MISSOURI
DEPARTMENT OF
NATURAL RESOURCES

Introduction to Air Quality Planning and State Implementation Plans

REGFORM
Missouri Air Compliance Seminar
November 10, 2022

Overview

- What is a National Ambient Air Quality Standard (NAAQS)?
- What is a State Implementation Plan (SIP)?
  - What are the different types of SIP submissions?
  - What are the required components of the different types of SIPs?
- What statutory restrictions or requirements for SIP development exist in Missouri?
- What are EPA's obligations with regard to SIP submissions?
- What happens if a state doesn't submit a SIP or if EPA disapproves a SIP submission?
- How is compliance with the NAAQS determined?
- What are the air quality concentrations in Missouri?

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What is a National Ambient Air Quality Standard?

- The Clean Air Act requires EPA to set outdoor air quality standards
  - Primary standards - EPA must set at a level that is protective of public health with an adequate margin of safety
  - Secondary standards - EPA must set at a level that is protective of public welfare (effects on crops, vegetation, property, etc.)

Clean Air Act Section 108

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What is a National Ambient Air Quality Standard?

- There are six different pollutants for which EPA has set National Ambient Air Quality Standards (NAAQS)
  - Ozone, Particulate Matter, Sulfur Oxides, Nitrogen Oxides, Carbon Monoxide, and Lead
  - These are referred to as "criteria pollutants"
- EPA must review each NAAQS every five years to determine if the standard is still protective in light of any new scientific studies or information – EPA must revise the standard if necessary

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What is a State Implementation Plan?

- A SIP is a State's comprehensive plan to address and implement all the provisions of the Clean Air Act
- A SIP is federally enforceable and EPA must approve any revisions to the SIP
- Missouri's federally approved SIP is codified at 40 CFR 52.1320. It includes –
  - Missouri Air Regulations;
  - Source-Specific Permits and Orders; and
  - Non-regulatory and Quasi-regulatory Provisions

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What are the Different Types of SIP Submissions?

- Infrastructure SIPs
  - Required by all states for all NAAQS
- Nonattainment Area SIPs
  - Required for all areas designated nonattainment for a NAAQS
- Maintenance SIPs
  - Required for nonattainment areas that come into compliance with a NAAQS
- Regional Haze SIPs
  - Required by all states to address visibility in Federal Class I areas
- General Rulemakings, Amendments, and Rescissions
  - Subject to CAA Section 110(l) anti-backsliding requirements

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What are the Required Components of the Different Types of SIPs?

Infrastructure SIP Requirements - CAA 110(a)(2)

- States required to submit within three years after the promulgation of a new or revised NAAQS
- Must demonstrate adequate resources and authority to implement the NAAQS, e.g. –
  - Permitting
  - Monitoring
  - Modeling
  - Emission Inventory Development
  - Rulemaking Authority
- Includes the Good Neighbor or Interstate Transport Provisions

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What are the Required Components of the Different Types of SIPs?

Good Neighbor or Interstate Transport Requirements – CAA 110(a)(2)(D)(i)(I)

- SIPs must contain adequate provisions to prevent emissions in their state from contributing significantly to nonattainment or interfering with maintenance of a NAAQS in all downwind states

- States can submit these plans as part of their infrastructure SIP or as a separate submission due to the complexity of the required demonstration

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What are the Required Components of the Different Types of SIPs?

Nonattainment Area SIP Requirements – CAA Part D

General Provisions – CAA 172(c)

- Reasonably Available Control Measures, Reasonable Available Control Technology
- Attainment Demonstration
- Reasonable Further Progress (RFP) Demonstration
- Baseline Emission Inventory and Periodic Updates
- Nonattainment Area Permitting Requirements
- Contingency Plan

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What are the Required Components of the Different Types of SIPs?

Additional Nonattainment Area SIP Requirements for Ozone – CAA 181-185

- Ozone nonattainment areas are classified based on the severity of the air quality problem
  - Marginal
  - Moderate
  - Serious
  - Severe
  - Extreme

- Areas that do not attain by the attainment deadline get reclassified to the next higher classification

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What are the Required Components of the Different Types of SIPs?

