

# 2016 St. Louis Area Air Quality Report

Stephen Hall

Air Quality Analysis Section

Air Pollution Control Program

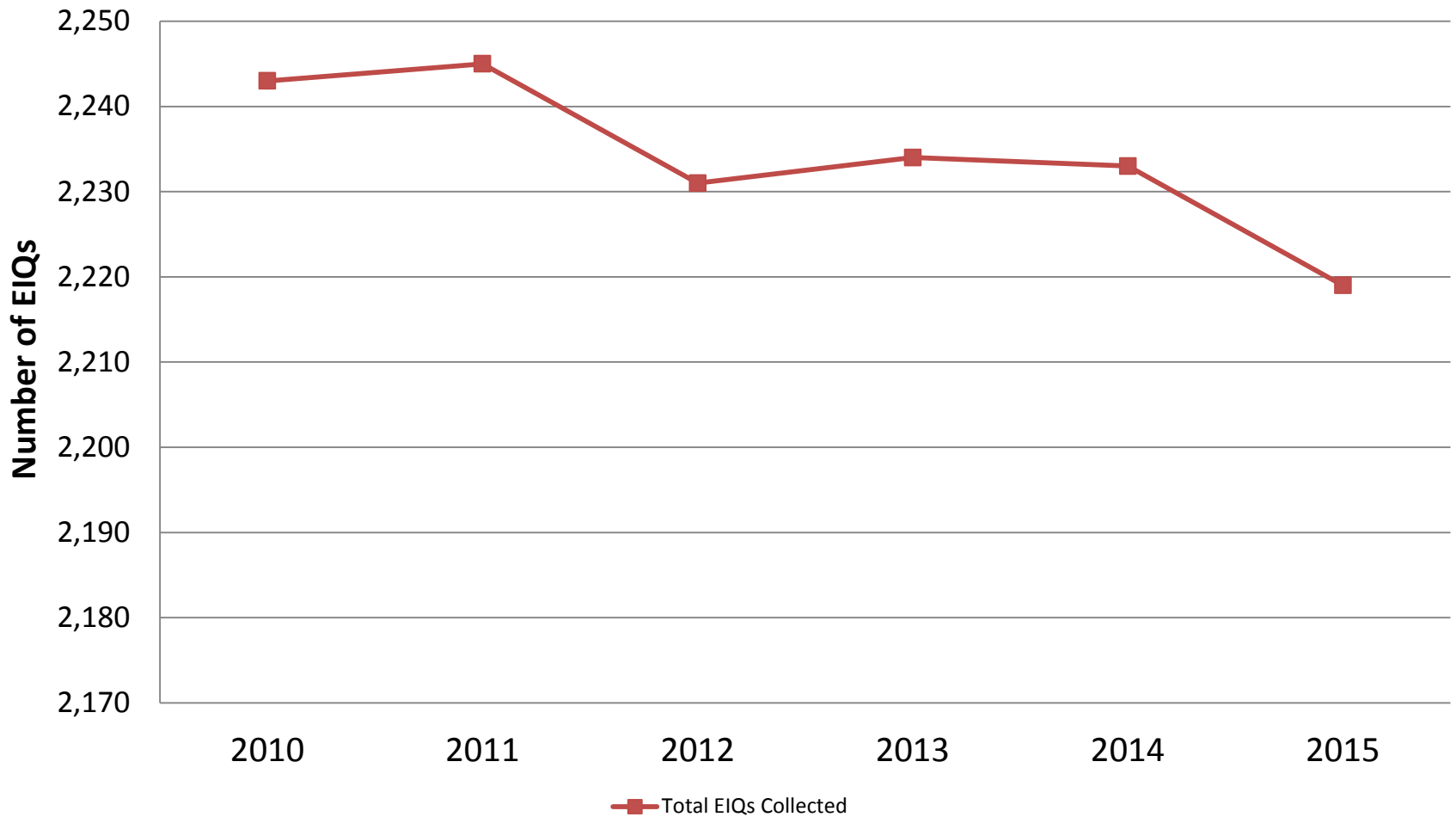
St. Louis Area Monitoring Agencies Meeting, May 23, 2017

Washington University, St. Louis, MO

# Presentation Overview

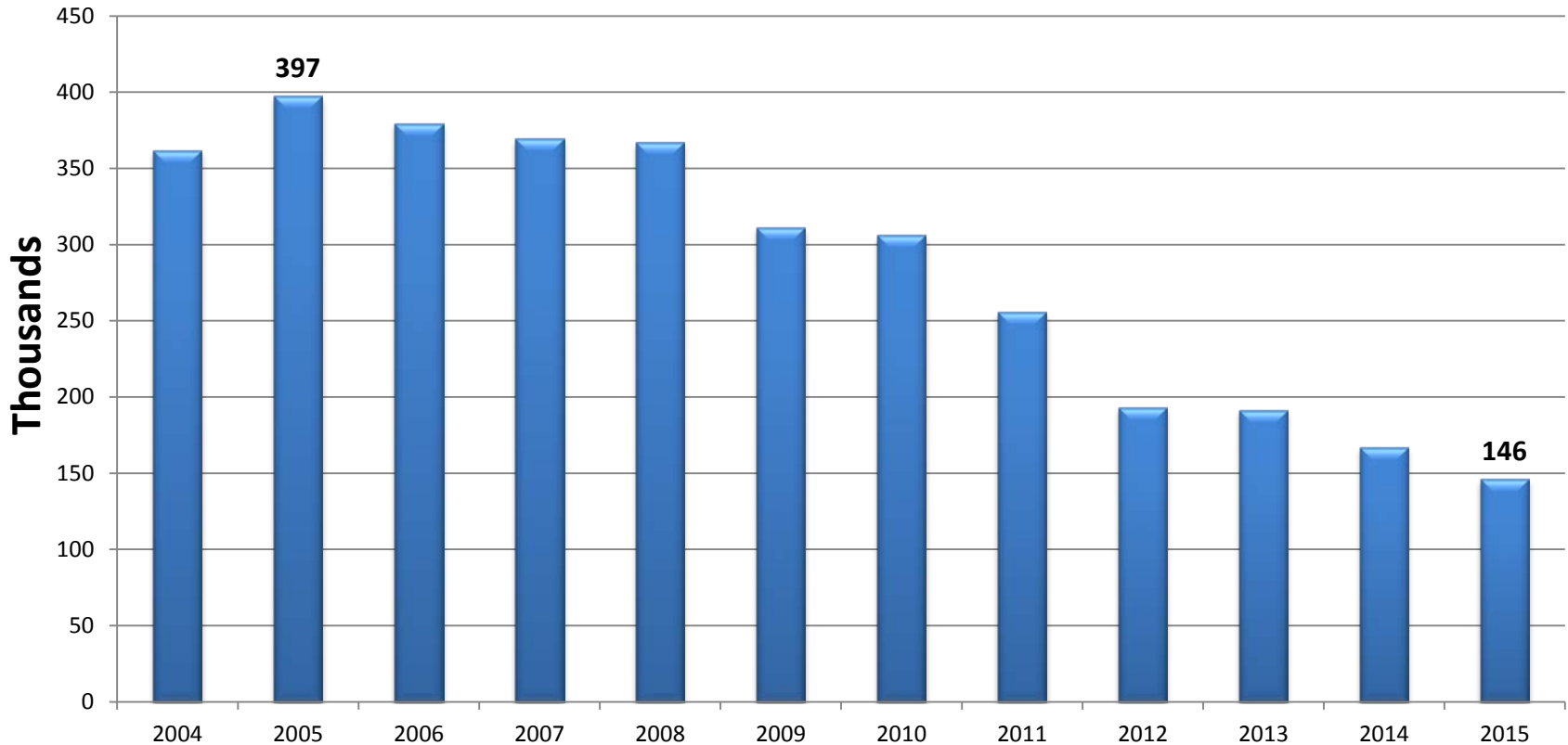
- Emissions Inventory and Trends  
Missouri (Statewide)
- Ambient Air Monitoring and Trends  
St. Louis Area
- Website Resources

