Redesignation Request and Maintenance Plan for the St. Louis (Missouri) 2008 Ozone Standard Nonattainment Area

Prepared for the
Missouri Air Conservation Commission

Public Hearing: July 28, 2016

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

Project Number: 2008-O3-7

This page intentionally left blank.

Table of Contents

EXECUTIVE SUMMARY 1

1. BACKGROUND 2

1.1 NATIONAL AMBIENT AIR QUALITY STANDARD FOR OZONE 2
1.2 2008 8-HOUR OZONE NAAQS BOUNDARY DESIGNATIONS 2
1.3 ST. LOUIS 2008 OZONE NAAQS MARGINAL SIP 5
1.4 CURRENT STATUS 5

2. REDESIGNATION AND MAINTENANCE PLAN REQUIREMENTS 6

2.1 ATTAINMENT OF THE NAAQS 6
2.2 IMPLEMENTATION PLAN APPROVAL 7
2.3 PERMANENT AND ENFORCEABLE IMPROVEMENT 8
2.4 MAINTENANCE PLAN REQUIREMENTS 8
2.4.1 Public Participation 9
2.4.2 Attainment Year Inventory of Ozone Precursors 9
2.4.3 Projected Emissions Inventory of Ozone Precursors 9
2.4.4 Continued Monitoring Commitment 10
2.4.5 Legal Authority to Implement and Enforce 10
2.4.6 Provisions for Future Updates to the Emission Inventory 10
2.4.7 Motor Vehicle Emissions Budgets for Transportation Conformity 10
2.4.8 Commitment to Revise Plan 11
2.4.9 Contingency Measures 11
2.5 Section 110 and Part D Requirements 11

3. OZONE MONITORING 12

3.1 ST. LOUIS OZONE MONITORING NETWORK 12
3.2 AMBIENT AIR MONITORING DATA 13
3.3 ST. LOUIS OZONE MONITORING DATA ANALYSIS 16
3.4 MISSING DATA UNDER THE 2008 8-HOUR OZONE NAAQS 17
3.5 QUALITY ASSURANCE PROGRAM 17
3.6 CONTINUED MONITORING COMMITMENT 17
3.7 CLEAN DATA DETERMINATION 18

4. REDESIGNATION REQUEST: EMISSION INVENTORY AND CONTROLS FROM 2011 - 2014 19

4.1 BASE YEAR AND ATTAINMENT YEAR INVENTORIES 19
4.2 CONTROLS USED TO ATTAIN THE NAAQS 23
4.2.1 Federal Emission Trading Programs 23
4.2.2 Federal and State Emission Controls 25
4.2.3 Missouri Regulations 26
4.3 REASONABLY AVAILABLE CONTROL TECHNOLOGY (RACT) 26

5. MAINTENANCE PLAN DEMONSTRATION: EMISSION INVENTORY AND CONTROLS FROM 2014 - 2030 28

5.1 BASE/ATTAINMENT YEAR INVENTORY AND FUTURE YEAR EMISSION PROJECTIONS 28

5.1.1 Onroad Mobile Source Future Emissions Inventory Development 29
5.1.2 Point, Area, and Off-Road Mobile Source Emissions Inventory Development 29
5.1.3 2014 and 2030 Emissions Inventory Summary 30
5.2 INTERIM YEAR EMISSION INVENTORY: 2020 34
5.3 FUTURE FEDERAL CONTROL MEASURES 35
5.4 NEW SOURCE REVIEW: PERMITTING NEW OR MODIFIED EMISSIONS SOURCES 36

6. TRANSPORTATION CONFORMITY 39

6.1 MOTOR VEHICLE EMISSIONS BUDGETS AND SAFETY MARGIN 39
6.1.1 Safety Margin 39
6.1.2 Motor Vehicle Emissions Budgets 40

7. CONTINGENCY MEASURES 41

8. CONCLUSION 45

LIST OF TABLES

Table 2-1 2013-2015 St. Louis Nonattainment Area 8-Hour Ozone Design Values

Table 4-1 2011 VOC, NO_x & CO Emissions for St. Louis (MO) ozone NAA (tons per OSD)

Table 4-2 2011 Total VOC & NO_x Emissions for St. Louis ozone NAA (tons per OSD)

Table 4-3 2014 VOC, NO_x & CO Emissions for St. Louis (MO) ozone NAA (tons per OSD)

Table 4-4 2014 Total VOC & NO_x Emissions for St. Louis ozone NAA (tons per OSD)

Table 4-5 Comparison of 2011 and 2014 VOC & NO_x Emissions in the St. Louis ozone NAA (tons per OSD)

Table 5-1 2014 VOC, NO_x & CO Emissions for St. Louis (MO) ozone NAA (tons per OSD)

Table 5-2 2014 Total VOC & NO_x Emissions for St. Louis ozone NAA (tons per OSD)

Table 5-3 2030 VOC, NO_x & CO Emissions for St. Louis (MO) ozone NAA (tons per OSD)

Table 5-4 2030 Total VOC & NO_x Emissions for St. Louis ozone NAA (tons per OSD)

Table 5-5 Comparison of 2014 and 2030 VOC & NO_x Emissions in the St. Louis ozone NAA (tons per OSD)

Table 5-6 2020 VOC, NO_x & CO Emissions for St. Louis (MO) ozone NAA (tons per OSD)

Table 5-7 2020 Total VOC & NO_x Emissions for St. Louis ozone NAA (tons per OSD)

Table 5-8 Comparison of 2014 and 2020 VOC & NO_x in the St. Louis ozone NAA (tons per OSD)

Table 5-9 2014 and 2030 Emissions Banking and Trading Balances

Table 5-10 2030 Ozone Season Day Banked Emissions

Table 6-1 Safety Margin for each County (tons per OSD)

Table 6-2 Onroad Motor Vehicle VOC Emission Budgets (tons per OSD)

Table 6-3 Onroad Motor Vehicle NO_x Emission Budgets (tons per OSD)

Table 6-4 Onroad Motor Vehicle 2030 Total Emission Budgets (tons per OSD)

Table 7-1 Contingency Plan for St. Louis (MO) 2008 Ozone Maintenance Area

Table 7-2 Potential Contingency Measures for St. Louis (MO) 2008 Ozone Maintenance Area

List of Figures

Figure 1-1 Map of the St. Louis 2008 Ozone NAA

Figure 3-1 2015 Ozone Monitoring Network for St. Louis ozone NAA

Figure 3-2 8-Hour Ozone Design Value Trends (2001-2015) for St. Louis (MO) area Monitors

Figure 3-3 8-Hour Ozone Design Value Trends (2001-2015) for St. Louis (IL) area Monitors

Figure 3-4 Comparison of 2008 – 2010 & 2013 – 2015 Design Values

List of Appendices

Appendix A	2011 Ozone Season Day Emissions Inventory Summary (MO Counties Only)
Appendix B	2011 Ozone Season Day Emissions Inventory Documentation
Appendix C	2014 Ozone Season Day Emissions Inventory Summary (MO Counties Only)
Appendix D	2014 Annual Emission Inventory Documentation
Appendix E	Future Year Ozone Season Day Emissions Inventory Summaries: 2020 and 2030
Appendix F	Illinois Emissions Inventories

Executive Summary

Missouri is submitting a revision to its State Implementation Plan (SIP) as a part of a formal request to the U.S. Environmental Protection Agency (EPA) to redesignate the Missouri portion of the St. Louis [St. Louis (MO)] nonattainment area to attainment for the 2008 ozone National Ambient Air Quality Standard (NAAQS). This SIP revision addresses all of the redesignation elements of the federal Clean Air Act Amendments of 1990 (CAA) Section 107(d)(3)(E), and includes a maintenance plan which demonstrates how the area will continue to comply with this NAAQS pursuant to the CAA Section 175A. The maintenance plan contains, among other things, an emissions inventory, future year emissions projections, Motor Vehicle Emissions Budgets (MVEBs) for transportation conformity and contingency measures.

Ozone air quality has dramatically improved in the St. Louis region as a result of the implementation of State and Federal control measures since the designation of the St. Louis area as marginal nonattainment in July 2012 [77 FR 30088]. On February 2, 2016, Missouri requested a "Clean Data Determination" from EPA to show that the entire St. Louis (MO) nonattainment area realized at least three consecutive ozone seasons (2013-2015) of complete, quality assured ambient air quality monitoring data demonstrating attainment with the 0.075 parts per million (ppm) 8-hour ozone NAAQS. These air quality improvements are due to permanent and enforceable emission control measures as demonstrated in this plan.

This maintenance plan provides for continued attainment of the 2008 8-hour ozone NAAQS in the St. Louis (MO) nonattainment area for the next ten years (i.e. until 2030). In the event of a violation of the 2008 ozone NAAQS, additional control options, called contingency measures, are listed in this plan that can be quickly implemented to prevent any future violations.

This plan includes emissions inventories analyses of the ozone precursors - Nitrogen Oxides (NO_x), Volatile Organic Compounds (VOCs) and Carbon Monoxide (CO)– for both the redesignation demonstration period (2011- 2014) and the maintenance plan period (2014 – 2030). These analyses show that emissions levels in the St. Louis nonattainment area will continue to decrease from attainment year 2014 levels, thereby maintaining the 2008 ozone NAAQS in future years. A part of the inventory has been set aside to create new MVEBs pursuant to Clean Air Act Section 176(c) for the St. Louis (MO) nonattainment area. Once approved by EPA, these new budgets will replace previously approved MVEBs.

1. Background

1.1 National Ambient Air Quality Standard for Ozone

Congress first enacted the Clean Air Act (CAA) in 1970. The CAA was last amended in 1990. The CAA requires EPA to set NAAQS for pollutants considered harmful to public health and the environment. There are two categories of NAAQS that are set by EPA: primary and secondary. The primary NAAQS is a health-based standard that is designed to establish limits to protect public health. The secondary standard is commonly referred to as "welfare-based standard" that is 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 CO, lead (Pb), total suspended particles (PM), sulfur dioxide (SO_2), NO_x, and ozone (O_3). These pollutants are referred to as "criteria" pollutants. EPA establishes a standard for each criteria pollutant. If the pollution concentration in an area is found to exceed this value, it is classified as a nonattainment area (NAA) for that specific pollutant. The states and/or tribes responsible for the affected area must then develop and carry out strategies to attain the NAAQS. The goal for any area designated as "nonattainment" is to be reclassified by EPA to attainment for the pollutant.

The CAA requires that 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, EPA reviewed the one-hour NAAQS for ozone in the 1990's and determined that a new standard was needed. In 1997, EPA revised the ozone NAAQS replacing the 1979 1-hour ozone NAAQS with an 8-hour ozone NAAQS set at 0.08 ppm.

On March 12, 2008, EPA promulgated a revised ozone NAAQS [73 FR 16436, March 27, 2008]. The revision strengthened the primary and secondary NAAQSs, further decreasing the 8-hour ozone NAAQS from 0.08 ppm to 0.075 ppm.

1.2 2008 8-Hour Ozone NAAQS Boundary Designations

With a revised NAAQS, the CAA requires states to review air quality monitoring data and submit ozone boundary designation recommendations. In March 2009, the Missouri Department of Natural Resources' Air Pollution Control Program (program) submitted its original boundary recommendation for the 2008 ozone NAAQS to EPA. Based on ozone air quality monitoring data for the three years of 2005–2007, the recommendation included a designation of nonattainment for the counties of Franklin, Jefferson, Lincoln, St. Charles, and St. Louis Counties and the City of St. Louis.

In September 2009, EPA announced it would reconsider the 2008 8-hour ozone NAAQS level. In January 2010, EPA proposed strengthening the 2008 primary 8-hour ozone NAAQS of 75 ppb to a range of 60-70 ppb. EPA put the area boundary designation process on hold throughout 2010 and much of 2011 while the 2008 ozone NAAQS was being reconsidered.

In September 2011, after President Obama upheld the 2008 ozone NAAQS (75 ppb), EPA moved forward with finalizing designations for this NAAQS and gave states the opportunity to submit revised recommendations based on the most recent monitoring data.

On December 8, 2011, the program submitted a revised recommendation to EPA. Based on 2008-2010 data, the only monitors in the state violating the 2008 ozone NAAQS were located in the St. Louis area. The revised recommendation included a designation of nonattainment for the City of St. Louis and the Counties of St. Louis, St. Charles, Jefferson, and Franklin and a designation of attainment/unclassifiable for the remainder of the state.

