.79
Area Sources*	+ 0.25	+ 22.45
On-Road Mobile Sources*	- 115.81	- 37.33
Off-Road Mobile Sources*	- 16.48	- 18.23
<b>Total*</b>	<b>- 128.07</b>	<b>- 25.32</b>

\*Note: A negative value indicates a projected decrease in emissions from 2008 to 2022. A positive value indicates a projected increase in emissions from 2008 to 2022.

It should be noted that the projected increase in VOC emissions for area sources are based on (EGAS) growth factors. Due to the use of these growth factors, emissions of VOC from area sources are projected to increase significantly by 2022. However, these projected increases are likely overstated and actual area source emissions of VOC are not expected to increase as much as the growth factors suggest. EPA's Regulatory Impact Analysis (RIA) for the 2006 PM NAAQS rule, Appendix D (<http://www.epa.gov/ttn/ecas/regdata/RIAs/Appendix%20D--Inventory.pdf>), notes on pages D-29 to D-36, that though REMI data was used in their emission forecasting method, the oversimplification of emissions growth based on economic factors likely overestimates projected emissions. EPA's recognition of the downward trend in emissions during times of economic growth supports the conclusion that the VOC increases for area sources are likely an artifact of the growth methodology. From page D-36:

*-While it is not clear that all of the factors that have served to produce this historical decline will continue to operate in the future, it appears unreasonable to assume that we currently have arrived at an 'inflection point' past which the trend will stop or reverse itself. Indeed, because the available data show that a number of large sources in the sectors of interest have no or limited pollution controls, it is reasonable to expect emissions rates will be steady or decline. Continuing to ignore this factor in future-year*

*emission projections may increasingly skew the predicted emissions increase, and the farther into the future the forecast the more dramatic the impact. The preceding and other explanations suggested that we need to reevaluate our emission forecasting approaches for stationary non-EGU sources to incorporate factors not adequately considered in past methodologies.*

The projected decreases in NO<sub>x</sub> and VOC emissions from 2008 to 2022 are primarily due to decreases in the mobile source category. Average ozone season daily NO<sub>x</sub> and VOC emissions in the St. Louis area from on-road and off-road mobile sources are projected to decrease approximately 132 tons/day and 56 tons/day, respectively. That amounts to an over 40% reduction of total NO<sub>x</sub> emissions and an over 25% reduction of total VOC emissions, while point and area source NO<sub>x</sub> emissions are expected to remain relatively stable, and point and area source VOC emissions are projected to increase slightly.

Additional details about the 2008 and 2022 emission inventories can be found in Appendices B and D, respectively. It should also be noted that the emissions projections included here do not reflect the reductions expected from a range of measures being implemented to reduce diesel emissions in the St. Louis nonattainment area. These measures have been funded through sources such as the:

- U.S. EPA's Midwest Clean Diesel Initiative
- Congestion Mitigation and Air Quality Improvement (CMAQ) Program
- Diesel Emissions Reduction Act (DERA)
- American Recovery and Reinvestment Act of 2009
- Heavy Duty Diesel Idling Rule, *10 CSR 10-5.385*
- Various supplemental environmental projects

These projects include the installation of particulate filters, diesel oxidation catalysts, closed-crankcase ventilation systems, and direct-fired heaters on school and transit buses, and municipally-owned utility vehicles, upgrading diesel construction engines with engines meeting more stringent emissions standards, and installing auxiliary power units on over-the-road trucks to reduce idling. It is anticipated that DERA and CMAQ funding will continue to support additional diesel emissions reduction projects in the near future.

## ***5.2 Interim Year Emission Inventory: 2017***

The Air Program has developed an Interim Emission inventory for the Missouri side of the St. Louis nonattainment area. Interim year 2017 was decided to be used as it is the midway point between 2012, the year in which this plan is expected to be approved, and 2022, the last year in the ten year maintenance plan period. All assumptions and controls used in developing the project 2022 emission inventory in Section 5.1 of this document were also used to project the 2017 inventory. Table 5.4 summarizes the emissions for point, area, on-road mobile, and off-road mobile sources that are projected for 2017 for the Missouri side of the St. Louis nonattainment area. The Air Program commits to analyzing actual 2017 emissions for the Missouri side of the St. Louis nonattainment area and comparing the actual 2017 emissions to the

projected 2017 emissions listed in Table 5.4 to ensure the area keeps pace with the reductions expected throughout the maintenance period. Additional details about the development of the 2017 interim year emission inventory can be found in Appendix C of this document.

**Table 5-4. 2017 VOC and NO<sub>x</sub> Emissions for the Missouri Side of the 1997 St. Louis 8-Hour Ozone Nonattainment Area (tons per ozone season day)**

<b>Source Category</b>	<b>NO<sub>x</sub></b>	<b>VOC</b>
Point Sources	91.20	22.79
Area Sources	6.68	112.60
On-Road Mobile Sources	61.91	26.97
Off-Road Mobile Sources	46.89	29.46
<b>Total</b>	<b>206.68</b>	<b>191.82</b>

### ***5.3 Controls to Remain in Effect***

The Air Program provides assurance that all of the control measures adopted by state rules and listed in this document that have been used to attain the 8-hour ozone standard are permanent and enforceable. Any revisions to the control measures included in this document will be submitted as a SIP revision to EPA for approval. Additional information with respect to the ongoing control of NO<sub>x</sub> and VOC sources in the St. Louis area can be found in subsection 4.4 of this document.

