STATE OF MISSOURI
Jeremiah W. (Jay) Nixon, Governor • Sara Parker Pauley, Director
DEPARTMENT OF NATURAL RESOURCES
www.dnr.mo.gov

MAR 27 2014

Mr. Karl Brooks
Regional Administrator
U.S. EPA, Region VII
11201 Renner Boulevard
Lenexa, KS 66219

Dear Mr. Brooks:

The Missouri Department of Natural Resources' Air Pollution Control Program (Air Program) hereby submits the following Missouri State Implementation Plan (SIP) revision for your approval:

Supplement/Revision to the Redesignation Demonstration and Maintenance Plan for the Missouri Portion of the St. Louis Nonattainment Area for the 1997 Annual Fine Particulate Matter ($PM_{2.5}$) National Ambient Air Quality Standard

Through this SIP submittal, the Air Program is requesting that EPA take the following actions:

1. Redesignate the St. Louis 1997 $PM_{2.5}$ nonattainment area to attainment pursuant to the provisions of the Clean Air Act, section 107;
2. Approve the associated maintenance plan for the St. Louis 1997 $PM_{2.5}$ nonattainment area as a revision to the State Implementation Plan (SIP) meeting the requirements of the Clean Air Act, section 175A;
3. Approve the 2008 base year inventory for the Missouri portion of the St. Louis nonattainment area under the 1997 annual $PM_{2.5}$ NAAQS as meeting the requirements under Clean Air Action section 172(c)(3);
4. Approve the Motor Vehicle Emissions Budgets (MVEBs) for the year(s) 2008 and 2025 for the Missouri portion of the St. Louis 1997 $PM_{2.5}$ nonattainment area pursuant to Clean Air Act Section 176(c);

The Missouri Air Conservation Commission adopted this plan at the March 27, 2014 commission meeting. A public hearing for the proposed plan was held on January 30, 2014 and comments were accepted from December 30, 2013 through February 6, 2014. During the public comment period for the proposed plan, the Air Program received three (3) comments from the U.S. Environmental Protection Agency. A summary of the comments received and our responses are attached.

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.

Also, due to their size, paper copies of the appendices to the plan are not included in this package. The disk(s) included with this package include an electronic copy of the plan and appendices.

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

Kyra L. Moore
Director

KLM:mlc

Enclosures:

Copy of plan (paper copies of the appendices are not included)
Copy of commission signature page certifying Missouri Air Conservation Commission adoption
Copy of public hearing notice
Copy of public hearing transcript introductory statement
Copy of recommendation for adoption
Copy of the summary of comments and responses
CD with electronic copy of the plan with appendices

c: Missouri Air Conservation Commission
File# 1997-PM-4 Annual Re-designation

Supplement/Revision to the Redesignation Demonstration and Maintenance Plan for the Missouri Portion of the St. Louis Nonattainment Area for the 1997 Annual Fine Particulate Matter ($PM_{2.5}$) National Ambient Air Quality Standard

Prepared for the
Missouri Air Conservation Commission
Adoption: March 27, 2014

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

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Executive Summary

On December 17, 2004, the Missouri counties of Jefferson, Franklin, St. Charles, and St. Louis along with the City of St. Louis, and the Illinois counties of Jersey, Madison, Monroe, and St. Clair were designated as a bi-state nonattainment area for the 1997 annual $PM_{2.5}$ standard. $PM_{2.5}$ is defined as particles with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers. The Missouri Department of Natural Resources' Air Pollution Control Program (Air Program) developed this redesignation demonstration and maintenance plan in order to request the redesignation of the Missouri portion of the nonattainment area to attainment for the 1997 annual $PM_{2.5}$ National Ambient Air Quality Standard (1997 annual $PM_{2.5}$ NAAQS). 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 the NAAQS. This document provides the required maintenance plan elements for the Missouri portion of the St. Louis $PM_{2.5}$ nonattainment area and the technical information required to support a request to redesignate the area to attainment under the 1997 annual $PM_{2.5}$ NAAQS. The Air Program is requesting that:

1. EPA redesignate the Missouri Portion of the St. Louis 1997 $PM_{2.5}$ nonattainment area to attainment pursuant to the provisions of the Clean Air Act, Section 107;
2. Concurrently EPA approve the associated maintenance plan as a revision to the State Implementation Plan (SIP) meeting the requirements of the Clean Air Act, Section 175A;
3. EPA approve the 2008 base year inventory as meeting the requirements under Clean Air Action Section 172(c)(3); and
4. Approve the Motor Vehicle Emissions Budgets (MVEBs) for the years 2008 and 2025 pursuant to Clean Air Act Section 176(c).

Ambient $PM_{2.5}$ monitoring data shows that the bi-state St. Louis nonattainment area under the 1997 annual $PM_{2.5}$ NAAQS attained the standard during the three year period from 2007 – 2009, and has remained in compliance of the 1997 annual $PM_{2.5}$ NAAQS through present day. On May 23, 2011, EPA published a final rule, which is known as a clean data determination, in the Federal Register stating that the St. Louis $PM_{2.5}$ nonattainment area covering both Missouri and Illinois has attained the 1997 annual $PM_{2.5}$ NAAQS based on three years of quality assured ambient air quality data (76 FR 29652). This clean data determination is the first required element necessary to support a redesignation request. This document demonstrates that the area attained the standard based on permanent and enforceable emissions reductions and that all SIP elements required before an area can be redesignated have been approved or submitted to EPA.

Explanation of Revisions to the Original Document

The Redesignation Demonstration and Maintenance Plan for the Missouri Portion of the St. Louis Nonattainment Area for the 1997 annual $PM_{2.5}$ NAAQS was submitted to the U.S. Environmental Protection Agency (EPA) on August 26, 2011. Since the submittal, the Air Program has revised this document with supplemental information to address several issues. The following is a list to describe the changes that have been made to the original plan submitted in August 2011:

- The future year in the maintenance plan has been changed from 2022 to 2025. Appendix D now includes information about the development of the 2025 future year inventory in Missouri. All references to emissions in 2022 throughout the plan and appendices have been revised to refer to emissions in the new future year (2025).

- Emissions inventories and appendices have been added to the plan to incorporate the necessary information for the Illinois portion of the nonattainment area.

- The point source emissions inventories for the interim year (2017) have been adjusted so that the Clean Air Interstate Rule (CAIR) is the control strategy used to control electric generating units' emissions as opposed to the Cross State Air Pollution Rule (CSAPR). The new future year in the plan (2025) also relies on CAIR to control these emissions. The plan and appendices have been updated to accurately characterize all of these revisions.

- The on-road mobile source inventories included for the base year (2008) and interim year (2017) of the plan have been revised to incorporate the actual inspection/maintenance (I/M) program in place in the St. Louis area. In the original plan, errors were made when calculating the on-road emissions for $PM_{2.5}$ and PM_{10}. Revisions have been made to the plan to correct these errors. For VOC emissions, the Stage II refueling emissions have been removed from the mobile source inventory and added to the area source inventory. For the interim year (2017) emissions inventory, the stage II control program was removed from the mobile model in calculating the Stage II area source emissions to account for a current SIP development to remove these requirements as a result of wide spread use of on-board vapor recovery equipment. The new future year (2025) emissions inventory in the plan also accounts for the removal of Stage II controls and incorporates the appropriate I/M input in the mobile model. The plan and appendices have been updated to accurately characterize all of these revisions.

- The off-road mobile source emissions inventories for the base year (2008) and interim year (2017) will be revised to account for errors that were discovered in the inputs to the NONROAD model used to develop the inventories. Additionally, it was discovered that aircraft takeoff and landing emissions were not properly accounted for in the original plan for the base year (2008) and interim year (2017), and revisions have been made to correctly add these emissions to these inventories included in the plan. Additionally, the 2008 commercial marine emissions have changed because this document used a newer

version of the 2008 National Emissions Inventory (NEI version 3), which resulted in lower emissions from this category because these emissions were overestimated in the 2008 NEI version 2. The new future year (2025) off-road emissions inventory included in this document was calculated using the appropriate modeling inputs and properly accounts for air craft take offs and landings. The plan and appendices have been updated to accurately characterize all of these revisions.

- Alternative methods were used to grow ammonia emissions from point and area source categories as well as area source $PM_{2.5}$ emissions from fugitive dust categories.

- Due to changing the future year to 2025, the transportation conformity motor vehicle emissions budgets that were established for 2022 in the original plan were removed and new budgets were established for the new future year in the plan (2025). Furthermore, in order to provide more clarity to the transportation conformity process in the St. Louis area, a base year (2008) motor vehicle emissions budget will be established to be used in transportation conformity determinations for analysis years prior to 2025.

- A section has been added to the document to discuss the mobile model used to develop the on-road emissions inventories because certain analysis years/pollutants were modeled using EPA's Motor Vehicle Emissions Simulator (MOVES) version 2010a and some analysis years/pollutants were modeled using MOVES 2010b. The new section discusses this information to ensure clarity is provided for the methods of developing the on-road mobile source emissions inventories.

- Appendix F of the original plan was the MEMC Consent Agreement, which has since been terminated. Documentation regarding the termination of this consent agreement is now included in Appendix H. The consent agreement was terminated in 2013 because the units for which the agreement was applicable have since been retired. Appendix F now includes documentation of the Illinois Emissions Inventories for 2002, 2008, 2017, and 2025.

- Minor changes to references and narrative language revisions have been made throughout the plan and appendices to add clarity, fix typographical errors, and to ensure the plan and appendices are reflective of the revisions that have been made.

1. Introduction

Congress first enacted the Clean Air Act (CAA) in 1970. It was last amended in 1990. The CAA requires the EPA to set 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 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, particulate matter, sulfur dioxide, nitrogen oxide, and ozone. These pollutants are referred to as "criteria" pollutants. Fine particles, (commonly referred to as $PM_{2.5}$) are a portion of the criteria pollutant known as particulate matter. The EPA establishes a standard for each criteria pollutant. If an area is found to exceed the value specified by the standard, 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 the NAAQS. 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 particulate matter standards in the 1990's. In July 1997, EPA promulgated two primary and two secondary NAAQS for $PM_{2.5}$ (the primary and secondary $PM_{2.5}$ NAAQS are identical). In this action, EPA established an annual $PM_{2.5}$ NAAQS at a level of 15 micrograms per cubic meter ($\mu g/m^3$), based on the 3-year average of annual mean $PM_{2.5}$ concentrations, and a 24-hour $PM_{2.5}$ NAAQS at a level of 65 $\mu g/m^3$ for 24-hour averages. This document is only intended to address the 1997 annual $PM_{2.5}$ NAAQS.

When EPA establishes a NAAQS, this standard applies to the concentration of a pollutant in ambient outdoor air. Ambient air is considered to be the air that someone in the general public would breathe. If the air quality in a geographic area meets or is cleaner than the national standard, it is designated an attainment area; areas that do not meet the national standard or contribute to a nearby area that violates the air quality standard are designated as nonattainment areas.

$PM_{2.5}$ is a mixture of microscopic solids and liquid droplets suspended in air. $PM_{2.5}$ describes particulate matter that is 2.5 micrometers in diameter and smaller - 1/30th the diameter of a human hair. Fine particles are generally emitted from activities such as industrial and residential combustion and from vehicle exhaust. Fine particles are also formed in the atmosphere when gases such as sulfur dioxide (SO_2), nitrogen oxides (NO_X), ammonia (NH_3), and volatile organic compounds (VOC) are chemically transformed into particles.

1.1 History of the 1997 $PM_{2.5}$ St. Louis Nonattainment Area

Within one year after promulgation of a new or revised NAAQS, states are required to evaluate and make recommendations as to the attainment status for all areas of the state. The Air Program submitted a formal recommendation for the 1997 annual $PM_{2.5}$ NAAQS to EPA on March 8, 2004. In its submittal, the Air Program recommended that the counties of Jefferson, Franklin, St. Charles, and St. Louis along with the City of St. Louis be designated as nonattainment for the 1997 annual $PM_{2.5}$ NAAQS. After working with Missouri and considering the information from air quality monitors, EPA issued official designations for the 1997 annual $PM_{2.5}$ NAAQS on January 5, 2005 (70 FR 944) and made final modifications on April 14, 2005 (70 FR 19844). The St. Louis area was designated as a bi-state nonattainment area with an attainment date of April 5, 2010. The counties that comprised the nonattainment area were the City of St. Louis, the Missouri counties of Jefferson, Franklin, St. Charles, and St. Louis, the Illinois counties of Madison, Monroe, and St. Clair, and the Township of Baldwin in Randolph County, Illinois.

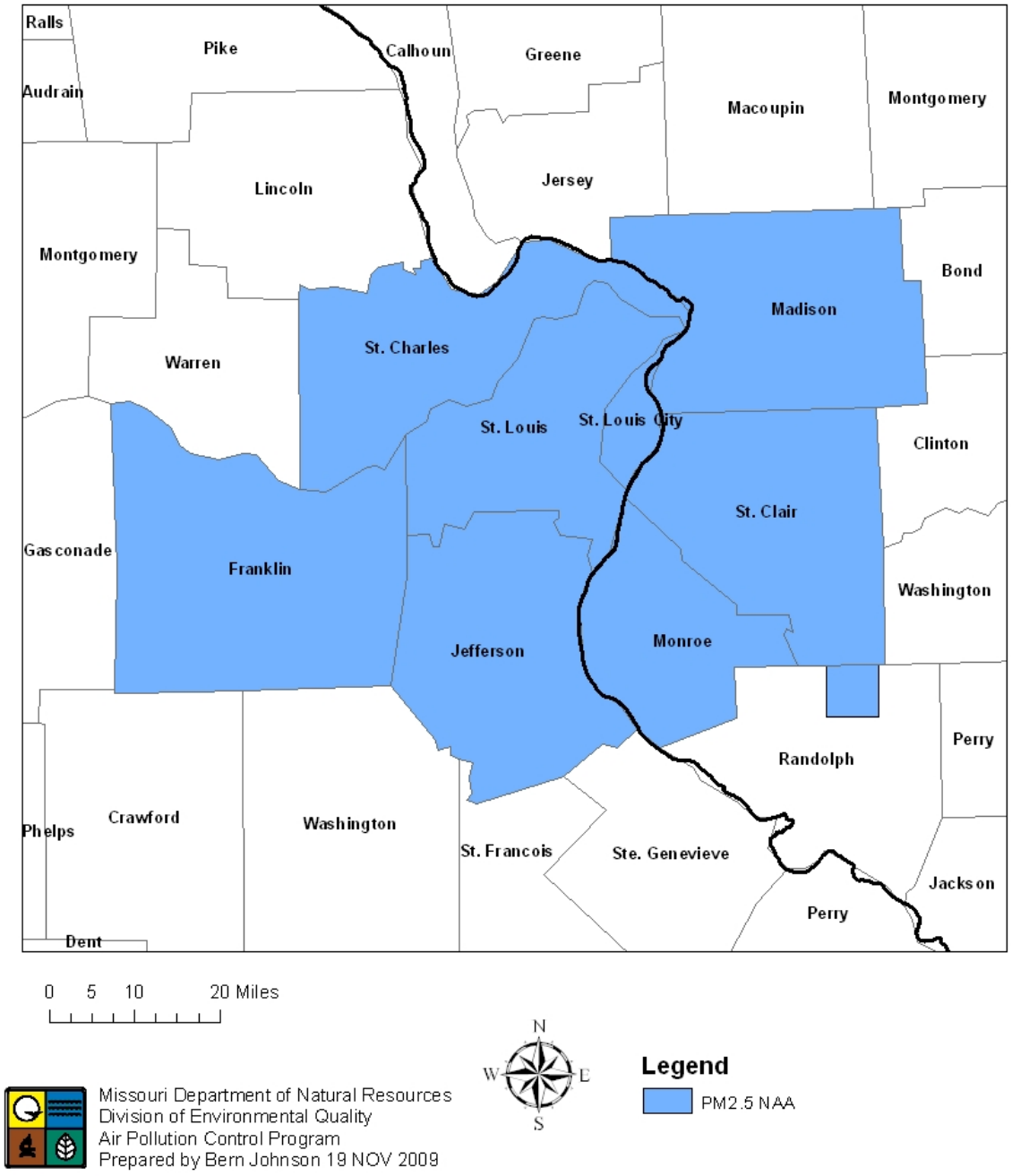
The nonattainment designations triggered the requirement to develop an attainment plan to bring the area into attainment. A significant requirement of a $PM_{2.5}$ plan is an attainment demonstration to identify effective emission control strategies and confirm that attainment can be achieved after implementation of the strategies by the attainment date. Missouri submitted an attainment demonstration on October 9, 2009. However, prior to EPA action on the submitted attainment demonstration, EPA issued a clean data determination (76 FR 29652, May 23, 2011) indicating that the St. Louis nonattainment area had attained the NAAQS based on three years of quality assured air monitoring data (2007-2009). Per EPA guidance, if a clean data determination is made prior to EPA's action on an attainment plan, then the requirement for an attainment plan in addition to other planning requirements are suspended. On August 26, 2011, the Air Program withdrew the attainment plan from EPA's consideration due to the Clean Data Determination and began working on developing this redesignation request and maintenance plan. In addition, on June 27, 2012, EPA took final action to determine that the area attained the standard by its attainment date through a federal register action (77 FR 38183). It is also noted that monitoring data from 2009 - 2012 shows that the St. Louis area has remained in compliance with the 1997 annual $PM_{2.5}$ NAAQS since it first attained the standard.

1.2 Geographical Description of the 1997 $PM_{2.5}$ St. Louis Nonattainment Area

The St. Louis $PM_{2.5}$ nonattainment area is a bi-state region encompassing multiple counties in Missouri and Illinois (Figure 1-1). The following is a list of the counties contained in the 1997 $PM_{2.5}$ St. Louis Missouri-Illinois nonattainment area:

- St. Louis County, MO
- St. Louis City, MO
- St Charles, MO
- Jefferson County, MO
- Franklin County, MO
- Madison County, IL
- Monroe County, IL
- St. Clair County, IL
- Baldwin Township of Randolph County, IL

Figure 1-1 1997 Annual $PM_{2.5}$ Nonattainment Area for St. Louis (MO-IL) Region



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 followed the EPA published memorandum entitled "Procedures for Processing Requests to Redesignate Areas to Attainment" (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 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 EPA can redesignate an area to attainment; 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 Air Program supports EPA's promulgation obligations towards the redesignation of the St. Louis nonattainment area under the 1997 annual $PM_{2.5}$ NAAQS.