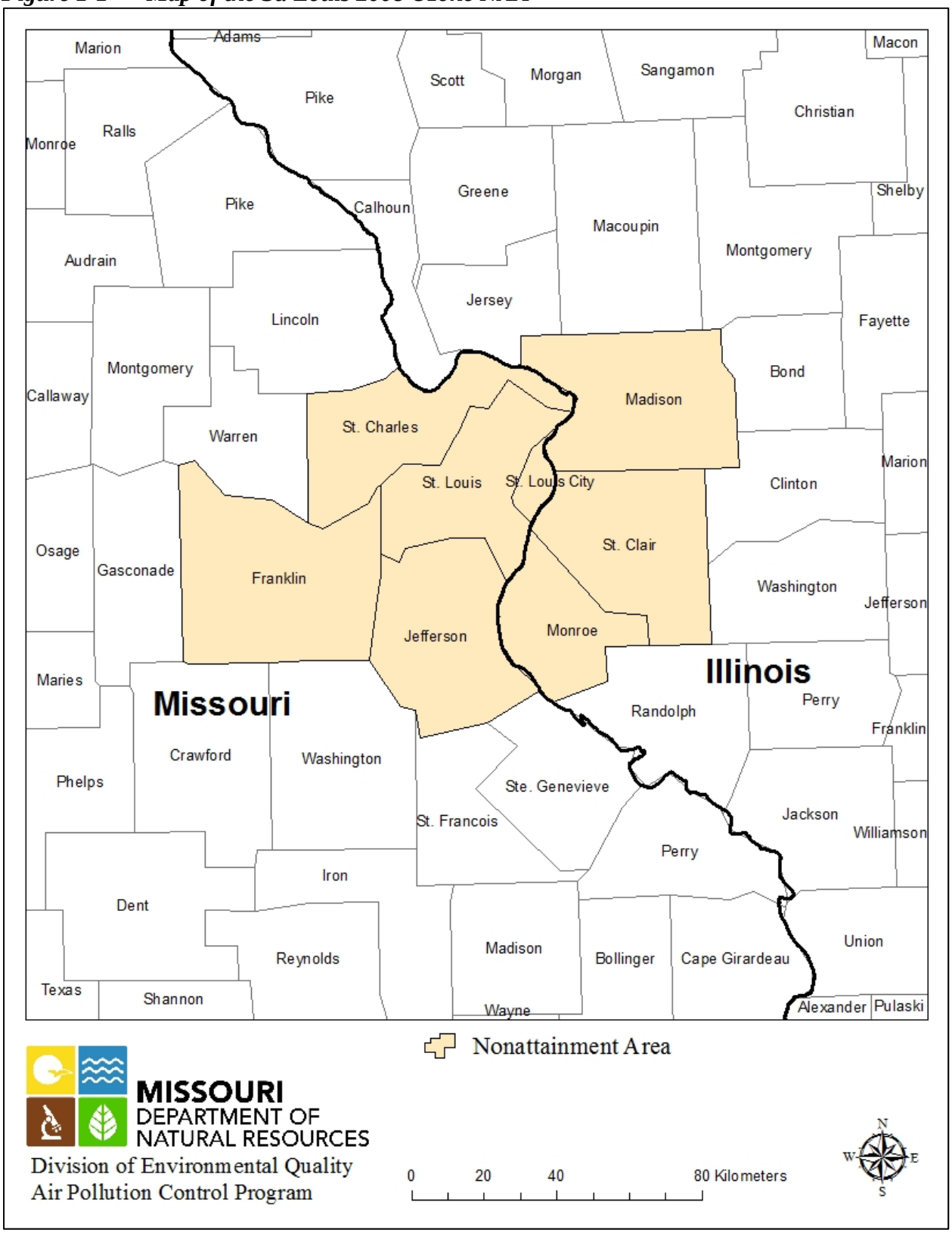
On May 21, 2012, EPA finalized the area designations, and effective on July 20, 2012, designated the St. Louis ozone NAA for the 2008 ozone NAAQS [77 FR 30088]. The boundaries of the St. Louis (MO) ozone NAA remained the same as for the 1997 ozone NAAQS but its classification changed from moderate to marginal.

Since the St. Louis ozone NAA is a bi-state NAA for ozone, Illinois went through a similar designation process for its portion of the St. Louis ozone NAA, St. Louis (IL) ozone NAA. For the St. Louis (IL) ozone NAA, the boundary did not remain the same. Jersey County was no longer designated as nonattainment as it was for the 1997 ozone NAAQS. For more information about EPA's final state designations, see - https://www3.epa.gov/airquality/greenbook/hindex.html. Figure 1-1 shows the EPA designated NAA for the 2008 ozone NAAQS.

The following is a list of the counties contained in the St. Louis Missouri-Illinois 8-hour ozone nonattainment area (St. Louis ozone NAA):

- 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

Figure 1-1 Map of the St. Louis 2008 Ozone NAA



1.3 St. Louis 2008 Ozone NAAQS Marginal SIP

Section 182(a) of the CAA addresses the SIP submissions and requirements for ozone NAA classified as Marginal. The elements for marginal ozone NAA are outlined briefly below:

1. Comprehensive Current Emissions Inventory
2. Corrections to the SIP
    a. Pre- CAA Amendments of 1990 Reasonable Available Control Technology (RACT)
    b. Savings Clause For Vehicle Inspection and Maintenance
    c. New Source Review (NSR) Permit Program
3. Commitment to Periodic Inventory Updates
4. Requirement for NSR Offsets

On August 28, 2014, the Missouri Air Conservation Commission (MACC) adopted "*Missouri State Implementation Plan Revision-Marginal Area Plan for the Missouri Portion of the St. Louis Nonattainment Area for the 2008 8-Hour Ground Level Ozone NAAQS*." This SIP satisfied all of its Marginal Area Plan submission obligations for the St. Louis (MO) ozone NAA pursuant to the CAA 182(a) under the 2008 ozone 8-hour NAAQS. The SIP included a complete ozone season day (OSD) emission inventory for the year 2011 using actual emissions for ozone precursor pollutants VOC, NO_x, and CO. The 2011 Base Year Inventory for the St. Louis (MO) ozone NAA area was approved by EPA on February 25, 2016 [81 FR 9346].

1.4 Current Status

On February 2, 2016, the program submitted a letter to EPA certifying that the most recent three years (2013-2015) of quality-assured ambient air quality data is in compliance with the 2008 ozone NAAQS. Information regarding the air monitoring network and air quality monitoring data is included in Chapter 3.

The CAA Section 107 establishes specific requirements to be met in order for a NAA to be considered by EPA for redesignation. Clean air quality data is one of those requirements. The program must demonstrate that the improvement in air quality is due to permanent and enforceable reductions in emissions resulting from implementation of the SIP and other federal requirements. The state must also develop a maintenance plan. This document addresses the maintenance plan requirements, including the permanent and enforceable measures used to reach attainment and continue compliance in future years.

2. Redesignation and Maintenance Plan Requirements

An area designated as nonattainment for a pollutant can be redesignated to attainment if specific conditions are met. The program followed EPA's published Memorandum entitled, "Procedures for Requests to Redesignate Areas to Attainment", from John Calcagni, Director, Air Quality Management Division, dated September 4, 1992, in preparing the redesignation request and the maintenance plan. The memorandum provides guidance regarding the processing of requests for redesignation of NAAs to attainment for ozone, CO, particulate matter (PM), sulfur dioxide (SO_2), NO_x, and lead (Pb).

Furthermore, the CAA lists five (5) obligations that 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 the program's redesignation request and demonstrates how the state supports EPA's obligations towards the redesignation of the St. Louis ozone NAA to attainment under the 2008 ozone NAAQS.

2.1 Attainment of the NAAQS

The CAA Section 107(d)(3)(E)(i) states that EPA must determine that the area is attaining the applicable NAAQS. For the 2008 ozone NAAQS, this determination must be demonstrated using the design value based on the average of the last three (3) years' 4th highest maximum daily 8-hour average concentrations (40 CFR 50.15). This design value must not exceed the level of the NAAQS or 0.075 ppm.

Since the St. Louis ozone NAA was classified as a marginal area, the attainment data for the area was July 20, 2015. This attainment date fell within the 2015 ozone season which precluded the use of 2015 monitoring data to determine compliance with the NAAQS. As such, based on the 2012-2014 monitoring data, the St. Louis ozone NAA did not meet the NAAQS. However, the area qualified for a 1-year attainment date extension based in part on its 2014 monitored air quality data. Consequently, on May 22, 2015, the program applied for a one year extension of the attainment date to July 20, 2016 in accordance of Section 181(a)(5) of the CAA and the

corresponding regulation at 40 CFR 51.1107(a). Under these provisions, EPA may grant up to two 1-year extensions if two criteria are met:

1. The State of Missouri has complied with all requirements pertaining to the area in the applicable ozone implementation plan.
2. No monitor operated by the State of Missouri in the St. Louis (MO) ozone NAA recorded a 4th-highest daily 8-hour ozone air quality value at or above the level of the 2008 NAAQS (0.075 ppm) during the 2014 ozone season.

The St. Louis ozone NAA qualified for an extension because the SIP was followed and the highest 2014 4th highest 8-hour value of 72 ppb at West Alton and Arnold West is below the 75 ppb NAAQS. On May 4, 2016, EPA approved the extension request [81 FR 26697], and the attainment date was extended to July 20, 2016.

The program submitted a clean data request to EPA on February 2, 2016. This request is based upon complete, quality- assured, and certified ambient air quality data from the 2013-2015 monitoring period. The data showed that the St. Louis area attained the2008 8-hour ozone NAAQS by July 20, 2016 (Table 2-1). Chapter 3 further details how the St. Louis area has satisfied the redesignation monitoring requirement of CAA Section 107(d)(3)(E)(i).

Table 2-1 2013-2015 St. Louis Nonattainment Area 8-Hour Ozone Design Values

(2008 NAAQS = 75 ppb)

County	Monitoring Site Name	2013 4th High	2014 4th High	2015 4th High	2013-2015 Design Value
St. Charles, MO	Orchard Farm	71	72	66	69
St. Charles, MO	West Alton	71	72	70	71
St. Louis City, MO	Blair Street	66	66	63	65
St. Louis, MO	Maryland Heights	70	72	69	70
St. Louis, MO	Pacific	67	65	65	65
Jefferson, MO	Arnold West	69	72	69	70
Madison, IL	Alhambra	71	68	67	68
Madison, IL	Alton	72	72	69	71
Madison, IL	Maryville	75	70	64	69
Madison, IL	Wood River	69	70	69	69
St. Clair, IL	East St. Louis	66	67	66	66

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). SIPs must be fully approved only with respect to requirements that were applicable prior to submittal of the complete redesignation request. Missouri's SIP *The Marginal Area Plan for the Missouri Portion of the St. Louis Nonattainment Area for the 2008 8-Hour Ground Level Ozone National Ambient Air Quality Standard* was adopted by the MACC

on August 28, 2014 and was submitted to EPA on September 04, 2014. EPA approved the St. Louis (MO) ozone NAA marginal SIP on February 25, 2016 (81 FR 9346). This approval satisfies the CAA requirement in section 107(d)(3)(E)(ii). In addition, Missouri has adopted and submitted, and EPA has fully approved at various times, provisions addressing the various SIP elements applicable for the ozone NAAQS. *See* EPA's approval of the St. Louis 1-hr ozone attainment demonstration [68 FR 25418] (May 12, 2003); EPA's final approval of the State of Missouri's request to redesignate the St. Louis (MO) ozone NAA to attainment for the 1997 8-hour NAAQS for ozone [80 FR 9207] (February 20, 2015).

2.3 Permanent and Enforceable Improvement

Redesignation requirement (iii) of the CAA Section 107(d)(3)(E) 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 plan, applicable federal air pollutant control regulations and other permanent and enforceable reductions. Therefore, EPA must show that the improvement in air quality between the year that violations occurred, and the attainment year, is attributed to permanent and enforceable emission reductions. Chapter 4 presents the emission reductions realized from federal and state measures in the St. Louis ozone NAA. The emission reductions are not based on temporary shutdowns or adverse economic conditions, but are due to permanent and enforceable control measures. This plan includes a commitment to continue to enforce all applicable requirements of past revisions to the SIP after the St. Louis ozone NAA is redesignated to attainment thus satisfying CAA 107(d)(3)(E)(iii).

2.4 Maintenance Plan Requirements

The CAA redesignation requirement of Section 107(d)(3)(E)(iv) states that EPA must have a fully-approved maintenance plan for the area as meeting the requirements of the CAA Section 175A. Under Section 175A, this 2008 ozone NAAQS Maintenance Plan is the State's SIP to provide for continued attainment of the 2008 8-hour ozone NAAQS for the St. Louis ozone NAA for a period of at least ten years after EPA formally redesignates the area to attainment. This maintenance plan and redesignation request meets the requirements specified in EPA's guidance documents and is prepared in coordination with EPA Region 7 staff. This chapter of the document addresses how the required maintenance plan elements of the CAA Section 175A and EPA's guidance document entitled *Procedures for Requests to Redesignate Areas to Attainment*, from John Calcagni, Director, Air Quality Management Division, dated September 4, 1992 have been met in the subsequent correspondingly-numbered paragraphs:

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

2. A comprehensive emissions inventory of the precursors of ozone completed for the "attainment year";

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 ozone 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. MVEBs 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 program held a public hearing prior to adoption of this maintenance plan and the subsequent submittal to EPA. The program notified the public and other interested parties of the public hearing and comment period thirty (30) days prior to holding such hearing for this maintenance plan as follows:

- Notice of availability of the redesignation request and maintenance plan was posted on the program website on June 27, 2016: http://www.dnr.mo.gov/env/apcp/stateplanrevisions.htm

- A public hearing date to receive comments for the maintenance plan was held on July 28, 2016, beginning at 9:00 am at the Elm Street Conference Center, 1730 E. Elm St – Lower Level, Jefferson City, MO 65101.

- A public comment period was opened after the maintenance plan was posted on the program's website on June 27, 2016, and closed on August 4, 2016, seven (7) days after the public hearing.

2.4.2 Attainment Year Inventory of Ozone Precursors

The program has developed a comprehensive 2014 emission inventory for the St. Louis ozone NAA which includes the emissions from the following four source categories: point sources, area sources, onroad mobile sources and off-road mobile sources. The attainment year emission inventory, as required in the maintenance plan, is detailed in Chapter 4. Details of the development of the 2014 annual emission inventory and ozone season day emission inventory appear in Appendices C and D.

2.4.3 Projected Emissions Inventory of Ozone Precursors

The program has compiled a list of growth and control factors and developed a county-level emission inventory for the future year of 2030 for the St. Louis (MO) ozone NAA. These projected emissions show substantial decreases between 2014 and 2030 in cumulative emissions

that contribute to ground-level ozone concentrations. This future year emission inventory is detailed in Chapter 5 and the program asserts that these projected future emission levels are sufficient to maintain attainment of the 2008 8-hour ozone NAAQS.

2.4.4 Continued Monitoring Commitment

The program is committed to continue monitoring ambient ground-level ozone concentrations in the St. Louis ozone NAA and throughout the state in accordance with 40 CFR Part 58 and EPA approved Annual Monitoring Network Plans. The program will continue to quality assure the ambient air monitoring data in accordance with 40 CFR 58 and submit the data to EPA in a timely fashion. Detailed information about the ground-level ozone monitoring network in the St. Louis ozone NAA, along with further discussion about the program's continued monitoring commitment, can be found in Chapter 3.