### ***5.4 Future Federal Control Measures***

There are currently several federal control measures that have recently been proposed or promulgated that are expected to greatly reduce the amount of NO<sub>x</sub> and VOC emissions in the St. Louis area. The control measures expected to have the greatest effect on NO<sub>x</sub> and VOC emissions in the St. Louis area include the federal CSAPR, the National Emissions Standards for Fossil-Fuel Fired Electric Utility Steam Generating Units (Utility MACT), National Emission Standards for Hazardous Air Pollutants for Major Sources: Industrial, Commercial, and Institutional Boilers and Process Heaters (Boiler MACT), improved motor vehicle fuel efficiency standards, and the phase in of tier 4 emission standards for nonroad engines.

CSAPR and the improved federal mobile source regulations were both considered when developing the future emissions inventory in order to demonstrate continued maintenance with the 1997 8-hour ozone standard. EPA projects that under CSAPR, annual NO<sub>x</sub> emissions will be 100,000 tons lower nationwide in 2012, compared to baseline 2012 projections. As stated earlier, federal motor vehicle and nonroad engine standards are only expected to be tightened in the future which will also contribute to NO<sub>x</sub> and VOC emission reductions. These recent and anticipated future federal control measures are expected to result in continued decreases in NO<sub>x</sub> and VOC emissions both nationwide and in the St. Louis area. These measures will greatly assist current and ongoing efforts in the St. Louis area to maintain compliance with the 1997 8-hour ozone NAAQS.

The Utility MACT and the Boiler MACT were both written to address hazardous air pollutants, and will therefore have the greatest reductions in pollutants such as PM<sub>2.5</sub> and SO<sub>2</sub>. However, if owners of boilers and EGUs subject to these new rules decide to improve plant efficiency or switch to cleaner fuels for compliance strategies, then there is expected to be co-benefits for NO<sub>x</sub> and VOC emissions from these sources. The Air program did not rely on the Utility MACT or the Boiler MACT when developing the future year emissions inventory or to determine that the St. Louis area would remain in attainment of the 1997 8-hour ozone NAAQS; however the anticipated reductions from these new rules may also contribute to the future attainment of the 1997 8-hour ozone NAAQS in the St. Louis area.

### ***5.5 Provisions for Permitting New or Modified Emissions Sources***

In accordance with the Clean Air Act, Missouri has a long-standing and fully implemented New Source Review (NSR) permitting program for new major sources and significant modifications of existing sources. This NSR program in any attainment area is referred to as a Prevention of Significant Deterioration (PSD) permitting program. One of the major components of the PSD program is the implementation of Best Available Control Technology (BACT) on new major sources or significant modification of existing major sources. Missouri has been delegated full authority to implement the PSD program by the EPA.

In this document, the Department is requesting redesignation to attainment under the 1997 8-hour ozone standard. However, the St. Louis nonattainment area is expected to be designated as nonattainment under either the 2008 Ozone NAAQS or its reconsideration. If this is case, the State of Missouri is fully committed to continuing its NSR permitting program for nonattainment areas which makes new major sources and significant modifications of existing sources subject to the Lowest Achievable Emission Rate (LAER) as well as offsets and an alternate site analysis pursuant to the CAA.

## 6. Transportation Conformity

Transportation conformity is required under CAA section 176(c) (42 U.S.C. 7506(c)) to ensure that transportation plans, transportation improvement programs and federally supported highway transit project activities are consistent with (“conform to”) the purpose of the SIP. Conform to the purpose of the SIP means that transportation activities will not cause new air quality violations, worsen existing violations, or delay timely attainment of the relevant NAAQS or any interim milestones. These requirements are found in Clean Air Act section 176(c)(B)(i), (ii), and (iii): “That such activities will not cause or contribute to any new violation of any standard in any area; increase the frequency or severity of any existing violation of any standard in any area; or delay timely attainment of any standard or any required interim emissions reductions or other milestones in any area.” Transportation conformity applies to areas that are designated nonattainment, and those areas redesignated to attainment after 1990 (“maintenance areas”) for transportation-related criteria pollutants: Carbon monoxide (CO), ozone, nitrogen dioxide (NO<sub>2</sub>) and particulate matter (PM<sub>2.5</sub> and PM<sub>10</sub>).

This section describes and establishes the St. Louis nonattainment area motor vehicle emissions budget associated with the ozone maintenance plan. Approval of the maintenance plan will establish new VOC and NO<sub>x</sub> motor vehicle emissions budget for the maintenance year, 2022. EPA requires motor vehicle emission budgets be established for the last year of the maintenance plan.

The budgets reflect an emissions level determined using 2008 VMT provided by East West Gateway. The 2008 VMT data was generated from East-West Gateway's Traffic Demand Model and then compared to Highway Performance Monitoring System (HPMS) data. Through this comparison, calibration factors were developed and then applied to the VMT data from the Traffic Demand Model in order to estimate the actual 2008 VMT for the St. Louis nonattainment area. The budgets also reflect a VMT growth at an annual rate of 1.5 percent from year 2008 levels to 2022. The 1.5 percent growth rate for use in projecting 2008 VMT to 2022 was developed through a coordinated effort with MoDOT, Illinois Environmental Protection Agency, the Federal Highway Administration, Illinois Department of Transportation, and East-West Gateway. Table 6-1 shows the actual historical annual VMT on state owned roads for the Missouri Portion of the St. Louis nonattainment area. In the past twenty-five years, VMT growth has varied considerably for the Missouri side of the St. Louis nonattainment area ranging as high as 6.7 percent in 1988 and as low as negative 1.8 percent in 1991. The average annual growth rate over the past twenty-five years is 1.9 percent. However, the traffic demand models used by East-west Gateway projects approximately 1 percent annual VMT growth for the next 10 years. The traffic demand model used by East-West Gateway uses current economic trends as a factor to calculate projected growth rates. With such extreme variations in a relatively short amount of time, it is not reasonable to project VMT to a future year solely considering current economic trends. In addition, emission plans for maintenance must be based on permanent and enforceable reductions, such as federal emission standards. Due to the worst economic downturn since the Great Depression, the economy has been struggling in the past few years, which has resulted in lower projected VMT growth rates from the traffic demand model. For the purposes of this maintenance plan, the 1.5 percent VMT growth rate was selected and agreed to by both states for consistency and to account for the expected economic rebound, which would result in higher VMT than projected by the traffic demand model. On February 22, 2011, the Air Program