## Total Emissions Inventory Questioners (EIQs )Collected by Year



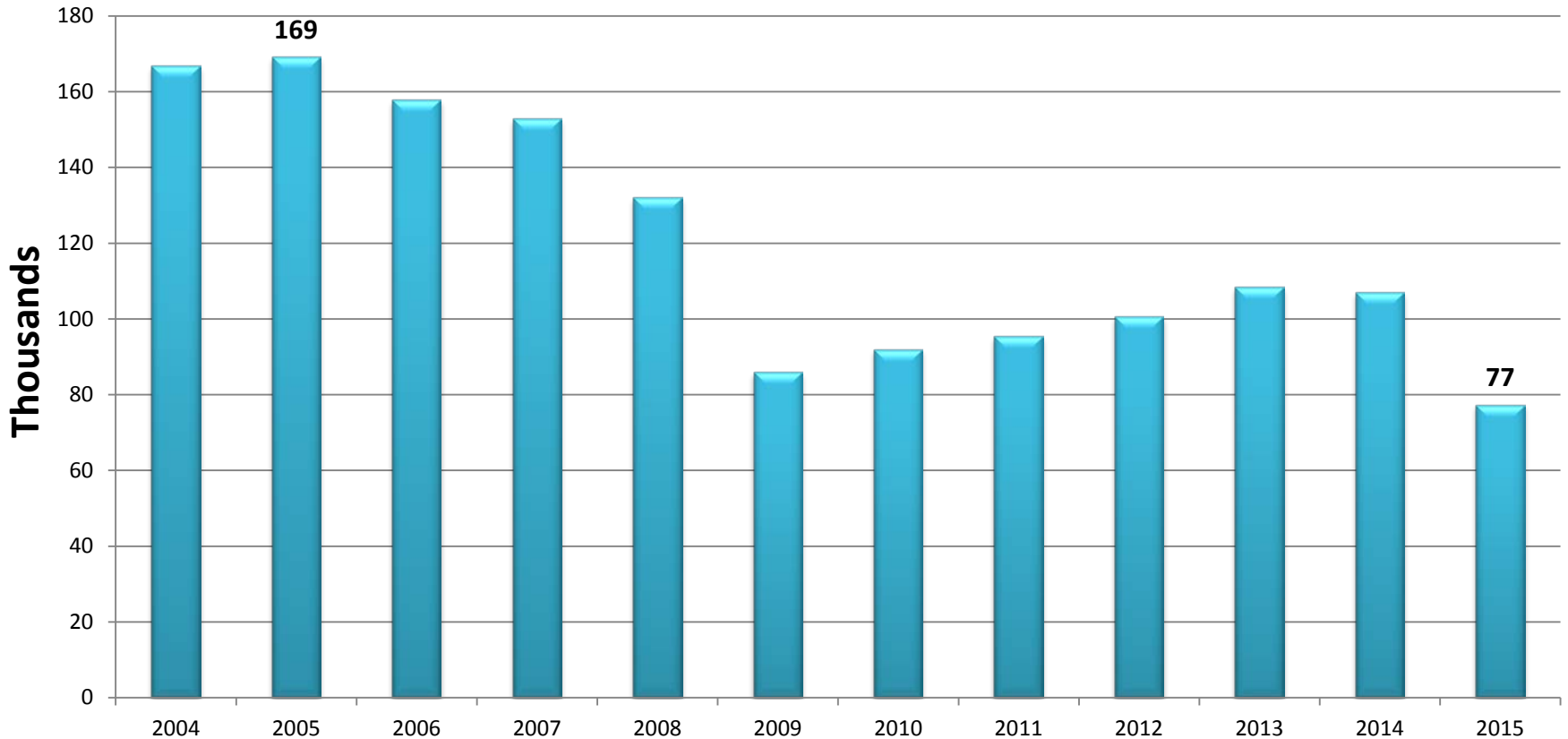
## Sulfur Dioxide (SO<sub>2</sub>) Point Source Emissions