2.4.5 Legal Authority to Implement and Enforce

The MACC 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 Statues of Missouri, also known as the Missouri Air Conservation Law. In addition, Missouri submitted and EPA approved [78 FR 37461] *Revision to Section 128 Declaration: Missouri Air Conservation Commission* to satisfy the requirements of Section 128 of the federal CAA Amendments of 1990. Section 128 asserts that each SIP shall contain provisions respecting conflicts of interest and providing for representation of the public interest by the applicable state board. The plan demonstrated that Missouri meets the Section 128 requirements via the referencing of specific corresponding state statutes and regulations.

2.4.6 Provisions for Future Updates to the Emission Inventory

The program is committed to provide future inventory updates to track emissions 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 program. The methods for calculating and reporting 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 annually. In addition, in compliance with EPA's Air Emissions Reporting Requirements [80 FR 8787], the program develops a comprehensive emissions inventory of point, area, and mobile sources every three years.

2.4.7 Motor Vehicle Emissions Budgets for Transportation Conformity

The purpose of transportation conformity is to ensure that federal transportation actions occurring in nonattainment and maintenance areas do not hinder the area from attaining and maintaining the 2008 8-hour ozone NAAQS. This means that the level of emissions estimated by the Missouri Department of Transportation (MODOT) or the metropolitan planning organizations must not exceed the MVEBs as defined in this maintenance plan. The program coordinated with the East-West Gateway Council of Governments (EWGW), the metropolitan planning organization for the greater St. Louis area, to develop the MVEBs for the 10-year maintenance period. More information about Transportation Conformity may be found in Chapter 6.

2.4.8 Commitment to Revise Plan

Under the CAA Section 175A, 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 program recognizes the importance of an up-to-date maintenance plan, and commits to updating it as necessary.

2.4.9 Contingency Measures

The program is committed to complying with the 2008 8-hour ozone NAAQS in the future. If violations of the NAAQS take place, the program will enact contingency measures, as expeditiously as practicable, that will bring the area to compliance as quickly as feasible. Further information about this commitment to enact contingency measures, and a potential list of contingency measures that would be evaluated if the area falls out of compliance with this NAAQS are located in Chapter 7.

2.5 Section 110 and Part D Requirements

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.

On June 27, 2013, the Missouri Air Conservation Commission adopted Missouri's Section 110 SIP Infrastructure Requirements plan. On July 8, 2013 EPA received Missouri's SIP to address the requirements of Section 110(a)(2)(D)(i) of the CAA for the 2008 8-hour ozone NAAQS, otherwise known as the Infrastructure SIP. Portions of the Infrastructure SIP were deemed administratively complete 6 months after submittal, on January 8, 2014, and remaining sections have yet to be acted on. All other CAA Section 110 provisions are administrative, procedural or options that do not require a submission on behalf of the State.

Requirements under Part D of the Clean Air Act (Nonattainment Plan Provisions) include an emissions inventory for a representative base year. The base year 2011 inventory for the St. Louis ozone NAA was approved by EPA on February 25, 2016 [81 FR 9346]. It is included as Appendix A to this document. However, other certain requirements are suspended when a NAA achieves the NAAQS because these requirements are correlated to the attainment of the air quality goal and thus the intention of these requirements has been fulfilled with achievement of the NAAQS without the necessity of further submittals as long as the area does not violate the NAAQS again. There are no requirements for reasonable further progress for marginal NAA. Furthermore, once the maintenance plan is approved and the area is redesignated to attainment, the requirements to demonstrate attainment will no longer apply. 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 NAAQS." Applicable section 110 and Part D requirements that specifically apply to the maintenance plan are addressed in this document.

3. Ozone Monitoring

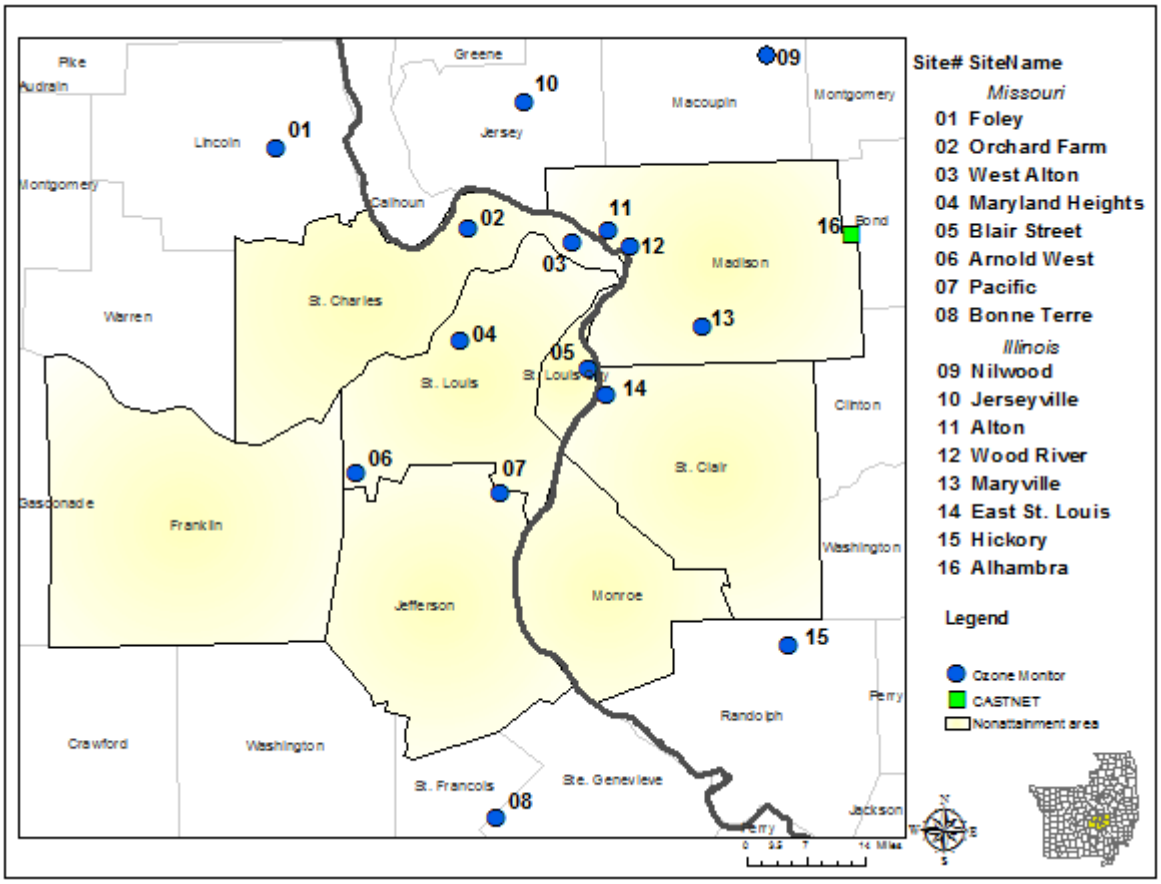
This chapter presents monitoring information that demonstrates the St. Louis ozone NAA has attained the 2008 8-hour ozone NAAQS of 0.075 ppm. The following are requirements for the use of ambient air monitoring data in demonstrating that the area is attaining the applicable NAAQS. As mentioned in Chapter 2, attaining the NAAQS is one of the requirements for an area to be redesignated to attainment [CAA Section 107(d)(3)(E)(i)]. This demonstration is based on three consecutive ozone seasons of quality assured data monitored at the St. Louis ozone monitoring network as specified in 40 CFR 58. The ambient air quality monitoring data demonstrates that the area has attained the applicable NAAQS consistent with methods cited in EPA's guidance document "*Procedures for Processing Request to Redesignate Areas to Attainment*":

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

3.1 St. Louis Ozone Monitoring Network

The states of Missouri and Illinois operate separate ozone monitoring networks in their respective portions of the St. Louis ozone NAA. In 2015, there were sixteen (16) sites that monitored ozone in the St. Louis ozone NAA and surrounding counties. Eleven (11) of these sites are located within the St. Louis ozone NAA; six (6) in Missouri and five (5) in Illinois (Figure 3-1). In addition, Missouri and Illinois each operate at least one monitor upwind and downwind of the NAA. The upwind monitors are located in Bonne Terre, (Ste. Genevieve County), Missouri and in Hickory, (Randolph County), Illinois. Downwind monitors outside of the NAA are located in Foley, (Lincoln County), Missouri and Nilwood, (Macoupin County), Illinois.

Figure 3-1 2015 Ozone Monitoring Network for St. Louis ozone NAA



3.2 Ambient Air Monitoring Data

Design values are used as indicators of a region's air quality and are calculated by averaging the annual fourth-highest daily maximum eight-hour ozone concentration over three consecutive years (40 CFR Part 50). The NAAQS is met at a site when the site's design value is less than or equal to 0.075 ppm (75 ppb). Increasing design values for a monitor indicate declines in air quality in that area. Along the same lines, declines in design values over time indicate air quality is improving.

Figures 3-2 and 3-3 show the design value trends for the monitors in the St. Louis ozone NAA for Missouri and Illinois, respectively. As indicated by the trends in the figures, ozone concentrations have decreased at all monitors, indicating improved air quality throughout the St. Louis ozone NAA and surrounding counties. Within the St. Louis ozone NAA, there was only one site that violated the 2008 NAAQS according to 2008-2010 air monitoring data (Figure 3-2). During the same time period of 2008-2010, there were no sites in the St. Louis (IL) ozone NAA that violated the 2008 ozone NAAQS (Figure 3-3). As of the three-year consecutive period ending in 2015, all sites in the NAA were in compliance with the 2008 ozone NAAQS. This is represented by the design value data in Figures 3-2 and 3-3, as well as the comparison maps in Figure 3-4. Upward trends in design values after 2010 and the 2010-2012 design value were driven by the unusually dry and hot weather conditions in 2012. However, since the base year (2014), the data have been trending down.

Figure 3-2 8-Hour Ozone Design Value Trends (2001-2015) for St. Louis (MO) area Monitors

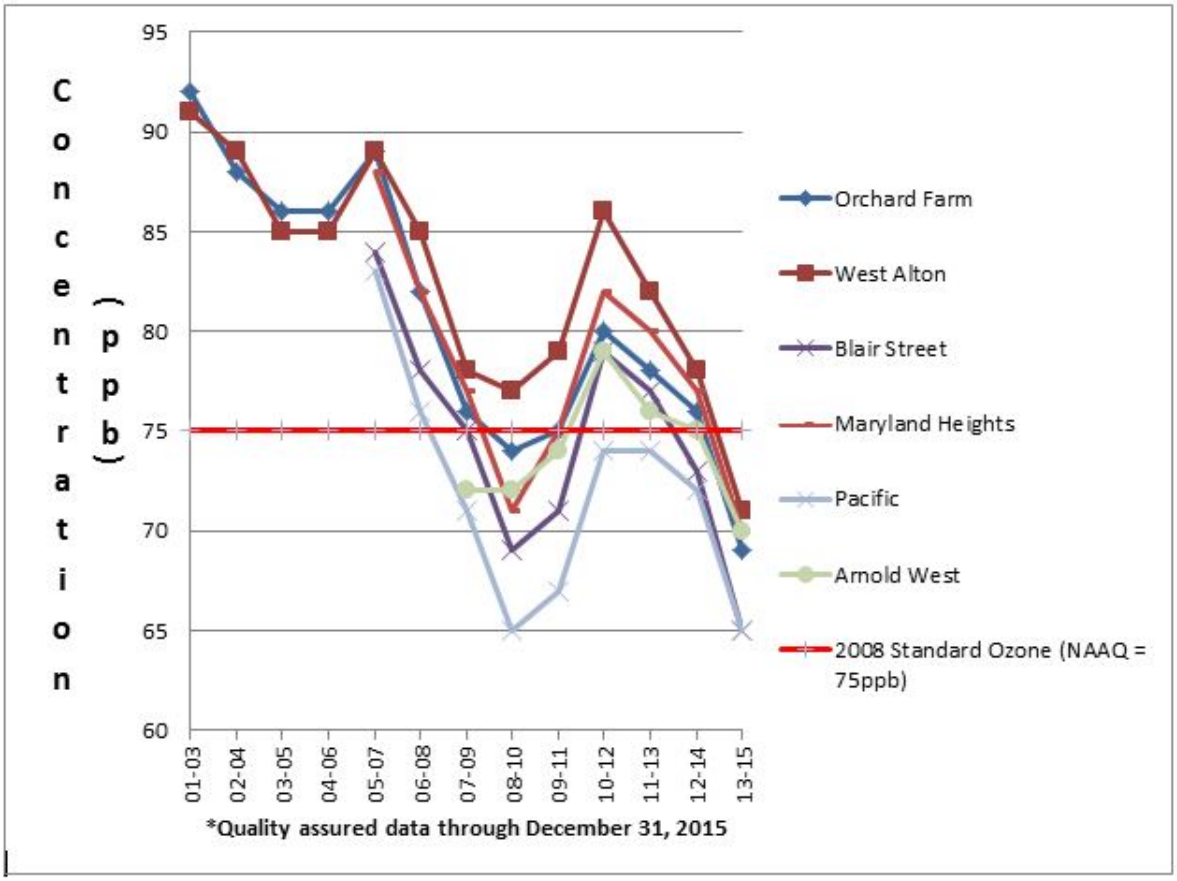


Figure 3-3 8-Hour Ozone Design Value Trends (2001-2015) for St. Louis (IL) area Monitors