discussed the use of the 1.5 percent growth rate to be used in this Maintenance Plan with the Interagency Council of Governments (IACG) group responsible for transportation conformity in the St. Louis nonattainment area. Illinois EPA stated that they too planned to use a 1.5 percent growth rate in their maintenance plans for the St. Louis area for both PM<sub>2.5</sub> and Ozone, and the members of the IACG agreed that a 1.5 percent growth rate was reasonable to use for the purposes of this plan. Table 6-2 summarizes the estimated 2008 and projected 2022 annual VMT used for each county in the Missouri Portion of the St. Louis nonattainment area.

Once the county level annual VMT numbers for 2022 were calculated MOVES 2010a was used and all months for 2022 were selected to create an annual emissions profile. The emissions for the months of April through October were totaled and divided by 214, the number of days in those months, to give average ozone season day emissions, which are reflected in the transportation conformity budget in Table 6.2.

**Table 6-1. Historical VMT in the Missouri Portion of the 1997 St. Louis 8-Hour Ozone Nonattainment Area (State Owned Roads Only)**

Year	Annual VMT	Annual Growth Rate
1985	8,308,235,850	
1986	8,838,007,070	6.4%
1987	9,168,965,710	3.7%
1988	9,779,349,735	6.7%
1989	10,279,500,110	5.1%
1990	10,535,025,660	2.5%
1991	10,342,044,685	-1.8%
1992	10,745,357,640	3.9%
1993	11,013,078,205	2.5%
1994	11,670,927,195	6.0%
1995	11,960,972,985	2.5%
1996	12,112,134,815	1.3%
1997	12,463,661,570	2.9%
1998	12,593,954,160	1.0%
1999	12,562,808,345	-0.2%
2000	12,584,108,650	0.2%
2001	12,816,788,850	1.8%
2002	12,998,755,585	1.4%
2003	13,057,922,815	0.5%
2004	13,121,705,470	0.5%
2005	13,102,295,865	-0.1%
2006	13,114,079,525	0.1%
2007	13,473,086,955	2.7%
2008	13,334,059,915	-1.0%
2009	13,349,210,335	0.1%
2010	13,236,646,160	-0.8%

**Table 6-2. 2008 and 2022 Annual VMT by County**

<b>County</b>	<b>2008 Annual VMT</b>	<b>2022 Annual VMT</b>
Franklin	1,636,760,381	2,016,088,979
Jefferson	1,884,745,023	2,321,545,483
St. Charles	2,728,058,895	3,360,302,178
St. Louis	11,924,864,323	14,688,519,968
St. Louis City	3,450,450,085	4,250,111,666
<b>Totals</b>	<b>21,624,878,706</b>	<b>26,636,568,272</b>

In the Missouri portion of the St. Louis nonattainment area, transportation conformity for the ground-level ozone standard will be based on these submitted motor vehicle budgets after EPA determines that the budgets meet the adequacy criteria of the transportation conformity rule. This conformity budget replaces any and all previous budgets used for ground-level ozone conformity demonstrations in the Missouri portion of the St. Louis ozone nonattainment area. Table 6-3 identifies the 2022 motor vehicle emissions budgets for the 1997 St. Louis 8-hour ozone nonattainment area for use in transportation conformity analyses. The emissions budgets were created using MOVES 2010A. All inputs used to create these budgets can be found in Appendix D-3.

**Table 6-3. Motor Vehicle Emissions Budgets for the Missouri Portion of the St. Louis 8-Hour Ozone Nonattainment Area in Tons per Ozone Season Day**

<b>Pollutants</b>	<b>2022 Mobile Source Budgets (tons/ozone season day)</b>
<b>NO<sub>x</sub></b>	44.57
<b>VOC</b>	21.20

## 7. Contingency Measures

Section 175(A) of the Clean Air Act specifies the requirements for maintenance plans. In addition to providing a plan for the maintenance of the NAAQS for at least ten (10) years after the redesignation, the plan shall also include a list of contingency measures to correct any violation of the fine particulate matter NAAQS after redesignation to attainment.

Contingency measures are to be used to further reduce emissions in the event that future violations of the 1997 8-hour ozone NAAQS occur after redesignation to attainment. While these measures do not need to be fully adopted by the Missouri Air Conservation Commission prior to the occurrence of a NAAQS violation, the contingency measures are expected to be implemented as expeditiously as possible once a triggering event occurs. The maintenance plan must identify the triggers that determine when contingency measures will be adopted, and the measures that the Air Program will consider.

The Air Program has developed a contingency plan for the Missouri portion of the St. Louis ozone maintenance area. The contingency plan which details the Level I and Level II triggers and corresponding actions to be taken is summarized in Table 7-1. The potential contingency measures, to be evaluated after a triggering event, are listed in Table 7-2. Consistent with this contingency plan, the Air Program agrees to adopt and implement, as expeditiously as is practicable, the necessary corrective actions in the event that violations of the 1997 8-hour ozone NAAQS occur anywhere within the St. Louis ozone maintenance area after redesignation to attainment. The implementation of contingency measures under Level I or Level II triggers will take place as expeditiously as practicable, but in no event later than twenty-four (24) months after the Air Program makes a determination, based on quality-assured ambient data, that a violation of the appropriate trigger has occurred.