2.1 Attainment of the Standard

The CAA requirement in Section 107(d)(3)(E)(i) for redesignation states that EPA must determine that the area is attaining the applicable NAAQS. For the 1997 annual $PM_{2.5}$ NAAQS, this determination must be demonstrated using the design value based on the average of three (3) consecutive years' annual arithmetic means. This design value must be equal to or lower than the level of the NAAQS, 15.0 $\mu g/m^3$. Chapter 3 of this document presents ambient air monitoring data that demonstrates St. Louis has attained the NAAQS for $PM_{2.5}$. This demonstration is based on three years of quality assured monitoring data as specified in 40 CFR 58. On May 23, 2011, EPA published a final clean data determination in the Federal Register stating that the St. Louis $PM_{2.5}$ nonattainment area covering both Missouri and Illinois has attained the 1997 annual $PM_{2.5}$ NAAQS based on three years of quality assured ambient air

quality data (76 FR 29652). In addition, on June 27, 2012, EPA took final action to determine that the area attained the 1997 annual $PM_{2.5}$ NAAQS by its attainment date of April 5, 2010 (77 FR 38183).

The determination that the area attained by its attainment date is an evaluation of attainment only as of an area's attainment deadline and is issued to comply with Clean Air Act Sections 172 and 179 for $PM_{2.5}$. Determinations of attainment by an attainment deadline are separate and independent of clean data determinations, which are not compelled by the Clean Air Act. Clean data determinations serve as notice to the public that the nonattainment area's air quality is in compliance with a particular NAAQS. For $PM_{2.5}$, clean data determinations invoke the regulatory language in 40 CFR 51.1004(c), which suspends attainment-related planning requirements for the area.

2.2 Implementation Plan Approval

The CAA requirement in Section 107(d)(3)(E)(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 State of Missouri Plan for the 1997 Annual $PM_{2.5}$ NAAQS and Attainment Demonstration for the St. Louis Metropolitan Area was proposed for public hearing on August 27, 2009, was adopted by the Missouri Air Conservation Commission (MACC) on September 24, 2009 and was submitted to EPA in October 2009. This 1997 Annual $PM_{2.5}$ NAAQS SIP was deemed to be complete on November 10, 2009.

As stated earlier, EPA has published a final rule in the Federal Register stating that the St. Louis $PM_{2.5}$ nonattainment area covering both Missouri and Illinois has attained the 1997 annual $PM_{2.5}$ standard based on three years of quality assured ambient air quality data (76 FR 29652, May 23, 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 clean data determination for the area has not been rescinded. These particular SIP elements would never be required if 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 April 6, 2011 Memorandum from Janet McCabe, Deputy Assistant Administrator, Office of Air Quality Planning and Standards, titled *Regional Consistency for the Administrative Requirements of State Implementation Plan Submittals and the Use of "Letter Notices"*. Attachment C of the 2011 McCabe memo details that suspensions are only valid while the area is in compliance with the standard and how the suspended requirements are relieved:

> *Upon EPA's promulgation of a final Clean Data Determination for a nonattainment area, the obligation for the State to submit for such an area the attainment*

demonstration, associated reasonably available control measures, reasonable further progress plan, contingency measures, and other attainment-related planning requirements is suspended until such time as the area is redesignated to attainment, at which time the requirements no longer apply; or until EPA determines that the area has violated the NAAQS, at which time the obligations would again apply.

As such, following the submission of the original maintenance plan and redesignation request in August 2011, the Air Program withdrew the above mentioned 1997 Annual $PM_{2.5}$ NAAQS Attainment Demonstration, which was submitted to EPA in October 2009, because the area has already attained the NAAQS; however, all emission reductions and control measures from the plan remain in place as permanent and enforceable because they are based on federal or SIP-approved state regulations or consent agreements. By withdrawing the attainment demonstration, the EPA administrator was no longer required to approve or disapprove the plan. The attainment demonstration was no longer applicable because the area had attained the standard. Missouri has submitted to EPA all applicable SIP provisions to ensure the protection of the standard. See Section 2.5 of this document for a discussion regarding the applicable SIP elements required under Section 110 and Part D of the Clean Air Act for the Missouri portion of the St. Louis $PM_{2.5}$ nonattainment area, and see Chapter 4 of this document for a discussion regarding the control measures in Missouri's SIP that were used to attain the 1997 annual $PM_{2.5}$ NAAQS.

2.3 Permanent and Enforceable Improvement

The CAA requirement in Section 107(d)(3)(E)(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 determine that the improvement in air quality between the year violations occurred and the attainment year is attributed to permanent and enforceable emission reductions. Chapter 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 commitment to continue to enforce all applicable requirements of past revisions to the SIP after St. Louis $PM_{2.5}$ nonattainment area is redesignated to attainment.

2.4 Maintenance Plan

The CAA requirement in Section 107(d)(3)(E)(iv) for redesignation states that EPA must have fully approved a maintenance plan for the area as meeting the requirements of Section 175A. Under Section 175A of the Clean Air Act, this $PM_{2.5}$ Maintenance Plan is the state's SIP revision to provide for continued attainment of the 1997 annual $PM_{2.5}$ NAAQS for the St. Louis nonattainment area for a period of at least ten years after EPA has formally redesignated the area to attainment. This maintenance plan and redesignation request has been prepared in accordance with the requirements specified in EPA's guidance documents and in coordination with EPA

Region 7 staff. This section addresses how the following required maintenance plan elements have been met in the subsequent correspondingly-numbered subsections:

1. A public hearing on the maintenance plan prior to adoption;

2. A comprehensive "attainment year" emissions inventory of primary $PM_{2.5}$ and the precursors of secondary $PM_{2.5}$: ammonia (NH_3), oxides of nitrogen (NO_X), sulfur dioxide (SO_2), and volatile organic compounds (VOC);

3. 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 1997 annual $PM_{2.5}$ NAAQS;

4. A commitment that, once redesignated, the state will continue to operate an appropriate monitoring network to verify maintenance of the attainment status;

5. A demonstration of legal authority to implement and enforce all control measures contained in the SIP;

6. Provisions for future updates of the inventory to enable tracking of emissions levels, including an annual emissions statement from major sources;

7. Motor vehicle emissions budgets for transportation conformity for the ten-year maintenance period;

8. A commitment to submit a revised maintenance plan eight years after redesignation;

9. A list of potential contingency measures and a commitment to enact and implement these measures expeditiously in the event that future violations of the NAAQS occur;

2.4.1 Public Participation

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

- Notice of availability of this supplement/revision to the redesignation demonstration and maintenance plan, which includes the comprehensive base year emissions inventory for the Missouri portion of the St. Louis $PM_{2.5}$ nonattainment area was posted on the Department of Natural Resources' Air Pollution Control Program website by December 30, 2013: http://www.dnr.mo.gov/env/apcp/stateplanrevisions.htm
- The public hearing date to receive comments on the supplement/revision to the redesignation demonstration and maintenance plan and comprehensive inventory was

held on January 30, 2014, beginning at 9:00 am at the Elm Street Conference Center, Bennett Springs Conference Room, 1730 East Elm Street, Jefferson City, Missouri.

- A public comment period opened after the redesignation demonstration and maintenance plan and comprehensive inventory was posted on Department of Natural Resources' Air Pollution Control Program website on December 30, 2013, and closed on February 6, 2014, seven (7) days after the public hearing.

2.4.2 Comprehensive "Attainment Year" Emissions Inventory of Primary $PM_{2.5}$ Emissions and the Precursors to Secondary $PM_{2.5}$

The Air Program has developed a comprehensive emission inventory for the St. Louis $PM_{2.5}$ nonattainment area which includes the emissions from the following source categories: point sources, area sources, on-road mobile sources, off-road mobile sources, and biogenic sources for the year 2008. The attainment year emission inventory, as required in the maintenance plan, is included as Appendix E of this document, and also detailed in Chapter 5 of this document.

2.4.3 Projected Emission Inventory for 2025

The Air Program has compiled a list of growth and control factors and developed a county level emission inventory for the future year of 2025. These projected emissions show substantial decreases between 2008 and 2025 in cumulative emissions that contribute to $PM_{2.5}$ concentrations in the ambient air. This future year emission inventory is detailed in Chapter 5 of this document and the Air Program asserts that these projected future emission levels are sufficient to maintain attainment of the 1997 annual $PM_{2.5}$ NAAQS.

2.4.4 Continued Monitoring Commitment

The Air Program is committed to continue monitoring $PM_{2.5}$ 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 EPA's Air Quality System (AQS) database in a timely fashion. Detailed information about the $PM_{2.5}$ monitoring network in the St. Louis nonattainment area, along with further discussion about the Air Program's continued monitoring commitment, can be found in Chapter 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 Air Program 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 Air Program. 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 Air Program has developed motor vehicle emissions budgets that will be used in Transportation Conformity Determinations in the St. Louis area through 2025. Chapter 6 of this document details the Transportation Conformity Process in the St. Louis area and specifies the 2008 and 2025 motor vehicle emissions budgets for NO_X and direct $PM_{2.5}$ 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 Air 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 Air Program is committed to maintaining compliance with the 1997 annual $PM_{2.5}$ standard. If future violations of the standard take place, the Air Program will enact contingency measures as expeditiously as possible, but no later than 24 months after quality-assured ambient data that has been entered into the AQS indicating that a violation has occurred. This will allow for the area to come back in compliance with the standard as quickly as feasible, should future violations occur. 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 Chapter 7 of this document.

2.5 Section 110 and Part D Requirements

The CAA requirement in Section 107(d)(3)(E)(v) for redesignation states that, all the requirements of Section 110 and part D of the CAA that were applicable prior to submittal of a complete redesignation request must be met.

2.5.1 Section 110 Requirements

On May 8, 2007, EPA approved the Missouri SIP to address the requirements of Section 110(a)(2)(D)(i) of the Clean Air Act for the 1997 annual $PM_{2.5}$ NAAQS (72 FR 25975). In addition, a final rule was published in the federal register on June 21, 2013, in which EPA approved Missouri's SIP submission addressing the remaining infrastructure SIP requirements of Clean Air Act Section 110(a)(2) relating to the 1997 annual $PM_{2.5}$ NAAQS for the entire state (78 FR 37457).

2.5.2 Part D Requirements

Certain requirements under Part D of the Clean Air Act (Nonattainment Plan Provisions) are suspended when a nonattainment area achieves the NAAQS because these requirements are correlated to the attainment of the air quality goal as discussed above in Section 2.2 of this document. Thus the intention of these requirements has been fulfilled with achievement of the NAAQS without the necessity of further submittals as long as the clean data determination has not been rescinded.

Other requirements under Part D of the Clean Air Act remain applicable despite the clean data determination because they are not directly related to attainment of the NAAQS. The Part D elements that remain applicable to the St. Louis nonattainment area under the 1997 annual $PM_{2.5}$ NAAQS despite the clean data determination are listed below along with a discussion of how Missouri's SIP addresses each element.

- Section 172(c)(3): Emissions Inventory
  - This Clean Air Act requirement is being addressed through this SIP revision. Appendix E to this document includes a comprehensive 2008 base year emissions inventory for $PM_{2.5}$ and all $PM_{2.5}$ precursors for the Missouri portion of the St. Louis nonattainment area under the 1997 annual $PM_{2.5}$ NAAQS, which accounts for all emissions sources located in the Missouri portion of the St. Louis nonattainment area. This comprehensive base year inventory is being submitted to EPA as part of this document in order to address the requirements of Clean Air Act Section 172(c)(3) for the Missouri portion of the St. Louis $PM_{2.5}$ nonattainment area.
- Section 172(c)(5): Permitting Requirements
  - Missouri has a long-standing and fully implemented New Source Review (NSR) permitting program for new major sources and significant modifications of existing sources under State rule *10 CSR 10-6.060, Construction Permits Required*, which addresses the requirements of Clean Air Act Section 172(c)(5) for the Missouri portion of the St. Louis $PM_{2.5}$ nonattainment area.

3. $PM_{2.5}$ Monitoring

A state requesting redesignation must show that the area is attaining the applicable NAAQS. For the 1997 annual $PM_{2.5}$ NAAQS this is demonstrated if the three-year annual average $PM_{2.5}$ concentration at all monitors in the area is less than or equal to 15.0 µg/m^3. This chapter presents information that demonstrates St. Louis has attained the 1997 annual $PM_{2.5}$ NAAQS. This demonstration is based on three years of quality assured monitoring data as specified in 40 CFR 58.

3.1 $PM_{2.5}$ Monitoring Data Analysis Requirements

In 1992 the U.S. EPA published "Procedures for Processing Request to Redesignate Areas to Attainment". This is a guidance document that details requirements nonattainment areas must meet to be redesignated 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;

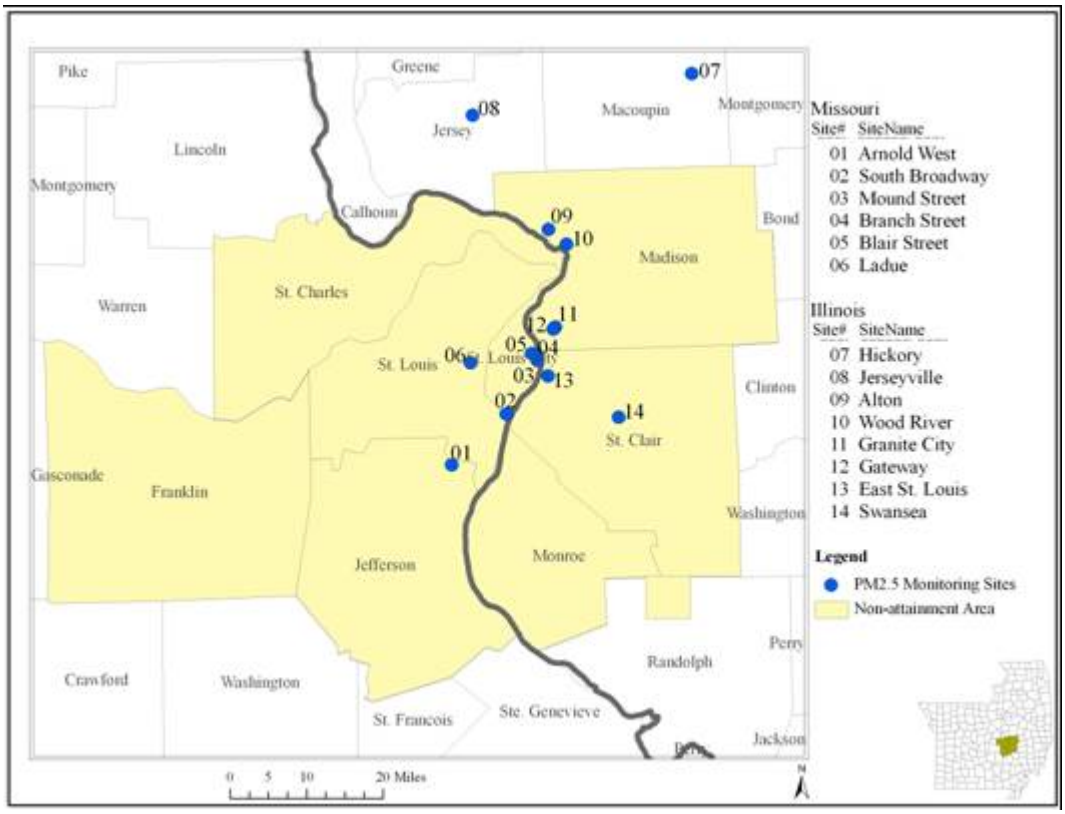
- Monitoring data must show that the non-attainment area is attaining the NAAQS
- The data should be collected and quality assured in accordance with 40 CFR 58 and recorded in the U.S. EPA Air Quality System (AQS) database in order for it to be available to the public for review.

The following sections illustrate how each of the requirements has been addressed.

3.2 St. Louis Area $PM_{2.5}$ Ambient Air Monitoring Network

From 2002 – 2009 there were fourteen (14) sites that monitored $PM_{2.5}$ in the St. Louis Region. Twelve (12) monitors were located within the St. Louis nonattainment area. Each side of the Missouri and Illinois nonattainment area had 6 monitors. In addition, Illinois operates two (2) monitors downwind of the nonattainment area. The St. Louis, Missouri network has recently been modified to include the use of $PM_{2.5}$ Federal Equivalent Method (FEM) continuous air samplers. Two (2) sites, Arnold West and Ladue, now monitor continuous $PM_{2.5}$ concentrations. The bi-state St. Louis area $PM_{2.5}$ monitoring sites from the 2009 monitoring network are shown in Figure 3-1.

Figure 3-1 $PM_{2.5}$ Monitoring Network in the St. Louis Area



3.3 St. Louis Area $PM_{2.5}$ 24-hour and Annual Concentration Data

To determine whether the 1997 annual $PM_{2.5}$ NAAQS has been met, the annual $PM_{2.5}$ design value has been calculated for the 3-year period, 2007-2009. The current U.S. EPA method for calculating the annual $PM_{2.5}$ design value is to average each monitor's annual average values over a 3-year period and compare the calculated design values to the 15.0 $\mu g/m^3$ level of the 1997 annual $PM_{2.5}$ NAAQS. Violations of the standard are determined on a per monitor basis. The calculated annual $PM_{2.5}$ design values for the monitors in the St. Louis nonattainment area for 2007-2009 are presented in Table 3-1. The 2007-2009 data shows that the design values at all monitoring sites are less than the level of the 1997 annual $PM_{2.5}$ NAAQS, demonstrating that the area attained the 1997 annual $PM_{2.5}$ NAAQS.

