MISSOURI
DEPARTMENT OF
NATURAL RESOURCES

2015 Air Quality Report

Stephen Hall

Air Quality Analysis Section

Air Pollution Control Program

June 23, 2015, Air Quality Advisory Committee Meeting

East-West Gateway, St. Louis MO

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Presentation Overview

- Statewide Emissions Inventory Trends
- Ambient Air Monitoring Trends
- New Projects

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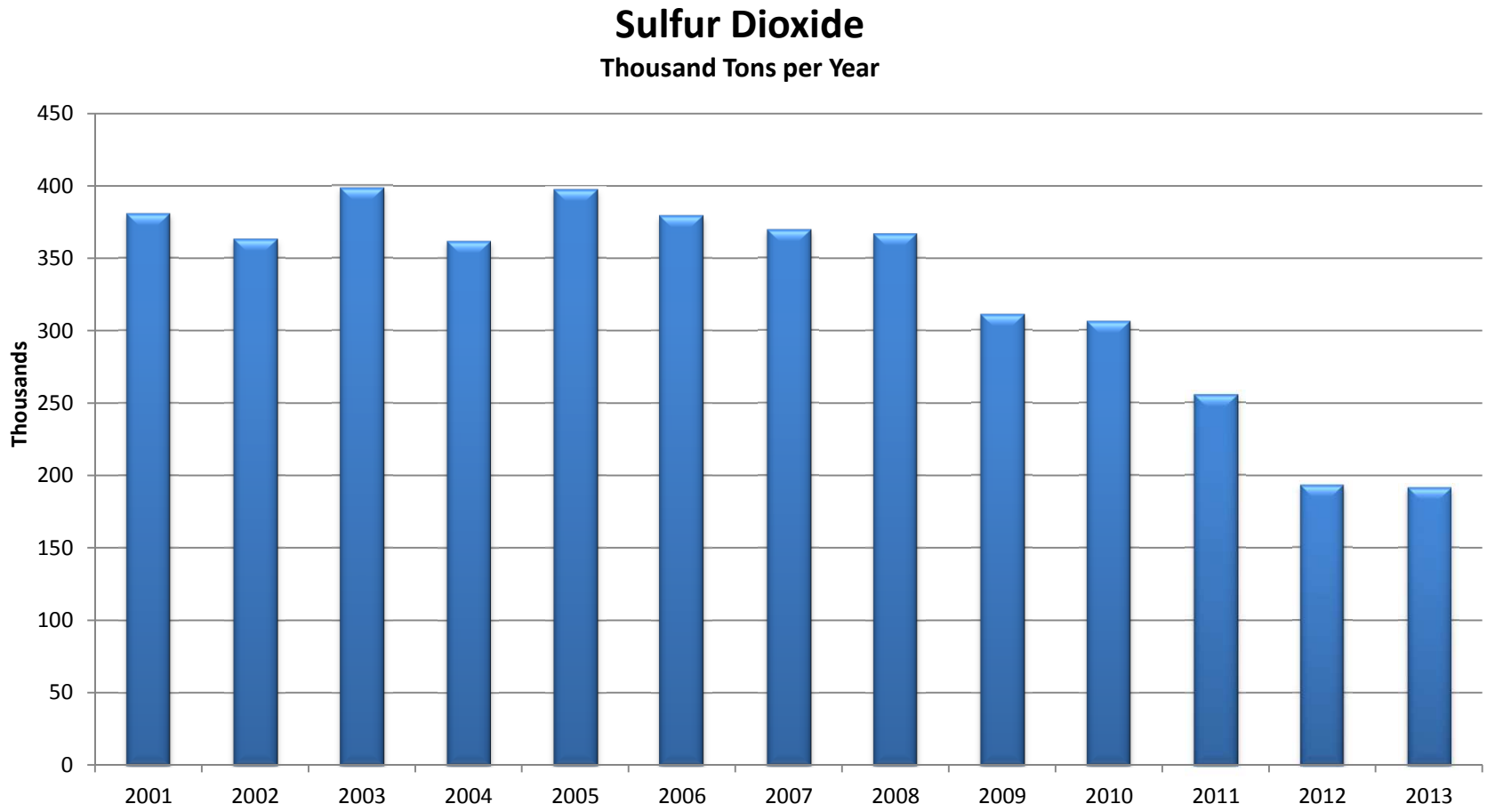
Sulfur Dioxide (SO_2) Point Source Emissions