The contingency plan provides for different levels of corrective responses should the ambient 8-hour ozone levels exceed the NAAQS in any year. A Level I response would occur in the event that the fourth highest 8-hour ozone concentration at any monitoring site in the St. Louis maintenance area (including sites in Missouri and Illinois) exceeds 84 ppb in any year. The Air Program will evaluate the air quality and determine if adverse emission trends are likely to continue. If so, the Air Program will determine what and where controls may be required, as well as the level of emissions reductions needed to avoid a violation of the NAAQS. If controls are required, the potential contingency measures listed in Table 7-2 will be evaluated in addition to other measures that may be identified through the evaluation or that become available through future advances in control technology and methods. It should be noted that the EPA does not require a state to implement contingency measures when occasional exceedances are recorded. The Department's voluntary commitment to initiate a Level I response is intended to prevent future violations of the NAAQS from ever occurring.

A Level II trigger occurs when a violation of the 1997 8-hour ozone NAAQS at any monitoring station in the St. Louis maintenance area is recorded after it has been redesignated to attainment. The Air Program will conduct a thorough analysis to determine appropriate measures to address the cause of the violation. Contingency measures will be selected from those listed in Table 7.2

or from any other measured identified and deemed appropriate and effective at the time the selection is made. Level II triggers are more serious than Level I triggers and cost effectiveness thresholds could be increased when determinations for additional controls are made.

The contingency measures listed in Table 7.2 are expected to be evaluated in the event of a Level I or Level II trigger; however federal actions that require control measures may also be taken into account when the analysis to determine the cause of a future violation occurs. These additional federal actions, while not actual contingency measures, may be evaluated in the event of a trigger to determine their effect on the levels of expected emissions from sources in the area in order to determine whether or not additional local control measures are necessary. The measures that may be evaluated in the event of a future trigger include future federal on-road vehicle standards, future federal nonroad engine standards for marine and locomotive engines, any future federal emission trading programs designed to address future ozone or PM NAAQS promulgations, the Commercial-Industrial-Institutional Boiler Maximum Achievable Control Technology (MACT) requirements, and the Utility MACT requirements. Furthermore, the Air Program remains committed to addressing future ozone NAAQS revisions through state implementation plans. These plans could include other control techniques not included in Table 7.2. These and any other newly identified potential control measures may also be considered in the analysis following a future Level I or II triggering event.

The Air Program commits to compiling NO<sub>x</sub> and VOC emissions inventories for the St. Louis maintenance area every three years for the duration of the Maintenance Plan to facilitate the emissions trends analysis included in the contingency plan under Levels I and II. Since St. Louis is a bi-state nonattainment area, the Air Program commits to work with Illinois EPA to evaluate emissions trends and the causes of Level I and Level II triggers to determine appropriate control measures needed to assure continued attainment of the 1997 8-hour ozone NAAQS.

Adoption of additional control measures is subject to necessary administrative and legal processes. The Air Program will solicit input from all interested and affected persons in the area prior to selecting appropriate control measures. No contingency measures will be implemented without providing the opportunity for full public participation. This process will include publication of notices, an opportunity for public hearing, and other measures required by Missouri law.

**Table 7-1. Contingency Plan for the Missouri Portion of the 1997 St. Louis 8-Hour Ozone Maintenance Area**

<b>Contingency Measure Trigger</b>	<b>Action to be Taken</b>
<p><u>Level I Trigger</u></p> <p>Fourth highest monitored 8-hour average ozone concentration exceeding 84 ppb in any year at any monitoring station in the St. Louis, MO-IL maintenance area.</p>	<p>The Air program will evaluate the air quality and determine if adverse emission trends are likely to continue. If so, the Air Program will determine what and where controls may be required, as well as the level of emissions reductions needed to avoid a violation of the NAAQS. The evaluation shall be completed as expeditiously as possible and, if necessary, control measures shall be adopted and implemented as expeditiously as practicable, taking into consideration the ease of implementation and the technical and economic feasibility of the selected measures. This action will be taken no later than 24 months after the Air Program has determined that a Level I trigger has occurred.</p>
<p><u>Level II Trigger</u></p> <p>A monitored violation of the NAAQS at any monitoring station in the St. Louis, MO-IL maintenance area.</p>	<p>The Air Program will conduct a thorough analysis to determine appropriate measures to address the cause of the violation. Analysis shall be completed within 6 months. Selected measures shall be implemented as expeditiously as practicable, taking into consideration the ease of implementation and the technical and economic feasibility of the selected measures. This action will be taken no later than 24 months after the Air Program has determined that a Level II trigger has occurred.</p>

**Table 7-2. Potential Contingency Measures for the Missouri Portion of the 1997 St. Louis 8-Hour Ozone Maintenance Area**

<b>Contingency Measure Method</b>	<b>List of Potential Contingency Measures to be Considered</b>
<p>Implement controls for local individual sources with significant effects on the monitored violation</p>	<ul style="list-style-type: none"> <li>• Identify local sources with significant NO<sub>x</sub> and/or VOC emissions and develop controls through consent agreements</li> </ul>
<p>Revise rules that control NO<sub>x</sub> and VOC emissions</p>	<ul style="list-style-type: none"> <li>• Lower the applicability thresholds in existing rules that control NO<sub>x</sub> and VOC</li> <li>• Lower the limits in existing rules</li> <li>• Broaden the geographical area of existing rules</li> <li>• Include new source categories under the applicability of existing rules</li> </ul>
<p>New rules that control NO<sub>x</sub> and VOC emissions</p>	<ul style="list-style-type: none"> <li>• Enhanced Heavy-Duty Diesel Anti-Idling Program (i.e. mandated rest periods and locomotives)</li> <li>• New Alternative Control Techniques (ACTs) for NO<sub>x</sub> sources</li> <li>• New CTGs for VOC sources</li> <li>• Architectural/Industrial/Maintenance (AIM) Coatings similar to Ozone Transport Commission (OTC) model rule</li> </ul>

## 8. CONCLUSION

The St. Louis nonattainment area has attained the 1997 0.080 ppm 8-hour ozone NAAQS and has complied with the applicable provisions of the CAA required of moderate ozone nonattainment areas. Missouri has supported, with appropriate submittals, all of EPA's redesignation obligations under Section 107 of the CAA and has addressed all the applicable maintenance plan requirements. This plan submission serves as the official redesignation request for the Missouri portion of the 1997 St. Louis non-attainment area to be considered for approval concurrently with the maintenance plan and other certain necessary rule actions submitted to EPA relating to new Control Techniques Guidelines.