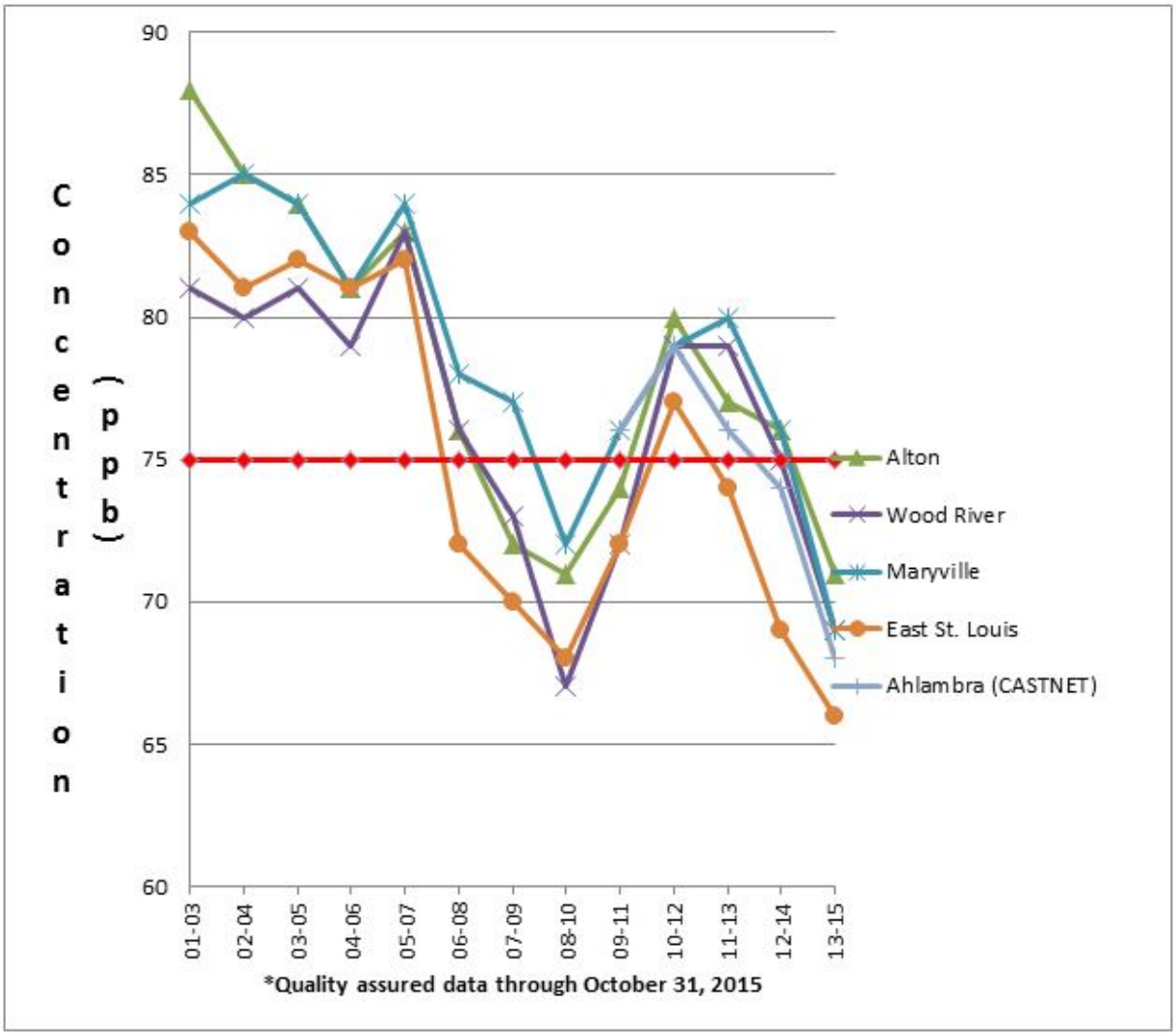
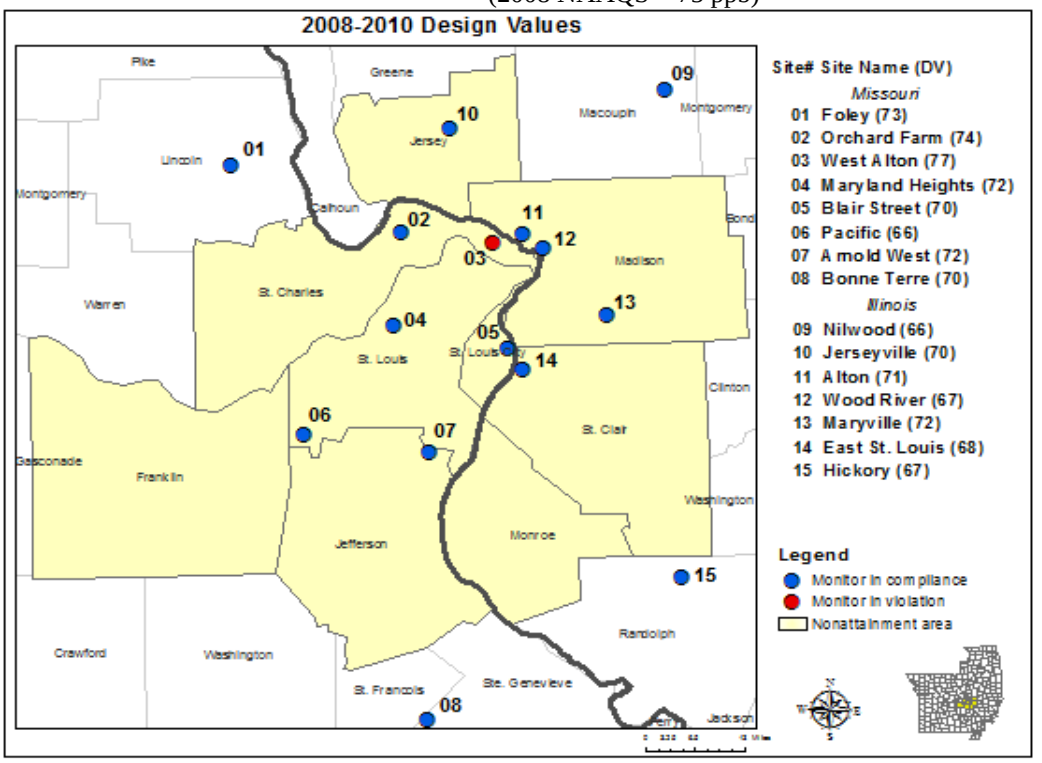
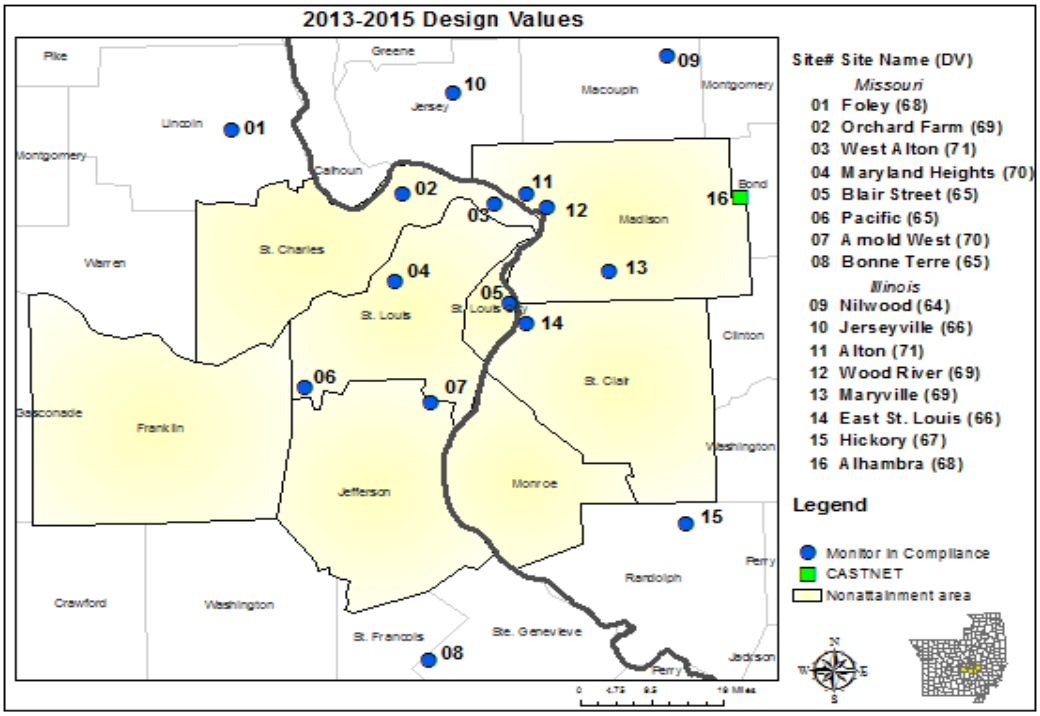


Figure 3-4 Figure 3-4 Comparison of 2008 – 2010 & 2013 – 2015 Design Values

(2008 NAAQS = 75 ppb)





3.3 St. Louis Ozone Monitoring Data Analysis

The St. Louis area's compliance with the 2008 ozone NAAQS is determined by comparing the area's calculated design values to the ozone NAAQS, as previously described in Chapter 3.2.

For the 8-hour ozone NAAQS, the design value at all monitors for the three-year time periods from 2013 through 2015 did not exceed 75 ppb, and thus achieved attainment for the St. Louis ozone NAA (Table 2-1). As shown in Table 2-1, all sites have three-year design values less than the 2008 ozone NAAQS, demonstrating that the St. Louis ozone NAA has attained the 8-hour ozone NAAQS.

The St. Louis (MO) ozone NAA's design value monitor is the West Alton monitor as its design value is the highest in the area. The location of the West Alton monitor north of St. Louis is an area favorable for ozone formation and transport as it is upwind of the majority of the metropolitan area on meteorologically conducive summer days with general southerly winds.

3.4 Missing Data Under the 2008 8-Hour Ozone NAAQS

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

3.5 Quality Assurance Program

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

3.6 Continued Monitoring Commitment

The program is committed to continue operating the appropriate ozone network in the St. Louis ozone NAA, in accordance with 40 CFR 58 and approved Annual Monitoring Network Plans, to verify the attainment status of the area. Missouri will continue to quality assure the ambient air monitoring data in accordance with 40 CFR 58 and submit the data to AQS as required. Missouri's most recent proposed air quality monitoring network plan is available at: http://dnr.mo.gov/env/apcp/monitoring/monitoringnetworkplan.pdf.

The St. Louis Metropolitan Statistical Area (MSA) satisfies and exceeds the minimum monitoring requirement for ozone [40 CFR 58 Appendix D, Table 2], revisions to the Ambient Air Monitoring Regulations [71 Federal Register 61240, October 17, 2006] note that –

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 $PM_{2.5}$.

3.7 Clean Data Determination

On February 2, 2016, the program requested a clean data determination from EPA. The request asks that EPA review the St. Louis ozone monitoring data to determine that the 2008 ozone NAAQS was met based on three years (2013-2015) of quality assured ambient air monitoring data. On June 15, 2016, EPA concurred that all of Missouri's 2013-2015 monitoring data have been submitted to AQS and are quality assured. The concurrence report shows that all monitors have 'Y' flag which indicates EPA's concurrence. There is only one monitor (Orchard Farm) that has 'S' flag. This flag indicates that the program has submitted all the required documents for data certification but EPA Region 7 (R7) has not assessed the data quality yet. This Flag will remain as 'S' until R7 provides a 'N' or 'Y' concurrence flag.

4. Redesignation Request: Emission Inventory and Controls from 2011 - 2014

A redesignation request must contain a demonstration that the improvement in air quality between the violation and attainment year is based on permanent and enforceable emissions reductions. As described previously in Chapter 3, three-consecutive ozone season monitoring period is used to evaluate whether actual air quality attainment has been reached. In this chapter, the "attainment year" refers to the second year (2014) of the three-year period (2013-2015) used to demonstrate attainment, and the base year (2011) corresponds to the most recent triennial statewide emissions inventory conducted for the National Emissions Inventory (NEI) pursuant to the federal Air Emissions Reporting Requirements (AERR) rule [80 FR 8787; February 6, 2015]. This inventory conforms to EPA's guidance: *Emissions Inventory Guidance for Implementation of Ozone and Particulate Matter National Ambient Air Quality Standards (NAAQS) and Regional Haze Regulations* [November 2005] and the proposed guidance update issued June 14, 2014.

The inventories detailed in this chapter for 2011 and 2014 include data categories for point, area, onroad mobile, and nonroad emissions for NO_x, VOC and CO. It is standard practice to inventory these three pollutants at either annual or OSD time aggregation for SIP and NEI purposes. While CO is included for informational purposes in the inventory sections, it is not a driver of ozone formation in St. Louis and is not examined in depth through this document. In addition, CO emissions from the Illinois side of the metropolitan area are not available. In past analyses, the St. Louis area is determined to be NOx-limited in the majority of ozone episodes, so the focus on NOx through the document is appropriate. Additional details for the base and attainment year inventories for 2011 and 2014 are found in Appendices A and C, respectively.

4.1 Base Year and Attainment Year Inventories

The 2011 OSD emissions inventory for the St. Louis ozone NAA is presented in Appendix A, which includes emissions from stationary point and area sources, onroad mobile, and nonroad within the five Missouri counties of the bi-state area. Appendix B outlines the methodology and calculations used to convert the annual emission rates from the 2011 NEI into ozone season daily emission rates. The ozone season daily emissions in Appendix B apply to emissions occurring during a typical weekday of the high ozone season, which is June through August.