**Sulfur Dioxide**  
Thousand Tons per Year



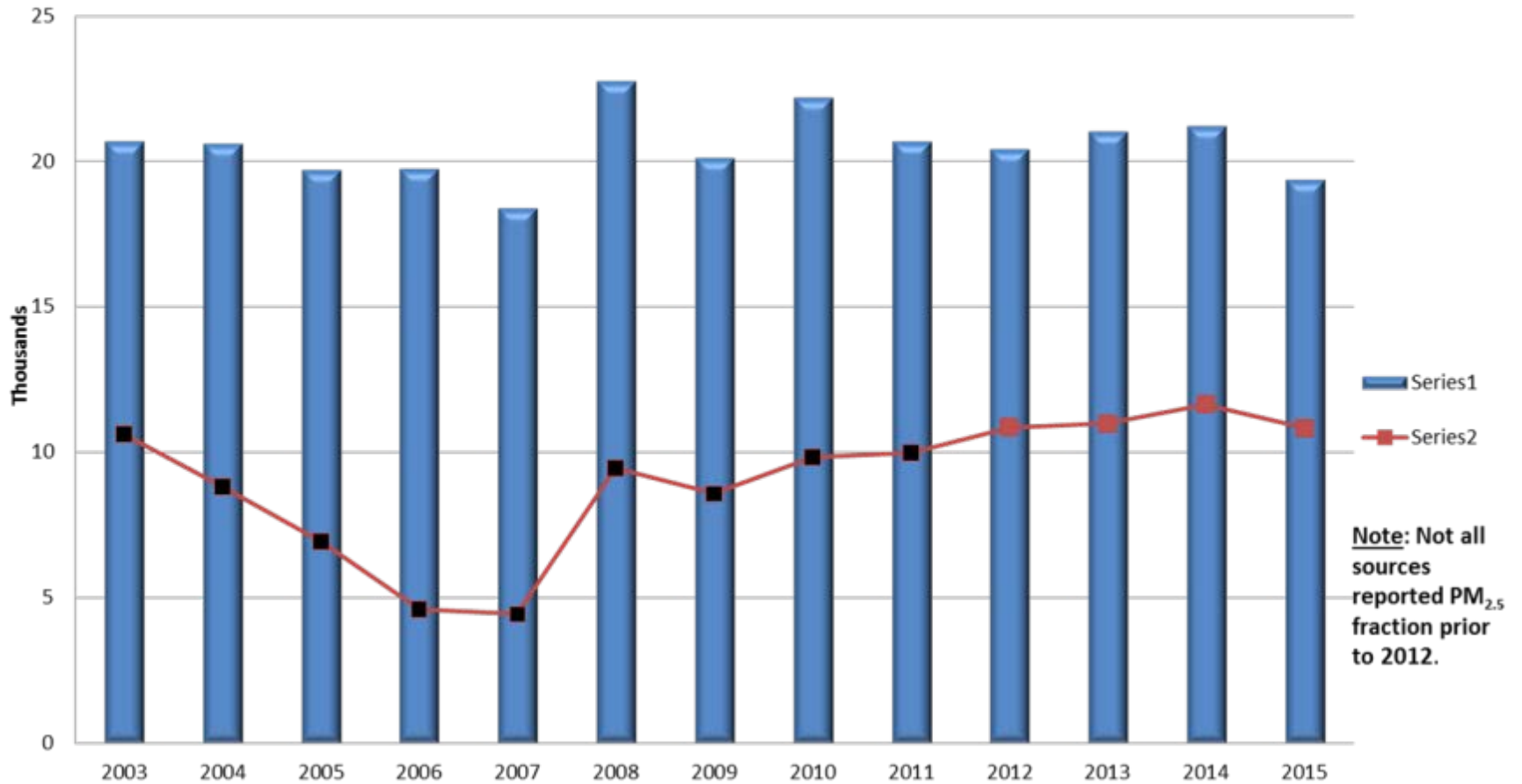
## Nitrogen Dioxide (NO<sub>2</sub>) Point Source Emissions