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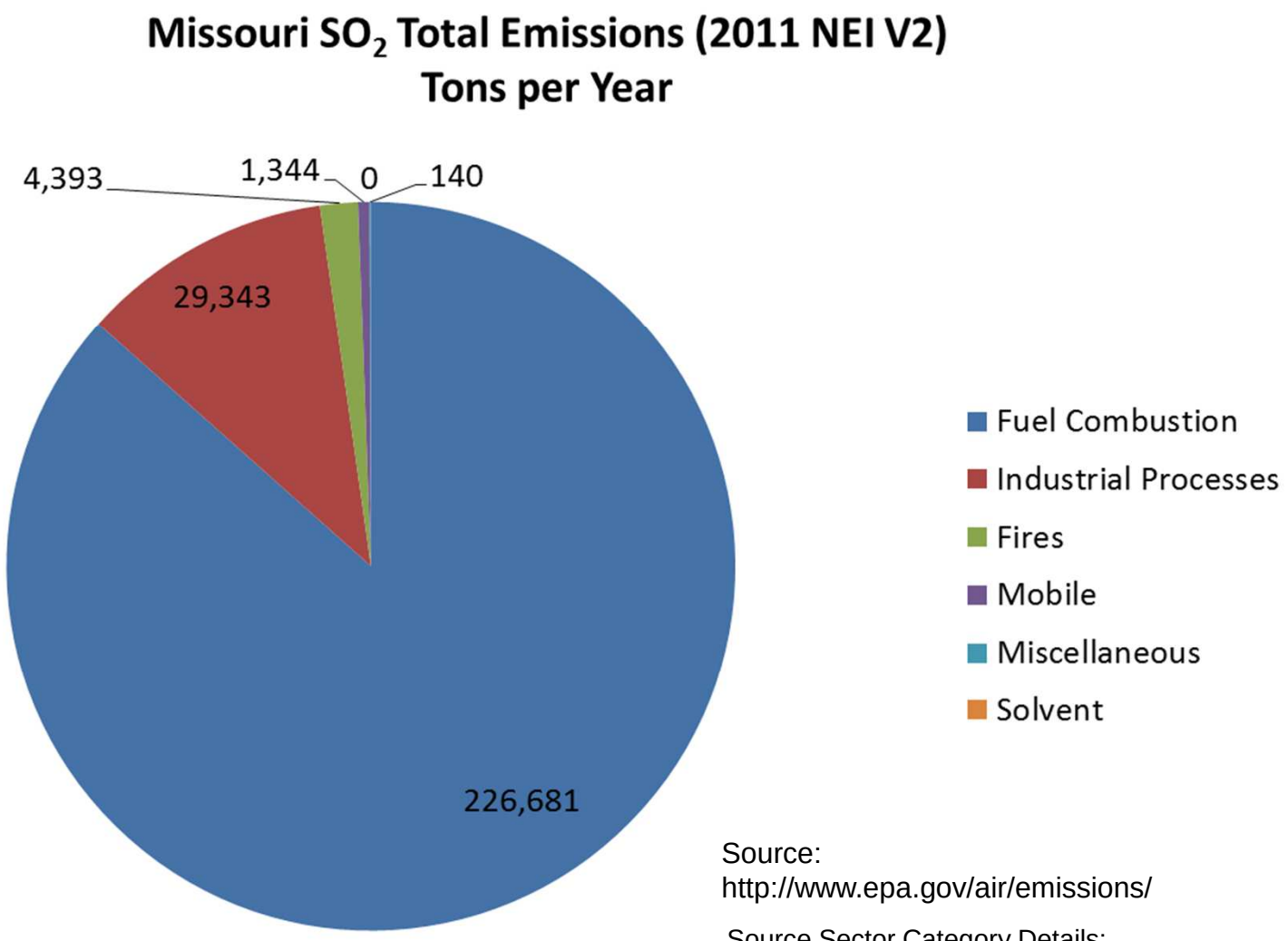