The 2011 OSD emissions calculation was based on the April 29, 2002 memorandum from Gregory Stella, EPA, "Temporal Allocation of Annual Emissions using EMCH Temporal Profiles." Table B-22 of Appendix B provides all the temporal allocation profiles and corresponding values for a typical Tuesday in July, which were used to convert annual emissions from the area source category as well as nonroad emissions from aircraft, commercial marine, and rail sources into ozone season day emissions. Emissions from these source categories are calculated on an annual basis. They are then allocated to an average Tuesday in July ozone season day emissions through the following calculation steps:

The first step is to allocate annual emissions to a particular month. A monthly profile is selected based on the nonpoint Source Classification Code (SCC). The annual emissions are multiplied by the monthly weight factor from the profile divided by the total weight factor as follows:

Monthly Emissions = Annual Emissions * (July Profile / Total Monthly Factor)

Next, emissions for an average monthly day are estimated from the monthly total. Because the monthly profiles are not weighted for the specific number of days in each month, an average day per year is used in the calculation as shown below:

Average Day Emissions = Monthly Emissions / (Days per Year / Months per Year)
Average Day Emissions = Monthly Emissions / (365/12)

The average day's emissions value is then converted to a specific day of the week. A weekly profile is selected based on a SCC. Using the day-of-week weighting factor from the profile, emissions for this day are calculated with the following equation:

Average Tuesday Emissions = Average Day Emissions * [(Tuesday Profile/ Total Weekly Factor) / (Average Day/Number of Days per Week)]

Average Tuesday Emissions = Average Day Emissions * [(Tuesday Profile/ Total Weekly Factor) / (1/7)]

The 2014 OSD emissions inventory for the St. Louis ozone NAA is presented in Appendix C, which includes emissions from stationary point and area sources, onroad mobile, and nonroad within the five Missouri counties of the bi-state area. Appendix C also outlines the methodology and calculations used to convert the annual emission rates from the 2014 NEI into ozone season daily emission rates. Appendix F summarizes ozone season day emissions for the Illinois counties of the St. Louis nonattainment area.

Table 4-1 displays the 2011 county OSD emissions inventory summary for the St. Louis (MO) ozone NAA for point, area, onroad mobile, and nonroad source categories. Table 4-2 displays the 2011 total OSD emissions inventory summary for the St. Louis ozone NAA. Table 4-3 displays the 2014 county OSD emissions inventory summary for the St. Louis (MO) ozone NAA for point, area, onroad mobile, and nonroad source categories. Table 4-4 displays the 2014 total OSD emissions inventory summary the St. Louis ozone NAA.

Table 4-5 compares emissions for the years 2011 and 2014 for the St. Louis ozone NAA. Table 4-5 shows the differences by source category along with the total changes in emissions for each listed pollutant. As shown in the table, NO_x and VOC emissions within the NAA decreased between 2011 and 2014 from all emission categories except the onroad emission category. The increase occurred mainly within the St. Louis (MO) ozone NAA primarily due to the 2014 version of the Motor Vehicle Emission Simulator (MOVES) emissions model and along with a new methodology used by MODOT for vehicle miles traveled (VMT). MODOT method to estimate VMT in 2011 potentially underestimated VMT by missing off-network mileage. The new method for 2014 counts all gallons of gasoline sold in the area and estimates VMT from national-average fleet fuel economy. With the new methodologies, NO_x emissions increased 26.29 tons per OSD from 2011 to 2014, while VOC increased 42.30 tons per OSD.

Table 4-1 2011 VOC, NO_x & CO Emissions for St. Louis (MO) ozone NAA (tons per OSD)

County Name	Source Category	VOC	NO_x	CO
Franklin County	Point Sources	2.52	27.75	7.55
Jefferson County		1.63	16.66	7.23
St. Charles County		3.34	25.04	2.82
St. Louis County		3.5	16.74	17.68
St. Louis City		3.59	4.49	7.36
	Total *	**14.58**	**90.69**	**42.65**
Franklin County	Area Sources	3.36	0.49	3.03
Jefferson County		7.48	0.62	8.14
St. Charles County		11.21	0.68	1.35
St. Louis County		38.68	2.65	4.72
St. Louis City		12.04	1.16	1.76
	Total *	**72.77**	**5.60**	**19.01**
Franklin County	Onroad Mobile Sources	2.40	7.83	21.18
Jefferson County		4.24	12.45	34.91
St. Charles County		6.73	21.04	56.63
St. Louis County		20.17	66.34	176.34
St. Louis City		4.46	16.55	42.14
	Total *	**38.00**	**124.20**	**331.20**
Franklin County	Nonroad Sources	3.31	5.72	18.55
Jefferson County		3.12	3.33	28.68
St. Charles County		6.23	8.34	62.81
St. Louis County		22.99	23.85	315.24
St. Louis City		3.38	6.31	48.14
	Total *	**39.03**	**47.55**	**473.42**
	Grand Total *	**164.38**	**268.04**	**866.28**

* Note: Figures may not total exactly due to rounding.

Table 4-2 2011 Total VOC & NO_x Emissions for St. Louis ozone NAA (tons per OSD)

State	Source Category	VOC	NO_x
Missouri	Point Sources	14.58	90.69
	Area Sources	72.77	5.60
	Onroad Mobile Sources	38.00	124.20
	Nonroad Sources	39.03	47.55
	Total *	**164.38**	**268.04**
Illinois	Point Sources	10.80	26.18
	Area Sources	18.12	1.24
	Onroad Mobile Sources	11.44	34.14
	Nonroad Sources	8.49	17.17
	Total *	**48.85**	**78.73**
	Grand Total *	**213.23**	**346.77**

* Note: Figures may not total exactly due to rounding.

Table 4-3 2014 VOC, NO_x & CO Emissions for St. Louis (MO) ozone NAA (tons per OSD)

County Name	Source Category	VOC	NO_x	CO
Franklin County	Point Sources	2.08	21.13	7.00
Jefferson County		1.91	17.96	9.00
St. Charles County		4.12	21.05	3.44
St. Louis County		2.87	16.79	21.99
St. Louis City		2.88	4.78	6.90
	Total *	**13.86**	**81.70**	**48.33**
Franklin County	Area Sources	5.80	0.46	3.20
Jefferson County		5.44	0.42	5.45
St. Charles County		11.50	0.89	9.43
St. Louis County		35.88	3.76	34.24
St. Louis City		11.19	0.93	2.08
	Total *	**69.81**	**6.47**	**54.40**
Franklin County	Onroad Mobile Sources	2.57	8.00	31.78
Jefferson County		4.65	12.87	51.7
St. Charles County		7.75	19.68	85.19
St. Louis County		73.21	118.61	474.57
St. Louis City		4.23	10.92	45.71
	Total *	**92.41**	**170.08**	**688.95**
Franklin County	Nonroad Sources	2.91	5.24	18.13
Jefferson County		2.72	3.04	29.14
St. Charles County		5.25	7.40	62.28
St. Louis County		19.61	17.53	313.02
St. Louis City		2.92	5.23	47.00
	Total *	**33.42**	**38.44**	**469.56**
	Grand Total *	**209.50**	**296.69**	**1,261.24**

* Note: Figures may not total exactly due to rounding.

Table 4-4 2014 Total VOC & NO_x Emissions for St. Louis ozone NAA (tons per OSD)

State	Source Category	VOC	NO_x
Missouri	Point Sources	13.86	81.70
	Area Sources	69.81	6.47
	Onroad Mobile Sources	92.41	170.08
	Nonroad Sources	33.42	38.44
	Total *	**209.50**	**296.69**
Illinois	Point Sources	9.38	23.29
	Area Sources	19.06	1.53
	Onroad Mobile Sources	10.11	26.94
	Nonroad Sources	7.47	24.62
	Total *	**46.02**	**76.38**
	Grand Total *	**255.52**	**373.07**

* Note: Figures may not total exactly due to rounding.

Table 4-5 Comparison of 2011 and 2014 VOC & NO_x Emissions in the St. Louis ozone NAA (tons per OSD)

State	Source Category	VOC	NO_x
Missouri	Point Sources	-0.72	-8.99
	Area Sources	-2.96	0.87
	Onroad Mobile Sources	54.41	45.88
	Nonroad Sources	-5.61	-9.11
	Total *	**45.12**	**28.65**
Illinois	Point Sources	-1.42	-2.89
	Area Sources	0.94	0.28
	Onroad Mobile Sources	-1.33	-7.2
	Nonroad Sources	-1.01	7.45
	Total *	**-2.82**	**-2.36**
	Grand Total *	**42.30**	**26.29**

*Negative value indicates a decrease of emission between base and future years

4.2 Controls Used to Attain the NAAQS

The St. Louis area was designated as nonattainment of the 2008 ozone NAAQS in July 2012. Since that time, the implementation of permanent and enforceable reductions of ozone precursors emissions (VOC and NO_x) have contributed to improvements in air quality and to the attainment of the ozone NAAQS. The primary control measures used to attain the 2008 ozone NAAQS include:

- Clean Air Interstate Rule (CAIR)
- Heavy-Duty Diesel Engine Standards
- Tier 2 Rule-Vehicle Standards
- Tier 4 Rule-Off Road Mobile Engine Standards
- Reformulated Gasoline (RFG)
- Gateway Vehicle Inspection Program
- Missouri State Regulations: 10 CSR 10-6.360 Controlling NO_x Emissions From Electric Generating Units and Non-Electric Generating Boilers, 10 CSR 10-6.362 Clean Air Interstate Rule Annual NO_x Trading Program, 10 CSR 10-6.364 Clean Air Interstate Rule Seasonal NO_x Trading Program, 10 CSR 10-6.380 Control of NO_x Emissions From Portland Cement Kilns, and 10 CSR 10-6.390 Control of NO_x Emissions From Large Stationary Internal Combustion Engines.

4.2.1 Federal Emission Trading Programs

CAIR required states to reduce emissions that are prohibited by the interstate transport provisions of the CAA Section 110(a)(2)(D)(i)(I). This rule 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. CAIR established three emission trading programs that states could use to address transported emissions – the CAIR NO_x ozone season trading program, the CAIR annual NO_x trading program and the CAIR SO_2 trading program. The CAIR ozone-season NO_x trading program replaced the NO_x Budget Trading Program (NBP) under the NO_x SIP Call and the statewide NO_x rule (10 CSR 10-6.350). In the St. Louis area, the CAIR ozone season NO_x trading program required the same Electric Generating Units (EGUs) and the same three non-EGU boilers mentioned above to participate as were required under the

NBP. Since then, these three units have all been retired and have received retired unit exemptions that prohibit these units from operating.

The CAIR ozone-season NO_x trading program, along with the CAIR annual NO_x trading program began in 2009. In regards to the EGUs located in the St. Louis ozone NAA, the ozone season NO_x requirements in CAIR were comparable to the requirements under NBP. However, CAIR had a significant impact on the EGUs located in the western two-thirds of the state, and these sources significantly reduced their 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. While 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 ozone NAA, they did have a positive impact in reducing the transported or regional contribution of NO_x emissions to the ozone monitors located in the NAA.

It was anticipated that EPA's 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 U.S. Court of Appeals for the D.C. 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.

EPA appealed the D.C. Circuit Court's decision to the U.S. Supreme Court and in April 2014, the U.S. Supreme Court reversed the D.C. Circuit Court's decision that vacated the CSAPR. Then in June 2014, EPA filed a motion to the D.C. Circuit Court to lift the stay of the CSAPR and delay all compliance dates in the rule by three (3) years, which required that phase I of CSAPR to begin in January 2015. In October 2014, the D.C. Circuit court granted EPA's motion to lift the stay of the CSAPR, and on November 21, 2014, the EPA administrator signed an interim final rule that extends the compliance dates of the CSAPR by three (3) years and clarified that the rule would go into effect in 2015.

The CSAPR established four (4) separate federal emission trading programs for states located in the eastern half of the country. These four trading programs include the Transport Rule (TR) SO_2 Group 1 Trading Program, the TR SO_2 Group 2 Trading Program, the TR NO_x Annual Trading Program, and TR NO_x Ozone Season Trading Program. States that were found to be significantly contributing to a 1997 and/or 2006 $PM_{2.5}$ NAAQS NAA or interfere with maintenance of these $PM_{2.5}$ NAAQS in a downwind state are included in one of the TR SO_2 Trading Programs, along with the TR Annual NO_x Trading Program. States that were found to be significantly contributing to 1997 Ozone NAAQS NAA or interfere with maintenance of this ozone NAAQS in a downwind state are included in the TR NO_x Ozone Season Trading Program.

The final CSAPR, which was published in the federal register on August 8, 2011, included Missouri in the TR SO_2 Group 1 Trading Program and the TR NO_x Annual Trading Program.

Missouri was not included in the TR NO_x Ozone Season trading program under the final rule. However, on December 27, 2011, EPA finalized a supplement to the final CSAPR (76 FR 80760), which added Missouri and five (5) other states to the TR NO_x Ozone Season Trading Program. Therefore, Missouri was included in the TR NO_x Ozone Season Trading Program beginning in 2015.

EPA implemented CSAPR through a FIP on January 1, 2015 (79 FR 71663). Through the CSAPR, every state included in the rule has a statewide emission budget for each trading program in which it was included. These statewide budgets consist of a certain amount of allowances that are distributed to the CSAPR-affected units in that state. Applicability under the TR NO_x Ozone Season Trading Program is defined in 40 CFR 97.504. Each allowance permits a unit to emit one ton of the respective air pollutant for which the allowance is granted. Allowances may be used to cover emissions from a particular unit, they may be banked to be used in a future year, or they can be traded or sold to other affected units included in the respective trading program. There are several different compliance options for units subject to CSAPR. Some examples of compliance options include, but are not limited to, the installation of controls to lower emissions, purchasing allowances from units with excess allowances due to over-controlling emissions, transfer allowances from one unit to another, fuel-switching, improved unit operating procedures, unit efficiency improvements, and modifications to unit dispatch order. The program promulgated the following rules to reallocate Missouri's allowances so that two EGUs get an allowance each: 10 CSR 10-6.372 Cross-State Air Pollution Rule Annual NO_x Trading Allowance Allocation reallocate annual NO_x emissions allowances for use with the EPA's annual NO_x regional emission reduction program in the federal CSAPR for 2017 and beyond and 10 CSR 10-6.374 Cross-State Air Pollution Rule Ozone Season NO_x Trading Allowance Allocation reallocate ozone season NO_x emissions allowances for use with the EPA's annual NO_x regional emission reduction program in the federal CSAPR for 2017 and beyond.