### Nitrogen Dioxide Thousand Tons per Year

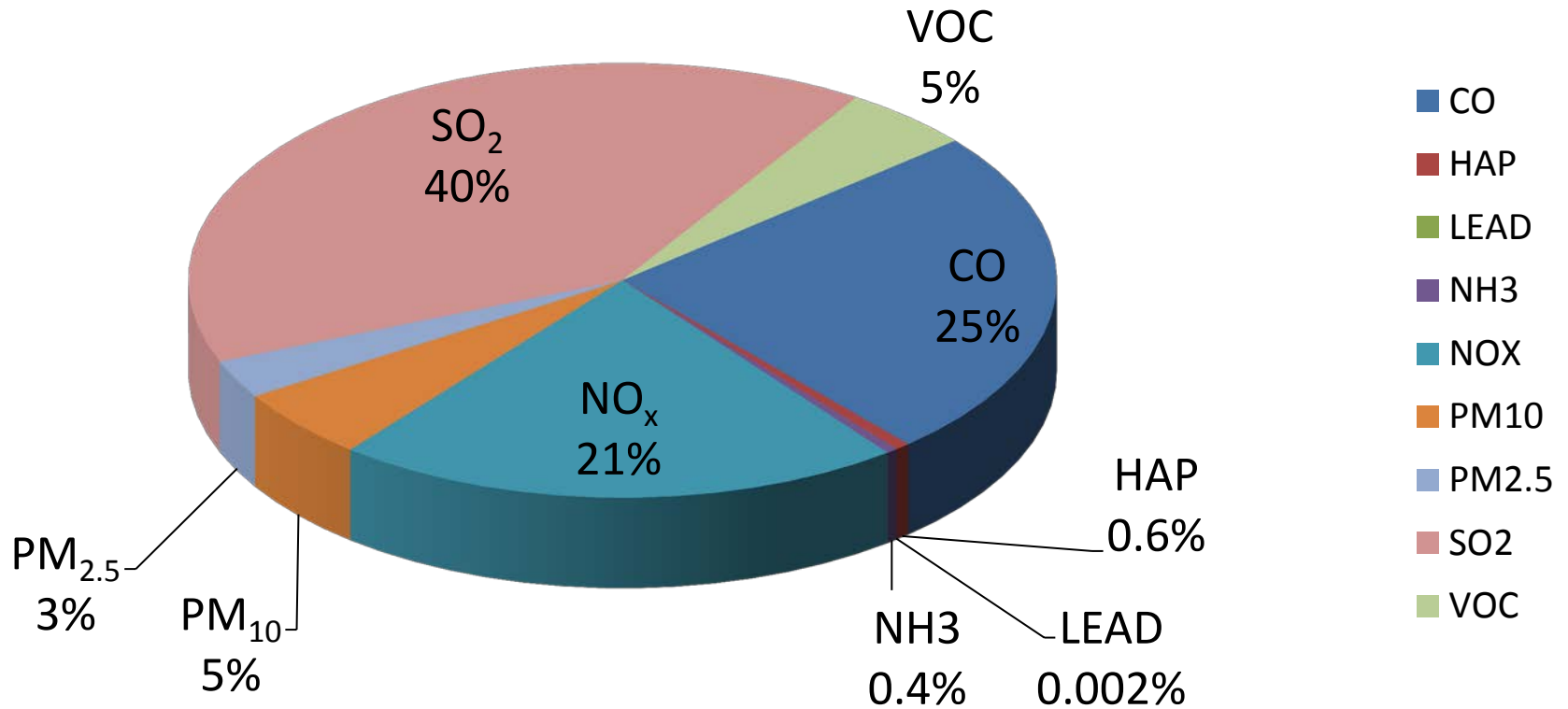




## Particulate Matter (PM<sub>10</sub>) Point Source Emissions (With PM<sub>2.5</sub> Fraction) Thousand Tons per Year

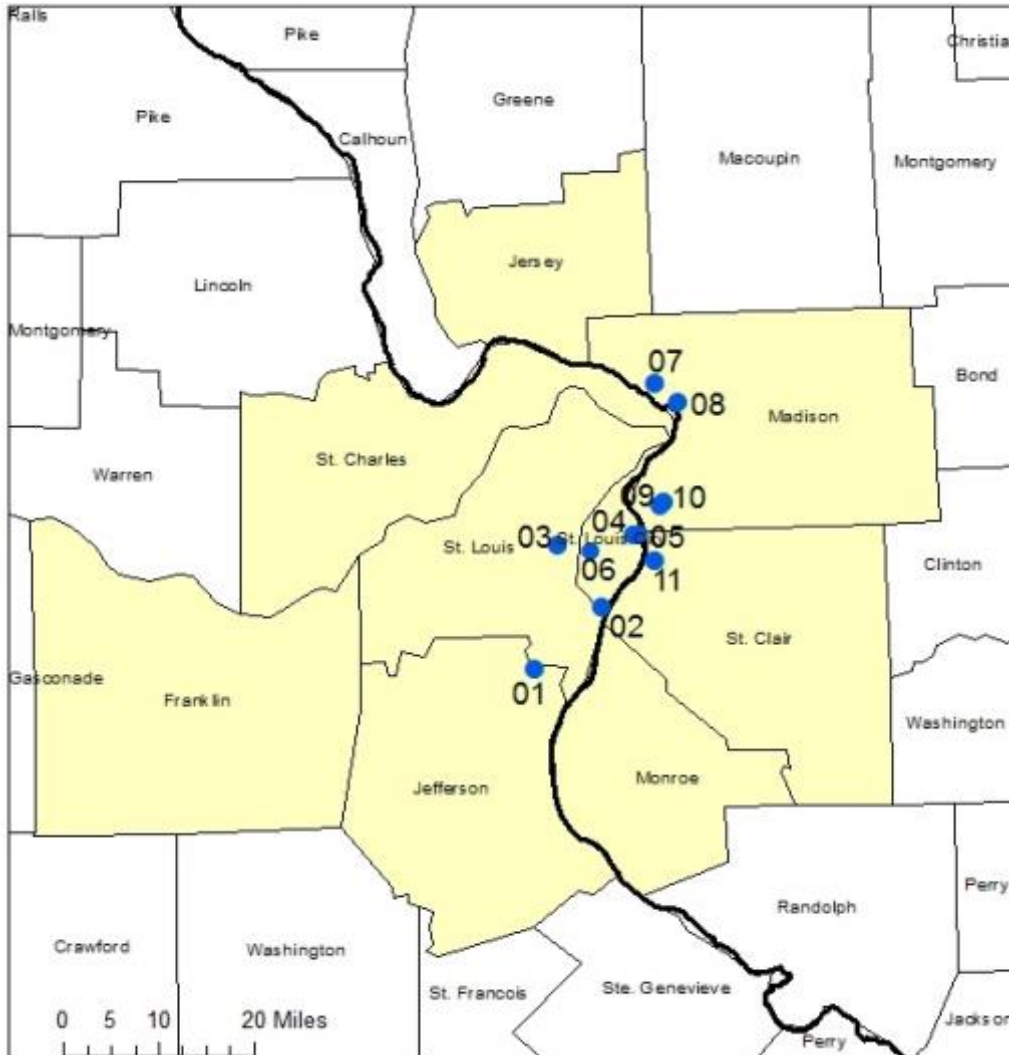


## Percent of Total Reported Point Source Emissions by Pollutant 2015 Emissions Year



HAP= Hazardous Air Pollutant- not including HAPs reported as PM or VOC.

## 2014-2016 PM<sub>2.5</sub> Annual & 24hr Design Values ( $\mu\text{g}/\text{m}^3$ ) St. Louis Area Sites



### St. Louis Area, MO

- 01 Arnold West (10.1, 23)
- 02 South Broadway (9.8, 24)
- 03 Ladue (9.9, 22)
- 04 Branch Street (N/A, 24)<sup>^^</sup>
- 05 Blair Street (10.1, 24)
- 06 Forest Park (9.6, 23)<sup>^</sup>

### St. Louis Area, IL

- 07 Alton (9.4, 20)\*
- 08 Wood River (10.1, 23)\*
- 09 Granite City (10.8, 20)\*
- 10 Gateway (N/A, 26)<sup>^^\*</sup>
- 11 East St. Louis (10.6, 21)\*

- [MO Sites in Compliance](#)
- [Illinois Sites Monitoring for Compliance \(2015-2017\)](#)

*All data quality assured through December 31<sup>st</sup>, 2016*

*<sup>^</sup>Near Roadway Monitor*

*<sup>^^</sup>Middle Scale Site*

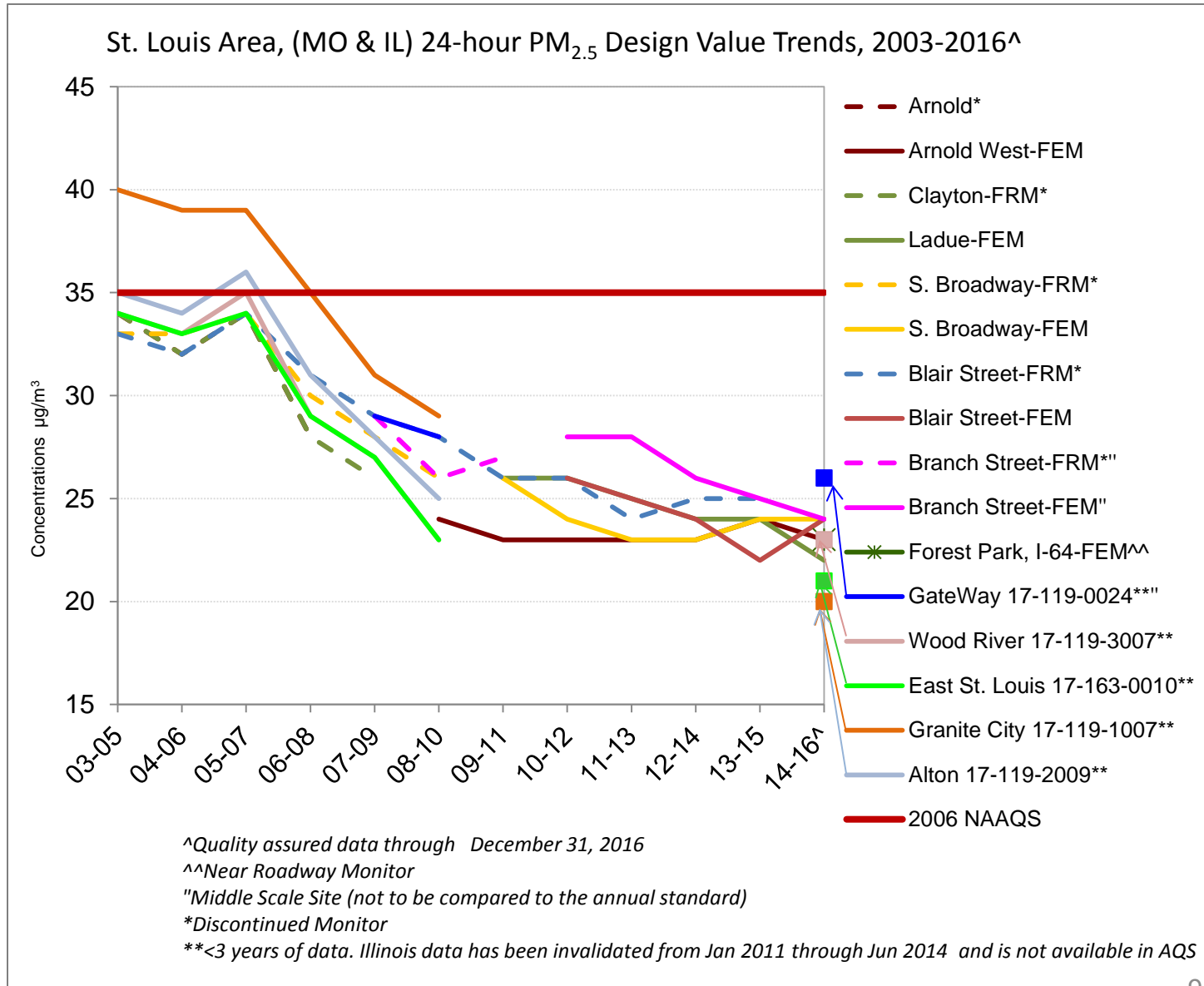
*\*<3 years of data. Illinois data has been invalidated from Jan 2011 through Jun 2014 and is not available in AQS*