Additional Nonattainment Area SIP Requirements for Marginal and Moderate Ozone Areas – CAA 182

Marginal Areas	Moderate Areas
• Emission Inventory, Periodic Updates, Emission Statements • Nonattainment Area Permitting • Offset Requirement: 1.1 - 1 • Corrections to RACT and Vehicle Inspection and Maintenance (I/M) Programs	• All elements for marginal areas • NO_x RACT and VOC RACT • Attainment Demonstration • 15 Percent RFP Plan • Contingency Plan • Basic I/M Program • Offset Requirement: 1.15 - 1

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What are the Required Components of the Different Types of SIPs?

Additional Nonattainment Area SIP Requirements for Carbon Monoxide and Particulate Matter – CAA 186-190

- Carbon Monoxide and Particulate Matter nonattainment areas are classified based on the severity of the air quality problem
  - Moderate
  - Serious

- Moderate areas that do not attain by the attainment deadline get reclassified to Serious

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What are the Required Components of the Different Types of SIPs?

Maintenance Plan Requirements – CAA 175A

- An approved maintenance plan is a required component for an area to be redesignated to attainment
- The plan must demonstrate maintenance for a 10-year period <u>following EPA approval</u>
- It must include a contingency plan in the event of a violation after the area is redesignated to attainment
- A second maintenance plan is required 8 years after the area is redesignated to attainment

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What are the Required Components of the Different Types of SIPs?

Regional Haze/Visibility Requirements – CAA 169A and 169B

- State must address man-made visibility impairment to all Federal Class I areas (National Parks, Wilderness Areas, and Forests)
- National goal – natural visibility in all Class I areas by 2064
- Original Regional Haze plans were due in 2008
  - Included Best Available Retrofit Technology (BART) Analysis
- Progress reports due every 5 years
- Full plan revisions due every 10 years

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What are the Required Components of the Different Types of SIPs?

Regional Haze/Visibility Requirements – CAA 169A and 169B

Required components for Periodic Revisions (40 CFR 51.308f)

- Monitoring Requirements
- Baseline Emissions and Visibility Levels
- Current Emissions and Visibility Levels
- Natural Visibility Levels
- Rate of Progress (i.e. Glidepath)
- Four-Factor Analysis

  1) Cost; 2) Time Needed for Compliance; 3) Energy and Non-Air Quality Environmental Impacts; and 4) Remaining Useful Life
- Reasonable Progress Goals
- Long Term Strategy

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What are the Required Components of the Different Types of SIPs?

General Rulemakings, Amendments, and Rescissions

- Missouri air regulations codified in Title 10, Chapter 10 of the Missouri Code of State Regulations
- New rules or amendments may be needed for permanent and enforceable requirements that states rely upon in SIP revisions
- Any amendments or rescissions are subject to CAA 110(l)
  - EPA cannot approve any SIP revisions that interfere with attainment, reasonable further progress, or any other CAA requirement

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What are the Required Components of the Different Types of SIPs?

All SIP Revisions – Public Notice and Comment

- The state must hold a public notice and comment period and a public hearing
- State must respond to all comments received
- All EPA approvals and disapprovals are subject to public notice and comment periods
- Missouri's federally approved SIP – 40 CFR 52.1320

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What Statutory Restrictions or Requirements for SIP Development Exist in Missouri?

RSMo 643.050 Powers and Duties of the Commission

Authorities	Responsibilities
• Adopt, promulgate, amend, and repeal rules and regulations consistent with the purpose of the Missouri Air Law – • Establish areas of the state and prescribe air quality standards for such areas giving recognition to the different characteristics of the areas • Require emission sources to monitor or test emissions and to report the information	• Prepare and Develop a comprehensive plan with respect to prevention, abatement, and control of air pollution • Encourage voluntary cooperation by persons or affected groups to achieve the purposes of the Missouri Air Law • Encourage and conduct studies, investigations, and research • Collect and disseminate information and conduct education and training programs • Represent Missouri in all matters pertaining to interstate air pollution

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What Statutory Restrictions or Requirements for SIP Development Exist in Missouri?