Source:
http://www.epa.gov/air/emissions/

Source Sector Category Details:
http://www.epa.gov/air/emissions/basic.htm

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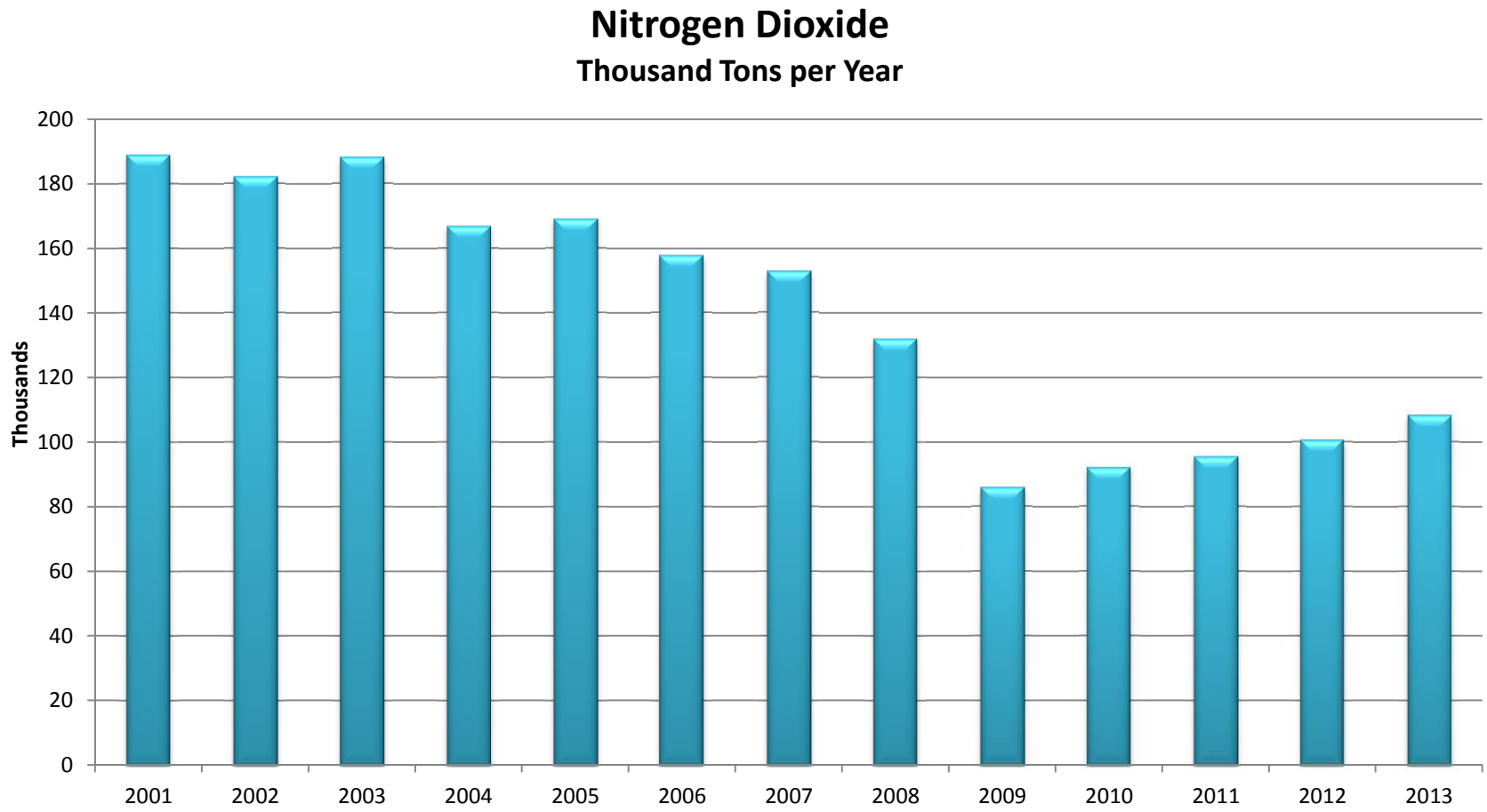
Nitrogen Dioxide (NO_2) Point Source Emissions