During its existence, the CAIR trading programs have decreased NO_x emission significantly between 2008 and 2015. The ozone season NO_x reduction between 2008 (34,819.80 tons) and 2015 (18,843.60 tons) is estimated to be 15,976.20 tons (54.12%) according to the Air Markets Program Data. Although this plan is relying on the reductions obtained through the CAIR programs, with the promulgation of CSAPR and the associated state rules, CSAPR has effectively replaced the CAIR program. The benefits of the emissions reductions will continue through the CSAPR programs without the continuation of the CAIR programs.

4.2.2 Federal and State Emission Controls

Federal and state regulations for mobile sources that have been phased in since 2002 have had a positive impact on the emissions inventory for both NO_x and VOC emissions from onroad and nonroad mobile sources. Mobile source regulations including Heavy-Duty Diesel Engine Standards and Low-Sulfur Diesel, Tier 2 Rule-Vehicle Standards, Tier 4 Rule-Off Road Mobile Engine Standards, Reformulated Gasoline (RFG), and the Gateway Vehicle Inspection Program (10 CSR 10-5.381, *On-Board Diagnostics Motor Vehicle Emissions Inspection*) have reduced the NO_x and VOC emissions from the mobile sector in the St. Louis ozone NAA.

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 significant reductions in both NO_x and VOC emissions from 2014 to 2030 emission years. The continued tightening of federal mobile source standards and phase out of older higher-polluting vehicles will continue to contribute to maintenance of the 2008 8-hour ozone NAAQS.

EPA published final rules for both the (1) Mercury and Air Toxics Standards (MATS) for new and existing coal- and oil-fired EGUs and (2) NSPS for fossil-fuel fired electric utility, industrial-commercial-institutional and small industrial-commercial-institutional steam generating units on February 16, 2012. The MATS reduce emissions of toxic air pollutants from EGUs larger than 25 megawatts that burn coal or oil for the purpose of generating electricity for sale and distribution through the national electric grid to the public. For the NSPS, EPA revised the standards that new coal- and oil-fired power plants must meet for NO_x, SO_2, and PM. The rule can be expected to result in the reduction of both NO_x and SO_2 emissions in addition to the reduction in mercury and other air toxic emissions. The emission reductions associated with the MATS and revised NSPS are federally enforceable.

4.2.3 Missouri Regulations

In addition to the Gateway Vehicle Inspection Program, federal mobile source standards, and regulations that control ozone season NO_x emissions from EGUs, there are numerous state regulations that provide permanent and enforceable controls for NO_x and VOC emissions in the St. Louis ozone NAA. The rules in Title 10 Division 10 Chapters 5 and 6 of the Missouri Code of State Regulations include permanent and enforceable control measures for ozone precursor emissions in the St. Louis ozone NAA. These controls include control technique guidelines for numerous VOC sources and emission standards for incinerators.

Furthermore, many regulations designed for one pollutant control program have a benefit in another. For example, the rules which implement the Air Toxics HAP program pursuant to the CAA Section 112 also in many cases control VOCs. In Missouri, this program is implemented through State rules, 10 CSR 10-6.070, *New Source Performance Regulations*, 10 CSR 10-6.075 *Maximum Achievable Control Technology Regulations* & 10 CSR 10-6.080, *Emission Standards for Hazardous Air Pollutants.* Although these rules are ostensibly for the control of HAPs, they benefit ozone control (and as such are listed in section 4.2) because many HAPs are also VOCs.

4.3 Reasonably Available Control Technology (RACT)

Section 182(a)(2)(A) refers to the first round of ozone area designations/classifications after the promulgation of the CAA Amendments of 1990 and gives the program six months after these initial classifications to revise SIPs with corrections to the pre-1990 CAA RACT levels pursuant to EPA-issued guidance. Since the 2008 ozone NAAQS is a revision to the standard that existed in 1990 and outside the timeframe mentioned, this requirement is no longer applicable to this marginal area maintenance plan. Nevertheless, RACT evaluations are continuous and ongoing for the St. Louis ozone NAA. The program has previously addressed RACT requirements in the St. Louis ozone NAA in developing attainment plans for the 1-hour ozone NAAQS. For the 1997 8-hour ozone NAAQS, the program developed a RACT demonstration as an element to the moderate ozone NAA SIP revision. Per the federal implementation rule for the 1997 ozone

NAAQS, the RACT demonstration was to be submitted as a separate element prior to the submittal of the attainment demonstration and other elements of the SIP revision. The RACT plan was adopted on December 7, 2006, and submitted to EPA on January 5, 2007. EPA approved the RACT plan on January 23, 2012 [77 FR 3144].

Shortly thereafter, EPA issued additional new Control Techniques Guidelines (CTGs) for VOC sources to be used as 'presumptive' RACT. Since these new CTGs were not considered in the 2006 RACT demonstration, and in an effort to ensure that RACT levels for the St. Louis ozone NAA are current, the program developed an update to the 2006 RACT demonstration. The updated RACT plan also supported the attainment redesignation request for the Missouri portion of the St. Louis area under the 1997 ozone NAAQS. The updated RACT demonstration showed how RACT for VOCs has been appropriately upgraded since the last RACT submittal. The updated RACT document was adopted by the MACC on April 28, 2011, and submitted to EPA on May 25, 2011. EPA approved this RACT plan into the SIP on January 6, 2014 [79 FR 580].

The updated RACT plan remains a part of the Missouri SIP and is part of the ongoing plan to maintain the NAAQS. For a more detailed discussion of RACT issues, please refer to the updated RACT demonstration adopted April 28, 2011, which can be found at http://dnr.mo.gov/env/apcp/sips.htm#ozone.

5. Maintenance Plan Demonstration: Emission Inventory and Controls from 2014 - 2030

The purpose of this chapter is to address the first two elements required for a maintenance plan as listed in section 2.4, 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 section demonstrates that emissions of NO_x, VOC and CO in the St. Louis (MO) ozone NAA 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 2030 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 2030 for the future year, EPA will have more than a year to approve this plan and redesignate the area to attainment.

The pollutants examined in this chapter are NO_x, VOC, and CO. It is standard practice to inventory these three pollutants at either annual or OSD time aggregation for SIP and NEI purposes. While CO is included for informational purposes in the inventory sections, it is not a driver of ozone formation in St. Louis and is not examined in depth through this document. CO emissions from the Illinois side of the metropolitan area are not available, and transportation conformity budgets are set only for NO_x and VOC. In past analyses, the St. Louis area is determined to be NO_x-limited in the majority of ozone episodes, so the focus on NO_x through the document is appropriate.

This chapter also includes a discussion of regulations that have become effective since 2014, and a list of expected future regulations that will help to continue to control NO_x, VOC and CO emissions in the St. Louis area. The 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 shall require an "anti-backsliding" demonstration under Section 110(l) of the CAA. In addition, nonattainment new NSR permitting requirements are expected to continue to apply to construction of new major sources and to significant modifications of existing sources due to the area's potential designation as nonattainment under the more recently promulgated 2015 ozone NAAQS. These existing and future control measures identified in the maintenance plan are relied upon to maintain the 2008 ozone NAAQS.

5.1 Base/Attainment Year Inventory and Future Year Emission Projections

A maintenance plan must contain a demonstration that the levels of emissions projected for the ten-year period following redesignation are sufficient to maintain the NAAQS. Accordingly, the program has projected VOC, NO_x and CO emissions for the St. Louis ozone NAA for 2030. Emissions for this projection year are compared to emissions levels in 2014 to determine if emissions levels are sufficient to maintain the NAAQS during this period.

For the purposes of this chapter, a 2014 emission inventory was developed. The 2014 inventory will act as the base year compared to the 2030 inventory. The base year 2014 inventory includes point, area, onroad mobile, and nonroad source categories. The emissions from point, area, and nonroad source categories are identical to the 2014 attainment year inventory listed in the previous chapter. The 2014 base year annual emissions inventory for the St. Louis (MO) ozone NAA is included in this plan as Appendix C for ozone season day, and the 2014 annual inventory documentation is included as Appendix D. Details of future year emission inventory development are included in Appendix E.

5.1.1 Onroad Mobile Source Future Emissions Inventory Development

For this chapter of the document, future onroad motor vehicle emissions for the St. Louis (MO) ozone NAA were developed using EPA's MOVES motor vehicle emissions model and VMT data from EWGW in coordination with the St. Louis Transportation Conformity Interagency Consultation Group.

The method for mobile emissions modeling was changed when EPA's previous onroad 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.

The growth of onroad mobile source emissions via the MOVES model requires consideration of several future year model input tables. Specifically, the program developed age distribution, VMT, and vehicle population tables for 2020 and 2030. Other tables that were not modified, other than changing the analysis year to 2020 or 2030, are the speed, ramp fraction, fuels, I/M, starts, hotelling, and meteorology. VMT for future years was developed with the input of MODOT, the Federal Highway Administration, and EWGW). See Appendix E for more details on the future year onroad emissions development.

Nonroad mobile emission estimates were developed using default information included within the nonroad model portion of the MOVES2014a model release. No Missouri-specific data is used to modify the nonroad inputs in the base or future years.

5.1.2 Point, Area, and Off-Road Mobile Source Emissions Inventory Development

The projected point and area source emissions in the St. Louis (MO) ozone NAA for 2030 were estimated using the 2014 base year inventory and growth factors appropriate for each source category. Area source Stage II refueling emissions for 2030 were calculated with MOVES and assumed that Stage II vehicle refueling vapor recovery controls would no longer be required in the St. Louis area by 2030. The program has developed a SIP revision to remove Stage II requirements as a result of the widespread use of on-board vapor recovery systems. EPA approved this SIP revision and it became effective December 10, 2015 [80 FR 69602]. Stage II controls on refueling stations in the St. Louis (MO) ozone NAA were completely removed by December 31, 2015.

Non-EGU and Nonpoint Emissions Growth Methodology

The program downloaded 2011NEIv2-based Platform (2011v6.2) for 2011, 2017 and 2025 non-EGU and nonpoint sources from the Emissions Modeling Clearinghouse website

(https://www.epa.gov/air-emissions-modeling). The program calculated growth factors for years 2017 and 2025 by dividing 2011 annual emissions by 2017 and 2025 annual emissions. This is consistent with the methodology used by IEPA. To estimate 2020 and 2030 growth factors, the program interpolated the 2017 and 2025 growth factors and then extrapolated to 2030. The program used the TREND function in Excel and years 2018-2025 to project data for 2026-2030. The base year then was moved to 2014 and 2020 & 2030 growth factors were recalculated. Then, the program matched 2014 ozone season emission data with these growth factors based on facility IDs, SCC, and pollutant codes. For all facilities or source categories left without growth factors, the program averaged all growth factors based on SCC and applied the resulting growth factors to these facilities or source categories. Airport point sources from 2011 base year were grown to 2020 and 2030 based on 2011 base year growth year. It should be noted that before growing the 2011 annual airport point sources, their emissions were converted from annual tons per year to ozone season pounds per day using temporal allocation factors from EPA's Emissions Modeling Clearinghouse Temporal Allocation.

EGU Emissions Growth Methodology

In the modeling platform, EPA used IPM to grow 2011 EGU emissions to 2017 and 2025. The program decided to use emissions from 2017 for 2020 and emission from 2025 for 2030 for the following reasons:

1. The modeling platform emissions at four St. Louis area coal-fired EGUs show a change of less than 5% in either NO_x or VOC from 2017 to 2025. Projecting these emission changes from year-to-year is not feasible given the limited information on interim years from the IPM model.
2. It is not appropriate to use the same growth methodology used for Non-EGU sources since growth in the EGU sector depends on energy demand and environmental, transmission, dispatch, and reliability constraints.

The program calculated the OSD emissions for EGU sources by using information from the 2011NEIv2-based Platform. The emission files for 2017 and 2025 contain columns with the number of hours each unit operated per year and monthly emissions. The program used the month of July in this calculation to be consistent with nonpoint OSD calculation discussed in section 4.1. The number of operating hours was divided by 8,760 (number of hours per year) to calculate the percentage of time the unit operated per year. To calculate the number of days the unit operated in July, the number of days in July (31) was multiplied by the above percentage. Then the OSD emissions for July were calculated by dividing the July emissions by the number of days the unit operated in July.

5.1.3 2014 and 2030 Emissions Inventory Summary

Table 5-1 displays the 2014 OSD emissions inventory summary for the St. Louis (MO) ozone NAA for point, area, onroad mobile, and nonroad source categories. Table 5-2 displays the 2014 OSD emissions inventory summary for St. Louis ozone NAA. Table 5-3 displays the 2030 OSD emissions inventory summary for the St. Louis (MO) ozone NAA for point, area, onroad mobile, and nonroad source categories. Table 5-4 displays the 2030 OSD emissions inventory summary for St. Louis ozone NAA.

Table 5-5 compares emissions for the years 2014 and 2030 for the St. Louis ozone NAA. Table 5-5 shows the differences by source category along with the total changes in emissions for each pollutant listed. As shown in the table, NO_x and VOC emissions within the NAA are expected to decrease significantly between 2014 and 2030. NO_x emissions are expected to drop 175.04 tons per OSD (47%), while VOC reductions are about 88.54 tons per OSD (35%) over the projected period. Based on these emissions trends for NO_x and VOC it is expected that air quality will continue to meet the 2008 8-hour ozone NAAQS throughout the maintenance period.