The Missouri Department of Natural Resources' Air Pollution Control Program has prepared this maintenance plan to meet the requirement of the Clean Air Act. This maintenance plan provides for the continued attainment of the 1997 8-hour ozone NAAQS for a period of ten years after U.S. EPA has formally redesignated the area to attainment and also supplies adequate contingency measures for potential, additional emissions reductions in the event that future violations of the 1997 8-hour ozone NAAQS are observed in the area.

The Department has prepared a comprehensive emissions inventory of the precursors of ozone completed for the "attainment" year 2008, and has prepared projections of the emissions inventory to 2022. These emissions projections indicate that emissions levels in the St. Louis nonattainment area will continue to decrease from attainment year 2008 levels, thereby maintaining the ozone NAAQS in future years. The state commits to continue to operate an appropriate air quality monitoring network to verify the maintenance of the attainment status once the area has been redesignated. The department has the legal authority to implement and enforce all control measures.

Finally, this maintenance plan includes year 2022 on-road motor vehicle emissions budgets for use in transportation conformity determinations to assure that any increases in emissions from this sector do not jeopardize continued attainment of the 8-hour ozone standard during the ten-year maintenance period. This maintenance plan has been prepared in accordance with the requirements of the CAA and in conjunction with the guidance provided by EPA documents and staff.

Pursuant to 643.055 RSMo, the Missouri Air Conservation Commission has determined that this action is needed to have a U.S. Environmental Protection Agency approved State Implementation Plan.

The Redesignation Demonstration and Maintenance Plan for the Missouri Portion of the St. Louis Nonattainment Area for the 1997 8-Hour Ground-Level Ozone National Ambient Air Quality Standard is hereby adopted by the Missouri Air Conservation Commission this 27th day of October, 2011.

Commissioners participating by phone are included on the attached signature sheet.

Original signed by:	Chairman
<b>David C. Zimmermann</b>	Vice Chairman
<b>Gary J Pendergrass</b>	Member
<b>Ronald Boyer</b>	Member

\_\_\_\_\_, Member

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Pursuant to 643.055 RSMo, the Missouri Air Conservation Commission has determined that this action is needed to have a U.S. Environmental Protection Agency approved State Implementation Plan.

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The following Commissioner(s) participated by phone:

\_\_\_\_\_, Chairman

\_\_\_\_\_, Vice Chairman

\_\_\_\_\_, Member

Original signed by:	Member
<b>Jack C Baker</b>	Member

\_\_\_\_\_, Member

\_\_\_\_\_, Member

# PUBLISHER'S AFFIDAVIT

STATE OF MISSOURI,)

)ss.

COUNTY OF COLE)

Mike Vivion being duly sworn, according to law, says he is Vice President of Central Missouri Newspapers, Inc., Publisher of the News Tribune, a newspaper printed and published in the County of Cole, and State aforesaid; that said newspaper has been published continuously for more than three years; and that the notice hereto attached was published in said paper in compliance with the provisions of Section 493.050

R.S. of Mo. For 2000 as amended for 1 time as follows:

1<sup>st</sup> insertion, No. \_\_\_\_\_, 24th day of August, 2011

2<sup>nd</sup> insertion, No. \_\_\_\_\_, \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_\_

3<sup>rd</sup> insertion, No. \_\_\_\_\_, \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_\_

4<sup>th</sup> insertion, No. \_\_\_\_\_, \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_\_

5<sup>th</sup> insertion, No. \_\_\_\_\_, \_\_\_\_\_ day of \_\_\_\_\_, 20\_\_\_\_\_

Fee: \$237.50

Mike Vivion

Subscribed and sworn to before me this 25th

day of August, 2011

Barbara Kliethermes

Notary Public,

BARBARA KLIETHERMES  
Notary Public - State of Missouri  
My Commission Expires March 13, 2013  
Cole County  
Commission #09529328

My term as Notary Public expires \_\_\_\_\_

MISSOURI AIR CONSERVATION  
COMMISSION

WILL HOLD PUBLIC HEARING

JEFFERSON CITY, MO -- The Missouri Air Conservation Commission will hold a public hearing on the New Source Performance Regulations, Maximum Achievable Control Technology Regulations, Emission Standards for Hazardous Air Pollutants, and the Maintenance Plan for the St. Louis Ozone Nonattainment Area on Thursday, September 29, 2011. The Public Hearing will begin at 9 a.m. at the Holiday Inn Southeast, Grand Ballroom A, B, and C, 9103 East 39th Street, Kansas City, Missouri. The commission will hear testimony related to the following item(s).

- 10 CSR 10-6.070 (amendment)  
New Source Performance Regulations

This proposed amendment will adopt new emission standards, updates, and clarifications to existing federal rule 40 CFR 60 that were promulgated during calendar year 2010. This rule as a whole establishes acceptable design and performance criteria for specified new or modified emission sources.

- 10 CSR 10-6.075 (amendment)  
Maximum Achievable Control Technology Regulations

This proposed amendment will adopt new emission standards, updates, and clarifications to existing federal rule 40 CFR 63 that were promulgated during calendar year 2010. This rule as a whole establishes emission control technology, performance criteria, and work practices to achieve emission standards for sources that emit, or have the potential to emit, hazardous air pollutants.