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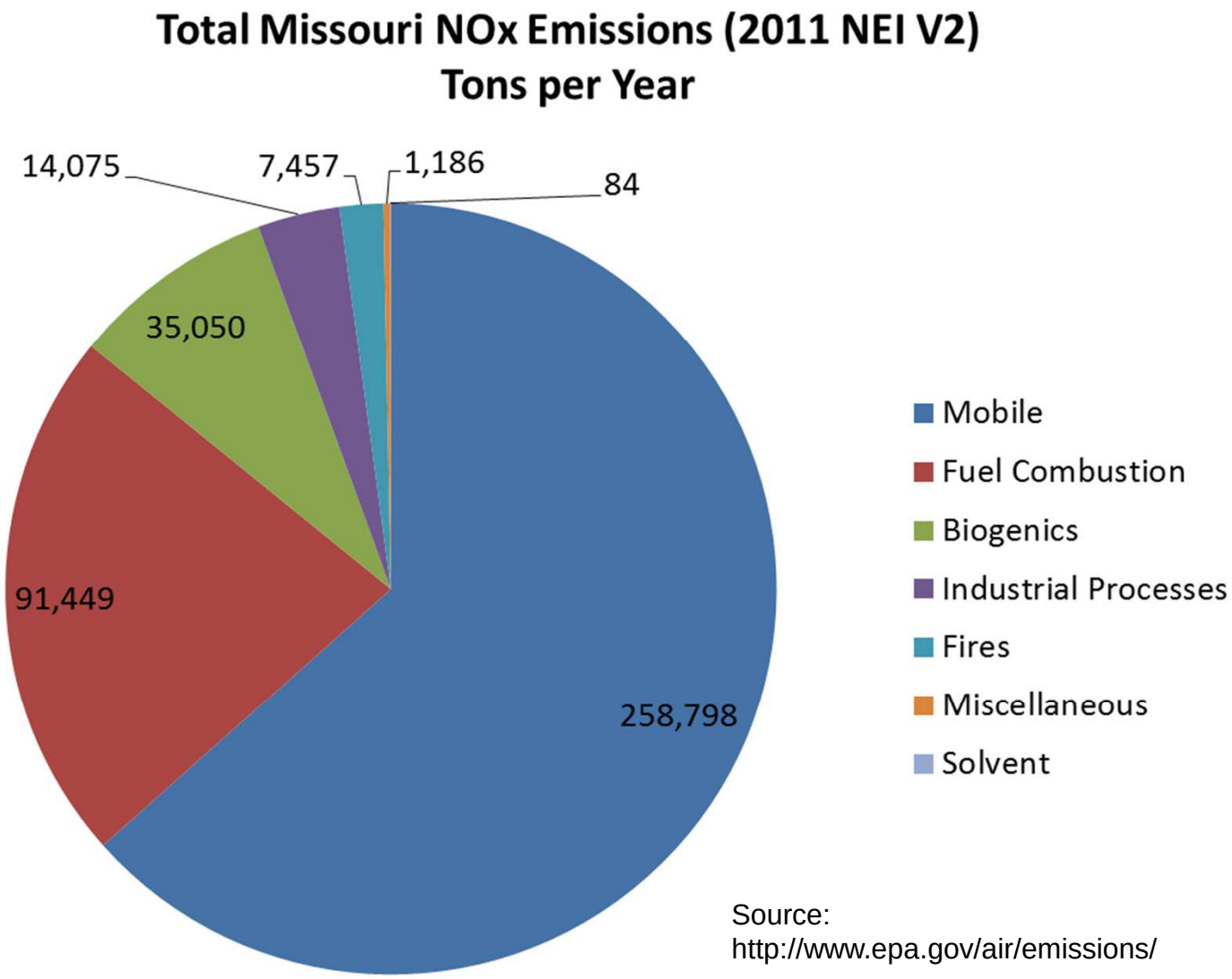