Table 5-1 2014 VOC, NO_x & CO Emissions for St. Louis (MO) ozone NAA (tons per OSD)

County Name	Source Category	VOC	NO_x	CO
Franklin County	Point Sources	2.08	21.13	7.00
Jefferson County		1.91	17.96	9.00
St. Charles County		4.12	21.05	3.44
St. Louis County		2.87	16.79	21.99
St. Louis City		2.88	4.78	6.90
	Total *	**13.86**	**81.70**	**48.33**
Franklin County	Area Sources	5.80	0.46	3.20
Jefferson County		5.44	0.42	5.45
St. Charles County		11.50	0.89	9.43
St. Louis County		35.88	3.76	34.24
St. Louis City		11.19	0.93	2.08
	Total *	**69.81**	**6.47**	**54.40**
Franklin County	Onroad Mobile Sources	2.57	8.00	31.78
Jefferson County		4.65	12.87	51.7
St. Charles County		7.75	19.68	85.19
St. Louis County		73.21	118.61	474.57
St. Louis City		4.23	10.92	45.71
	Total *	**92.41**	**170.08**	**688.95**
Franklin County	Nonroad Sources	2.91	5.24	18.13
Jefferson County		2.72	3.04	29.14
St. Charles County		5.25	7.40	62.28
St. Louis County		19.61	17.53	313.02
St. Louis City		2.92	5.23	47.00
	Total *	**33.42**	**38.44**	**469.56**
	Grand Total *	**209.50**	**296.69**	**1,261.24**

* Note: Figures may not total exactly due to rounding.

Table 5-2 2014 Total VOC & NO_x Emissions for St. Louis ozone NAA (tons per OSD)

State	Source Category	VOC	NO_x
Missouri	Point Sources	13.86	81.70
	Area Sources	69.81	6.47
	Onroad Mobile Sources	92.41	170.08
	Nonroad Sources	33.42	38.44
	Total *	**209.5**	**296.69**
Illinois	Point Sources	9.38	23.29
	Area Sources	19.06	1.53
	Onroad Mobile Sources	10.11	26.94
	Nonroad Sources	7.47	24.62

Total *	**46.02**	**76.38**
Grand Total *	**255.52**	**373.07**

* Note: Figures may not total exactly due to rounding.

Table 5-3 2030 VOC, NO_x & CO Emissions for St. Louis (MO) ozone NAA (tons per OSD)

County Name	Source Category	VOC	NO_x	CO
Franklin County	Point Sources	2.32	30.92	9.02
Jefferson County		1.96	27.72	9.96
St. Charles County		4.17	8.87	4.37
St. Louis County		3.08	21.75	14.59
St. Louis City		2.78	3.82	6.57
	Total *	**14.31**	**93.08**	**44.51**
Franklin County	Area Sources	5.82	2.20	3.80
Jefferson County		5.38	0.88	5.62
St. Charles County		11.38	1.81	9.79
St. Louis County		35.11	5.44	34.84
St. Louis City		11.12	2.70	2.67
	Total *	**68.80**	**13.03**	**56.72**
Franklin County	Onroad Mobile Sources	5.45	3.22	34.42
Jefferson County		1.70	2.73	20.73
St. Charles County		2.72	4.34	32.86
St. Louis County		7.21	13.10	97.11
St. Louis City		1.34	2.18	16.67
	Total *	**18.42**	**25.57**	**201.79**
Franklin County	Nonroad Sources	1.79	1.97	18.64
Jefferson County		2.13	2.32	33.08
St. Charles County		4.04	5.88	70.10
St. Louis County		19.45	16.93	373.86
St. Louis City		2.60	2.80	55.35
	Total *	**30.01**	**29.90**	**551.04**
	Grand Total *	**131.54**	**161.58**	**854.06**

* Note: Figures may not total exactly due to rounding.

Table 5-4 2030 Total VOC & NO_x Emissions for St. Louis ozone NAA (tons per OSD)

State	Source Category	VOC	NO_x
Missouri	Point Sources	14.31	93.08
	Area Sources	68.80	13.03
	Onroad Mobile Sources	18.42	25.57
	Nonroad Sources	30.01	29.90
	Total *	**131.54**	**161.58**
Illinois	Point Sources	8.53	16.93
	Area Sources	18.05	1.51
	Onroad Mobile Sources	3.76	6.71
	Nonroad Sources	5.09	11.31
	Total *	**35.43**	**36.46**
	Grand Total *	**166.97**	**198.04**

* Note: Figures may not total exactly due to rounding.

Table 5-5 Comparison of 2014 and 2030 VOC & NO_x in the St. Louis ozone NAA (tons per OSD)

State	Source Category	VOC	NO_x
Missouri	Point Sources	0.45	11.38
	Area Sources	-1.01	6.56
	Onroad Mobile Sources	-73.99	-144.51
	Nonroad Sources	-3.41	-8.54
	Total *	**-77.96**	**-135.11**
Illinois	Point Sources	-0.84	-6.36
	Area Sources	-1.00	-0.02
	Onroad Mobile Sources	-6.36	-20.24
	Nonroad Sources	-2.38	-13.31
	Total *	**-10.58**	**-39.93**
	Grand Total *	**-88.54**	**-175.04**

*Negative value indicates a decrease of emission between base and future years

The projected decreases in NO_x and VOC emissions from 2014 to 2030 are primarily due to decreases in the onroad mobile and nonroad source categories. Average ozone season daily NO_x and VOC emissions in the St. Louis area from these two categories are projected to decrease by approximately 186.60 tons/day (72%) and 86.15 tons/day (60%), respectively.

The maintenance demonstration is based on the comparison of the actual emission levels in 2014 and the projection of emissions in the future year (2030) of the plan. Because the area attained the NAAQS in 2015, this is expected to be a level of emissions suitable to maintain the level of the NAAQS. Because aggregate emissions in both pollutant categories in 2030 are expected to be less than 2014 actual levels, this satisfies the maintenance demonstration under the 2008 ozone NAAQS for the St. Louis (MO) ozone NAA.

As mentioned above, additional details about the 2014 and 2030 emission inventories can be found in Appendices B and D, respectively. It should also be noted that the emissions projections included here do not reflect the reductions expected from a range of measures being implemented to reduce diesel emissions in the St. Louis ozone NAA. These measures include —

- 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 (ARRA) grant projects
- *Control of Heavy Duty Diesel Vehicle Idling Emissions Rule*, 10 CSR 10-5.385

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

the base or future year inventories, reductions for these items are not included in the emission estimates provided in this document and are not relied upon in inventories.

5.2 Interim Year Emission Inventory: 2020

The program has developed an Interim Emission inventory for the St. Louis (MO) ozone NAA. Interim year 2020 is the midway point between 2014, the base year of the maintenance plan, and 2030, 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 ozone NAA will continue to comply with 2008 8-hour ozone NAAQS for the duration of the maintenance period addressed in this plan.

All assumptions and controls used in developing the projected 2030 emission inventory in Chapter 5.1 were also used to project the 2020 inventory. Table 5-6 summarizes the emissions for point, area, onroad mobile, and nonroad sources that are projected for 2020 for the St. Louis (MO) ozone NAA. Table 5-7 summarizes the emissions for point, area, onroad mobile, and nonroad sources that are projected for 2020 for the St. Louis ozone NAA.

Table 5-8 compares emissions for the years 2014 and 2020 for the St. Louis ozone NAA. Table 5-8 shows the differences by source category along with the total changes in emissions for each pollutant listed. As shown in the table, NO_x and VOC emissions within the NAA are expected to decrease significantly between 2014 and 2020. NO_x emissions are expected to drop 142.93 tons per OSD (38%), while VOC reductions are about 77.54 tons per OSD (30%) over the projected period. Based on these emissions trends for NO_x and VOC, it is expected that air quality will continue to meet the 2008 8-hour ozone NAAQS throughout the maintenance period.

Table 5-6 2020 VOC, NO_x & CO Emissions for St. Louis (MO) ozone NAA (tons per OSD)

County Name	Source Category	VOC	NO_x	CO
Franklin County	Point Sources	2.50	30.92	16.95
Jefferson County		1.75	23.58	9.95
St. Charles County		4.17	8.82	4.32
St. Louis County		3.06	21.19	16.12
St. Louis City		2.84	4.09	6.58
	Total *	**14.32**	**88.6**	**53.92**
Franklin County	Area Sources	5.87	3.11	3.72
Jefferson County		5.38	1.18	5.61
St. Charles County		11.39	2.41	9.76
St. Louis County		35.03	6.37	34.79
St. Louis City		11.16	3.79	2.62
	Total *	**68.86**	**16.87**	**56.51**
Franklin County	Onroad Mobile Sources	7.89	5.99	52.09
Jefferson County		2.41	4.99	31.74
St. Charles County		3.90	7.89	50.28
St. Louis County		10.47	23.60	147.97
St. Louis City		1.97	3.95	25.19
	Total *	**26.64**	**46.42**	**307.27**

County Name	Source Category	VOC	NO_x	CO	
Franklin County	Nonroad Sources		2.06	4.03	17.52
Jefferson County			2.17	2.19	29.69
St. Charles County			4.21	5.28	62.99
St. Louis County			17.84	12.65	327.21
St. Louis City			2.44	4.13	47.93
		Total *	**28.71**	**28.27**	**485.35**
		Grand Total *	**138.53**	**180.16**	**903.05**

* Note: Figures may not total exactly due to rounding.

Table 5-7 2020 Total VOC & NO_x Emissions for St. Louis ozone NAA (tons per OSD)

State	Source Category	VOC	NO_x
Missouri	Point Sources	14.32	88.6
	Area Sources	68.86	16.87
	Onroad Mobile Sources	26.64	46.42
	Nonroad Sources	28.71	28.27
	Total *	**138.53**	**180.16**
Illinois	Point Sources	9.03	16.81
	Area Sources	18.39	1.51
	Onroad Mobile Sources	6.38	13.22
	Nonroad Sources	5.65	18.44
	Total *	**39.45**	**49.98**
	Grand Total *	**177.98**	**230.14**

* Note: Figures may not total exactly due to rounding.

Table 5-8 Comparison of 2014 and 2020 VOC & NO_x in the St. Louis ozone NAA (tons per OSD)

State	Source Category	VOC	NO_x
Missouri	Point Sources	0.46	6.9
	Area Sources	-0.95	10.4
	Onroad Mobile Sources	-65.77	-123.66
	Nonroad Sources	-4.71	-10.17
	Total *	**-70.97**	**-116.53**
Illinois	Point Sources	-0.35	-6.48
	Area Sources	-0.67	-0.02
	Onroad Mobile Sources	-3.73	-13.72
	Nonroad Sources	-1.83	-6.18
	Total *	**-6.57**	**-26.40**
	Grand Total *	**-77.54**	**-142.93**

*Negative value indicates a decrease of emission between base and future years

5.3 Future Federal Control Measures

There are several federal control measures that have recently been proposed or promulgated that are expected to greatly reduce the amount of NO_x and VOC emissions in the St. Louis ozone NAA. The control measures expected to have the greatest effect on NO_x and VOC emissions in the St. Louis ozone NAA include the federal CSAPR with respect to 2008 and 2015 ozone NAAQS, Tier 3 vehicle and fuel standards, and the phase in of Tier 4 emission standards for nonroad engines. The effects of Tier 3 engine and fuel standards for onroad mobile emissions are

included in MOVES estimates for years 2017 and beyond, but Tier 4 standards for nonroad equipment are not reflected in future year inventories as they are not yet incorporated in the model.

CSAPR and the improved federal mobile source regulations were both considered when developing the future emissions inventory in order to demonstrate continued maintenance with the 2008 8-hour ozone NAAQS, which shows that projected future year NO_x and VOC emissions in the St. Louis ozone NAA will remain below the levels experienced during the attainment year. Under the proposed CSAPR update with respect to 2008 8-hour ozone NAAQS, which begins with the 2017 ozone season, ozone season NO_x emissions budgets for EGUs decrease by 30% for covered sources in Missouri. As stated earlier, federal motor vehicle and nonroad engine standards are only expected to be tightened in the future, which will also contribute to NO_x and VOC emission reductions. These recent and anticipated future federal control measures are expected to result in continued decreases in NO_x and VOC emissions both nationwide and in the St. Louis ozone NAA. These measures will greatly assist current and ongoing efforts in the St. Louis area to maintain compliance with the 2008 8-hour ozone NAAQS.

Tier 3 vehicle and fuel standards will be implemented in 2017 with full compliance required by 2025. Tier 3 requires all passenger vehicles to meet an average standard of 0.03 gram/mile of NO_x. Compared to Tier 2, the Tier 3 tailpipe standards for light-duty vehicles are expected to reduce NO_x and VOC emissions by approximately 80%. Tier 3 vehicle standards also include evaporative standards using onboard diagnostics (OBD) that will result in a 50% reduction in VOC emissions over Tier 2. The rule reduces the sulfur content of gasoline to 10 ppm starting in January 2017. These emission reductions will be federally enforceable.

5.4 New Source Review: Permitting New or Modified Emissions Sources

In accordance with the CAA, Missouri has a long-standing and fully implemented NSR permitting program for new major sources and significant modifications of existing sources enabled by State rule 10 CSR 10-6.060 *Construction Permits Required.* This NSR program in any attainment area is referred to as a Prevention of Significant Deterioration (PSD) permitting program. One of the major components of the PSD program is the implementation of Best Available Control Technology (BACT) on new major sources or significant modification of existing major sources. Missouri has been delegated full authority to implement the PSD program by EPA. In addition, the State of Missouri is fully committed to continuing its NSR permitting program for NAAs which makes new major sources and significant modifications of existing sources subject to the Lowest Achievable Emission Rate (LAER) as well as offsets and an alternate site analysis pursuant to the CAA.