# PM<sub>2.5</sub> 24-hour Average Ambient Air Monitoring Trends

➤ MO Sites in Compliance

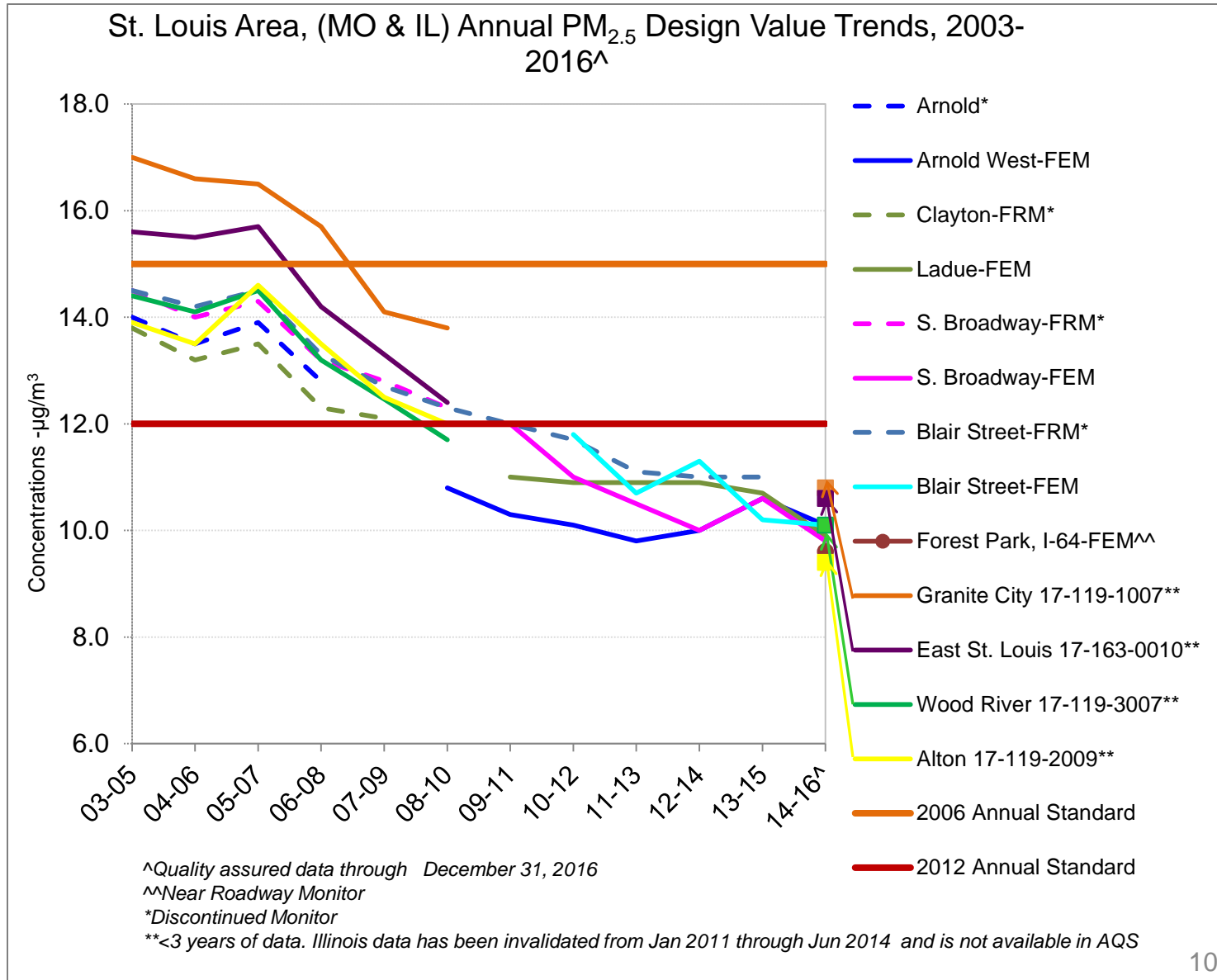
➤ Illinois Sites Monitoring for Compliance (2015-2017)



# PM<sub>2.5</sub> Annual Average Ambient Air Monitoring Trends

➤ MO Sites in Compliance

➤ Illinois Sites Monitoring for compliance (2015-2017)



- Potential issues with lower ambient PM concentrations & FRM/FEMs method comparability (Currently evaluating method comparability and other FEMs)

Summary of PM<sub>10</sub> Channel Comparability vs. TEOM-1405DF Firmware Revision  
Blair St., St. Louis City