- 10 CSR 10-6.080 (amendment)  
Emission Standards for Hazardous Air Pollutants

This proposed amendment will adopt new emission standards, updates, and clarifications to existing federal rule 40 CFR 61 that were promulgated during calendar year 2010. This rule as a whole establishes emission standards and performance criteria for new or modified sources emitting hazardous air pollutants.

- Redesignation Demonstration and Maintenance Plan for the Missouri Portion of the St. Louis Nonattainment Area for the 1997 8-Hour Ground-Level Ozone National Ambient Air Quality Standard (NAAQS)

On April 30, 2004, the U. S. Environmental Protection Agency (EPA) designated the Missouri counties of Franklin, Jefferson, St. Charles, and St. Louis along with the City of St. Louis as a nonattainment area for the 1997 8-Hour Ozone NAAQS. Monitoring data shows that violations of the standard are no longer occurring within the St. Louis region. Monitors located in the St. Louis metropolitan area have recorded three years of complete, quality assured ambient air quality monitoring data for 2008-2010, demonstrating attainment with the ozone NAAQS. Now that the area has attained the standard, a redesignation request and maintenance plan for the St. Louis area is being submitted to EPA to redesignate the affected area to attainment for this NAAQS.

Documents for the above item(s) will be available for review at the Missouri Department of Natural Resources, Air Pollution Control Program, 1659 Elm Street, Jefferson City, (573) 751-4817 and in the Public Notices section of the program web site [www.dnr.mo.gov/env/apcp/index.html](http://www.dnr.mo.gov/env/apcp/index.html). This information will be available at least 30 days prior to the public hearing date.

Persons with disabilities requiring special services or accommodations to attend the meeting can make arrangements by calling the Department directly at (573) 526-4679, the Department's toll free number at (800) 334-6946, or by writing two weeks in advance of the meeting to: Missouri Department of Natural Resources, Air Conservation Commission Secretary, P.O. Box 176, Jefferson City, MO 65102. Hearing impaired persons may contact the program through Relay Missouri, (800) 735-2966.

The commission holds public hearings under the provisions of chapter 643, RSMo. Citizens wishing to speak at the public hearing should notify the secretary to the Missouri Air Conservation Commission, Missouri Department of Natural Resources, Air Pollution Control Program, P.O. Box 176, Jefferson City, Missouri 65102-0176, or telephone (573) 526-4679. The Department requests persons intending to give verbal presentations also provide a written copy of their testimony to the commission secretary at the time of the public hearing. The Department also will accept written or email comments for the record until 5 p.m. on October 6, 2011; please send written comments to Chief, Air Quality Planning Section, Air Pollution Control Program, P.O. Box 176, Jefferson City, MO 65102-0176. Email comments regarding rule actions shall be sent to [apcprulespn@dnr.mo.gov](mailto:apcprulespn@dnr.mo.gov) and email comments regarding plan actions shall be sent to [apcpsip@dnr.mo.gov](mailto:apcpsip@dnr.mo.gov). All written and email comments and public hearing testimony will be equally considered. Public hearing items may be adopted by the Missouri Air Conservation Commission as provided for under authority of 643.050, RSMo. For more information or a complete meeting agenda, including items being presented for adoption, contact the Missouri Department of Natural Resources' Air Pollution Control Program at (573) 751-4817.

N.T. August 24, 2011

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STATE OF MISSOURI  
DEPARTMENT OF NATURAL RESOURCES  
MISSOURI AIR CONSERVATION COMMISSION

PUBLIC HEARING

September 29, 2011

Holiday Inn Southeast  
Grand Ballroom, A, B & C  
9103 East 39th Street  
Kansas City, MO 64133

- Mr. Mark S. Garnett, Chairman
- Mr. Gary Pendergrass
- Mr. Jack Baker
- Mr. Ron Boyer

COMMISSIONERS

- Ms. Kyra Moore, Director
- Mr. David S. Gilmore, Assistant

STAFF

1 ITEM C - PUBLIC HEARING

2 (Starting time of the Hearing: 9:00  
3 a.m.)

4 CHAIRMAN GARNETT: The Hearing will come  
5 to order. Let the record show the following  
6 Commissioners are present: Mark Garnett, Jack  
7 Baker, Gary Pendergrass and Ron Boyer.

8 The Air Conservation Commission for the  
9 State of Missouri has called this Public Hearing  
10 pursuant to Section 643.070, Revised Statutes of  
11 Missouri, EPA Promulgated Rule 40 CFR 51.102 for  
12 the purpose of hearing testimony relating to 10 CSR  
13 10-6.070 New Source Performance Regulations, 10 CSR  
14 10-6.075 Maximum Achievable Control Technology  
15 Regulations, 10 CSR 10-6.080 Emission Standards for  
16 Hazardous Air Pollutants.

17 Missouri State Implementation Plan -  
18 Redesignation Demonstration and Maintenance Plan  
19 for the Missouri Portion of the St. Louis  
20 Nonattainment Area for the 1997 8-Hour Ground-Level  
21 Ozone National Ambient Air quality Standard.

22 The Hearing record will close at 5 p.m.,  
23 October 6th, 2011. Anyone who has not been  
24 available to appear but they wish to be heard  
25 should indicate that you wish to speak on the sign-

1 smaller sources that we would need to inspect, so  
2 it would be inspectors in the Regional Office, some  
3 staff in the Central Office to do - to file some  
4 notifications.

5 We do some of that already, but the bulk  
6 of the work would be the inspections of those  
7 sources. The gas stations, for example, I think  
8 there are several thousand, but then we would have  
9 to add the out of state - outside of St. Louis that  
10 we don't already inspect.

11 COMMISSIONER PENDERGRASS: Alright,  
12 thanks.

13 CHAIRMAN GARNETT: Mark Leath?

14 (WHEREIN, the Witness Mark Leath was  
15 duly sworn by the Court Reporter.)