RSMo 643.055 Compliance with Federal Law

- The commission has authority to promulgate rules, regulations, standards, and guidelines to ensure Missouri is in compliance with the provisions of the Clean Air Act
- The rules, regulations, standards, and guidelines shall <u>not</u> be any stricter than those required by the Clean Air Act, or enforced sooner than required by the Clean Air Act
- Parts of a SIP developed to bring a nonattainment area into compliance may be more strict than the Clean Air Act when needed to have an EPA approved SIP

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What Statutory Restrictions or Requirements for SIP Development Exist in Missouri?

RSMo 643.060, 643.073, 643.190 Powers and Duties of the Director

Authorities	Responsibilities
• Employ individuals as needed to administer and enforce the provisions of the Missouri Air Law • Accept and administer grants and contracts to implement the provisions of the Missouri Air Law • Investigate complaints • Issue orders and take all actions necessary to administer the provisions of the Missouri Air Law	• Administer and enforce the provisions of the Missouri Air Law • Receive and act upon reports, plans, specifications and applications submitted under rules promulgated by the commission • Budget and receive funding and grants to administer the Missouri Air Law • Accept, review, and issue operating and construction permits in accordance with rules established by the Missouri Air Conservation Commission • Participate in proceedings under the Clean Air Act and recommend measures for the reduction of air pollution originating within the state

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What are EPA's Obligations with Regard to SIP Submissions?

CAA Section 110(k) - EPA action on SIP submissions

- Completeness Determination – EPA has 6 months to determine whether a SIP submission is complete. If six months pass without EPA action, the SIP submission is deemed complete by operation of law.
- EPA Deadline for Action – EPA has 12 months following a completeness determination to act on the submission (approve, disapprove, partially approve and partially disapprove, or conditionally approve)

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What Happens if a State Doesn't Submit a SIP or if EPA Disapproves a SIP Submission?

CAA Section 110(c) – Federal Implementation Plans (FIPs)

- EPA must promulgate a FIP within 2 years if they disapprove a plan submission, or if they find a state failed to submit a complete plan by a required deadline
- If a state submits and EPA approves a SIP revision to address the disapproval or the failure to submit before EPA promulgates a FIP, then no FIP is required

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What Happens if a State Doesn't Submit a SIP or if EPA Disapproves a SIP Submission?

CAA Section 179 – Sanctions for Nonattainment Area SIPs

- If EPA finds that a state did not submit a nonattainment area SIP by the deadline or if EPA disapproves a nonattainment area SIP, it establishes an 18 month deadline for <u>mandatory</u> sanctions
- EPA picks the first sanction to occur 18 months after the finding, unless the SIP deficiency is corrected
  - Highway Sanctions – Withholding of federal highway dollars for projects located in the nonattainment area
  - Offset Sanctions – Permitting of new major sources or major modifications require emissions to be offset at a ratio of 2:1
- If the SIP deficiency is not corrected within two years after the finding, <u>both</u> sanctions become mandatory

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What Happens if a State Doesn't Submit a SIP or if EPA Disapproves a SIP Submission?

CAA Section 110(m) – Sanctions for Other SIPs

For states that fail to submit a SIP that is not a nonattainment area SIP, or if EPA disapproves a SIP that is not a nonattainment area SIP, EPA has <u>discretion</u> to apply the same two sanctions that are mandatory for nonattainment SIP deficiencies

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How is Compliance with National Ambient Air Quality Standards Determined?

- The Department's air quality monitoring network measures the air quality concentrations in areas around the state to determine whether the air quality is meeting the NAAQS and to measure visibility in our two federal Class I areas

- The Department updates the air quality monitoring network plan annually, and completes a comprehensive review of the network plan every five years

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What are the Air Quality Concentrations in Missouri?