Table 3-1 2007-2009 St. Louis Annual $PM_{2.5}$ Design Values in $\mu g/m^3$

State	County	Monitoring Site	2007	2008	2009	Design Value
Missouri	St. Louis City	Blair Street	13.9	12.9	11.5	12.8
Missouri	St. Louis City	Branch Street*	15.5	13.4	12.0	13.6
Missouri	St. Louis City	South Broadway	14.0	12.5	11.9	12.8
Missouri	St. Louis City	Mound Street*	14.3	12.7	11.5	12.8
Missouri	St. Louis	Clayton**	13.1	12.0	11.3	12.1
Missouri	St. Louis	Ladue***	-	-	11.1	-
Missouri	Jefferson	Arnold West***	-	-	9.0	-
Illinois	Madison	Alton	14.9	12.5	10.1	12.5
Illinois	Madison	Wood River	14.2	12.2	11.0	12.5
Illinois	Madison	Granite City	15.1	15.7	11.3	14.0
Illinois	Madison	Gateway Regional Medical Center *	15.0	14.4	11.4	13.6
Illinois	St. Clair	East St. Louis	15.6	12.5	11.7	13.3
Illinois	St. Clair	Swansea	13.3	12.6	11.7	12.5

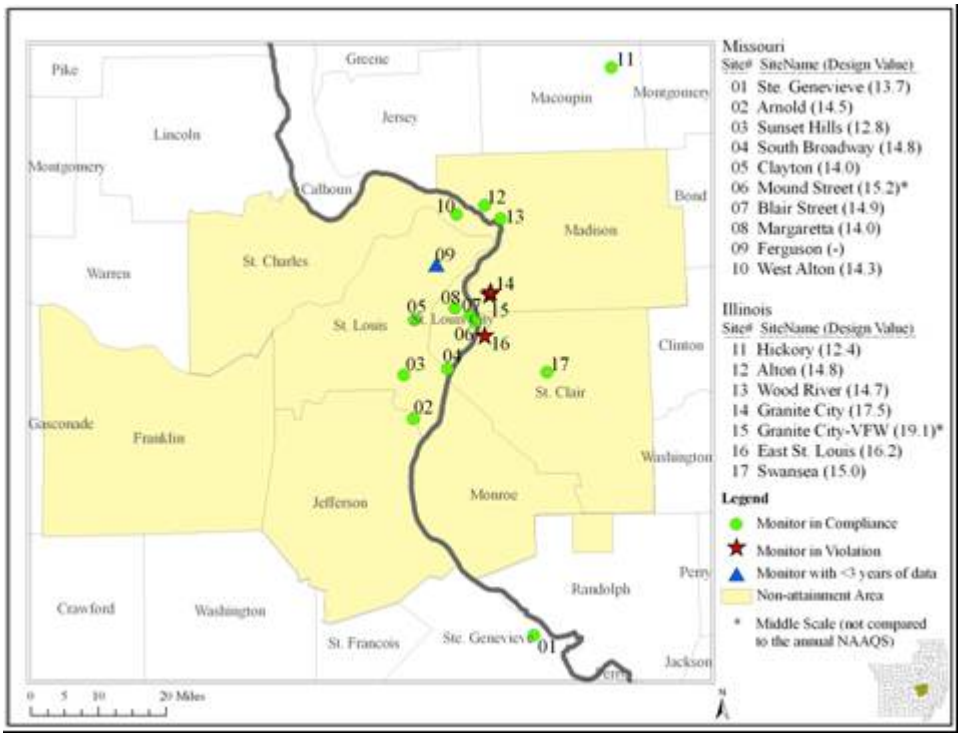
*Unique Middle Scale: Design value cannot be compared to the annual standard.
**Sampling discontinued.
***FEM-TEOMS: Continuous sampler. Sampling began in 2009.
Underlined: Average is based on incomplete data.

The two maps in Figure 3-2 compare the 2001-2003 to 2007-2009 design values relative to the annual NAAQS in the St. Louis region. The 1997 annual $PM_{2.5}$ NAAQS is met when the annual arithmetic mean concentrations averaged over 3 years is less than or equal to 15.0 $\mu g/m^3$.

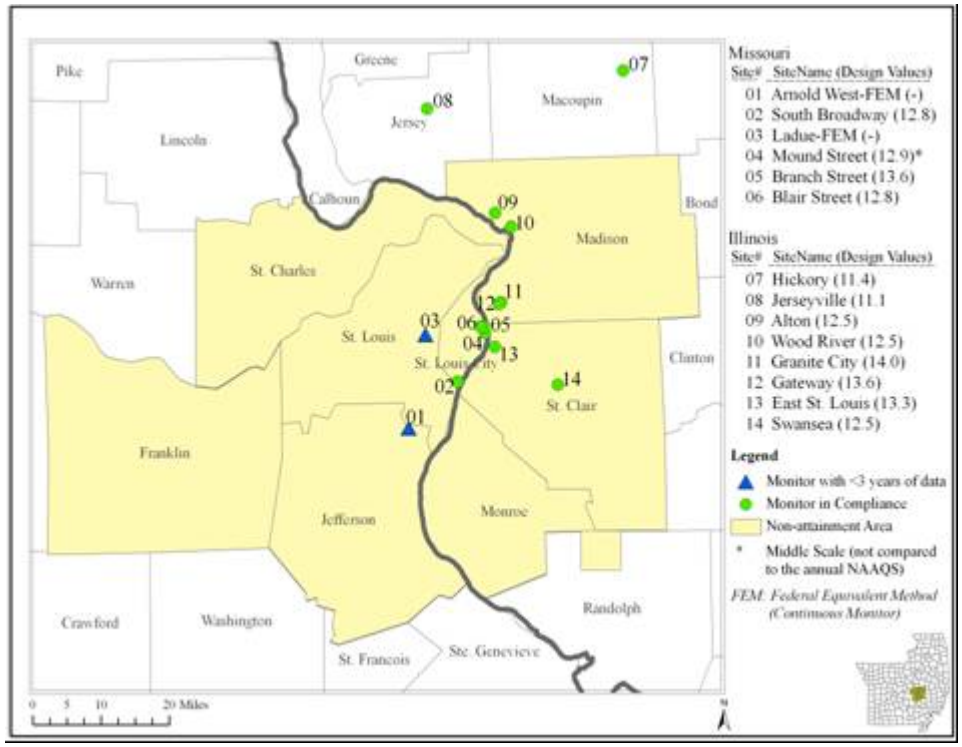
As indicated by the annual design values in the figure, the $PM_{2.5}$ concentrations have improved throughout the St. Louis region. According to 2001-2003 monitoring data, there were two (2) sites that violated the annual standard. Based on 2007-2009 data, all sites in the area are now in compliance with annual standard.

Figure 3-2 Comparison of the Annual Design Values in the St. Louis Area Between 2001-2003 and 2007-2009

2001-2003



2007-2009



3.4 Missing Data under the 1997 Annual $PM_{2.5}$ Standard

Attainment of the 1997 annual $PM_{2.5}$ NAAQS is determined according to federal procedures cited in Appendix N to 40 CFR Part 50 – Interpretation of the National Ambient Air Quality Standards for $PM_{2.5}$. For a single site, 3 years of valid annual means are required to produce a valid annual $PM_{2.5}$ design value. A year meets data completeness requirements when at least 75 percent of the scheduled sampling days for each quarter have valid data. Quarterly data capture rates (expressed as a percentage) are specifically calculated as the number of creditable samples for the quarter divided by the number of scheduled samples for the quarter. The result is then multiplied by 100 and rounded to the nearest integer. Years with at least 11 samples in each quarter can be considered valid, as long as the quarters meet the capture requirements and other certain requirements are met. (See above mentioned CFR for further information.) If these criteria are not met, then compliance with the 1997 annual $PM_{2.5}$ NAAQS cannot be established. To date, acceptable monitoring has been maintained in the Missouri portion of the St. Louis nonattainment area for the 1997 annual $PM_{2.5}$ NAAQS.

3.5 Quality Assurance

The Missouri ambient air monitoring data used in this analysis has been quality assured in accordance with 40 CFR Part 58 and the Missouri Quality Assurance Project Plan (QAPP). The Missouri QAPP outlines standard operating procedures for operating the monitoring network and validating the data. Illinois EPA has a similar quality assurance system. In addition, the network is reviewed annually through the Annual Monitoring Plans, according to 40 CFR Part 58.10. A site can be discontinued or relocated through the annual review process if it meets the requirements for the CAA and with approval from the EPA Regional Administrator. Both Missouri and Illinois EPA quality assured ambient air monitoring data is submitted into the AQS database and available to the public.

3.6 Continued Monitoring Commitment

The Air Program is committed to continue monitoring $PM_{2.5}$ 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.

While the St. Louis metropolitan statistical area (MSA) meets and goes beyond the minimum monitoring requirement for $PM_{2.5}$ (40 CFR 58 Appendix D, Table D-5), 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 $PM_{2.5}$, as did the pre-existing monitoring rule, EPA does not intend to encourage net reductions in the number of ozone and $PM_{2.5}$ 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 $PM_{2.5}$". The Air Program's commitment is to continue working with the EPA to ensure that the $PM_{2.5}$ monitoring network is sufficiently meeting the monitoring requirements of 40 CFR 58 and its monitoring objectives.

3.7 Clean Data Determination and Determination of Attainment by Attainment Date

On March 17, 2010, Missouri submitted a letter to the EPA requesting the determination of attainment based on the St. Louis nonattainment area's 2007-2009 $PM_{2.5}$ air quality monitoring data, also called a Clean Data Determination. On May 23, 2011, EPA published a final rule in the Federal Register stating that the St. Louis $PM_{2.5}$ nonattainment area covering both Missouri and Illinois had attained the 1997 annual $PM_{2.5}$ standard based on three years of quality assured ambient air quality data (76 FR 29652).

In addition, on June 27, 2012, EPA took final action to determine that the area attained the 1997 annual $PM_{2.5}$ NAAQS by its attainment date through a federal register action (77 FR 38183), as required by Sections 172 and 179 of the Clean Air Act.

4. Redesignation Request: Emission Inventory and Controls from 2002 – 2008

The purpose of this chapter is to demonstrate that the St. Louis area meets the requirement for redesignation listed under Section 107(d)(3)(E)(iii) of the Clean Air Act. This requirement states that the administrator must determine 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. This chapter of the document provides the emissions inventories from 2002 (nonattainment year) and 2008 (attainment year) for the bi-state nonattainment area, and describes the regulations that contributed to the reduction in $PM_{2.5}$ and $PM_{2.5}$ precursor emissions between the two years. In addition, this chapter demonstrates that the controls used to attain the standard are permanent and enforceable or they have been replaced by more stringent permanent and enforceable control measures. This chapter also provides a summary of several control measures that have been put into place since 2008 and some additional measures expected to be implemented in the near future. While these control measures that have been implemented after 2008 did not contribute to the area attaining the standard from 2007 – 2009, they help demonstrate that permanent and enforceable control measures continue to remain in place to control emissions of $PM_{2.5}$ and $PM_{2.5}$ precursors in the St. Louis nonattainment area.

In this chapter of the document, the attainment year refers to the mid-point year (2008) of the three-year period (2007-2009) 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 chapter for 2002 and 2008 include point, area, and mobile emissions. The pollutants covered include direct $PM_{2.5}$ and the following $PM_{2.5}$ precursors: NH_3, NO_X, SO_2, and VOC. The 2002 and 2008 inventories are based on actual activity levels and account for measures in place prior to 2008 that controlled emissions of $PM_{2.5}$ or $PM_{2.5}$ precursors, meaning credit for these control measures is reflected in the emissions estimates. The inventories in this chapter could also include some early emission reduction benefits resulting from control requirements that officially became effective after 2008 but the controls were installed and operational ahead of time. Additional details for Missouri's base year inventory (2002) are found in Appendix A and additional details for Missouri's attainment year inventory (2008) are found in Appendices B and E. Additional details regarding both the 2002 and 2008 emissions inventories for Illinois are found in Appendix F.

4.1 Base Year and Attainment Year Inventories

Table 4.1 is an emissions inventory summary for the St. Louis $PM_{2.5}$ nonattainment area, including point, area, on-road mobile, and off-road mobile sources for primary $PM_{2.5}$ as well as precursors of $PM_{2.5}$ (NH_3, NO_X, SO_2, and VOC) for the base year, 2002. Table 4.2 is an emissions inventory summary for the St. Louis $PM_{2.5}$ nonattainment area for NH_3, NO_X, direct $PM_{2.5}$, SO_2, and VOC. Both the 2002 and 2008 inventories are based on actual activity levels.

EPA's $PM_{2.5}$ Emissions Inventory Guidance requires that states with $PM_{2.5}$ nonattainment areas prepare and submit a 2002 base year inventory of anthropogenic sources of direct $PM_{2.5}$ and precursors of secondary $PM_{2.5}$ emissions. This base year inventory included emissions from point, area, on-road mobile and off-road mobile emissions. Table 4.2 summarizes 2002 emissions by major source category and by pollutant for the bi-state St. Louis nonattainment area. The 2002 emissions inventory for the Missouri side of the nonattainment area, which is included in Table 4.2,

comes from EPA's 2002 National Emissions Inventory (NEI) database. The supporting documentation and sources of information used to develop the 2002 NEI can be found in the U.S. EPA's $PM_{2.5}$ Emissions Inventory Guidance, and for convenience, summary tables of emissions from each source category are listed in Appendix A of this document. The 2002 emissions inventory for the Illinois side of the nonattainment area, which is also included in Table 4.2, comes from the Illinois Base Year Particulate Matter and Haze Inventory for 2002. Additional details regarding the 2002 emissions inventory for the Illinois side of the nonattainment area can be found in Appendix F of this document.

For the 2008 emissions inventory included in this chapter of the document for the Missouri side of the nonattainment area, emissions for point and area categories were submitted to EPA as required by the Consolidated Emissions Reporting Rule (CERR) in May 2010. This emissions data was submitted by the Air Program to EPA, to be used in EPA's 2008 NEI database. Point source annual emissions for the pollutants of concern were compiled from Missouri's Air Emissions Database as submitted to EPA. 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. Biogenic and Event source emissions are not included in these summaries, although they are listed in Appendix E as part of the comprehensive emissions inventory for the Missouri portion of the nonattainment area.

For Chapter 4 of this document, the 2008 mobile emissions for the Missouri side of the nonattainment area 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-3 for additional details regarding the 2008 on-road mobile emissions calculated using Mobile 6.2 via NMIM.

The EPA's Mobile 6 emissions model was also used to generate the mobile source emissions for both the Illinois and Missouri sides of the nonattainment area for this chapter of the document in order to provide a useful comparison between 2002 and 2008 mobile emissions. The mobile emissions generated for the 2002 emissions inventory used Mobile6, and it was necessary to use the same mobile emission model to compare the base and attainment year mobile source emissions. However, in Chapter 5 of this document, the 2008 and 2025 mobile source emissions were generated using EPA's Motor Vehicle Emissions Simulator (MOVES) 2010. More information about the use of the mobile emissions models used to develop the inventories included in this Plan can be found in Chapter 5 and Appendix B of this document.

Illinois EPA provided the 2008 emissions inventory included in this chapter to the Air Program for use in this plan. These emissions were based on actual activity levels. As stated above, for this chapter of the document, the on-road mobile source emissions for both sides of the nonattainment area were created using Mobile 6. For additional information regarding the 2008 emissions inventory for the Illinois side of the nonattainment area, please see Appendix F.

Tables 4-1 and 4-2 summarize the 2002 and 2008 emissions estimates for the St. Louis 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, on the Missouri side of the nonattainment area, emissions of NH_3 decreased by 632 tons/year, NO_X emissions decreased by 56,859 tons/year, direct $PM_{2.5}$ decreased by 2,932 tons/year, VOC emissions decreased by 36,533 tons/year, and SO_2 emissions increased by 35,996 tons/year. On the Illinois side, emissions of NH_3 decreased by 263 tons/year, NO_X emissions decreased by 23,023 tons/year, direct $PM_{2.5}$ decreased by 2,692 tons/year, VOC emissions decreased by 20,131 tons/year, and SO_2 emissions decreased by 4,603 tons/year. The reductions in NH_3, NO_X, direct $PM_{2.5}$, and VOC emissions have contributed to the improved $PM_{2.5}$ concentrations monitored in the St. Louis nonattainment area.