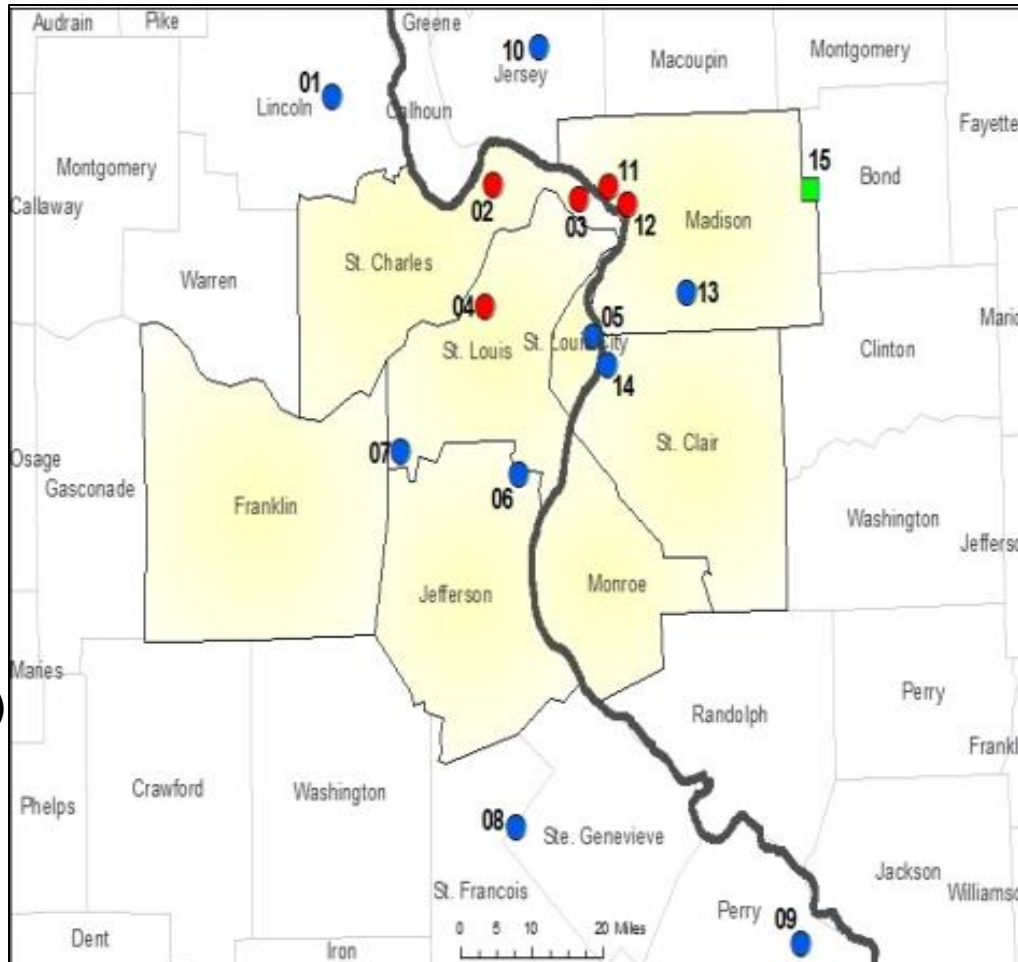
Year	Firmware	Partisol <sup>®</sup> -Plus 2025 PM10_LC Annual Average µg/m <sup>3</sup>	TEOM-1405DF PM10_LC (PRC 356) Annual Average µg/m <sup>3</sup>	Absolute difference µg/m <sup>3</sup>	Percent Difference
2011	1.55	23.2	23.1	-0.1	-0.4%
2015	1.71	19.7	18.1	-1.6	-8.1%
		Partisol 2025 PM10_STP	TEOM-1405DF PM10 (PRC 433) corrected to STP		
2015	1.71	19.4	15.2	-4.2	-21.6%

## St. Louis O<sub>3</sub> Monitoring Network

2014-2016 Design Values (ppb)

Five Violations of the 2015 standard

8-hr Standard = 70 Parts per Billion (ppb)



Data Source: Environmental Protection Agency Air Quality System (EPA AQS), AMP480 Report

- St. Louis Area, MO
- 01 Foley (65)
  - 02 Orchard Farm (71)
  - 03 West Alton (72)
  - 04 Maryland Heights (71)
  - 05 Blair Street\* (65)
  - 06 Arnold West (70)
  - 07 Pacific (65)
  - 08 Bonne Terre (66)
  - 09 Farrar (67)

- St. Louis Area, IL
- 10 Jerseyville (68)
  - 11 Alton (71)
  - 12 Wood River\* (71)
  - 13 Maryville (67)
  - 14 East St. Louis\* (68)
  - 15 Alhambra\* (67)

**Legend**

**2014-2016 Design Values**

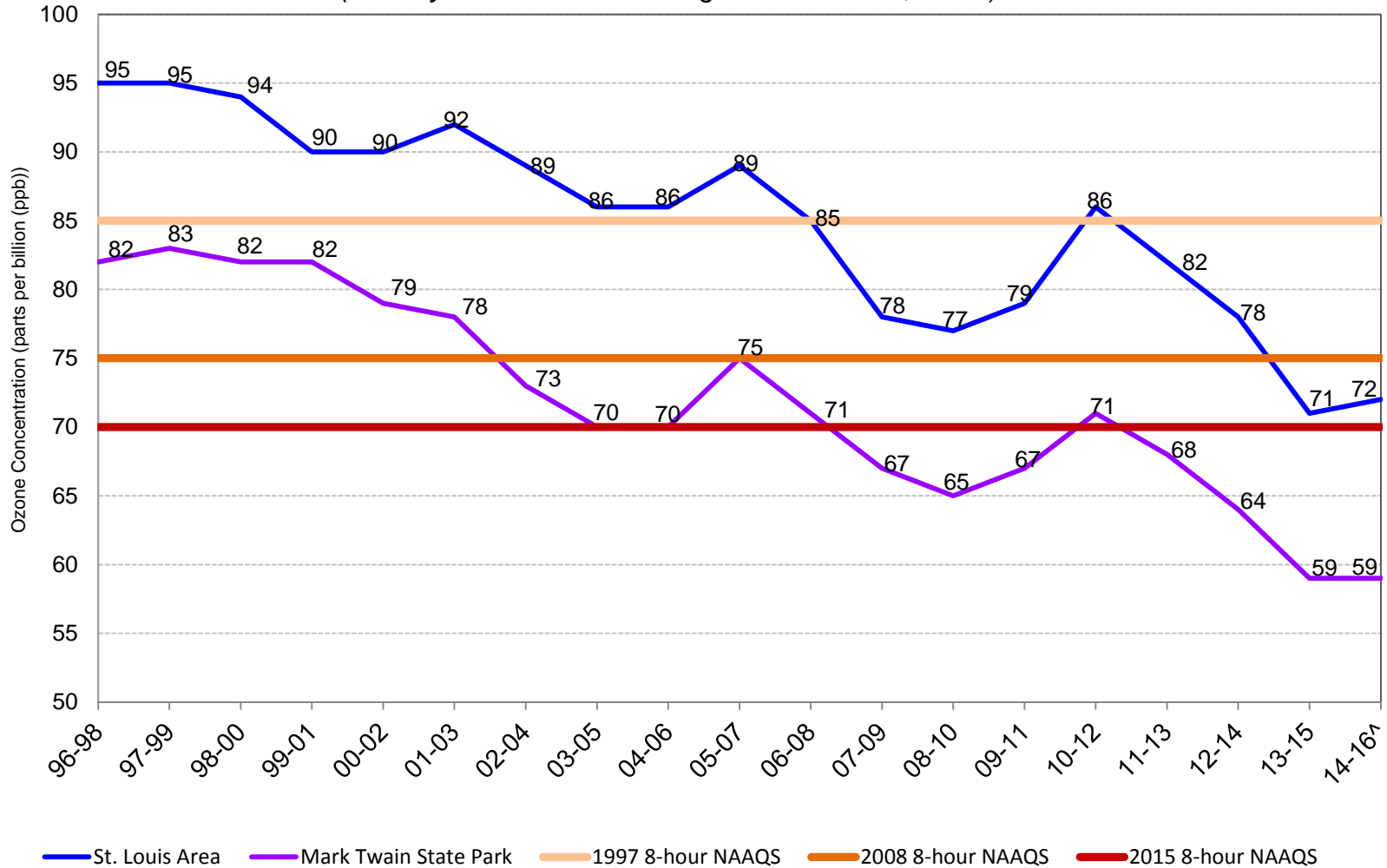
- 59-70 Compliance with the standard
- 71> Violation of the standard
- CASTNET Monitor
- St. Louis 2008 NAAQS non-attainment