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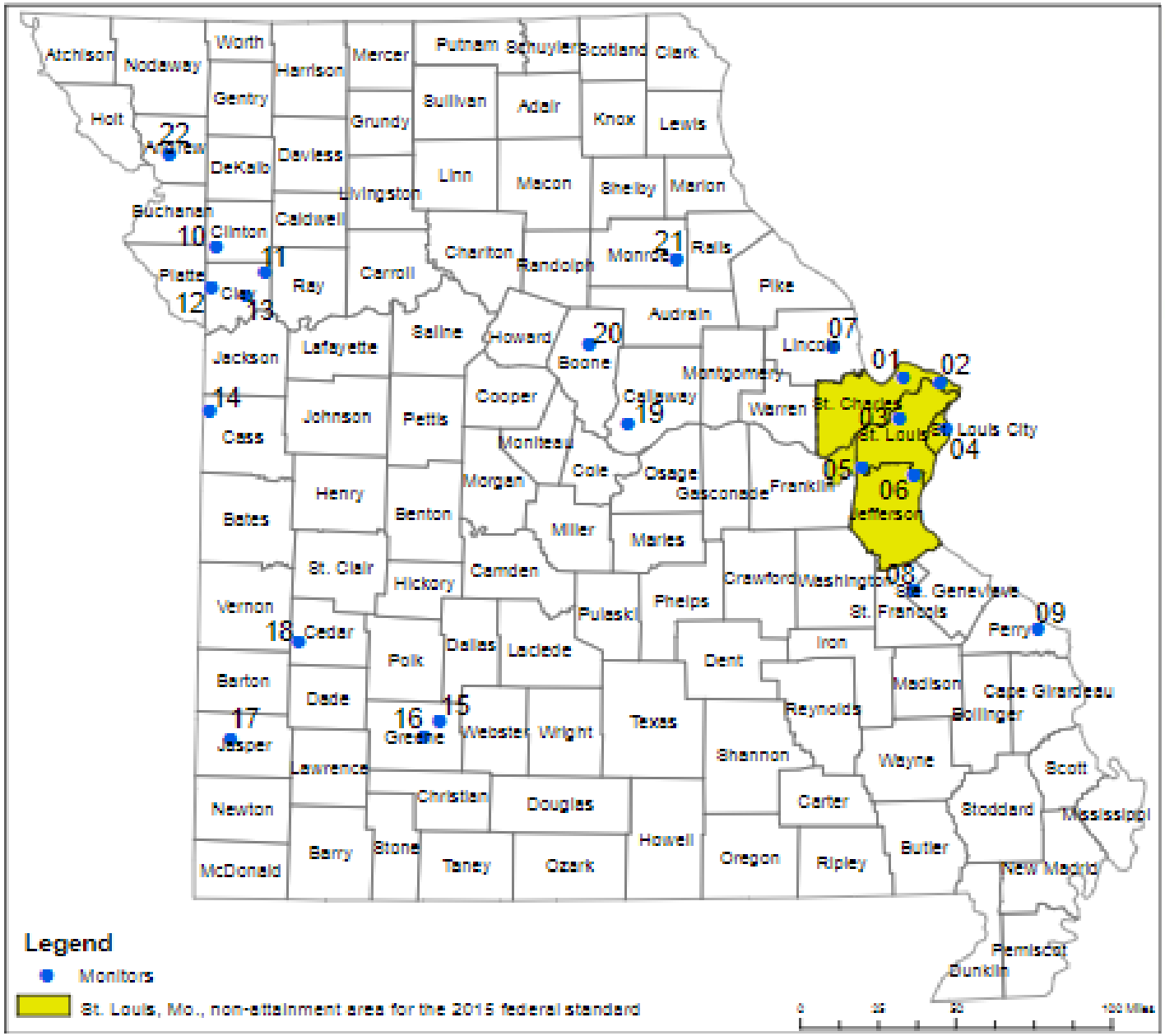
Missouri Ozone (O3) Monitoring Network, 2022



St. Louis Area
- 01 Orchard Farm
- 02 West Alton
- 03 Maryland Heights
- 04 Blair Street**
- 05 Pacific
- 06 Arnold West
- 07 Foley West