Table 4-1 2002 $PM_{2.5}$ and $PM_{2.5}$ Precursor Emissions Inventory Summary for the 1997 St. Louis $PM_{2.5}$ Nonattainment Area (tons per year)

County Name	Source Category	NH_3	NO_X	$PM_{2.5}$-Pri	SO_2	VOC
Missouri	Point Sources	1,315.75	44,198.46	4,607.23	156,999.31	11,637.86
Illinois		44.19	34,453.30	2,313.93	54,541.89	5,094.48
Totals		**1,359.94**	**78,651.76**	**6,921.16**	**211,541.20**	**16,732.34**
Missouri	Area Sources	3,968.07	9,929.23	14,833.21	17,231.89	45,385.16
Illinois		3,787.15	3,606.09	7,918.92	387.85	24,686.92
Totals		**7,755.22**	**13,535.32**	**22,752.13**	**17,619.74**	**70,072.08**
Missouri	On-Road Mobile Sources	2,383.29	68,899.33	1,301.68	1,809.06	39,253.06
Illinois		583.18	16,389.90	325.17	616.07	8,075.27
Totals		**2,966.47**	**85,289.23**	**1,626.85**	**2,425.13**	**47,328.33**
Missouri	Off-Road Mobile Sources	9.84	27,437.15	1,586.66	2,075.31	15,507.91
Illinois		4.13	7,411.29	392.58	394.28	2,841.02
Totals		**13.97**	**34,848.44**	**1,979.24**	**2,469.59**	**18,348.93**
Missouri Total		**7,676.96**	**150,464.17**	**22,328.78**	**178,115.57**	**111,783.99**
Illinois Total		**4,418.65**	**61,860.58**	**10,950.60**	**55,940.09**	**40,697.69**
Grand Total		**12,095.61**	**212,324.75**	**33,279.38**	**234,055.66**	**152,481.68**

Table 4-2 2008 $PM_{2.5}$ and $PM_{2.5}$ Precursor Emissions Inventory Summary for the 1997 St. Louis $PM_{2.5}$ Nonattainment Area (tons per year)

County Name	Source Category	NH_3	NO_X	$PM_{2.5}$-Pri	SO_2	VOC
Missouri	Point Sources	1,308.64	31,103.26	3,493.39	201,700.73	5,067.89
Illinois		208.31	16,981.51	2,448.15	50,730.60	4,277.72
Totals		**1,516.95**	**48,084.77**	**5,941.54**	**252,431.33**	**9,345.61**
Missouri	Area Sources	3,514.98	4,382.94	14,033.64	11,510.48	38,215.34
Illinois		3,354.13	1,638.36	5,161.76	246.67	7,796.34
Totals		**6,869.11**	**6,021.30**	**19,195.40**	**11,757.15**	**46,011.68**
Missouri	On-Road Mobile Sources	2,205.53	37,396.32	669.89	356.15	20,422.66
Illinois		590.06	11,742.96	222.55	59.26	5,519.40
Totals		**2,795.59**	**49,139.28**	**892.44**	**415.41**	**25,942.06**
Missouri	Off-Road Mobile Sources	15.68	20,722.57	1,199.82	544.30	11,545.53
Illinois		2.89	8,475.24	425.71	300.72	2,972.77
Totals		**18.57**	**29,197.81**	**1,625.53**	**845.02**	**14,518.30**
Missouri Totals		**7,044.83**	**93,605.09**	**19,396.74**	**214,111.66**	**75,251.42**
Illinois Totals		**4,155.39**	**38,838.07**	**8,258.17**	**51,337.25**	**20,566.23**
Grand Total		**11,200.22**	**132,443.16**	**27,654.91**	**265,448.91**	**95,817.65**

Table 4-3 Comparing 2002 and 2008 $PM_{2.5}$ and $PM_{2.5}$ Precursor Emissions Inventories for the 1997 St. Louis $PM_{2.5}$ Nonattainment Area

County Name	Source Category	NH_3	NO_X	$PM_{2.5}$-Pri	SO_2	VOC
Missouri	Point Sources	-7.11	-13,095.20	-1,113.84	+44,701.42	-6,569.97
Illinois		164.12	-17,471.79	+134.22	-3,811.29	-816.76
Totals		**157.01**	**-30,566.99**	**-979.62**	**+40,890.13**	**-7,386.73**
Missouri	Area Sources	-453.09	-5,546.29	-799.57	-5,721.41	-7,169.82
Illinois		-433.02	-1,967.73	-2,757.16	-141.18	-16,890.58
Totals		**-886.11**	**-7,514.02**	**-3,556.73**	**-5,862.59**	**-24,060.40**
Missouri	On-Road Mobile Sources	-177.76	-31,503.01	-631.79	-1,452.91	-18,830.40
Illinois		6.88	-4,646.94	-102.62	-556.81	-2,555.87
Totals		**-170.88**	**-36,149.95**	**-734.41**	**-2,009.72**	**-21,386.27**
Missouri	Off-Road Mobile Sources	+5.84	-6,714.58	-386.84	-1,531.01	-3,962.38
Illinois		-1.24	+1,063.95	+33.13	-93.56	131.75
Totals		**+4.60**	**-5,650.63**	**-353.71**	**-1,624.57**	**-3,830.63**
Missouri Totals		**-632.13**	**-56,859.08**	**-2,932.04**	**+35,996.09**	**-36,532.57**
Illinois Totals		**-263.26**	**-23,022.51**	**-2,692.43**	**-4,602.84**	**-20,131.46**
Grand Total		**-895.39**	**-79,881.59**	**-5,624.47**	**+31,393.25**	**-56,664.03**

*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.

The increase in SO_2 emissions from point sources between the emission inventories from 2002 to 2008 on the Missouri side of the nonattainment area is the result of two different factors. Over 20,700 tons of the increase in SO_2 emissions from point sources can be attributed to the Doe Run Primary Lead Smelter in Herculaneum, MO. From 2002 to 2008, the emission factor used to calculate SO_2 emissions at the facility increased by more than a factor of two. The 2002 emissions were based on an assumption of the percentage of lead sulfide in the ore converted to SO_2 air emissions, but later stack test analysis performed by Doe Run determined a higher lead sulfide conversion. The addition of a Continuous Emission Rate Monitoring System in 2009 confirms the higher emissions reported in 2008. If the same emission factor that was used in 2002 was used to calculate the emissions in 2008, then Doe Run's 2008 SO_2 emissions would have been 21,609 tons less than what is included in Table 4-2. Therefore, the apparent increase in SO_2 emissions at Herculaneum between 2002 and 2008 is an artifact of an assumed rate versus a tested emissions factor.

The other portion of the increase in SO_2 emissions from point sources on the Missouri side of nonattainment area is attributed to electricity production. According to the Clean Air Market Division's (CAMD's) Website (http://camddataandmaps.epa.gov/gdm/), heat input, a surrogate for electricity demand, for the four major electric generating units located in the nonattainment area, all of which are owned by Ameren UE, has increased by over 10% from 2002 to 2008. This increase in electricity demand has increased the amount of coal burned and the corresponding SO_2 emissions at these facilities. However, as exhibited by the monitoring data, the emissions reductions on the Illinois side of the nonattainment area, along with the emissions reductions in direct $PM_{2.5}$ and the other three $PM_{2.5}$ precursor pollutants on the Missouri side of the nonattainment area, which occurred from 2002 to 2008, have compensated for the increase in SO_2 emissions on the Missouri side. In total, this has resulted in a downward trend of ambient air $PM_{2.5}$ concentrations across the entire St. Louis nonattainment area.

4.2 Permanent and Enforceable Controls Used to Attain the Standard (Missouri Side)

The St. Louis area was designated as nonattainment under the 1997 annual $PM_{2.5}$ NAAQS in 2004. Since that time, the implementation of permanent and enforceable reductions of primary $PM_{2.5}$ and secondary $PM_{2.5}$ precursor emissions have contributed to improvements in $PM_{2.5}$ air quality and to the attainment of the $PM_{2.5}$ NAAQS. The significant reductions in NO_X emissions from 2002 to 2008 contributed to the area coming into attainment. The primary control measures on the Missouri side used to attain the 1997 annual $PM_{2.5}$ NAAQS include:

- NO_X SIP Call
- Clean Air Interstate Rule (CAIR)
- 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)
- Gateway Vehicle Inspection Program (GVIP)
- Missouri State Rules

4.2.1 Federal Emission Trading Programs and the NO_X SIP Call

The NO_X SIP Call and CAIR required states to reduce emissions that are prohibited by the interstate transport provisions of the Clean Air Act Section 110(a)(2)(D)(i)(I). Both rules also established emission trading programs that states could use to reduce the transport of emissions that have significant impacts on downwind nonattainment and maintenance areas.

One outcome of the NOx SIP Call was the establishment of the NOx Budget Trading Program (NBP). The first year in which covered sources were required to comply with the NBP was 2003. Missouri complied with the requirements of the NBP through state rule *10 CSR 10-6.360 Controlling NO_X Emissions From Electric Generating Units and Non-Electric Generating Boilers*, which required covered sources in the eastern third of the state to participate in the NBP. Implementation of the NBP greatly reduced ozone season NO_X emissions from large sources such as electric generating units (EGUs). According to data from CAMD's Website, the annual NO_X emissions from EGUs located in the Missouri side of the St. Louis nonattainment area have reduced by 9,295 tons from 2002 to 2008. These reductions are almost exclusively attributed to implementation of the NBP. In Missouri, three non-EGU boilers also participated in the NBP, specifically Trigen Units 5 and 6 and Anheuser Busch Unit 6.

Also in response to the NO_X SIP Call, three other state rules were developed to control ozone season NO_X emissions from covered sources in the eastern third of the state. The rules written to comply with the NO_X SIP Call requirements include the statewide NO_X rule *10 CSR 10-6.350 Emissions limitations and Emissions Trading of Oxides of Nitrogen*, which established a statewide NO_X trading program for EGUs, *10 CSR 10-6.380 Control of NO_X Emissions From Portland Cement Kilns*, which controls ozone season NO_X emissions from cement kilns, and *10 CSR 10-6.390 Control of NO_X Emissions From Large Stationary Internal Combustion Engines*. From 2002 to 2008, the NO_X emission reductions from all point sources in the nonattainment area totaled 13,095 tons/year.

CAIR, which was promulgated several years after the NOx SIP Call, established three emission trading programs that states could use to address transported emissions – the CAIR NOx ozone season trading program, the CAIR annual NOx trading program and the CAIR SO_2 trading program. The CAIR ozone-season NOx trading program replaced the NBP. In St. Louis, the CAIR ozone-season NOx trading program covered the same EGUs and the same three non-EGU boilers that also participated in the NBP. However these three non-EGU boilers, which are mentioned above 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.

This CAIR ozone-season NOx trading program, along with the CAIR annual NOx trading program began in 2009. Covered sources in the entire state of Missouri were required to participate in the trading programs. In regards to the EGUs located in the Missouri portion of the St. Louis nonattainment area, the requirements in CAIR were no more stringent than the requirements under the NBP other than the fact that the annual NO_X emissions had to be controlled in addition to ozone season NO_X emissions. However, CAIR had a significant impact on the EGUs located in the

western two-thirds of the state, and these sources significantly reduced annual and ozone season NO_X emissions. Some of the facilities in the western two-thirds of the state installed controls earlier than 2009 in anticipation of CAIR. Although the NO_X controls added in the western two-thirds of the state do not affect the NO_X emissions inventory for the St. Louis nonattainment area, they did have a positive impact in reducing the transport contribution of NO_X emissions to the $PM_{2.5}$ monitors located in the St. Louis nonattainment area. The CAIR SO_2 trading program did not begin until January 2010, so although these newer requirements have resulted in continued improvement in $PM_{2.5}$ concentrations in the St. Louis area since they became effective, they did not contribute to attainment of the annual $PM_{2.5}$ NAAQS for the years 2007-2009, aside from some early emissions reductions that some sources made in anticipation of the CAIR SO_2 rules.

It was anticipated that EPA's Cross-State Air Pollution Rule (CSAPR) would replace the CAIR trading programs beginning January 1, 2012. EPA promulgated 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 the agency, and EPA finalized CSAPR to replace CAIR on July 6, 2011. However, prior to CSAPR implementation, the District of Columbia Circuit Court of Appeals stayed the implementation of CSAPR in December 2011. The court directed EPA to continue implementing CAIR until the legal decision regarding CSAPR is resolved. In August 2012, the U.S. District of Columbia Circuit Court of Appeals issued a decision vacating CSAPR and directed EPA to continue to implement CAIR until they can implement a replacement rule that addresses the Court's concerns.

Furthermore, on November 19, 2012, EPA's Assistant Administrator Gina McCarthy issued a memorandum regarding "Next Steps for Pending Redesignation Requests and State Implementation Plan Actions Affected by the Recent Court Decision Vacating the 2011 Cross-State Air Pollution Rule." (http://www.epa.gov/airquality/transport/pdfs/CSAPR_Memo_to_Regions.pdf) In this memo, EPA referred to a number of various pending redesignation requests, maintenance plans, and SIP submittals from states and noted that because the court directed EPA to continue administering CAIR pending the promulgation of a valid replacement "we believe that it will be appropriate to rely on CAIR emission reductions as permanent and enforceable for certain actions in certain circumstances. Specifically, we believe it will be appropriate to rely on those reductions until the petition and any further proceedings in the CSAPR case are resolved or, if the decision vacating CSAPR is not changed, until a valid replacement rule is developed and implementation plans complying with any new rule are submitted by the states and acted upon by the EPA. Thus, action on the pending requests and SIPs may go forward." It is noted, that EPA has appealed the DC Circuit Court's decision to vacate CSAPR to the Supreme Court, and the Supreme Court has agreed to hear the case. As a result of this continued litigation, there is still uncertainty regarding CSAPR.

However, the CAIR requirements for annual NO_X and SO_2 emission reductions remain in effect and these CAIR emission trading programs are operating. Moreover, the D.C. Circuit has ordered EPA to continue implementing CAIR pending development of a replacement rule. Therefore, CAIR may be relied upon as the permanent and enforceable control measures to control NO_X and SO_2 emissions from electric generating units that are included in this program.

4.2.2 Mobile Source Emission Controls

Federal and state regulations for mobile sources have been phased in since 2002. The result was a reduction in all five 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 GVIP (10 CSR 10-5.381 *On-Board Diagnostics Motor Vehicle Emissions Inspection*) have reduced the emissions of direct $PM_{2.5}$ and its precursors from the mobile sector in the St. Louis nonattainment area.

Overall, the retirement of older higher polluting on-road vehicles and off-road engines and the phasing in of federal mobile source standards from 2002 to 2008 for the bi-state nonattainment area have contributed to a decrease of 166 tons of NH_3, 41,801 tons of NO_X emissions, 1,088 tons of direct $PM_{2.5}$ emissions, 3,634 tons of SO_2 emissions, and 25,217 tons of VOC emissions. These emissions reductions from mobile sources have contributed to attainment of the 1997 annual $PM_{2.5}$ NAAQS in the St. Louis area.

Federal regulations for the control of mobile sources are permanent and enforceable, and it is likely that standards will become increasingly more stringent for the mobile source sector. The mobile source control measures have resulted in the most significant amounts of $PM_{2.5}$ and $PM_{2.5}$ precursor emission reductions. 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 annual $PM_{2.5}$ NAAQS

4.2.3 Missouri State Regulations

In addition to the GVIP, federal mobile source standards, and the state regulations written to control NO_X emissions in response to the NO_X SIP Call and CAIR, there are numerous state regulations that provide permanent and enforceable controls for $PM_{2.5}$ and $PM_{2.5}$ precursor 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 $PM_{2.5}$ and $PM_{2.5}$ precursor emissions in the St. Louis nonattainment area. These controls include open burning restrictions, PM emission standards for industrial processes, PM emission standards for indirect heating, emission standards for incinerators, SO_2 emission standards, controls for emissions of fugitive dust, and Phase II of the Acid Rain Program. The following existing rules ensure that controls for $PM_{2.5}$, NO_X, and SO_2, which are currently in place for covered sources, will continue to control emissions in the St. Louis area thus preventing elevated ambient concentrations of $PM_{2.5}$ in the area: *10 CSR 10-6.405 Maximum Allowable Emission of Particulate Matter From Fuel Burning Equipment Used for Indirect Heating, 10 CSR 10-5.040 Use of Fuel in Hand-Fired Equipment Prohibited, 10 CSR 10-5.070 Open Burning Restrictions* (this rule was rescinded, and was replaced by statewide rule, *10 CSR 10-6.045 Open Burning Requirements*, but this change has not yet been adopted into the SIP), *10 CSR 10-6.170 Restriction of Particulate Matter to the Ambient Air Beyond the Premises of Origin, 10 CSR 10-6.200 Hospital, Medical, Infectious Waste Incinerators, 10 CSR 10-6.220 Restriction of Emission of Visible Air Contaminants, 10 CSR 10-6.260 Restriction of Emission of Sulfur Compounds, 10 CSR 10-6.330 Restriction of Emissions from Batch-Type Charcoal Kilns,* and *10 CSR 10-6.400 Restriction of Emission of Particulate Matter From Industrial Processes*.

The list of regulations in the paragraph above is based on a simple review of Missouri's SIP approved state regulations. It is believed that the rules listed above control emissions of $PM_{2.5}$ and $PM_{2.5}$ precursors from emission sources in Missouri. Any revisions to the state regulations listed above will be submitted as a SIP revision to EPA for approval. If such revisions would potentially alleviate control requirements for emission sources in Missouri, then the SIP revision would require a demonstration under Section 110(l) of the Clean Air Act.

4.3 Permanent and Enforceable Controls Used to Attain the Standard (Illinois Side)

The Illinois emission inventory from 2008 listed in Table 4-2 of this document is based on actual activity levels. Therefore, that emissions inventory inherently takes credit for all control requirements that were in place prior to 2008. This section provides a discussion on the controls that were implemented in Illinois between 2002 and 2008, which contributed to the area achieving compliance with the 1997 annual $PM_{2.5}$ NAAQS during the three year period 2007 – 2009.

The same federal control programs listed for the Missouri side of the nonattainment area in Subsections 4.2.1 and 4.2.2 are also applicable to the Illinois side of the nonattainment area and have resulted in substantial emissions reductions in $PM_{2.5}$ and $PM_{2.5}$ precursors since 2002. In addition to the federal control programs, Illinois also operates an inspection/maintenance program for their side of the nonattainment area. Illinois has also adopted a multi-pollutant rule to control emissions of NO_X and SO_2 from electric generating units in their state. Finally, Illinois EPA has numerous other state regulations in place to control emissions of $PM_{2.5}$ and $PM_{2.5}$ precursors from sources on their side of the nonattainment area. Many details regarding emissions controls for sources of NO_X and VOC can be found in Illinois EPA's maintenance plan for the Metro-East nonattainment area under the 1997 ozone standard. Additionally, it is expected that Illinois EPA will submit a redesignation demonstration and maintenance plan for the Illinois portion of the 1997 $PM_{2.5}$ St. Louis nonattainment area in the future. Illinois EPA is expected to include additional information regarding the controls implemented in regard to the attainment of the 1997 $PM_{2.5}$ NAAQS.

It is stressed that the ambient air quality monitoring data throughout the bi-state St. Louis nonattainment area continues to show improvements in ambient $PM_{2.5}$ concentrations and the area has remained in compliance with the 1997 annual $PM_{2.5}$ NAAQS through 2012, which helps demonstrate that the controls that have been implemented in both Missouri and Illinois to control emissions of $PM_{2.5}$ and $PM_{2.5}$ precursors remain permanent and enforceable.

Additionally, for the reasons listed in Section 4.2, pertaining to Missouri, all of the federal control programs currently being implemented on the Illinois side of the nonattainment area are also permanent and enforceable for sources controlled under these programs in Illinois. The Illinois multi-pollutant rule and any other state regulations that have been adopted into their SIP are also permanent and enforceable. Illinois also implemented NO_X RACT for the sources located in the nonattainment area, which was submitted as a revision to Illinois' SIP. If Illinois EPA decides to revise any of their state regulations or control requirements in their approved SIP, then this would need to be submitted as a SIP revision to EPA for approval. If such revisions would potentially alleviate control requirements for emission sources in Illinois, then the SIP revision would require a demonstration under Section 110(l) of the Clean Air Act.