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, including rounding down to the nearest whole credit. These credits are intended to be used for NSR offset purposes in NAAs and for PSD increment purposes in areas designated attainment. However, these credits are only one aspect of obtaining a permit under Missouri's EPA approved permitting program, and do not alleviate any source

from undergoing a NAAQS impact analysis in any area. Nor do these credits alleviate any source from implementing BACT requirements for PSD permits in attainment areas or LAER/alternative site analysis requirements in NAAs. 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 2008 ozone NAAQS. Table 5-9 shows the 2015 and 2030 NO_x, VOC and CO banked emissions in the St. Louis ozone NAA. To determine the 2030 banked emissions, the program conservatively assumed that all emissions remained banked between 2014 and 2030.

Table 5-9 2014 and 2030 Emissions Banking and Trading Balances

Facility ID	Facility Name	Pollutant	2014 Emission Reduction Credits (tons/year)	2030 Emission Reduction Credits (tons/year)
099-0014	The Dow Chemical Company	VOC	68	35
189-0015	Ford Motor Company	VOC	574	346
189-0015	Ford Motor Company	NO_x	21	5
189-0015	Ford Motor Company	CO	14	0
189-0235	Hussman Corporation	VOC	83	45
071-0031	Jefferson Smurfit Corporation	VOC	117	64
510-0118	JW Aluminum	VOC	800	485
510-0017	Mallinckrodt Chemical	VOC	119	66
189-0257	Quebecor World USA Corp	VOC	8	0

Because these banked emissions could be purchased and then emitted in 2030, the air program is applying these to the potential future year inventory to ensure all future emissions are accounted for. Since the banked credits exist at a facility-level and total annual aggregation, it is impossible to separate these out meaningfully to OSD emissions based on how they were banked by the originating facility or by potential facility purchaser. It is assumed that the emissions are evenly distributed in 2030 by dividing the annual emissions by the number of days in the year, 365. Likewise, it is not possible to geographically limit the use of credits to within each county, and credits banked for ozone precursors in the ozone nonattainment counties could be used within the area. With these conditions in mind and that no CO emissions remain in 2030 after annual depreciation, the 2030 OSD emissions are allocated to the St. Louis area as in Table 5-10.

Table 5-10 2030 Ozone Season Day Banked Emissions

County Identifier	County Name	2030 Annual Banked Emissions		2030 OSD Banked Emissions	
		VOC	NO_x	VOC	NO_x
071	Franklin	64	0	0.18	0
099	Jefferson	35	0	0.09	0
183	St. Charles	0	0	0	0
189	St. Louis County	391	5	1.07	0.01
510	St. Louis City	551	0	1.51	0
Area Total		1,041	5	2.85	0.01

The area total 2030 OSD banked emissions are used in the Transportation Conformity section where the safety margin and mobile budget are determined. The use of these banked emissions ensures that the future year inventory contains all possible emissions and will still demonstrate continued maintenance of the 2008 ozone NAAQS.

Therefore, Missouri has satisfied the requirements of both CAA Sections 110(a)(2)(C) & 172(c)(5) (which in turn satisfies a redesignation element of Section 107(d)(3)(E)(v)) for the 2008 ozone NAAQS through its approved NSR program.

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 CAA 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 only to those areas that are designated nonattainment, and those areas redesignated to attainment after 1990 ("maintenance areas") for transportation-related criteria pollutants: CO, ozone, NO_x, $PM_{2.5}$ and PM_{10}. The Transportation Conformity program for the St. Louis NAA is included in the SIP via State rule 10 CSR 10-5.480, *St. Louis Area Transportation Conformity Requirements.* The establishment of MVEBs for transportation conformity purposes is one of the redesignation elements of CAA Section 175A as mentioned in Chapter 2.

6.1 Motor Vehicle Emissions Budgets and Safety Margin

6.1.1 Safety Margin

The phrase "safety margin" is the difference between the projected level (from all sources) and the attainment level of emissions (from all sources) in the maintenance plan according to 40 CFR 93.101. The attainment level of the emission is the level of emissions during one of the years in which the area met the NAAQS for the pollutant of concern. In this document, the attainment level year is the 2014 base year. The safety margin, or a percentage of the safety margin, can be allocated to the transportation sector. However, the total emissions must remain at or below the attainment level. Attainment level emissions are shown in Tables 5-1 and 5-3 in the Maintenance Demonstration section. The safety margin for each projected year and banked emission reduction is listed below in Table 6-1.

Table 6-1 Safety Margin for each County (tons per OSD)

County	2014 VOC	2014 NO_x	2030 VOC	2030 NO_x	VOC Safety Margin	NO_x Safety Margin
St. Louis Area Total	209.49	296.69	131.55	161.58	77.94	135.11
Area Total 2030 Banked Emissions					**2.85**	**0.01**
Reduced Safety Margin					**75.09**	**135.10**

* Note: Figures may not total exactly due to rounding.

The safety margin for the area is reduced by the amount of banked emissions that are possible in 2030 from Table 5-9. This reduction will ensure that future year mobile budgets will be set at a level that maintains total emissions below the level of the attainment year 2014, including possible banked emissions.

6.1.2 Motor Vehicle Emissions Budgets

40 CFR Part 93 requires emission budgets to be allocated for the on-road mobile sources in St. Louis ozone NAA. Transportation authorities must follow these budgets to assure that transportation plans, programs, and projects are consistent with, and conform to, the maintenance of acceptable air quality in St. Louis ozone NAA throughout the term of the maintenance plan. The presumptive mobile budget for the area begins with the onroad 2030 mobile emission total. The program then applies eighty percent (80%) of the available margin of safety to the future year projected mobile emissions. The budget appears in the calculations in Tables 6-2 and 6-3 below. The unshaded rows show what the budget could be without taking into account banked emissions. The shaded last rows of the table account for banked emissions from Table 6-1 and are the final motor vehicle emission budget numbers to be used in transportation conformity. For example, the 2030 onroad VOC emissions of 18.42 are the starting budget amount. Eighty percent of the safety margin (75.09 * 0.80), after reduction by the banked emission amount, is applied to the onroad VOC amount (18.42 + 60.07). The motor vehicle budget for the Missouri portion of the nonattainment area is summarized in Table 6-4.

Table 6-2 Onroad Motor Vehicle VOC Emission Budgets (tons per OSD)

County	2014 Onroad VOC	2030 Onroad VOC	Safety Margin VOC	Applied Safety Margin VOC	Remaining Safety Margin VOC	MVEB VOC
St. Louis Area Total	63.92	18.42	77.94	62.35	15.58	80.77
Reduced Safety Margin Budget Calculation			**75.09**	**60.07**	**15.02**	**78.49**

Table 6-3 Onroad Motor Vehicle NO_x Emission Budgets (tons per OSD)

County	2014 Onroad NO_x	2030 Onroad NO_x	Safety Margin NO_x	Applied Safety Margin NO_x	Remaining Safety Margin NO_x	MVEB NO_x
St. Louis Area Total	170.08	25.57	135.11	108.088	27.022	133.658
Reduced Safety Margin Budget Calculation			**135.10**	**108.08**	**27.02**	**133.65**

Table 6-4 Onroad Motor Vehicle 2030 Total Emission Budgets (tons per OSD)

2030 St. Louis Area Budget	VOC	NO_x
	78.49	133.65

7. Contingency Measures

This maintenance plan includes a list of contingency measures as specified in CAA Section 175(A). Contingency measures are to be used to further reduce emissions in the event that future violations of the 2008 8-hour ozone NAAQS occur after redesignation to attainment. While these measures do not need to be fully adopted by MACC prior to the occurrence of a NAAQS violation, the contingency measures are expected to be implemented as expeditiously as practicable 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 program will consider.

The program has developed a contingency plan for what will be the St. Louis (MO) ozone maintenance area. The contingency plan which details the Level I and Level II triggers and corresponding actions to be taken is summarized in Table 7-1. The potential contingency measures, to be evaluated after a triggering event, are listed in Table 7-2. Consistent with this contingency plan, the program agrees to adopt and implement, as expeditiously as is practicable, the necessary corrective actions in the event that violations of the 2008 8-hour ozone NAAQS occur anywhere within the St. Louis ozone maintenance area after redesignation to attainment. The implementation of contingency measures under Level I or Level II triggers will take place as expeditiously as practicable, but in no event later than twenty-four (24) months after the program makes a determination that a trigger has occurred, based on quality-assured ambient data that has been entered into AQS.

The contingency plan provides for different levels of corrective responses should the ambient 8-hour ozone levels exceed the NAAQS in any year. A Level I warning would occur in the event that the fourth highest 8-hour ozone concentration at any monitoring site in the St. Louis maintenance area (including sites in Missouri and Illinois) exceeds 79 ppb in any year. The program will evaluate the air quality and determine if adverse emission trends are likely to continue. The evaluation shall be completed as expeditiously as possible, but no later than 24 months after the program has determined that a Level I trigger has occurred. 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 2008 8-hour ozone NAAQS at any monitoring station in the St. Louis-Missouri maintenance area is recorded after it has been redesignated to attainment. A violation is based on the average of the last three (3) years' 4th highest maximum daily 8-hour average concentrations (40 CFR 50.15). The 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 II trigger; however, federal actions that require control measures may also be taken into account when the analysis to determine the cause of a future violation occurs. These additional

federal actions, while not actual contingency measures, may be evaluated in the event of a trigger to determine their effect on expected emissions 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 onroad vehicle standards, future federal nonroad engine standards for marine and locomotive engines and any future federal emission trading programs designed to address future ozone NAAQS promulgations such as CSAPR. Furthermore, the program remains committed to addressing future ozone NAAQS revisions through SIPs. 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 II triggering event.

The program commits to compiling CO, NO_x and VOC emissions inventories for the St. Louis maintenance area every three years for the duration of the maintenance plan to facilitate the emissions trends analysis included in the contingency plan under Levels I and II. Since St. Louis is a bi-state NAA, the program commits to work with IEPA 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 2008 8-hour ozone NAAQS.

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

Table 7-1 Contingency Plan for St. Louis (MO) 2008 Ozone Maintenance Area

Contingency Measure Trigger	Action to be Taken
Level I Trigger Fourth highest monitored 8-hour average ozone concentration exceeding 79 ppb in any year at any monitoring station in the St. Louis, MO-IL maintenance area.	The program will evaluate the air quality to determine what caused the exceedance and whether the trend will continue. The evaluation shall be completed as expeditiously as possible but no later than 24 months after the program has determined 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 program will conduct a thorough analysis to determine appropriate measures to address the cause of the violation. Analysis shall be completed within 6 months after the trigger occurs. 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 AQS database indicating that this trigger has occurred.

Table 7-2 Potential Contingency Measures for St. Louis (MO) 2008 Ozone Maintenance Area

List of Potential Contingency Measures to be Considered

• Identify local sources with significant NO_x and/or VOC emissions and develop controls through rules, NSR/PSD permits or consent agreements (e.g. For major NO_x sources — boilers, cement kilns & incinerators);
• Work with MODOT and EWGW to implement transportation control measures (TCMs) through the Transportation Planning Process;
• Lower the applicability thresholds in existing rules that control NO_x and VOC;
• Lower the emission limits in existing rules:
  o Review current state of control technologies. Reference RACT/BACT/LAER Clearinghouse for new ideas.
  o Revisit the 1997 ozone RACT determination and update RACT plan accordingly.
• Develop new or strengthen Alternative Control Techniques (ACTs) for NO_x sources & CTGs for VOC sources;
• Develop rules to address contributing parts of Missouri outside of St. Louis ozone NAA;
• Enhance Heavy-Duty Diesel Anti-Idling Program (e.g. mandated rest periods and locomotives);
• Update 10 CSR 10-6.130 *Controlling Emissions During Episodes of High Air Pollution Potential:*
  o Lower the alert / action trigger levels.
  o Amend rule to require alert / action level abatement plans at more facilities.
  o Require existing abatement plans be amended with more current emission reduction measures (e.g. telecommuting at major facility would lower vehicle CO, VOC, NO_x emissions)
• Review other States or multi-state organizations' rules that reduces VOC or NO_x emissions and determine their applicability and effectiveness in enchasing air quality.
  o Example: review the Ozone Transport Commission (OTC) model rules that placed controls on Architectural and Industrial Maintenance (AIM) coatings.

8. Conclusion

The St. Louis ozone NAA has attained the 2008 0.075 ppm 8-hour ozone NAAQS and has complied with the applicable provisions of the CAA required of marginal ozone NAAs. Missouri has supported all of EPA's redesignation obligations under CAA Section 107 and has addressed all the applicable maintenance plan requirements of CAA Section 175A. This plan submission serves as the official redesignation request for the Missouri portion of the St. Louis marginal NAA under the 2008 ozone NAAQS to be considered for approval concurrently with the maintenance plan also contained herein.

The program has prepared this maintenance plan to provide for the continued attainment of the 2008 8-hour ozone NAAQS for a period of ten years after EPA has formally redesignated the area to attainment. This plan also supplies adequate contingency measures for potential, additional emissions reductions in the event of future violations of the 2008 8-hour ozone NAAQS.

The program has prepared a comprehensive emissions inventory of the precursors of ozone completed for the "attainment" year 2014, and has prepared projections of the emissions inventory to 2030. These emissions projections indicate that emissions levels in the St. Louis ozone NAA will continue to decrease from attainment year 2014 levels, thereby maintaining the ozone NAAQS in future years. The state commits to continue to operate an appropriate air quality monitoring network to verify the maintenance of the attainment status once the area has been redesignated. The program has the legal authority to implement and enforce all control measures. This maintenance plan has been prepared in accordance with the requirements of the CAA and in conjunction with EPA staff and guidance documents.

On October 26, 2015, EPA tightened the 8-hour ozone standard to 0.07 ppm (or 70 ppb) [80 FR 65292]. As a part of the implementation of this newly revised standard, EPA is expected to revoke the 2008 ozone standard. Therefore, upon redesignation to attainment by EPA, this plan will conclude any obligations under the 2008 ozone standard for the St. Louis (MO), Missouri area. This will allow the Missouri Department of Natural Resources' Air Pollution Control Program to focus its resources on addressing the newly-revised and more protective standard.