Ste. Genevieve Area
- 08 Bonne Terre

Southeast Area
- 09 Farrar

Kansas City Area
- 10 Trimble
- 11 Watkins Mill State Park
- 12 Rocky Creek
- 13 Liberty
- 14 Richards Gebaur-South

Springfield Area
- 15 Fellows Lake
- 16 Hillcrest High School

Outstate Area
- 17 Alba
- 18 El Dorado Springs
- 19 New Bloomfield
- 20 Finger Lakes State Park
- 21 Mark Twain State Park**
- 22 Savannah

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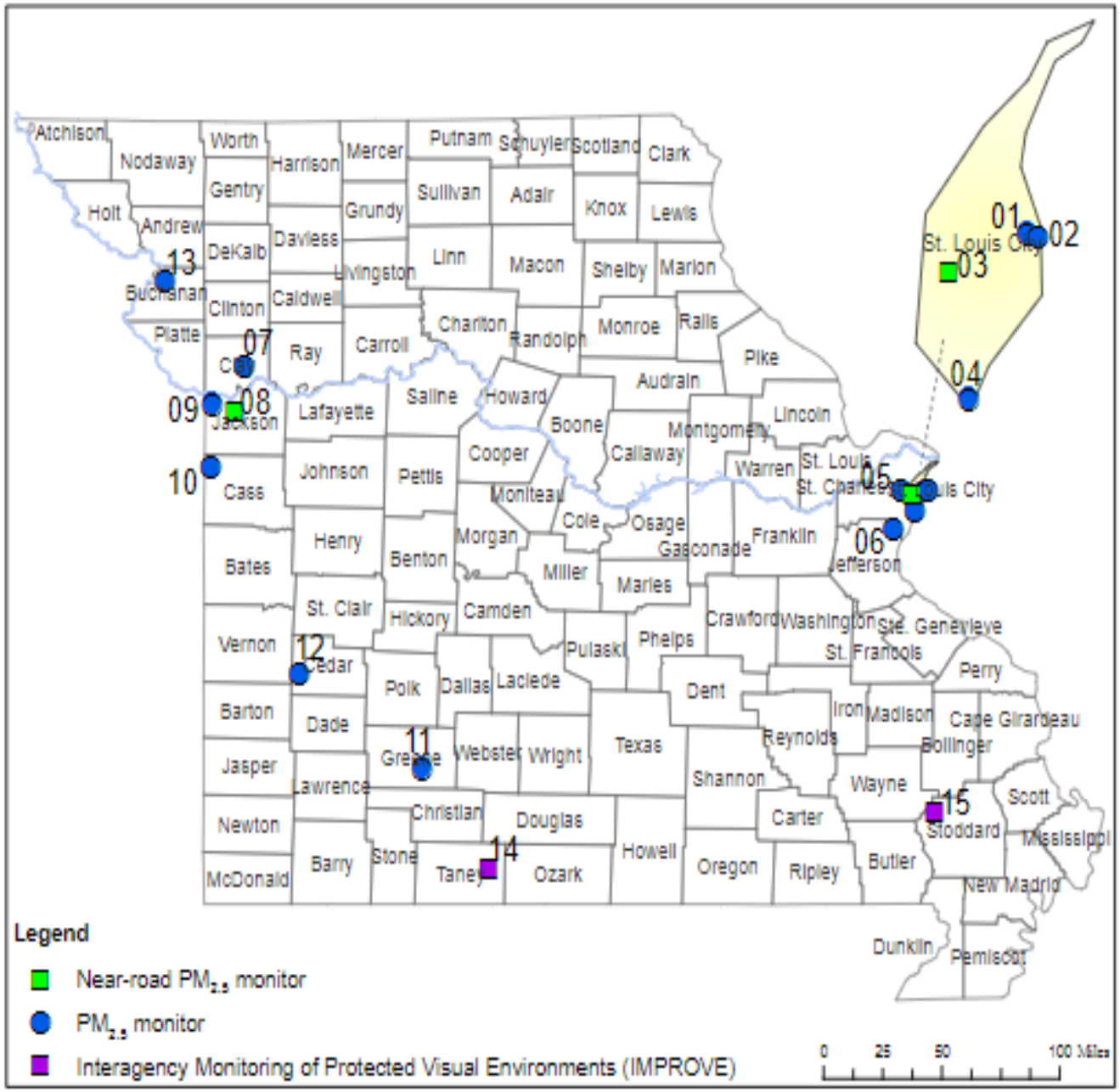
Eight-hour Ozone Design Values