5. Maintenance Plan Demonstration: Emission Inventory and Controls from 2008 – 2025

The purpose of this chapter is to address the first two elements required for a maintenance plan that are listed in Section 2.4 of this document, which include providing a comprehensive attainment year emissions inventory and a projected emissions inventory at least ten years into the future after the SIP is approved. This chapter demonstrates that emissions of $PM_{2.5}$ and $PM_{2.5}$ precursors in the bi-state St. Louis nonattainment area will remain below the levels of the attainment year emissions inventory, based on permanent and enforceable emission control requirements, for a period of ten years after EPA approves this maintenance plan. This chapter also includes an emissions inventory for an interim year to demonstrate that emissions in the St. Louis area will remain below the attainment year emissions inventory throughout the ten-year maintenance period.

The future year of 2025 was used in this maintenance plan because the future year included in a maintenance plan must be at least 10 years into the future after EPA approves the plan. By selecting 2025 for the future year EPA will have until December 31, 2015 to approve the plan into Missouri's SIP and redesignate the area to attainment.

This chapter also includes a discussion of regulations that have become effective since 2008, and a list of expected future regulations that will help continue to control $PM_{2.5}$ and $PM_{2.5}$ precursor emissions in the St. Louis area. The Air Program commits to keeping all previously adopted control measures that are included in Missouri's approved SIP in place after redesignation unless the SIP is revised and approved by EPA to remove such requirements. If the removal of such requirements would potentially alleviate control requirements for emission sources in Missouri, then the SIP revision would require a demonstration under Section 110(l) of the Clean Air Act. 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 control measures identified in the maintenance plan provide assurance that the area will continue to maintain compliance with the 1997 annual $PM_{2.5}$ 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 NH_3, NO_X, $PM_{2.5}$, SO_2, and VOC emissions for the Missouri side of the nonattainment area for 2025. Illinois EPA has also provided the Air Program with 2025 emissions projections of these pollutants for their side of the nonattainment area. 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 chapter, a modified 2008 emission inventory was developed for both Missouri and Illinois. The 2008 inventory in this chapter will act as the base year compared to the 2025 inventory detailed in this chapter. The base year 2008 inventory includes 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 2008 attainment year inventory listed in the previous chapter for both Missouri and Illinois. However, the on-road mobile source inventory is different. This is due to the fact that a different on-road mobile emission model was used to develop the inventory in this chapter of the document, which is explained in further detail below in Subsection 5.1.1. The detailed 2008 base/attainment year annual emissions inventory for the Missouri side of the nonattainment area is included in this plan as Appendix E, and a summary of the 2008 base/attainment year inventory for the Missouri side of the nonattainment area is included in this plan as Appendix B. The 2008 base/attainment year emissions inventory for the Illinois side of the nonattainment area is included in Appendix F.

5.1.1 On-Road Mobile Source Emissions Inventory Development

For this chapter of the document, on-road motor vehicle emissions for the Missouri side of the nonattainment area were estimated using U.S. EPA's MOVES 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. Illinois also used MOVES when developing the 2008 on-road emissions inventory included in this chapter of the plan.

The method for mobile emissions modeling was changed when EPA's previous on-road mobile model (Mobile 6) was replaced with a completely redesigned model (MOVES). The MOVES model was redesigned to reflect EPA's current understanding of the emissions produced by vehicles and the various factors that affect these emissions.

As a result of these changes to the model, MOVES produced higher emissions estimates for both 2008 and 2025 than were originally created with Mobile 6.2 via NMIM. NO_X emissions increased for the extended idling of heavy duty vehicles. $PM_{2.5}$ emissions increased due to the effect of stop and go traffic, which has a significant impact on emissions in highly urban areas, such as the St. Louis nonattainment area. Therefore, in addition to running a projected emissions budget for 2025 for on-road emissions, 2008 base year emissions were also run using MOVES for both Missouri and Illinois. This allows for a meaningful comparison in emissions from 2008 to 2025. By using MOVES to calculate the 2008 and 2025 mobile emission inventories, a smooth transition will occur to the new mobile model that will be used in future SIPs and transportation conformity determinations. Additional details about the development of the MOVES-based 2008 and 2025 on-road mobile emissions inventories are located in Appendices B and E for 2008 and Appendix D for 2025 for the Missouri side of the nonattainment area. Appendix F includes additional details regarding the development of the MOVES-based on-road emissions inventory for the Illinois side of the nonattainment area for 2008 and 2025.

5.1.2 Point, Area, and Off-Road Mobile Source Emissions Inventory Development for the Missouri Side of the Nonattainment Area

The projected point and area source emissions in the Missouri side of the nonattainment area for 2025 were estimated using the 2008 base year inventory and growth factors appropriate for each source category. 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). Area source stage II refueling

emissions for 2025 were calculated with MOVES and assumed that Stage II controls would no longer be required in the St. Louis area by 2025. The Air Program is currently developing a SIP revision to remove Stage II requirements as a result of wide spread use of on-board vapor recovery systems, and it is expected that Stage II controls on refueling stations in the Missouri portion of the St. Louis nonattainment area will be completely removed by December 31, 2015.

State regulation *10 CSR 10-5.570 Control of Sulfur Emissions from Stationary Boilers*, became effective September 30, 2009 and will continue to be permanent and enforceable. This new rule limits SO_2 emissions from stationary boilers in the St. Louis, Missouri area. Five sources are subject to this rule including Chrysler, General Motors, Mallinckrodt, Trigen, and Anheuser Busch. The Doe Run Resources Corporation signed a federal Consent Decree that establishes stringent enforceable SO_2 emission limits and an accelerated time table for control and shutdown of the blast furnace and sinter plant at the Herculaneum smelter by December 31, 2013, which will result in the elimination of all SO_2 emissions from these two buildings. This reduction in SO_2 emissions from this facility are relied on, when projecting the future year (2025) emissions inventory described in this chapter.

An adjustment was also made to account for the retirement of two units located at MEMC Electronic Materials, Inc. that were subject to a 2009 Consent Agreement. These two emission units will no longer be permitted to operate unless a new construction permit is granted, therefore, the consent agreement was terminated in 2013. A copy of the 2009 consent agreement and the letter from the Missouri Department of Natural Resources terminating the agreement is included in this document as Appendix H.

For point and area sources of ammonia on the Missouri side of the nonattainment area, EGAS growth factors were not used to develop the future year emissions inventory. Instead, point and area source ammonia emissions in 2008 were compared to actual point and area source ammonia emissions in 2011 to determine current trends in ammonia emissions from these two source categories. In total, point source ammonia emissions on the Missouri side of the nonattainment area decreased from 1,308.64 tons in 2008 to 1,197.47 tons in 2011 and area source ammonia emissions on the Missouri side of the nonattainment area decreased from 3,514.98 tons in 2008 to 3,207.16 tons in 2011. Because these emissions are trending downwards, EGAS growth factors are not appropriate for use in the projection of future year emissions. In order to ensure conservative estimates are used to help protect air quality, the 2008 point and area source ammonia emissions were held level to project the point and area source ammonia emissions in 2025, even though, over recent years, there has been a downward trend in these emissions.

Fugitive dust emissions from paved roads, unpaved roads, residential construction, commercial/industrial/institutional construction, road construction, and agricultural tilling on the Missouri side of the nonattainment area were also held at 2008 levels when projecting 2025 emissions from these categories as opposed to using EGAS growth factors. These emissions result from dust disturbed during the above mentioned activities. These types of emissions, in aggregate, comprise a significant total amount of direct $PM_{2.5}$ emissions; however these emissions have negligible impact on urban-wide or region-wide $PM_{2.5}$ concentrations because they settle out of the air quickly and disperse. These types of emissions can impact the immediate local area surrounding the emissions release point; however, $PM_{2.5}$ concentrations

quickly return to normal background levels within a few hundred yards of the source. In addition, these types of emissions are difficult to control. The Air Program reviewed the 2008 and 2011 emissions from these categories for the Missouri side of the nonattainment area. In 2008, direct $PM_{2.5}$ emissions from these five categories totaled 10,964.19 tons/year in the Missouri portion of the nonattainment area. In 2011 the emissions totaled 10,092.17 tons/year in the Missouri portion of the nonattainment area. This is a reduction of 872.02 tons/year. In order to ensure conservative estimates are used to help protect air quality, the 2008 direct $PM_{2.5}$ emissions from these five categories were held level to project the emissions in 2025 for the Missouri side of the nonattainment area, even though, over recent years, there has been a downward trend in these emissions.

Finally, EGU emissions in the future year were projected based on permanent and enforceable controls in place for each of these sources. The annual SO_2 and NO_X emissions from the following EGU facilities: Ameren's Labadie, Meramec, and Rush Island, were grown as follows: the actual annual NO_X and SO_2 emissions from these Ameren units from 2008 - 2011 were obtained from the Clean Air Market Division database and averaged to obtain an annual average of NO_X and SO_2 emissions over these four years. These annual averages of NO_X and SO_2 emissions over these four years were used to project the NO_X and SO_2 emissions in 2025 for these three facilities. These four year averages of annual NO_X and SO_2 emissions were determined to be representative of the projected NO_X and SO_2 emissions in 2025 because of CAIR. In 2015, their allowances from CAIR drop significantly, but they will likely have some banked allowances allowing them to hold their annual NO_X and SO_2 emissions steady for the first several years after the 2015 CAIR allocations take effect.

The annual SO_2 and NO_X emissions from Ameren's Sioux EGU facility were grown as follows. For NO_X emissions from this facility, the 2025 emissions were projected in the same manner as the NO_X emissions from the other three Ameren EGU facilities in the St. Louis nonattainment area, using the average annual NO_X emissions from 2008 – 2011. However, for annual SO_2 emissions from the Sioux facility, the average heat input from 2008 – 2011 was multiplied by the annual SO_2 rate from 2011 in order to generate the 2025 annual SO_2 emissions. This is due to the fact that scrubbers were installed on the two units at this facility in late 2010 that reduced SO_2 emissions by approximately 90 percent. By using the average heat input from these three facilities over the last four years this accounts for variability in electricity production, and by using the emission rate from 2011, this accurately projects the emissions reductions that will result from continued use of the scrubbers at the facility. Additional information regarding the development of the future year (2025) emissions inventory for these four EGU facilities can be found in Appendix D of this document.

Off-road emissions projections for 2008 and 2025 for the Missouri side of the nonattainment area were developed using the U.S. EPA's NONROAD model. The off-road mobile source emissions inventory also includes emissions from aircraft takeoffs and landings, commercial marine vessels, and locomotives. The emissions from these three categories were grown from 2008 levels to the future year using EGAS growth factors for both sides of the nonattainment area. Additional details regarding the development of the 2008 and 2025 off-road mobile source emissions inventory for the Missouri side of the nonattainment can be found in Appendix B and E for 2008 and in Appendix D for 2025.

5.1.3 Point, Area, and Off-Road Mobile Source Emissions Inventory Development for the Illinois Side of the Nonattainment Area

The point source emissions inventory data for the Illinois portion of the nonattainment area that was used in this plan was provided by Illinois EPA. The 2008 emissions inventory was based on actual reported emissions data. The 2025 emissions were calculated by Illinois EPA by growing the 2008 emissions to these future years using EGAS 4.0 growth factors. Illinois EPA made some adjustments to the point source growth factors based on the following permanent and enforceable control measures: CAIR, NO_X RACT, the Illinois multi-pollutant rule, variances issued for the Baldwin and Wood River facilities, enforceable facility shutdowns, and new facility openings. Additional details regarding the development of the 2008 and 2025 emissions inventory for the Illinois side of the nonattainment area can be found in Appendix F.

The 2008 area source emissions inventory was provided by Illinois EPA, and was based on actual activity levels. Illinois did not include fugitive dust emissions from paved and unpaved roads in the emissions data. These emissions were pulled from the 2008 National Emissions Inventory for Madison, Monroe, St. Clair and Randolph Counties. The Randolph county emissions were multiplied by 2%, because this is the percentage of on-road emissions in Randolph County that Illinois projected would apply to the portion of nonattainment area in the township of Baldwin. The 2017 and 2025 area source emissions were calculated by Illinois EPA by growing the 2008 emissions to these future years using EGAS 4.0 growth factors.

For fugitive dust from paved and unpaved roads in the Illinois Counties, Missouri assumed that 2008 levels from these two categories would remain steady when projecting the future year emissions. These types of emissions have very localized impacts, meaning in aggregate they would have a negligible impact on monitored $PM_{2.5}$ concentrations. Also, as more roads are paved in the St. Louis area, these emissions would be expected to decrease. Holding emissions from these two categories at 2008 levels is expected to be a conservative yet reasonable method for projecting future year emissions.

5.1.4 2008 and 2025 Emissions Inventory Summary for the 1997 St. Louis Bi-State $PM_{2.5}$ Nonattainment Area

Table 5-1 displays the 2008 annual emissions inventory summaries for the Illinois and Missouri portions of the nonattainment area for point, area, on-road mobile, and off-road mobile source categories. Table 5-2 displays the projected emissions inventory summary for the future year in this plan (2025) for both sides of the nonattainment area.

Table 5-3 provides a comparison of emissions for the years 2008 and 2025, using the 2008 on-road mobile source emissions listed in Table 5-1. Table 5-3 shows the differences by source category along with the total changes in emissions for each pollutant listed for both sides of the nonattainment area. As shown in the table, emissions of NH_3, NO_X, $PM_{2.5}$, SO_2, and VOC are all expected to decrease on both sides of the nonattainment area. The maintenance demonstration is based on the comparison of the emission levels in 2008 and the projection of emissions in the future year of the plan. Because the area attained the standard in 2008, this is expected to be a level of emissions suitable to maintain the level of the standard. Because the emissions in 2025

are expected to be less than 2008 actual levels, this results in a safety margin. A safety margin is the amount by which the total projected emissions from all sources of a given pollutant are less than the total emissions that would satisfy the applicable requirement for reasonable further progress, attainment, or maintenance (in this case maintenance). The totals at the bottom of Table 5-3 reflect the projected safety margins of the Illinois and Missouri sides of the nonattainment area for each pollutant included in the table. Safety margins provide added assurance that emissions will remain below the levels experienced during the attainment year in a maintenance plan.

Table 5-1 2008 Emissions Inventory Summary for the 1997 St. Louis Bi-State $PM_{2.5}$ Nonattainment Area (tons/year)

County Name	Source Category	NH_3	NO_X	$PM_{2.5}$-Pri	SO_2	VOC
Missouri	Point Sources	1,308.64	31,103.26	3,493.39	201,700.73	5,067.89
Illinois		208.31	16,981.51	2,448.15	50,730.60	4,277.72
Totals		**1,516.95**	**48,084.77**	**5,941.54**	**252,431.33**	**9,345.61**
Missouri	Area Sources	3,514.98	4,382.94	14,033.64	11,510.48	38,215.34
Illinois		3,354.13	1,638.36	5,161.76	246.67	7,796.34
Totals		**6,869.11**	**6,021.30**	**19,195.40**	**11,757.15**	**46,011.68**
Missouri	On-Road Mobile Sources	1,056.17	58,819.58	2,179.28	426.65	23,793.80
Illinois		250.58	15,012.94	577.99	116.76	5,069.55
Totals		**1,306.75**	**73,832.52**	**2,757.27**	**543.41**	**28,863.35**
Missouri	Off-Road Mobile Sources	15.68	20,722.57	1,199.82	544.3	11,545.53
Illinois		2.89	8,475.24	425.71	300.72	2,972.77
Totals		**18.57**	**29,197.81**	**1,625.53**	**845.02**	**14,518.30**
Grand Total		**9,711.38**	**157,136.40**	**29,515.74**	**265,576.91**	**98,738.94**

Table 5-2 2025 Emissions Inventory Summary for the 1997 St. Louis Bi-State $PM_{2.5}$ Nonattainment Area (tons/year)

County Name	Source Category	NH_3	NO_X	$PM_{2.5}$-Pri	SO_2	VOC
Missouri	Point Sources	1,308.64	32,263.48	4,403.28	122,643.13	7,809.01
Illinois		242.69	12,822.94	2,865.19	21,853.56	5,541.80
Totals		**1,551.33**	**45,086.42**	**7,268.47**	**144,496.69**	**13,350.81**
Missouri	Area Sources	3,514.98	4,531.02	14,314.86	11,606.89	49,458.63
Illinois		3,374.17	1,735.20	4,668.15	268.04	9,249.75
Totals		**6,889.15**	**6,266.22**	**18,983.01**	**11,874.93**	**58,708.38**
Missouri	On-Road Mobile Sources	691.88	16,568.44	533.34	189.22	8,035.80
Illinois		178.80	3,616.52	181.73	49.15	1,592.92
Totals		**870.68**	**20,184.96**	**715.07**	**238.37**	**9,628.72**
Missouri	Off-Road Mobile Sources	17.63	8,895.81	640.68	219.9	7,178.29
Illinois		3.99	9,028.03	331.2	438.02	2,037.10
Totals		**21.62**	**17,923.84**	**971.88**	**657.92**	**9,215.39**
Grand Total		**9,332.78**	**89,461.44**	**27,938.43**	**157,267.91**	**90,903.30**

Table 5-3 Comparison of 2008 and 2025 Emissions for the 1997 St. Louis Bi-State $PM_{2.5}$ Nonattainment Area (tons/year)

County Name	Source Category	NH_3	NO_X	$PM_{2.5}$-Pri	SO_2	VOC
Missouri	Point Sources	0.00	+1,160.22	+909.89	-79,057.60	+2,741.12
Illinois		+34.38	-4,158.57	+417.04	-28,877.04	+1,264.08
Totals		**+34.38**	**-2,998.35**	**+1,326.93**	**-107,934.64**	**+4,005.20**
Missouri	Area Sources	0.00	+148.08	+281.22	+96.41	+11,243.29
Illinois		+20.04	+96.84	-493.61	+21.37	+1,453.41
Totals		**+20.04**	**+244.92**	**-212.39**	**+117.78**	**+12,696.70**
Missouri	On-Road Mobile Sources	-364.29	-42,251.14	-1,645.94	-237.43	-15,758.00
Illinois		-71.78	-11,396.42	-396.26	-67.61	-3,476.63
Totals		**-436.07**	**-53,647.56**	**-2,042.20**	**-305.04**	**-19,234.63**
Missouri	Off-Road Mobile Sources	+1.95	-11,826.76	-559.14	-324.40	-4,367.24
Illinois		+1.10	552.79	-94.51	137.30	-935.67
Totals		**+3.05**	**-11,273.97**	**-653.65**	**-187.10**	**-5,302.91**
Missouri Totals (Safety Margin)		**-362.34**	**-52,769.60**	**-1,013.97**	**-79,523.02**	**-6,140.83**
Illinois Totals (Safety Margin)		**-16.26**	**-14,905.36**	**-567.34**	**-28,785.98**	**-1,694.81**
Grand Total (Safety Margin)		**-378.60**	**-67,674.96**	**-1,581.31**	**-108,309.00**	**-7,835.64**

*Note: A negative value indicates a projected decrease in emissions from 2008 to 2025.
A positive value indicates a projected increase in emissions from 2008 to 2025.