All data quality assured through December 31, 2016.  
\*Year round ozone monitoring

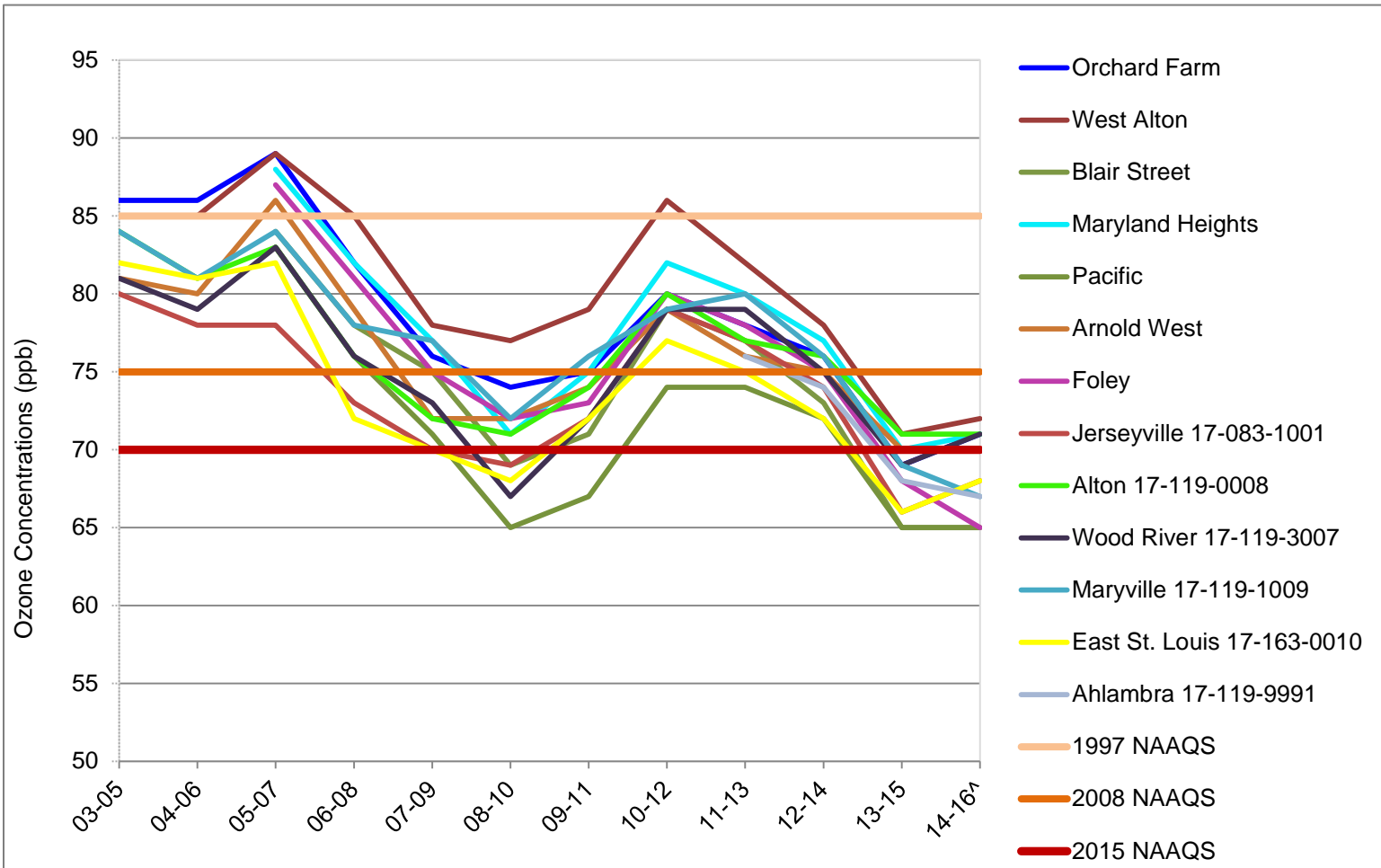


## 1996-2016 8-hour Ozone Design Value Trends St. Louis Area & Rural Site

(^Quality Assured Data Through December 31, 2016)



## 2003-2016 Ozone Design Value Trends (ppb) St. Louis Area Individual Sites

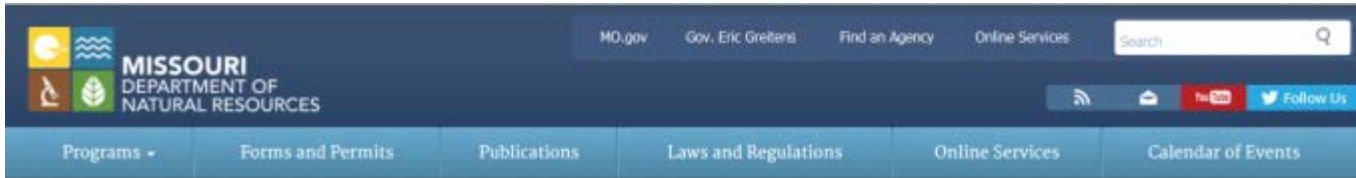


^All data quality assured through December 31, 2016.

**Orchard Farm, West Alton, Maryland Heights, Alton, and Wood River currently in violation of the 2015 ozone NAAQS**



# Website Resources



## Air Pollution Control Program

Our mission is to maintain the purity of Missouri's air to protect the health, general welfare and property of the people. Whether urban citizen or rural resident, everyone who lives in Missouri needs and deserves clean air. In other words, the 6 million residents of Missouri are our customers.



### What has Missouri done to improve our air?

Visit this link for more information on **Missouri Skies Now and Then**.

### Which pollutants does EPA monitor most closely?

Click [here](#) to learn about the six criteria pollutants.

### How does the scientific community rate air quality?

With the Air Quality Index we track ozone and particle pollution. This report tells you how clean (or polluted) the air is to help you understand what local air quality means in relation to your health. Each color code corresponds to a different level of health concern. The specific colors of the Air Quality Index makes it easier to understand where the air quality falls on the scale. **More...**

### How does Missouri track air pollution?

We track our air pollution with a network of air monitoring sites located around the state. To visit our network of air monitoring sites click on the map.



- Program Home Page
- Air Conservation Commission
- Air Pollutants**
- Air Program Advisory Forum
- Air Quality
- Asbestos
- Clean Power Plan
- Forms and Applications
- Gateway Vehicle Inspection Program
- Laws and Regulations
- NAAQS Boundary Designations
- Ozone
- Permits
- Public Notices-Comment Periods
- QAPP Template**
- Air Pollution Compliance/Regulatory Assistance
- State Plans
- Vapor Recovery Information and Compliance Requirements

Monitoring Information- 'Bookmark'

- Design Value Reports
- Preliminary hourly data reports
- Monitoring Network Plans and More
- More improvements coming...