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http://www.epa.gov/air/emissions/basic.htm

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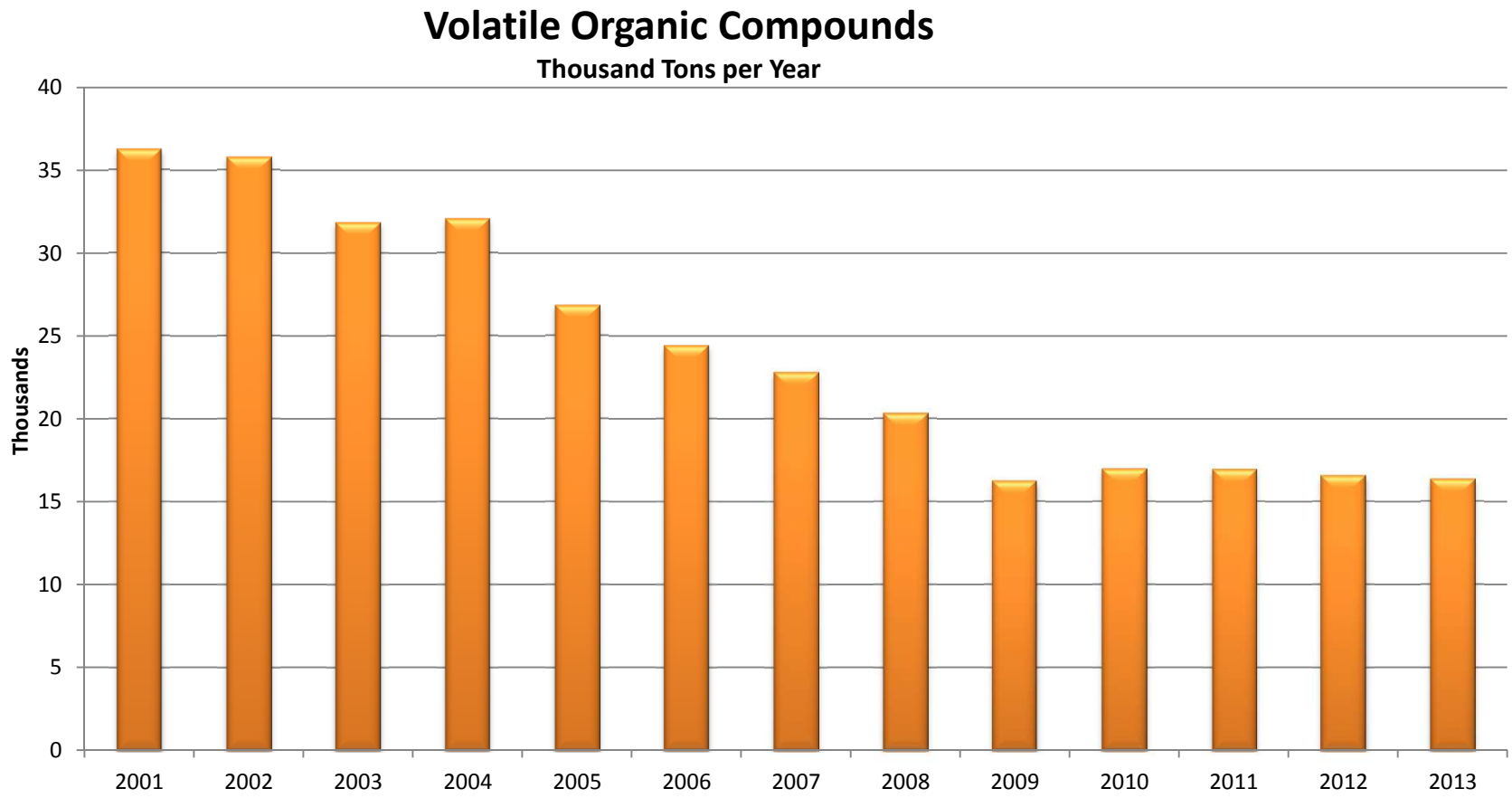
Volatile Organic Compounds (VOC) Point Source Emissions