It should be noted that the projected increase in emissions in all of the pollutant categories for area sources are based on (EGAS) growth factors. Likewise, the projected increase in emissions of direct $PM_{2.5}$ and VOC emissions from point sources are also based on EGAS growth factors. Due to the use of these growth factors, emissions of these pollutants from these source categories are projected to increase by 2025. However, these projected increases are likely overstated and actual point and area source emissions for these pollutants are not expected to increase as much as the growth factors suggest. EPA's Regulatory Impact Analysis (RIA) for the 2006 PM NAAQS rule, (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 increases in emissions for area sources are likely an artifact of the growth methodology. From page D-36 of the RIA:

> *-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.*

Despite these conservative projections from EGAS growth factors, all pollutants are still projected to decrease on both sides of the nonattainment area from 2008 – 2025, when looking at all source categories combined. The projected decrease from each pollutant on both sides of the nonattainment area from 2008 to 2025 is due to permanent and enforceable control requirements. Combined mobile source emissions from all pollutants on both sides of the nonattainment area are expected to decrease significantly from 2008 to 2025. In addition, point source SO_2 emissions are expected to decrease significantly on both sides of the nonattainment area based on control requirements for sources located in the nonattainment area. Because aggregate emissions in all pollutant categories are expected to decline on both sides of the nonattainment area, this satisfies the maintenance demonstration requirement of this plan.

Additional details about the Missouri 2008 emission inventory can be found in Appendices B and E. Additional details about the Missouri 2025 emission inventory can be found in Appendix D. Additional details about the Illinois 2008 and 2025 emission inventories can be found in Appendix F. 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 include:

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

These CMAQ Program and the grant 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 idle reduction technology on heavy duty diesel engines 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 portion of the St. Louis nonattainment area. Illinois EPA developed a projected emissions inventory for this interim year as well. Interim year 2017 is the midway point between 2008, the base year of the maintenance plan, and 2025, the last year in the ten year maintenance plan period. An analysis of an interim year emissions inventory is necessary to demonstrate that future emission levels will remain below the attainment year emission levels throughout the entire 10-year maintenance period. This provides assurance that air quality in the St. Louis area will continue to comply with 1997 annual $PM_{2.5}$ NAAQS for the duration of the maintenance period addressed in this plan.

All assumptions and controls used in developing the projected 2025 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 bi-state St. Louis nonattainment area. As seen in Table 5-4, this interim year emissions analysis shows that emissions levels in the area will remain below the 2008 base year for all pollutant categories, thus demonstrating that the area will continue to maintain the standard throughout the 10-year maintenance period. 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 inventories for the Missouri and Illinois sides of the nonattainment area can be found in Appendices C and F of this document, respectively.

Table 5-4 2017 Emissions Inventory Summary for the 1997 St. Louis Bi-State $PM_{2.5}$ Nonattainment Area (tons/year)

County Name	Source Category	NH_3	NO_X	$PM_{2.5}$-Pri	SO_2	VOC
Missouri	Point Sources	1,308.64	31,320.70	3,692.74	121,739.06	6,363.13
Illinois		221.12	11,891.31	2,601.95	20,221.18	4,962.34
Totals		**1,529.76**	**43,212.01**	**6,294.69**	**141,960.24**	**11,325.47**
Missouri	Area Sources	3,514.98	4,446.97	14,165.78	11,534.82	44,057.17
Illinois		3,364.32	1,694.82	4,706.63	258.36	8,607.70
Totals		**6,879.30**	**6,141.79**	**18,872.41**	**11,793.18**	**52,664.87**
Missouri	On-Road Mobile Sources	722.47	22,904.99	913.15	191.12	10,867.41
Illinois		186.79	5,623.42	231.68	49.31	2,364.85
Totals		**909.26**	**28,528.41**	**1,144.83**	**240.43**	**13,232.26**
Missouri	Off-Road Mobile Sources	15.75	10,505.88	787.35	193.55	7,398.02
Illinois		3.46	8,673.75	370.28	390.79	2,303.43
Totals		**19.21**	**19,179.63**	**1,157.63**	**584.34**	**9,701.45**
Grand Total		**9,337.53**	**97,061.84**	**27,469.56**	**154,578.19**	**86,924.05**

5.3 MOVES 2010a vs. MOVES 2010b

When the Air Program developed the original $PM_{2.5}$ maintenance plan, the latest version of the EPA approved on-road mobile emissions model was MOVES version 2010a. This is the version that was used to calculate the on-road mobile source emissions for all three years included in this chapter of the original maintenance plan. However, EPA has since updated MOVES to version 2010b. Prior to this update, the Air Program had used MOVES version 2010a to develop emissions inventories for a technical demonstration associated with an amendment to the State Rule for the GVIP. During this technical demonstration, the Air Program used MOVES to calculate the annual and ozone season emissions for 2008. It was discovered during this technical demonstration that the I/M program input that was used in the original $PM_{2.5}$ maintenance plan did not accurately characterize the GVIP. Therefore, when calculating the emissions for that technical demonstration the I/M program input was corrected, meaning the 2008 emissions of NO_X and VOC had already been modeled with the corrected I/M input using MOVES 2010a. After that technical demonstration was completed EPA released an updated version of MOVES (MOVES 2010b), and the Air Program installed MOVES 2010b on the modeling computers that are used to run MOVES in an effort to ensure the most current version of the mobile emissions model is being utilized. In an effort to conserve resources, MOVES 2010b was only used to calculate emissions for years and pollutants that had not been accurately modeled using MOVES 2010a.

Additionally, upon review of the mobile source emissions inventory for both the base year (2008) and the interim year (2017), it was discovered that for direct $PM_{2.5}$ emissions, the original document only accounted for exhaust emissions of these pollutants and did not include the $PM_{2.5}$ emissions from brake wear and tire wear. Therefore, the MOVES runs for this pollutant for both the base year (2008) and interim year (2017) were completed using MOVES 2010b to correct this issue. Finally, because the future year in the maintenance plan was changed from 2022 to 2025, all pollutants for the new future year (2025) were modeled using MOVES 2010b.

Therefore, it is noted that different versions of MOVES were used to calculate the emissions on the Missouri side of the nonattainment area for the various pollutants and years that are being used in this revised $PM_{2.5}$ Maintenance Plan. The use of the previously developed data that utilized MOVES 2010a reduced the modeling resources required for this revision to the maintenance plan. Version 2010b of MOVES is an update to version 2010a that increases the software's functionality without significantly affecting the modeled emissions of criteria pollutants. EPA considers versions 2010a and 2010b to be the same model for SIP development purposes. However, in an effort to ensure clarity and transparency, Table 5-5 below summarizes which version of the model was used for the various pollutants and years that are now incorporated into the $PM_{2.5}$ Maintenance Plan emissions inventories used in this chapter of this document.

Table 5-5 Summary of the MOVES Versions Used to Create the On-Road Mobile Source Emissions Inventories for 2008, 2017, and 2025

Inventory Year	Pollutants Modeled	MOVES Version
2008 (base year)	NO_X, VOC, NH_3, and SO_2	MOVES 2010a
2008 (base year)	$PM_{2.5}$	MOVES 2010b
2017 (interim year)	NH_3 and SO_2	MOVES 2010a
2017 (interim year)	$PM_{2.5}$, NO_X, and VOC	MOVES 2010b
2025 (future year)	All pollutants	MOVES 2010b

5.4 Controls to Remain in Effect

5.4.1 Controls Relied on in the Maintenance Demonstration are Permanent and Enforceable (Missouri)

The Air Program provides assurance that all of the control measures included in the Missouri SIP and listed in this document that have been used to attain the annual $PM_{2.5}$ standard are permanent and enforceable. Any revisions to the control requirements in Missouri's approved SIP that are included in this document will be submitted as a SIP revision to EPA for approval. If such revisions would potentially alleviate control requirements for emission sources in Missouri, then the SIP revision would require a demonstration under Section 110(l) of the Clean Air Act.

There are currently several federal control measures that have recently been proposed or promulgated that are expected to greatly reduce the amount of $PM_{2.5}$ and $PM_{2.5}$ precursor emissions in the St. Louis area. The control measures expected to have the greatest effect on $PM_{2.5}$ and $PM_{2.5}$ precursor emissions in the St. Louis area include the federal CAIR phase II and/or its future replacement, the Mercury and Air Toxics Standards for Fossil-Fuel Fired Electric Utility Steam Generating Units (MATS), 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, the phase in of tier 4 emission standards for non-road engines, and the federal consent decree between EPA and Doe Run.

CAIR phase II and/or its future replacement, the EPA Consent Decree between EPA and Doe Run, and the improved federal mobile source regulations were all considered when developing the future emissions inventory in order to demonstrate continued maintenance with the 1997 $PM_{2.5}$ standard. In 2008, the Doe Run Primary Lead Smelter at Herculaneum emitted over 35,000 tons of SO_2, and according to the federal consent decree, all SO_2 emissions from the blast furnace and sinter plant will be eliminated by 2013. As stated earlier, federal motor vehicle and non-road engine standards are only expected to be tightened in the future, which will also contribute to $PM_{2.5}$ and $PM_{2.5}$ precursor emission reductions. These recent and anticipated future federal control measures are projected to result in continued decreases in $PM_{2.5}$ and $PM_{2.5}$ precursor emissions both nationwide and in the St. Louis area. CAIR, the EPA Consent Decree with Doe Run, and federal mobile source regulations were all relied upon in the maintenance demonstration, which shows that projected future year $PM_{2.5}$ and $PM_{2.5}$ precursor emissions in the St. Louis area will remain below the levels experienced during the attainment year.

The MATS is projected to reduce annual $PM_{2.5}$ and SO_2 emissions nationwide by 84,000 tons per year and over 2 million tons per year, respectively by 2016 (76 FR 25085, May 3, 2011). The Boiler MACT is projected to reduce annual filterable PM and SO_2 emissions by 47,400 tons per year and 442,000 tons per year, respectively for existing units subject to the rule (76 FR 15649, March 31, 2011). The Air program did not rely on the MATS 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 annual $PM_{2.5}$ NAAQS; however the anticipated reductions from these new rules may also contribute to the future attainment of the 1997 annual $PM_{2.5}$ NAAQS in the St. Louis area.

Additional information with respect to the ongoing control of $PM_{2.5}$ and $PM_{2.5}$ precursor sources in the Missouri portion of the St. Louis nonattainment area can be found in Section 4.2.

5.4.2 Controls Relied on in the Maintenance Demonstration are Permanent and Enforceable (Illinois)

Illinois EPA has stated that only permanent and enforceable control requirements were considered when developing the future year emissions inventories (2017 and 2025) from which the maintenance demonstration has been made. As mentioned before, Illinois used EGAS 4.0 growth factors to develop the future year emissions inventories that have been compared to the 2008 inventories included in this plan for all point sources located in their portion of the nonattainment area. Point source adjustments include consideration of the following control strategies on the Illinois side:

- NO_X RACT
- CAIR
- Illinois Multi-Pollutant Rule
- Variance for Baldwin and Wood River Facilities
- New facilities that have come online since 2008
    - Ethanol plant in Sauget
    - Coke plant in Granite City
- Some unit shutdowns (as a result of NO_X RACT or federally approved consent decrees)

All of these considerations for the future year point source inventories are enforceable and permanent control measures included in Illinois federally approved SIP. In addition, mobile source emissions reductions are based on modeled future year emissions based on federal motor vehicle and non-road engine standards. Other than the considerations listed in the bullet points above and the federal mobile source control requirements, no other adjustments were made to Illinois' future year inventories that are used in the maintenance demonstration included in this document.

However, similarly to Missouri, certain control measures have come in place or are expected to come in place that will provide further emissions reductions for sources located in the nonattainment area. Just like Missouri, the federal Boiler MACT and the Utility MATS rules are expected to generate emissions reductions above and beyond those projected in this document.

In addition there are local measures currently being implemented by Illinois that provide further assurance beyond the maintenance demonstration included in this document.

The ambient $PM_{2.5}$ monitor located in Granite City, Illinois has traditionally recorded the highest annual $PM_{2.5}$ design value of any other monitor in the St. Louis area over the past decade. There are two local point sources within one mile of this monitor that emit significant $PM_{2.5}$ and $PM_{2.5}$ precursor emissions. These two sources are the U.S. Steel Facility – Granite City, and the Gateway Energy and Coke Company. Several emission controls have been implemented by these two facilities since the bi-state St. Louis area was designated nonattainment for the 1997 annual $PM_{2.5}$ NAAQS.

For Gateway Energy and Coke Company, in June 2010, a federal consent decree was filed by the U.S. District Court for the southern District of Illinois East St. Louis Division in the matter of the U.S. EPA, the State of Illinois, and the State of Ohio vs. Gateway Energy and Coke Company LLC, Haverhill Coke Company LLC, and Suncoke Energy Inc. This federal consent decree resolves alleged violations of the Clean Air Act for the defendants in the case. This federal consent decree requires permanent and enforceable emission limits for sources at the Gateway Energy and Coke Company facility located in Granite City, Illinois; however, the consent order was not considered in the maintenance demonstration included in this plan. This consent agreement is included for reference as Appendix I of this document.

For U.S. Steel, multiple emissions reduction projects have been implemented over the past 10 years in Granite City. The State of Illinois entered into a consent order with U.S. Steel in 2007, which required numerous emission reduction projects to be implemented at this facility. This consent order was then revised in 2009 to adjust compliance schedules. The consent order represents additional control measures beyond what is considered in the maintenance demonstration included in this plan that are or will be required at this facility. This consent order is included for reference as Appendix J of this document.

The State of Illinois also currently has a memorandum of agreement (MOA) with the U.S. Steel facility that was signed in 2010 and specifies several emissions reductions projects to be implemented at the facility, which are in addition to the emissions reduction projects implemented as a result of the consent order mentioned above, including the installation of a bag house on the basic oxygen process furnace at this facility. This memorandum of agreement between U.S. Steel and the State of Illinois is included for reference as Appendix K of this document. U.S. Steel received a construction permit in March 2013 to construct this bag house. The construction permit for this project is included for reference as Appendix L of this document, and includes specific emission limitations that will apply to the operation of the bag house once it is constructed.

It is noted that the federal consent decree for Gateway Energy and Coke Company along with the consent order, MOA, and recent construction permit for U.S. Steel are not considered in the maintenance demonstration included in this document; however, these measures do provide additional assurance that the entire bi-state nonattainment area will continue to comply with the 1997 annual $PM_{2.5}$ NAAQS. It is also noted that the Air Program is including Appendices I – L in this document for U.S. EPA's reference regarding these additional controls, but stresses that

these controls were not considered in the maintenance demonstration included in this document, and that any reductions resulting from these controls will be above and beyond the future year emissions projections included in this maintenance plan. For these reasons, Appendices I – L are not being submitted for inclusion in Missouri's SIP.

5.5 Provisions for Permitting New or Modified Emissions Sources (Missouri)

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 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.

State rule *10 CSR 10-6.410 Emissions Banking and Trading*, allows the banking and trading of emission reduction credits to be used for permitting purposes. These emission reduction credits are reduced by 25 percent at the time they are banked and they are further reduced by 3 percent every year they remain banked. These credits are intended to be used for NSR offset purposes in nonattainment areas and for PSD increment purposes in areas designated attainment. However, these credits only apply to these specific aspects of obtaining a permit under Missouri's EPA approved NSR permitting program, and cannot be used to alleviate any source from undergoing a NAAQS impact analysis in any area. Nor can these credits be used to alleviate any source from implementing BACT requirements for PSD permits in attainment areas or lowest achievable emissions rate/alternative site analysis requirements in nonattainment areas. Therefore, the emission reduction credits that have been banked by Missouri sources are not anticipated to have any impact on Missouri's demonstration that the St. Louis area will continue to maintain the 1997 annual $PM_{2.5}$ NAAQS through the future year in the plan.

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_2) and particulate matter ($PM_{2.5}$ and PM_{10}).

As stated in 40 CFR 93.102, for $PM_{2.5}$ nonattainment and maintenance areas, transportation conformity applies to directly emitted $PM_{2.5}$ and NO_X. Therefore, mobile source emission budgets for the Missouri portion of the St. Louis annual $PM_{2.5}$ nonattainment area for both $PM_{2.5}$ and NO_X are established in this maintenance plan.

The first step in establishing the future year budgets for the Missouri side of the nonattainment area was to project 2025 on-road mobile source emissions using the latest available data. The 2025 on-road emissions projections for the Missouri side of the nonattainment area reflect an emissions level determined using 2008 VMT provided by East West Gateway. The 2008 VMT data was originally generated by the Missouri Department of Transportation (MoDOT) for state owned roads. Then East-West Gateway used their travel demand model to calculate the county-level VMT data for all state and locally owned roads. The future year emissions projection reflects VMT and vehicle population growth at an annual rate of 1.5 percent from year 2008 to 2025. The 1.5 percent growth rate for use in projecting 2008 VMT and vehicle population to 2025 was developed through a coordinated effort with EPA, 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 travel demand model used by East-west Gateway projects approximately 1 percent annual VMT growth for the next 10 years. The travel 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 when projecting future year emissions 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 recession, the economy has been struggling in the past several years, which has resulted in lower projected VMT growth rates from the travel 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 travel demand model. On February 22, 2011 and again on September 24, 2013, the Air Program discussed the use of the 1.5 percent growth rate to be used in this maintenance plan with the Interagency Consultation Group (IACG) 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 and Ozone. The members of the IACG agreed that a 1.5 percent growth rate was reasonable to use for the purposes of projecting future year emissions in the $PM_{2.5}$ maintenance plan. Table 6-2 summarizes the estimated 2008 and projected 2025 annual VMT used for each county in the Missouri portion of the St. Louis nonattainment area.