16 MR. MARK LEATH: Good morning Chairman,  
17 Members of the Commission, my name is Mark Leath.  
18 I am employed with the Air Pollution Control  
19 Program as an Environmental Engineer. I work at  
20 1659 East Elm Street, Jefferson City, Missouri.

21 I am here today to present testimony on  
22 a Redesignation Demonstration and Maintenance Plan  
23 for the Missouri Portion of the St. Louis  
24 Nonattainment Area for the 1997 Ground-Level Ozone  
25 National Ambient Air Quality Standard, or NAAQS.

**COMMENTS AND RESPONSES  
AND  
RECOMMENDATION FOR ADOPTION**

**PROPOSED REVISION TO  
THE MISSOURI STATE IMPLEMENTATION PLAN –  
REDESIGNATION DEMONSTRATION AND MAINTENANCE PLAN FOR THE  
MISSOURI PORTION OF THE ST. LOUIS NONATTAINMENT AREA FOR THE  
1997 8-HOUR GROUND-LEVEL OZONE (O<sub>3</sub>)  
NATIONAL AMBIENT AIR QUALITY STANDARD**

On September 29<sup>th</sup>, 2011, the Missouri Air Conservation Commission held a public hearing concerning the proposed revision to the Missouri State Implementation Plan (SIP) for the Redesignation Demonstration and Maintenance Plan for the Missouri Portion of the St. Louis Nonattainment Area for the 1997 8-Hour Ground-Level Ozone National Ambient Air Quality Standard (NAAQS). The following is a summary of comments received and the Missouri Department of Natural Resources' corresponding responses. Any changes to the proposed state implementation plan are identified in the responses to the comments.

The Missouri Department of Natural Resources' Air Pollution Control Program recommends the commission adopt the plan action as amended. If the commission adopts this plan action, it will be the department's intention to submit this plan to the U.S. Environmental Protection Agency for inclusion in the Missouri State Implementation Plan.

**SUMMARY OF COMMENTS:** The Department received six (6) comments, all from the U.S. Environmental Protection Agency (EPA).

**COMMENT #1:** The EPA commented that the portion of the document that discusses the state's compliance with the requirements for Reasonably Available Control Technology (RACT) should include additional language in regards to the NO<sub>x</sub> waiver for the 1997 8-hour ozone standard that was finalized by EPA for the St. Louis area. They commented that it should be noted that no adverse comments were received and we should include the effective date of the NO<sub>x</sub> waiver in the document. They also provided suggested language that could be used.

**RESPONSE AND EXPLANATION OF CHANGE:** The department appreciates the EPA's cooperation in commenting on this redesignation request and maintenance plan. The portion of this plan that discusses the state's fulfillment of the RACT requirements has been revised to include the suggested language in regards to the NO<sub>x</sub> waiver.

**COMMENT #2:** EPA commented that on page 29 of the document, the department discusses four rules that have recently been adopted and submitted to EPA to address the RACT requirements for Control Techniques Guidelines (CTGs). They suggested clarifying that only three of these rule amendments have been formally adopted and submitted to EPA for inclusion in the SIP, and that the 4<sup>th</sup> rule, CSR 10-5.455 is currently being amended and will go back through the public hearing/adoption process and is expected to be sent to EPA for approval in April 2012.

**RESPONSE AND EXPLANATION OF CHANGE:** The plan has been revised to clarify that only 3 of the 4 CTGs listed in that section of the document have been submitted to EPA, and it outlines the anticipated schedule for the adoption and submittal of 10 CSR 10-5.455 to EPA.

Due to the similar nature of the next two comments, one (1) response follows this group of two (2) comments:

**COMMENT #3:** EPA commented that on page 43 of the document in Table 7.2 Contingency Measures, the reference to future federal control measures should be removed from the contingency measures table and simply discussed in the narrative section instead.

**COMMENT #4:** EPA commented that on page 43 of the document in Table 7.2 Contingency Measures, the potential contingency measure “more stringent controls for local sources to be required on days that are conducive to ozone formation” be removed from the contingency measures table and simply discussed in the narrative section instead.

**RESPONSE AND EXPLANATION OF CHANGE:** In response to this comment, the plan has been revised by removing these contingency measure options from Table 7.2 and instead includes a discussion of them in the narrative portion of Section 7 of the plan.

**COMMENT #5:** EPA commented that the method the department used to calculate the daily ozone season emissions from the annual emissions inventory should be explained in further detail in Section 4 of the document.

**RESPONSE AND EXPLANATION OF CHANGE:** As a result of this comment, language that explains the method of calculating the ozone season daily emissions from the annual emissions inventory has been added to Section 4 of the document. A more detailed discussion of the method used to calculate ozone season day emissions can be found in Appendix E.

**COMMENT #6:** EPA commented that on page 35, Section 5.1, the percentage of emission reductions that are expected to result from mobile source controls between 2008 and 2022 should be compared to the overall emission inventory rather than just the mobile source portion in order to better clarify the impact that these controls are expected to have on the overall inventory.

**RESPONSE AND EXPLANATION OF CHANGE:** As a result of this comment, and in order to provide additional clarity and simplicity for EPA’s review of this plan, the plan has been revised so that the percentage of emission reductions expected from mobile source controls between 2008 and 2022 are now compared to the entire emissions inventory in Section 5.1 of the document.

Jay Nixon, Governor  
Sara Parker Pauley, Director

## Air Pollution Control Program

### State Plan Actions

On Public Notice | Proposed for Adoption

#### On Public Notice

The following proposed state plan actions are on public notice and comments are being accepted through the closing dates listed below.