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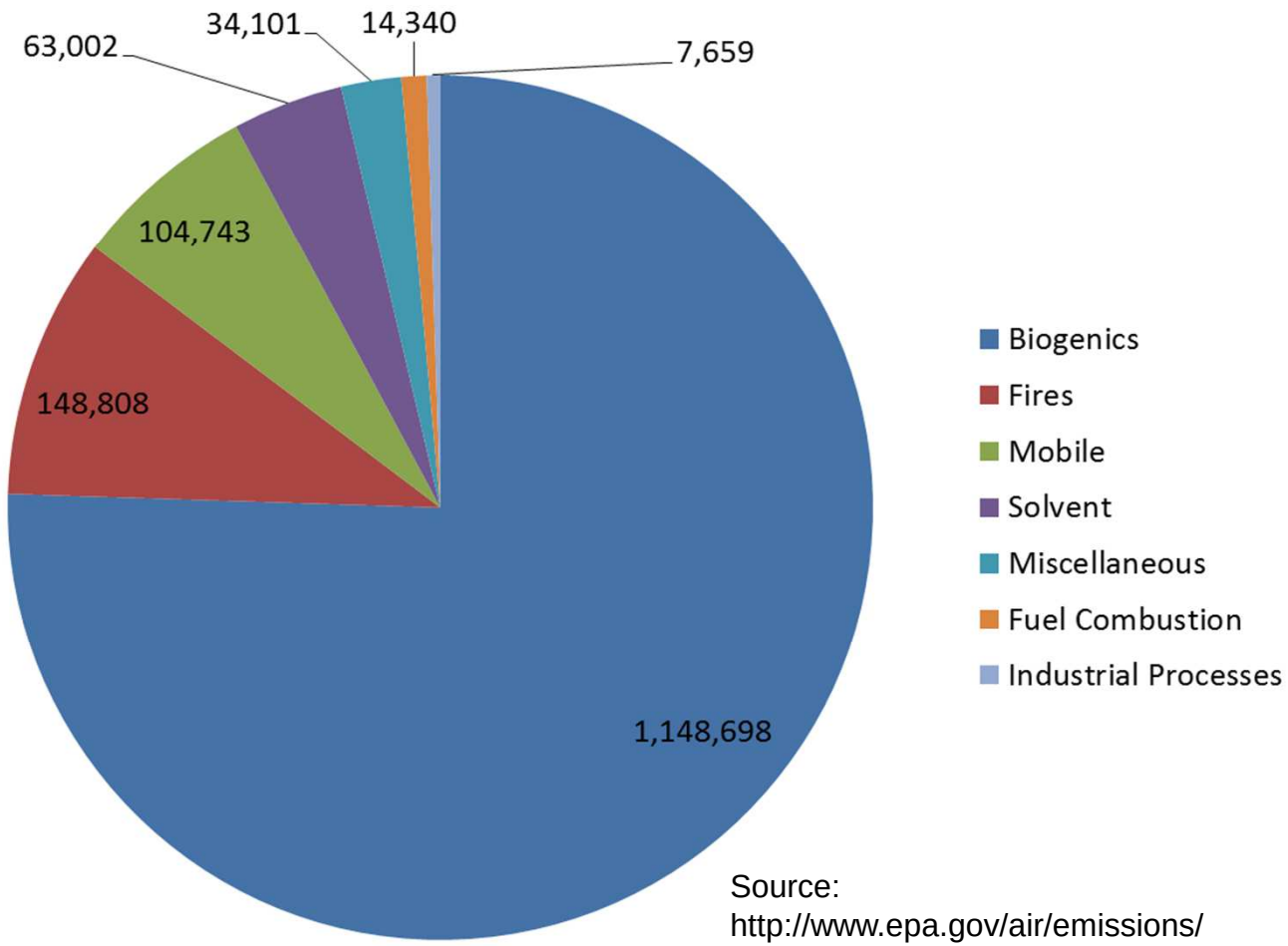
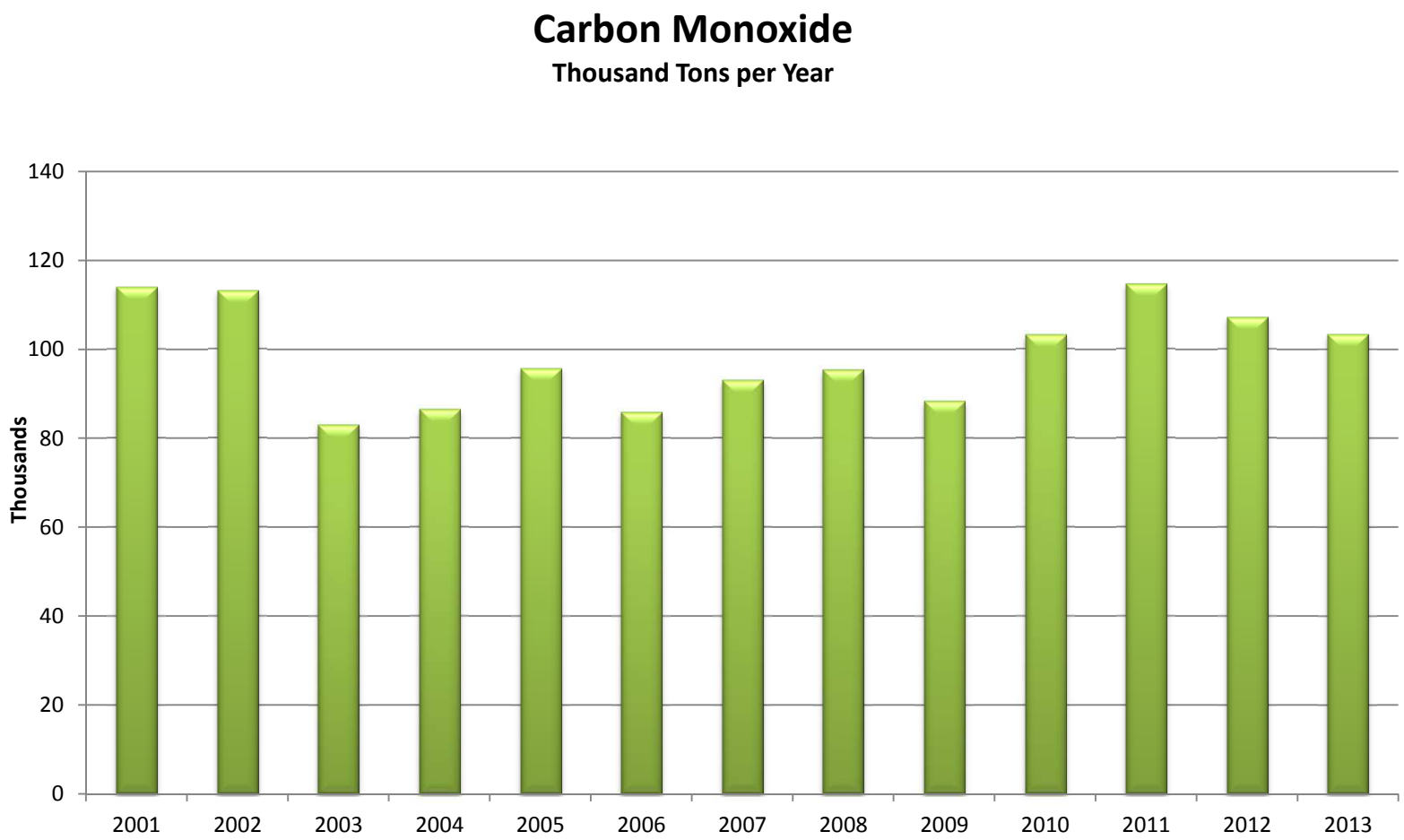