Table 6-1 Historical VMT in the Missouri Portion of the St. Louis 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 2025 Annual VMT by County

County	2008 Annual VMT	2025 Annual VMT
Franklin	1,636,760,381	2,108,136,622
Jefferson	1,884,745,023	2,427,544,017
St. Charles	2,728,058,895	3,513,662,847
St. Louis	11,924,864,323	15,359,877,516
St. Louis City	3,450,450,085	4,444,299,010
Totals	**21,624,878,706**	**27,853,520,012**

6.1 Motor Vehicle Emissions Budgets for the Missouri Side of the Nonattainment Area

This section describes and establishes the Missouri portion of the St. Louis nonattainment area motor vehicle emissions budgets associated with the 1997 annual $PM_{2.5}$ maintenance plan. EPA requires motor vehicle emission budgets be established for the last year of the maintenance plan, 2025. This plan also establishes motor vehicle emissions budgets for the base year in the plan, 2008. By establishing budgets for both 2008 and 2025, it is understood that transportation conformity determinations for analysis years prior to 2025 will use the 2008 budget established in this plan to demonstrate conformity to the plan, and that transportation conformity determinations for analysis years in 2025 or later will use the 2025 budget established in this plan to demonstrate conformity. The mobile source emissions budgets were calculated consistent with EPA's *Guidance for Creating Annual On-Road Mobile Source Emission Inventories for $PM_{2.5}$ Nonattainment Areas for Use in SIPs and Conformity*. In addition, the calculations incorporate the latest planning assumptions established by the Inter Agency Consultation Group coordinated by the East West Gateway Council of Governments.

The base year (2008) motor vehicle emissions budget is based on actual emission levels from on-road mobile sources in 2008 for the Missouri side of the nonattainment area. This will ensure that emissions from this category cannot increase beyond the levels experienced during the mid-year in the three year period in which the area attained the standard. The development of the 2008 actual on-road emissions as calculated using MOVES, are discussed in Chapter 5, and all inputs used to create the 2008 budgets can be found in Appendix B.

The Air Program is also establishing a 2025 motor vehicle emissions budget through this maintenance plan. This budget will be based on a level of emissions necessary to keep the total emissions from all source categories below 2008 levels in 2025 and into the future. In Chapter 5 of this document, a comparison of the 2008 actual and the 2025 projected emissions for the Missouri portion of the nonattainment area shows that based on projected emissions there is a safety margin for both NO_X and $PM_{2.5}$ emissions. The total available safety margins, rounded to the nearest ton/year, are presented below in Table 6-3. These safety margins show the amount by which emissions of these two pollutants are expected to reduce by 2025 when compared to 2008 emission levels for the Missouri side of the nonattainment area.

Table 6-3 Total Available NO_X and $PM_{2.5}$ 2025 Safety Margins for the Missouri Side of the Nonattainment Area Based on Projected Emissions

NO_X (tons/year)	$PM_{2.5}$ (tons/year)
52,767	**1,014**

When establishing motor vehicle emissions budgets for a future year it is important to account for uncertainty to ensure no unnecessary problems arise for future transportation conformity determinations. East-West Gateway Council of Governments performs the transportation conformity determinations for the bi-state St. Louis nonattainment area each time the transportation improvement plan and long range transportation plan are revised. During these conformity determinations, East-West Gateway must project emissions for each year in which the state has developed a budget in the SIP, in addition to horizon years for the long range plan, out to 2040.

As time passes, the horizon years for transportation conformity determinations stretches further and further into the future. However, the Air Program has not performed any MOVES runs for years beyond 2025 to determine expected emissions beyond this year, which results in potential uncertainty for the transportation conformity process. In addition, transportation conformity determinations must always be based on the latest available data. In the future, it is possible that the fleet distribution (car vs. trucks percentages) could change as well as the age distribution of the fleet in the area, both of which could cause the actual emissions in 2025 to be higher than current emissions projections. Finally, because MOVES is a new mobile model, there are other uncertainties that arise, such as newer inputs that may be developed to replace default inputs in the model. All of these factors can have an impact on future year projected emissions. Therefore, the Air Program is utilizing a portion of the safety margin from the projected 2025 emissions for the Missouri side of the nonattainment area in establishing the future year budgets. The addition of this safety margin to the motor vehicle emissions budget is consistent with the transportation conformity rule's requirements for such safety margins as the total emissions in 2025 are predicted to remain well below the total emissions in 2008. The transportation conformity rule requirements related to safety margins are found in section 93.124(a) of the transportation conformity rule.

In utilizing the safety margin to increase the motor vehicle emissions budgets above the level of the currently projected emissions for 2025, this will ensure that no problems are caused for the transportation conformity process in the St. Louis area if any unanticipated issues result in a slight increase in the projected emissions from on-road mobile sources in the future. Table 6-4 displays the projected emissions of NO_X and $PM_{2.5}$ from on-road mobile sources in the Missouri side of the nonattainment area for 2025 along with the 2025 safety margins based on these projected emissions. The Air Program is increasing these projected emissions by 20 percent in establishing the motor vehicle emissions budgets for the future year in this plan for the pollutants of NO_X and direct $PM_{2.5}$. Table 6-5 shows the level of emissions in 2025 that will result if the emissions from the on-road mobile source category increase by 20 percent compared to the currently projected emissions in this year as this is the level of emissions at which the Air Program is establishing the motor vehicle emissions budgets for the Missouri side of the nonattainment area. The table also displays the remaining safety margins for these two pollutants on the Missouri side of the nonattainment area. Because there is still a substantial safety margin in both pollutant categories this helps ensure that air quality is protected and that the area will continue to maintain the 1997 annual $PM_{2.5}$ NAAQS throughout the maintenance period.

Table 6-4 Projected 2025 On-Road Mobile Source Emissions & Available Safety Margins for NO_X and $PM_{2.5}$ for the Missouri Side of the St. Louis Nonattainment Area

	NO_X (tons/year)	**$PM_{2.5}$ (tons/year)**
Projected 2025 On-Road Emissions	**16,568**	**533**
Available 2025 Safety Margin Based on Projected Emissions for MO Side of Nonattainment Area	**52,770**	**1,014**

Table 6-5 2025 Motor Vehicle Budgets for Missouri Side of the Nonattainment Area and Remaining Safety Margins for NO_X and $PM_{2.5}$

	NO_X (tons/year)	$PM_{2.5}$ (tons/year)
2025 Motor Vehicle Emissions Budget	**19,882**	**640**
Remaining 2025 Safety Margin Based on Budgeted Emissions for MO Side of Nonattainment Area	**49,453**	**907**

In the Missouri portion of the St. Louis nonattainment area, transportation conformity for the 1997 annual $PM_{2.5}$ NAAQS will be based on the motor vehicle budgets listed in Table 6-6 after EPA determines that the budgets meet the adequacy criteria of the transportation conformity rule. Upon the adequacy finding for these budgets, the interim emissions tests currently in use for transportation conformity determinations for the Missouri portion of the St. Louis nonattainment area under the 1997 annual $PM_{2.5}$ NAAQS will no longer be used. Table 6-6 identifies the 2008 and 2025 motor vehicle emissions budgets for the St. Louis 1997 annual $PM_{2.5}$ nonattainment area to be used in transportation conformity analyses. The 2008 motor vehicle emissions budget will be used in transportation conformity determinations for any analysis years prior to 2025, and the 2025 motor vehicle emissions budget will be used in transportation conformity determinations for any analysis years in 2025 or later. The 2008 budgets reflect actual 2008 emissions from on-road mobile sources and the 2025 budgets reflect the projected emissions from on-road mobile sources with a 20 percent increase as discussed above.

Table 6-6 Motor Vehicle Emissions Budgets for the Missouri Portion of the St. Louis Annual $PM_{2.5}$ Nonattainment Area

Pollutants	2008 Mobile Source Budgets (tons/year)	2025 Mobile Source Budgets (tons/year)
NO_X	**58,820**	**19,882**
$PM_{2.5}$	**2,179**	**640**

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 1997 annual $PM_{2.5}$ NAAQS after redesignation to attainment.

Contingency measures are to be used to further reduce emissions if a violation of the 1997 annual $PM_{2.5}$ NAAQS occurs 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 1997 annual $PM_{2.5}$ nonattainment 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 annual $PM_{2.5}$ NAAQS occur anywhere within the St. Louis nonattainment 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 that a trigger has occurred, based on quality-assured ambient data that has been entered into EPA's Air Quality System database.

The contingency plan provides for different levels of corrective responses should the annual $PM_{2.5}$ level exceed the NAAQS in any year. A Level I trigger occurs when the annual average monitored $PM_{2.5}$ concentration exceeds 15.0 $\mu g/m^3$ in any year at any monitoring station in the St. Louis 1997 annual $PM_{2.5}$ nonattainment area. 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 Air Program'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 NAAQS at any monitoring station in the St. Louis nonattainment 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 anticipated 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 non-road engine standards for marine and locomotive engines, any future federal emission trading programs designed to address future PM NAAQS promulgations, the Boiler MACT requirements, the Utility MATS requirements, and any other future federal requirements that control direct $PM_{2.5}$ or $PM_{2.5}$ precursor emissions. Furthermore, the Air Program remains committed to addressing future PM 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 $PM_{2.5}$ and $PM_{2.5}$ precursor emissions inventories for the Missouri portion of the St. Louis nonattainment area every three years for the duration of the maintenance period 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 annual $PM_{2.5}$ 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.

Finally, the Air Program commits to developing and submitting a second 10-year maintenance plan within 8 years after this maintenance plan is approved. This second 10-year maintenance plan will analyze and update the contingency plan for the St. Louis area accordingly in order to provide assurance that any potential future violations beyond 2025 will also be addressed through the application of relevant contingency measures when the respective contingency measure trigger occurs.

Table 7-1 Contingency Plan for the Missouri Portion of the St. Louis $PM_{2.5}$ Maintenance Area

Contingency Measure Trigger	Action to be Taken
Level I Trigger A monitored $PM_{2.5}$ annual average concentration exceeding 15.0 ug/m^3 in any year at any monitoring station in the St. Louis, MO-IL $PM_{2.5}$ nonattainment area.	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 quality-assured ambient data that has been entered into EPA's Air Quality System database indicating that a Level I trigger has occurred.
Level II Trigger A monitored violation of the NAAQS at any monitoring station in the St. Louis, MO-IL maintenance area.	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. The appropriate contingency measures to address the violation shall be implemented as expeditiously as possible, but no later than 24 months after quality-assured ambient data that has been entered into EPA's Air Quality System database indicating that a Level II trigger has occurred.

Table 7-2 Potential Contingency Measures for the Missouri Portion of the St. Louis $PM_{2.5}$ Maintenance Area

Contingency Measure Method	List of Potential Contingency Measures to be Considered *
Implement controls for local individual sources with significant effects on the monitored violation	• Identify specific target areas and implement simple fugitive dust suppression methods such as water spraying, planting vegetative buffer zones, and paving roads, driveways and parking lots • Identify local sources with significant impacts on $PM_{2.5}$ concentrations and develop controls through consent agreements
Revise rules that control $PM_{2.5}$ and $PM_{2.5}$ precursor emissions	• Lower the limits in existing rules • Broaden the geographical area of existing rules • Include new source categories under the applicability of existing rules
New rules that control $PM_{2.5}$ and $PM_{2.5}$ precursor emissions	• Enhanced Heavy-Duty Diesel Anti-Idling Program (i.e. mandated rest periods and locomotives) • New Alternative Control Techniques (ACTs) for NO_X sources • New rules for direct $PM_{2.5}$ controls • New rules for SO_2 controls

* After the evaluation is performed following a triggering event, the contingency measure(s) selected will depend largely on what was determined to be the cause of the triggering event. If ambient $PM_{2.5}$ levels across the St. Louis region are exceeding or nearly exceeding the 1997 annual $PM_{2.5}$ NAAQS at numerous monitors, then rulemakings that cover multiple source categories or some of the largest emitting source categories such as boilers, combustion turbines, smelters, and kilns would likely be the focus of the contingency measures selected. If a single monitor is experiencing an exceedance during a year or if a single monitor violates the 1997 annual $PM_{2.5}$ NAAQS, then efforts would focus on sources in the vicinity of the monitor that is causing the trigger to occur, in which case consent agreements would be a more likely measure to be implemented. Potential source categories that might be controlled through a contingency measure if an individual monitor is causing the trigger to occur include quarries, scrap yards, industries with haul roads in the vicinity of the monitor, and other local direct $PM_{2.5}$ emission sources.

8. Conclusion

The St. Louis $PM_{2.5}$ nonattainment area has attained the 1997 annual $PM_{2.5}$ NAAQS and has complied with the applicable provisions of the CAA requirements. 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 under Section 175A of the CAA. This submittal represents Missouri's formal redesignation request for the Missouri portion of the 1997 annual $PM_{2.5}$ bi-state nonattainment area to attainment, and also represents the applicable maintenance plan required for redesignation. This redesignation request demonstrates that the bi-state area has attained the 1997 annual $PM_{2.5}$ NAAQS and that the area attained the standard as a result of permanent and enforceable emissions reductions.

The maintenance plan meets the requirements of Section 175A of the CAA. This maintenance plan provides for the continued attainment of the 1997 annual $PM_{2.5}$ NAAQS for a period of ten years after 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 annual $PM_{2.5}$ NAAQS are monitored in the area after it is redesignated to attainment.

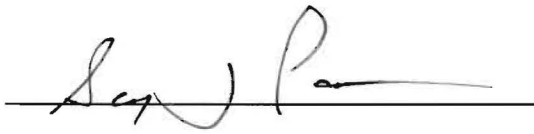
Appendix E of this plan includes the comprehensive emissions inventory for the Missouri portion of the nonattainment area as required under Part D of the CAA. The inventory includes emissions of direct $PM_{2.5}$ and $PM_{2.5}$ precursor (NH_3, NO_X, SO_2, and VOC) emissions for the attainment year 2008. The maintenance plan inventory for 2008 includes all anthropogenic sources in the bi-state nonattainment area for these pollutants, and also includes projections of the emissions inventory to 2025, based on permanent and enforceable control measures in place throughout the nonattainment area. These emissions projections indicate that emissions of direct $PM_{2.5}$ and all $PM_{2.5}$ precursor emissions will decline from 2008 levels by 2025 on both sides of the nonattainment area. Furthermore, the development of the interim year (2017) emissions inventory shows that the emissions levels will remain below 2008 levels throughout the entire 10-year maintenance period for the bi-state nonattainment area. The Air Program 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 Missouri Department of Natural Resources' Air Pollution Control Program has the legal authority to implement and enforce all SIP approved control measures on the Missouri side of the nonattainment area, and the Illinois EPA has the legal authority to implement and enforce all SIP approved control measures on the Illinois side of the nonattainment area.

Finally, this maintenance plan includes year 2008 and 2025 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 1997 annual $PM_{2.5}$ NAAQS 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.

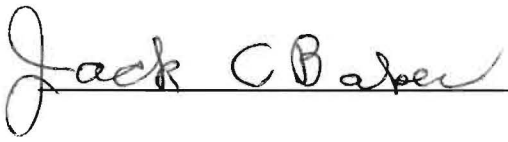
The Missouri Air Conservation Commission **ADOPTS** the following action on this 27th day of March, 2014:

Missouri State Implementation Plan Revision – Supplement/Revision to the Redesignation Demonstration and Maintenance Plan for the Missouri Portion of the St. Louis Nonattainment Area for the 1997 Annual Fine Particulate Matter National Ambient Air Quality Standard

 , Chairman

 , Vice Chairman

 , Member

 , Member

_____, Member

_____, Member

_____, Member

Bechtel, Cheri

From: Missouri DNR <MODNR@public.govdelivery.com>
Sent: Tuesday, December 24, 2013 8:33 AM
To: Bungart, Renee; Archer, Larry; Beydler, Van; Lovejoy, Victoria; Moore, Kyra; Vit, Wendy; Bechtel, Cheri; Crawford, Betsy
Subject: Courtesy Copy: Missouri DNR Air Public Notices Update - Missouri Air Conservation Commission Public Hearing, Jan. 30, 2014

This is a courtesy copy of an email bulletin sent by Cheri Bechtel.

This bulletin was sent to the following groups of people:

Subscribers of Air Public Notices (535 recipients)

Missouri Department of Natural Resources

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MISSOURI AIR CONSERVATION COMMISSION
WILL HOLD PUBLIC HEARING

JEFFERSON CITY, MO -- The Missouri Air Conservation Commission will hold a public hearing on Thursday, January 30, 2014 beginning at 9 a.m. at the Elm Street Conference Center, 1730 East Elm Street, Lower Level, Bennett Springs Conference Room, Jefferson City, Missouri. The commission will hear testimony related to the following proposed action(s):

* 10 CSR 10-6.200 (amendment) Hospital, Medical, Infectious Waste Incinerators

  This proposed amendment will remove language from the compliance and performance testing provisions that provide an exemption to the emission limits for hospital, medical, and infectious waste incinerators (HMIWI) during start-up, shutdown, or malfunction conditions. In addition, the hierarchy of definitions will clearly state that the applicable definitions in the Code of Federal Regulations take precedence over those in 10 CSR 10-6.020 Definitions and Common Reference Tables. At the same time, EPA test method references in the state rule will be revised to match how these methods are referred to in the federal HMIWI regulations.

  The above rule action will not be submitted for inclusion in the Missouri State Implementation Plan but will be submitted for inclusion in the plan established under Clean Air Act Section 111(d) covering existing sources of noncriteria pollutants.

* 10 CSR 10-5.240 (rescission) Additional Air Quality Control Measures May be Required When Sources Are Clustered in a Small Land Area

This proposed rescission will remove an outdated rule originally written in 1967, prior to the federal Clean Air Act. This rule was intended to provide the Missouri Air Conservation Commission authority to regulate particulate matter and sulfur dioxide emissions from concentrated sources in the St. Louis area. Given that section 643.050, RSMo provides the commission authority to promulgate regulations necessary to enforce the provisions of the Clean Air Act, this rule is no longer necessary.

The above rule action will be submitted to the U.S. Environmental Protection Agency for removal from the Missouri State Implementation Plan.