#### 2008 Base Year Emissions Inventory for the Missouri Portion of the St. Louis Ozone Nonattainment Area

Appendix A - List of Statewide Point Source Annual Emissions by Facility

Appendix B - List of Onroad Annual Emissions by SCC for Franklin and Jefferson Counties

Appendix C - List of Onroad Annual Emissions by SCC for St. Charles and St. Louis Counties and St. Louis City

Appendix D - 2008 Nonroad Inventory Documentation

Appendix E - Nonroad Ozone Season Day Emissions by SCC

Appendix F - Nonpoint ICI Combustion Methodology

Appendix G - Temporal Allocation

Appendix H - EIQ Forms

In accordance with Section 172(c)(3) of the Clean Air Act, the Missouri Department of Natural Resources' Air Pollution Control Program has developed a comprehensive, accurate, current inventory of actual emissions from all sources of the relevant pollutants in the Missouri Portion of the St. Louis Ozone Nonattainment Area for the 1997 8-hour ozone standard. This 2008 Base Year Emissions Inventory provides average ozone season day (OSD) emissions in tons for ozone precursors: volatile organic compounds, carbon monoxide, and nitrogen oxides.

This information will be on Public Notice for thirty (30) days beginning on August 8, 2011 and ending at the close of business on September 7, 2011. Written comments on this inventory should be sent to the attention of Wendy Vit, Air Quality Planning Section Chief at P.O. Box 176, Jefferson City, MO 65102-0176 or emailed to [apcpsip@dnr.mo.gov](mailto:apcpsip@dnr.mo.gov).

A public hearing will be set at the request of any interested party. Any requests for a public hearing should be sent to the attention of Wendy Vit, at the above address or by fax to (573) 751-2706 and must be received by noon, August 29, 2011

2008 Base Year Emissions Inventory for the Missouri Portion of the St. Louis Fine Particulate Matter (PM2.5) Nonattainment Area

Appendix A - Point Source Emissions by Facility

Appendix B - Onroad Emissions for Franklin and Jefferson Counties

Appendix C - Onroad Emissions for St. Charles and St. Louis Counties and St. Louis City

Appendix D - Nonroad Inventory Documentation

Appendix E - Nonroad Emissions

Appendix F - Nonpoint Industrial and Commercial/Institutional Fuel Combustion Methodology

In accordance with Section 172(c)(3) of the Clean Air Act, the Missouri Department of Natural Resources Air Pollution Control Program has developed a comprehensive, accurate, current inventory of actual emissions from all sources of the relevant pollutants in the Missouri Portion of the St. Louis fine particulate matter (PM2.5) Nonattainment Area for the 1997 annual PM2.5 standard. In order to make this 2008 Base Year Emissions Inventory potentially applicable for other future needs, it includes emissions per year for all of the following pollutants: carbon monoxide, ammonia, oxides of nitrogen, PM10, PM2.5, sulfur dioxide and volatile organic compounds.

This information will be on Public Notice for 30 days beginning on July 13, 2011 and ending at the close of business on Aug. 12, 2011. Written comments on this inventory should be sent to the attention of Wendy Vit, Air Quality Planning Section Chief at P.O. Box 176, Jefferson City, MO 65102-0176 or emailed to [apcpsip@dnr.mo.gov](mailto:apcpsip@dnr.mo.gov).

A public hearing will be set at the request of any interested party. Any requests for a public hearing should be sent to the attention of Wendy Vit, at the above address or by fax to 573-751-2706 and must be received by noon, Aug. 2, 2011.

[Back to top](#)

**Proposed for Adoption**

2010 1-Hour Sulfur Dioxide Boundary Designation Recommendation

In June 2010, the U.S. Environmental Protection Agency issued a revision to the National Ambient Air Quality Standard for sulfur dioxide of 75 parts per billion measured over one hour. Release of this standard started a time clock with a deadline of June 2011 for the governor of the State of Missouri to submit a recommendation to EPA as to which areas of the state should be designated as nonattainment for the new sulfur dioxide standard. Portions of Greene, Jackson, and Jefferson counties are recommended as nonattainment for this standard. Comments were accepted through May 5, 2011. The department did not receive any comments.

#### 2010 1-Hour Sulfur Dioxide Boundary Designation Recommendation and Technical Support Document

#### Missouri State Implementation Plan -- The Doe Run Company Herculaneum Facility -- Modification to Consent Judgment

As part of the Consent Judgment entered into by Missouri Department of Natural Resources and The Doe Run Company, the provision entitled "Fence line to Preclude Public Access" includes a statement that Doe Run will not construct any new lead emission sources between the existing fence line and any new fence line. The purpose of this revision is to modify this statement to allow for the construction of a new lead technological process, but continue to restrict the construction of traditional pyrometallurgical lead processes within this area. Comments were accepted through May 5, 2011. The department did not receive any comments.

#### Proposed Revision to the Missouri State Implementation Plan: Reasonably Available Control Technology Demonstration Update for the 1997 8-Hour Ozone Standard St. Louis Nonattainment Area

The Missouri Department of Natural Resources' Air Pollution Control Program is proposing to amend the Missouri State Implementation Plan. This proposed change to the State Implementation Plan is an update to the 2006 Reasonably Available Control Technology demonstration and certifies that current rules, including those proposed for amendment, fulfill the Reasonably Available Control Technology requirements for all applicable sources of ozone precursors in the Missouri portion of the St. Louis ozone nonattainment area under the 1997 8-hour ozone National Ambient Air Quality Standards. Comments were accepted through April 7, 2011.

Comments were received on the proposed revision to the Missouri State Implementation Plan. Below is a summary of the comments and responses and the revised document that will be presented for adoption at the April 28, 2011 Missouri Air Conservation Commission meeting.

#### Comments Received and Responses

#### Reasonably Available Control Technology Demonstration Update for the 1997 8-Hour Ozone Standard St. Louis Nonattainment Area

[Back to top](#)