## Convenience Fee Applicable to Credit Card Payments

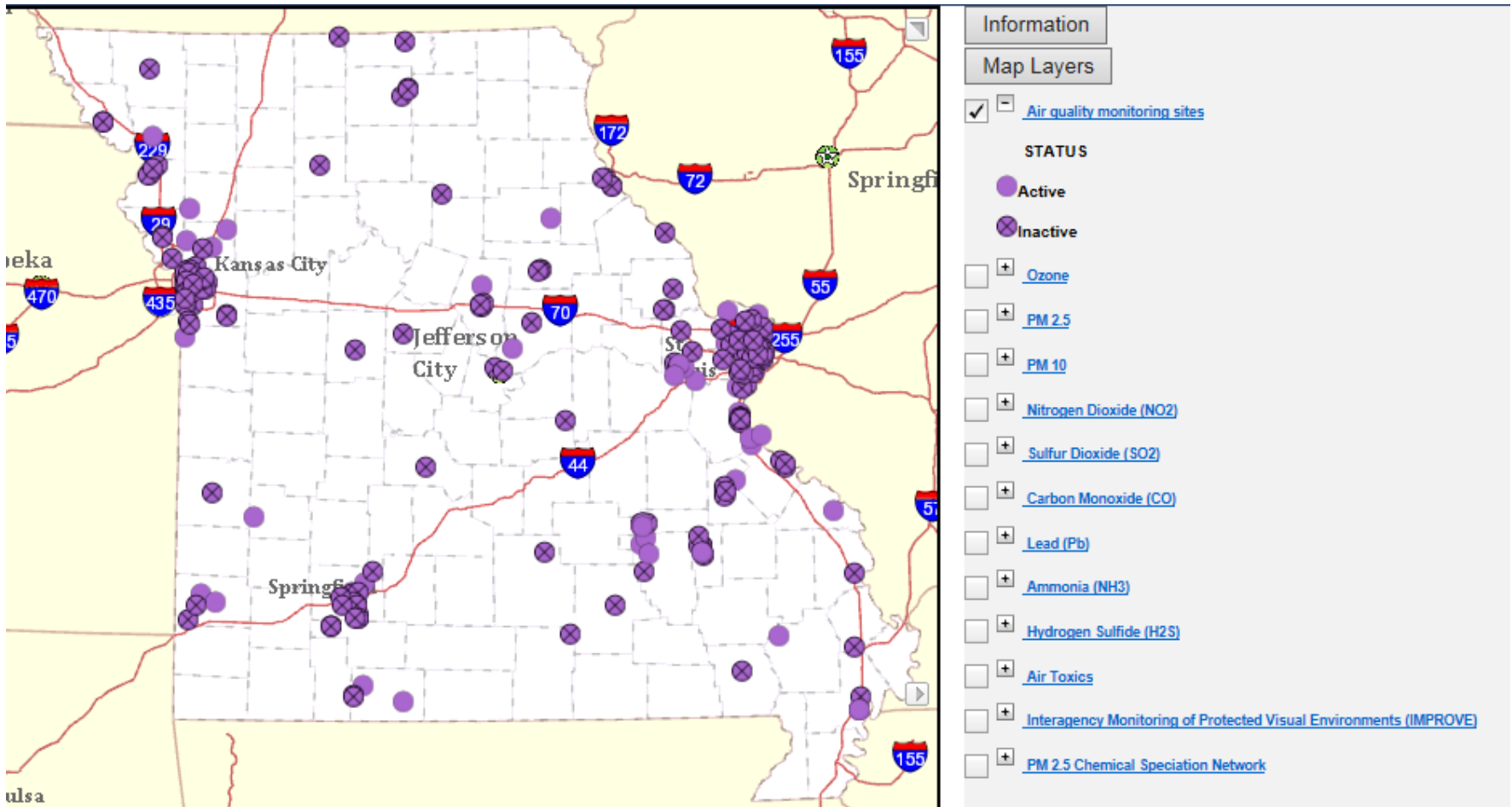
Effective July 1, 2014, per Chapter 37, Section 37.007, of the Missouri Revised Statutes, a convenience fee will be charged to all customers who wish to pay by electronic method. The convenience fee will be retained by a third-party vendor, Collector Solutions, Inc., not the Missouri Department of Natural Resources.

Transaction Dollar Amount	Fee
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## Contact Information

**Air Pollution Control Program**  
P.O. Box 176  
Jefferson City, MO 65102

# Monitoring Site GIS Map





# Active site detail

## Blair Street (NCore) Air Monitoring Site, St. Louis

**Address:** 3247 Blair St.  
St. Louis, MO 63107

**County:** The city of St. Louis is not part of a county.

**Pollutants Monitored:** ozone (O<sub>3</sub>), sulfur dioxide (SO<sub>2</sub>), nitrogen dioxide (NO<sub>2</sub>), fine particulate matter (PM<sub>2.5</sub>), particulate matter (PM<sub>10</sub>), carbon monoxide (CO)

**Pollutant monitored in the past:** lead (Pb)

**Date established:** March 1, 1999

**Site Coordinates**

\*Latitude: 38.656449°

\*Longitude: -90.198548°

**EPA Site No.:** 29-510-0085



The Blair Street air monitoring station provides data for assessing air quality in the north-central area of St. Louis. The department established it in 1999, and since 2011, it has been part of the National Core (NCore) Network, which measures multiple air quality and meteorological parameters and provides data to determine compliance with federal standards. The data from Blair Street play a key role in public information, evaluations of mathematical models of air quality, and scientific studies about health and environmental effects of ambient air pollutants. **More information** on the National Core Network.

The Blair Street station also is part of two other national networks. The Chemical Speciation Network (CSN) measures concentrations of organic and inorganic chemicals that contribute to airborne fine particulate matter (PM<sub>2.5</sub>). **Click** for more information on the Chemical Speciation Network. The National Air Toxics Trends Stations (NATTS) Network tracks long-term trends in levels of hazardous air pollutants and air toxics, and sites in the network to provide data for scientific studies. **More information** on the National Air Toxics Trends Stations Network.

**Ozone (O<sub>3</sub>) Data\***

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[Responding to Env. Emergencies](#)

[Water Quality Monitoring](#)

## Contact Information

**Environmental Services Program**

P.O. Box 176  
Jefferson City, MO 65102  
800-361-4827  
573-526-3315

**Contact Us**

**Report an Environmental Concern**

**Meet the Environmental Services Program Director**

## **Division of Environmental Quality**

**Acting Director: Steve Feeler**

May 23, 2017

*Nothing in this document may be used to implement any enforcement action or levy any penalty unless promulgated by rule under chapter 536 or authorized by statute.*