* 10 CSR 10-6.010 (amendment) Ambient Air Quality Standards

This proposed amendment will update the standards for ambient air quality throughout Missouri in order to reflect recent changes in the National Ambient Air Quality Standards (NAAQS) for fine particulate matter ($PM_{2.5}$), nitrogen dioxide (NO_2), and sulfur dioxide (SO_2); reorganize the standards table for clarity; and update the rule purpose statement to more accurately reflect the rule. The Clean Air Act requires periodic reviews of the air quality criteria, the science upon which the standards are based, and the NAAQS themselves. As a result of federal review, the U.S. Environmental Protection Agency has recently updated the $PM_{2.5}$, NO_2, and SO_2 NAAQS, and this rulemaking would revise these values in the state rule for consistency.

* Missouri State Implementation Plan Revision – Supplement/Revision to the Redesignation Demonstration and Maintenance Plan for the Missouri Portion of the St. Louis Nonattainment Area for the 1997 Annual Fine Particulate Matter National Ambient Air Quality Standard

In August 2011, the Missouri Air Conservation Commission adopted the Redesignation Demonstration and Maintenance Plan for the Missouri Portion of the St. Louis Nonattainment Area for the 1997 Annual Fine Particulate Matter National Ambient Air Quality Standard. This plan was then submitted to the U.S. Environmental Protection Agency on August 26, 2011 for inclusion in the Missouri State Implementation Plan. The Missouri Department of Natural Resources Air Pollution Control Program has developed a technical supplement/revision to this plan. The technical supplement/revision to this plan makes corrections to the emissions inventories included in the plan, includes emissions inventories and a discussion on controls for the Illinois portion of the nonattainment area, and changes the future year of the plan from 2022 to 2025. This technical supplement also establishes motor vehicle emissions budgets to be used in regional transportation conformity determinations for the base year (2008) and the future year (2025) of the plan.

* Missouri State Implementation Plan Revision – Americold Logistics, LLC 24-Hour Particulate Matter (PM_{10}) National Ambient Air Quality Standard (NAAQS) Consent Judgment

As required by Section 110(a) of the Clean Air Act, Missouri's State Implementation Plan (SIP) must ensure attainment and maintenance of all National Ambient Air Quality Standards (NAAQS). The Missouri Department of Natural Resources' Air Pollution Control Program is proposing to amend and strengthen the Missouri SIP to address violations of the 24-hour coarse particulate matter (PM_{10}) NAAQS of 150 micrograms per cubic meter ($\mu g/m^3$) near the Americold Logistics, LLC's Carthage Crushed Limestone (CCL) facility. The SIP revision consists of a consent judgment with CCL for measures intended to reduce PM_{10} emissions at the facility, all of which are scheduled for installation and operation by March 31, 2014.

* Missouri State Implementation Plan Revision – Limited Maintenance Plan For The St. Louis Nonclassifiable Maintenance Area For The 8-Hour Carbon Monoxide National Ambient Air Quality Standard (NAAQS)

The initial maintenance plan for the St. Louis nonclassifiable Carbon Monoxide (CO) maintenance area ensured attainment of the CO NAAQS through 2008. Pursuant to Section 175A(b) of the Clean Air Act, the State must submit a subsequent plan revision for maintaining the standard for an additional 10 year period after the expiration of the first maintenance period. The Air Program has developed a second maintenance plan that provides for continued attainment of the 8-hour CO NAAQS for the St. Louis area from 2008 through 2018. The plan provides assurances that, in the event of a subsequent violation of the CO NAAQS, additional control options, called contingency measures, can quickly be implemented to prevent any future violations. In addition, this plan includes CO ambient air quality monitoring data from the last seven years and an updated emission inventory for average winter day CO emissions in the St. Louis area.

If the Commission adopts these action(s), it will be the Department's intention to submit the action(s) to the U.S. Environmental Protection Agency to be included in Missouri's State Implementation Plan unless otherwise noted above.

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 http://dnr.mo.gov/env/apcp/public-notices.htm. This information will be available at least 30 days prior to the public hearing date.

The Department will accept written or email comments for the record until 5 p.m. on February 6, 2014. 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 may be submitted via the program web site noted above. All written and email comments and public hearing testimony will be equally considered.

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) 526-3420. 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.

Persons with disabilities requiring special services or accommodations to attend the meeting can make arrangements by calling the Program directly at (573) 751-4817, the Division of Environmental Quality's toll free number at (800) 361-4827, 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.

You are subscribed to the Air Public Notices topic for Missouri DNR. This information has recently been updated, and is now available at the link below. Thank you for your interest in the Air Public Notices.

http://dnr.mo.gov/env/apcp/stateplanrevisions.htm

This service is provided to you at no charge by Missouri DNR.

Jay Nixon, Governor
Sara Parker Pauley, Director

Air Pollution Control Program

State Plan Actions

On Public Notice | Proposed for Adoption

On Public Notice

Supplement/Revision to the Redesignation Demonstration and Maintenance Plan for the Missouri Portion of the St. Louis Nonattainment Area for the 1997 Annual Fine Particulate Matter National Ambient Air Quality Standard

Based on monitoring data from 2007-2009, the St. Louis nonattainment area achieved attainment of the 1997 annual fine particulate matter (PM2.5) national ambient air quality standard (NAAQS). In August 2011, the Missouri Air Conservation Commission adopted the Redesignation Demonstration and Maintenance Plan for the Missouri Portion of the St. Louis Nonattainment Area for the 1997 Annual PM2.5 NAAQS. This plan was then submitted to the U.S. Environmental Protection Agency for inclusion in the Missouri State Implementation Plan. The Missouri Department of Natural Resources Air Pollution Control Program has developed a technical supplement/revision to this plan. The technical supplement/revision to this plan makes corrections to the emissions inventories included in the plan, includes emissions inventories and a discussion on controls for the Illinois portion of the nonattainment area, and changes the future year of the plan from 2022 to 2025. This technical supplement also establishes motor vehicle emissions budgets to be used in regional transportation conformity determinations for the base year (2008) and the future year (2025) of the plan. Through this SIP submittal, the Missouri Department of Natural Resources Air Pollution Control Program is requesting that:

- EPA redesignate the Missouri Portion of the St. Louis 1997 PM2.5 nonattainment area to attainment pursuant to the provisions of the Clean Air Act, section 107;
- Concurrently, EPA approve the associated maintenance plan as a revision to the State Implementation Plan (SIP) meeting the requirements of the Clean Air Act, section 175A;
- That EPA approve the 2008 base year inventory as meeting the requirements under Clean Air Action section 172(c)(3); and
- Approve the Motor Vehicle Emissions Budgets (MVEBs) for the years 2008 and 2025 pursuant to Clean Air Act Section 176(c).

Proposed Supplement/Revision to the Redesignation Demonstration and Maintenance Plan for the Missouri Portion of the St. Louis Nonattainment Area for the 1997 Annual Fine Particulate Matter National Ambient Air Quality Standard
Appendices A through L

Submit Comments

A public hearing is scheduled for this plan action on January 30, 2014. Comments about this plan action will be accepted through the close of business on February 6, 2014.

Missouri State Implementation Plan Revision - Limited Maintenance Plan for the St. Louis Nonclassifiable Maintenance Area for the 8-Hour Carbon Monoxide National Ambient Air Quality Standard

The initial maintenance plan for the St. Louis nonclassifiable Carbon Monoxide (CO) maintenance area ensured attainment of the CO NAAQS through 2008. Pursuant to Section 175A(b) of the Clean Air Act, the State must submit a subsequent plan revision for maintaining the standard for an additional 10 year period after the expiration of the first maintenance period. The Air Program has developed a second maintenance plan that provides for continued attainment of the 8-hour CO NAAQS for the St. Louis area from 2008 through 2018. The plan provides assurances that, in the event of a subsequent violation of the CO NAAQS, additional control options, called contingency measures, can quickly be implemented to prevent any future violations. In addition, this plan includes CO ambient air quality monitoring data from the last seven years and an updated emission inventory for average winter day CO emissions in the St. Louis area.

Proposed Revision to Limited Maintenance Plan for the St. Louis Nonclassifiable Maintenance Area for the 8-Hour Carbon Monoxide National Ambient Air Quality Standard
Appendices A and B

Submit Comments

A public hearing for this plan action will be held on Jan. 30, 2014. Comments about this plan action will be accepted through the close of business on Feb. 6, 2014.

Missouri State Implementation Plan Revision - Americold Logistics, LLC 24-Hour Particulate Matter (PM10) National Ambient Air Quality Standard (NAAQS) Consent Judgment

As required by Section 110(a) of the Clean Air Act, Missouri's State Implementation Plan (SIP) must ensure attainment and maintenance of all National Ambient Air Quality Standards (NAAQS). The Missouri Department of Natural Resources' Air Pollution Control Program is proposing to amend and strengthen the Missouri SIP to address violations of the 24-hour coarse particulate matter (PM10) NAAQS of 150 micrograms per cubic meter (µg/m3) near the Americold Logistics, LLC's Carthage Crushed Limestone (CCL) facility. The SIP revision consists of a consent judgment with CCL for measures intended to reduce PM10 emissions at the facility, all of which are scheduled for installation and operation by March 31, 2014.

Proposed CCL PM10 SIP Revision
Attachment 2 – Proposed CCL Consent Judgment
Exempt Equipment List

Submit Comments

A public hearing for this plan action will be held on Jan. 30, 2014. Comments about this plan action will be accepted through the close of business on Feb. 6, 2014.

Proposed for Adoption

None at this time.

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MISSOURI DEPARTMENT OF NATURAL RESOURCES'
AIR CONSERVATION COMMISSION MEETING
PUBLIC HEARING
THURSDAY, JANUARY 30, 2013

REPORTED BY SUSAN M. FIALA
CERTIFIED COURT REPORTER
REGISTERED PROFESSIONAL REPORTER

PROCEEDINGS

CHAIRMAN PENDERGRASS: The hearing will come to order. Let the record show the following Commissioners are present: Jack Baker, Mark Garnett, Gary Pendergrass, and David Zimmerman.

The Air Conservation Commission of the State Of Missouri has called this public hearing pursuant to Section 643.070, Revised Statutes of Missouri; EPA promulgated rule 40 CFR 51.102, for the purpose of hearing testimony related to:

Missouri State Implementation Plan Revision - Supplement/Revision to the Redesignation Demonstration and Maintenance Plan for the Missouri Portion of the St. Louis Nonattainment Area for the 1997 Annual Fine Particulate Matter National Ambient Air Quality Standard.

Missouri State Implementation Plan Revision - Americold Logistics, LLC Particulate Matter (PM10) Consent Judgment.

Missouri State Implementation Plan Revision - Limited Maintenance Plan for the St. Louis Nonclassifiable Maintenance Area for the 8-hour Carbon Monoxide National Ambient Air

public hearings, in the Missouri Register on November 15, 2013, December 2nd, 2013, and December 16th, 2013, respectively.

In addition to making the proposed rulemakings and plans available for viewing and comment, the Air Pollution Control Program distributed the public hearing notice to over 480 citizens, organizations, corporations, associations and elected officials. Finally, we notified the Kansas City, St. Louis County, and Springfield local air pollution control agencies; Illinois, Kansas and other surrounding states; and the U.S. Environmental Protection Agency of this public hearing.

Chairman, this concludes my testimony.

CHAIRMAN PENDERGRASS: Thank you.

Okay. The first item is Missouri State Implementation Plan Revision - Supplement/Revision to the Redesignation Demonstration and Maintenance Plan for the Missouri Portion of the St. Louis Nonattainment Area for the 1997 Annual Fine Particulate Matter National Ambient Air Quality Standard.

Mark Leath.

MARK LEATH,

being first duly sworn to tell the truth, the whole truth and nothing but the truth deposes and says as follows:

MR. LEATH: Chairman,members of the Commission, my name is Mark Leath. I am employed with the Air Pollution Control Program as an Environmental Engineer. I work at 1659 East Elm Street, Jefferson City, Missouri. I am here today to present testimony on the proposed Missouri State Implementation Plan (SIP) revision entitled Supplement/Revision to the Redesignation Demonstration and Maintenance Plan for the Missouri Portion of the St. Louis Nonattainment Area for the 1997 Annual Fine Particulate Matter (PM2.5) National Ambient Air Quality Standard (NAAQS). An executive summary of the plan can be found on Page 93 of your briefing document.

On May 23, 2011, the U.S. Environmental Protection Agency (EPA) promulgated a clean data determination stating that the bi-state St. Louis nonattainment area had attained the 1997 annual PM2.5 NAAQS based on 2007 - 2009 air quality monitoring data. In addition, the area has continued to remain in compliance with this

RECOMMENDATION FOR ADOPTION

PROPOSED REVISION TO

**MISSOURI STATE IMPLEMENTATION PLAN –
SUPPLEMENT/REVISION TO THE
REDESIGNATION DEMONSTRATION AND MAINTENANCE PLAN
FOR THE MISSOURI PORTION OF THE ST. LOUIS NONATTAINMENT AREA FOR
THE 1997 ANNUAL FINE PARTICULATE MATTER
NATIONAL AMBIENT AIR QUALITY STANDARD**

On January 30, 2014, the Missouri Air Conservation Commission held a public hearing concerning a revision to the Missouri State Implementation Plan (SIP) for the Supplement/Revision to the Redesignation Demonstration and Maintenance Plan for the Missouri Portion of the St. Louis Nonattainment Area for the 1997 Annual Fine Particulate Matter ($PM_{2.5}$) National Ambient Air Quality Standard (NAAQS). This plan supports a request for the U.S. Environmental Protection Agency (EPA) to redesignate the Missouri portion of the St. Louis nonattainment area to attainment under the 1997 annual $PM_{2.5}$ NAAQS. The maintenance plan establishes motor vehicle emissions budgets for transportation conformity determinations, includes contingency measures to be implemented if the area violates the standard in the future, and addresses all other requirements.

A summary of comments received and the Air Program's corresponding responses is included on the following page. Revisions were made to the proposed plan as a result of comments received.

The revised plan has not been reprinted in the briefing document due to its volume. The entire revised plan is available for review at the Missouri Department of Natural Resources' Air Pollution Control Program, 1659 East Elm Street, Jefferson City, Missouri, 65101, (573)751-4817. It is also available online at http://dnr.mo.gov/env/apcp/stateplanrevisions.htm.

The Air Program recommends the commission adopt the plan as revised. If the commission adopts this plan, it will be the department's intention to submit this plan to EPA for inclusion in the Missouri State Implementation Plan.

Missouri
Department of
Natural Resources

COMMENTS AND RESPONSES ON

PROPOSED REVISION TO

**MISSOURI STATE IMPLEMENTATION PLAN –
SUPPLEMENT/REVISION TO THE
REDESIGNATION DEMONSTRATION AND MAINTENANCE PLAN
FOR THE MISSOURI PORTION OF THE ST. LOUIS NONATTAINMENT AREA FOR
THE 1997 ANNUAL FINE PARTICULATE MATTER
NATIONAL AMBIENT AIR QUALITY STANDARD**

The public comment period for the proposed revision to the Missouri State Implementation Plan (SIP) entitled Supplement/Revision to the Redesignation Demonstration and Maintenance Plan for the Missouri Portion of the St. Louis Nonattainment Area for the 1997 Annual Fine Particulate Matter ($PM_{2.5}$) National Ambient Air Quality Standard (NAAQS) opened on December 30, 2013 and closed on February 6, 2014. Revisions to the proposed plan were made as a result of comments.

The following is a summary of comments received and the Missouri Department of Natural Resources' Air Pollution Control Program's (Air Program's) corresponding responses. Any changes to the proposed plan are included in the response to comments.

SUMMARY OF COMMENTS: During the public comment period for the proposed plan, the Air Program received three (3) written comments and one (1) oral comment from the U.S. Environmental Protection Agency (EPA).

COMMENT #1: EPA commented that the Air Program should provide a discussion regarding emission reduction credits held by sources in compliance with state rule *10 CSR 10-6.410 Emissions Banking and Trading*, and how it relates to compliance with the 1997 annual $PM_{2.5}$ NAAQS.

RESPONSE AND EXPLANATION OF CHANGE: State rule *10 CSR 10-6.410 Emissions Banking and Trading*, allows the banking and trading of emission reduction credits to be used for permitting purposes only. Section 5.5 of the plan document was amended to explain how these credits are used for New Source Review (NSR) offset purposes in nonattainment areas and for Prevention of Significant Deterioration (PSD) increment purposes in areas designated attainment. These credits only apply to these specific aspects of obtaining a permit under Missouri's EPA-approved NSR permitting program, and cannot be used to alleviate any source from undergoing a NAAQS impact analysis in any area. Nor can these credits be used to alleviate any source from implementing Best Available Control Technology requirements for PSD permits in attainment areas or Lowest Achievable Emissions Rate and alternative site analysis requirements in nonattainment areas. Therefore, the emission reduction credits that have been banked by Missouri sources are not anticipated to have any impact on Missouri's demonstration that the St. Louis area will continue to maintain the 1997 annual $PM_{2.5}$ NAAQS

through the future year in the plan.

COMMENT #2: EPA commented that the Air Program should revise the language used in section 4.2 of the plan document to more accurately portray the history of the Oxides of Nitrogen (NO_X) SIP Call and the federal NO_X Budget Trading Program.

RESPONSE AND EXPLANATION OF CHANGE: The Air Program coordinated with EPA regarding this comment. Narrative revisions were made to section 4.2 of the plan document to more accurately portray the history of the NO_X SIP Call and the NO_X Budget Trading Program as a result of this comment.

COMMENT #3: EPA commented that the Air Program should revise the language used in chapter 6 of the plan document to more clearly explain how the transportation conformity rule applies to the 1997 annual $PM_{2.5}$ NAAQS in the St. Louis area.

RESPONSE AND EXPLANATION OF CHANGE: The Air Program coordinated with EPA regarding this comment and narrative revisions were made to chapter 6 of the plan document as a result of this comment. The revisions to the transportation conformity section of the document more clearly explain how the transportation conformity rule applies to the 1997 annual $PM_{2.5}$ NAAQS in the St. Louis area; however, the transportation conformity budgets proposed in the plan at the public hearing held on January 30, 2014 have not changed since the proposal.

COMMENT #4: During the public hearing, EPA expressed support for the plan and their appreciation to the Air Program for coordinating early in the development of this plan document.

RESPONSE: The Air Program appreciates EPA's support of this plan and the assistance they provided during the development of the plan. No changes to the plan were made as a result of this comment.