Site	County	Design Values 19-21	Design Values Year-to-date 20-22 *
St. Louis			
Arnold West	Jefferson	68	68
Blair Street	St. Louis City	65	67
Foley West	Lincoln	63	64
Maryland Heights	St. Louis	69	68
Orchard Farm	St. Charles	66	65
Pacific	St. Louis	64	63
West Alton	St. Charles	68	69
Ste. Genevieve			
Bonne Terre	Ste. Genevieve	62	63
Southeast			
Farrar	Perry	62	64

Site	County	Design Values 19-21	Design Values Year-to-date 20-22*
Kansas City			
Liberty	Clay	64	66
RG South	Cass	61	61
Rocky Creek	Clay	66	68
Trimble	Clinton	62	63
Watkins Mill	Clay	64	65
Springfield			
Fellows Lake	Greene	57	59
Hillcrest H.S.	Greene	59	61
Outstate			
Alba	Jasper	60	63
El Dorado Springs	Cedar	57	60
Finger Lakes	Boone	57	57
Mark Twain	Monroe	55	54
New Bloomfield	Callaway	59	59
Savannah	Andrew	60	61

* 2022 data is preliminary and not yet quality assured or certified.

Missouri's $PM_{2.5}$ Monitoring Network, 2022



Site # Site Name

St. Louis Area
- 01 Blair Street
- 02 Branch Street**
- 03 Forest Park
- 04 South Broadway
- 05 Ladue
- 06 Arnold West

Kansas City Area
- 07 Liberty
- 08 Blue Ridge, I-70
- 09 Troost
- 10 Richard Gebaur-South

Springfield Area
- 11 Hillcrest High School

Outstate Area
- 12 El Dorado Springs
- 13 St. Joseph Pump Station
- 14 Hercules Glades
- 15 Mingo

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Annual $PM_{2.5}$ Design Values

Annual summary through November 6, 2022

Site	County	Design Values 19-21	Design Values Year-to-date 20-22 *
St. Louis			
Arnold West	Jefferson	7.4	7.9
Blair Street (Comb.)^	St. Louis City	9.0	8.6
Branch Street~	St. Louis City	9.7	9.4
Forest Park, I-64	St. Louis City	9.2	8.8
Ladue (Comb.)^	St. Louis	7.9	6.9
South Broadway	St. Louis City	7.8	7.3
Kansas City			
Liberty	Clay	6.2	6.0
Richards Gebaur South	Cass	6.5	6.3
Troost	Jackson	7.1	7.1
Blue Ridge, I-70	Jackson	7.9	7.9
Springfield			
Hillcrest High School	Greene	6.9	6.7
Outstate			
El Dorado Springs	Cedar	7.2	6.7
St. Joseph Pump Station	Buchanan	8.2	8.1

Current Standard
12 µg/m³

Combined Site Level Statistic

Unique Middle Scale Monitor – Not Comparable to Annual NAAQS

Does not Meet Completeness Criteria of 40 CFR 58

* 2022 data is preliminary and not yet quality assured or certified.

Conclusion

- The Air Program's Planning Section is tasked with recommending all revisions to the Missouri State Implementation Plan
  - We recommend actions for the commission with the aim of achieving all Clean Air Act requirements, while staying within the statutory authority of the Department and Commission
- Our top goal is to achieve attainment status of every NAAQS in every area of the state to ensure the health of all Missourians
- We encourage and promote voluntary efforts to improve air quality from all sources of air pollution in the state

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Accolades

The Air Program's Planning Section Team is the backbone behind the plan to achieve our objective

- A Special Thank You to:
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Questions

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