Source:
http://www.epa.gov/air/emissions/

Source Sector Category Details:
http://www.epa.gov/air/emissions/basic.htm

Carbon Monoxide (CO) Point Source Emissions



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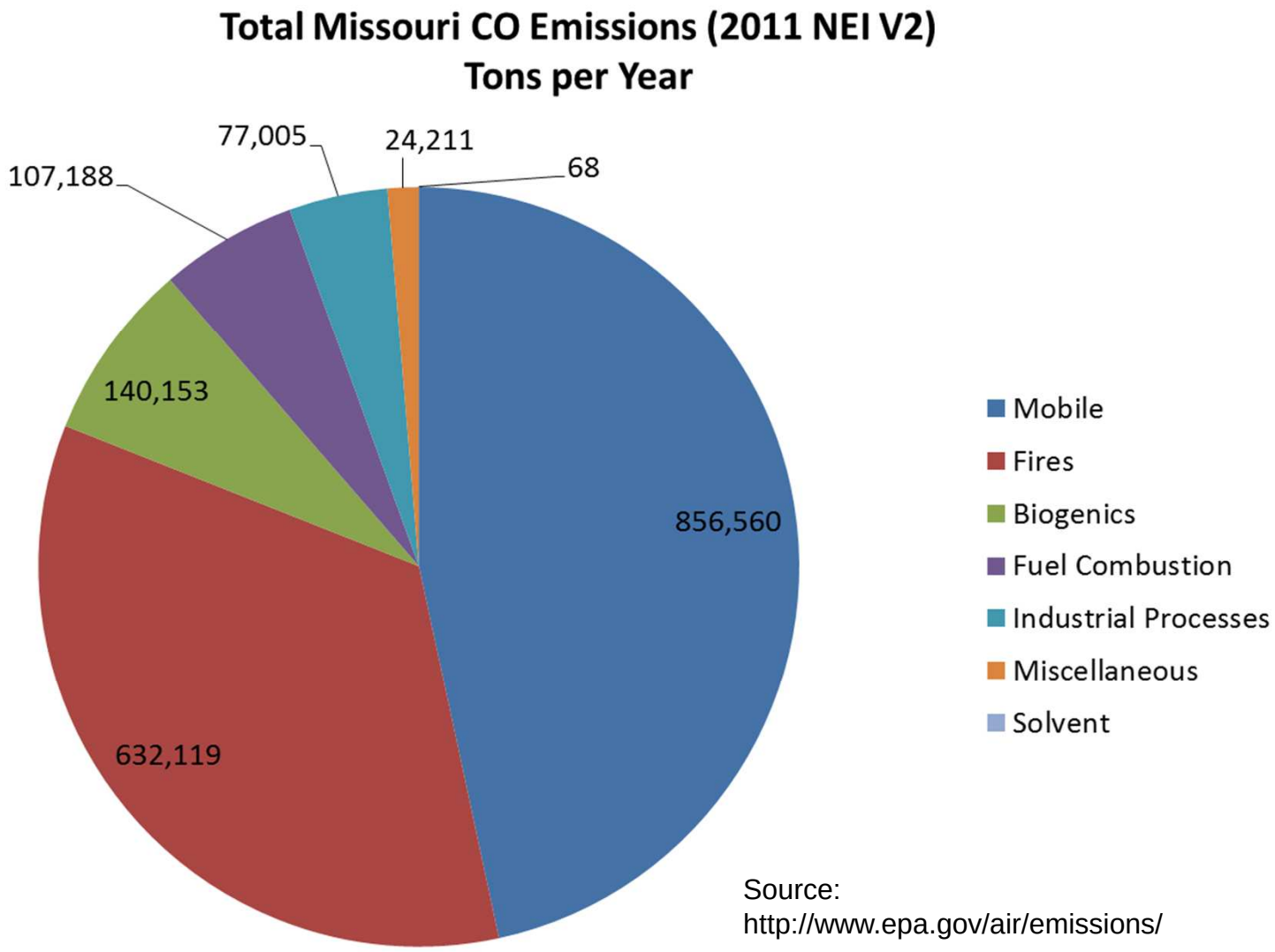

Source:
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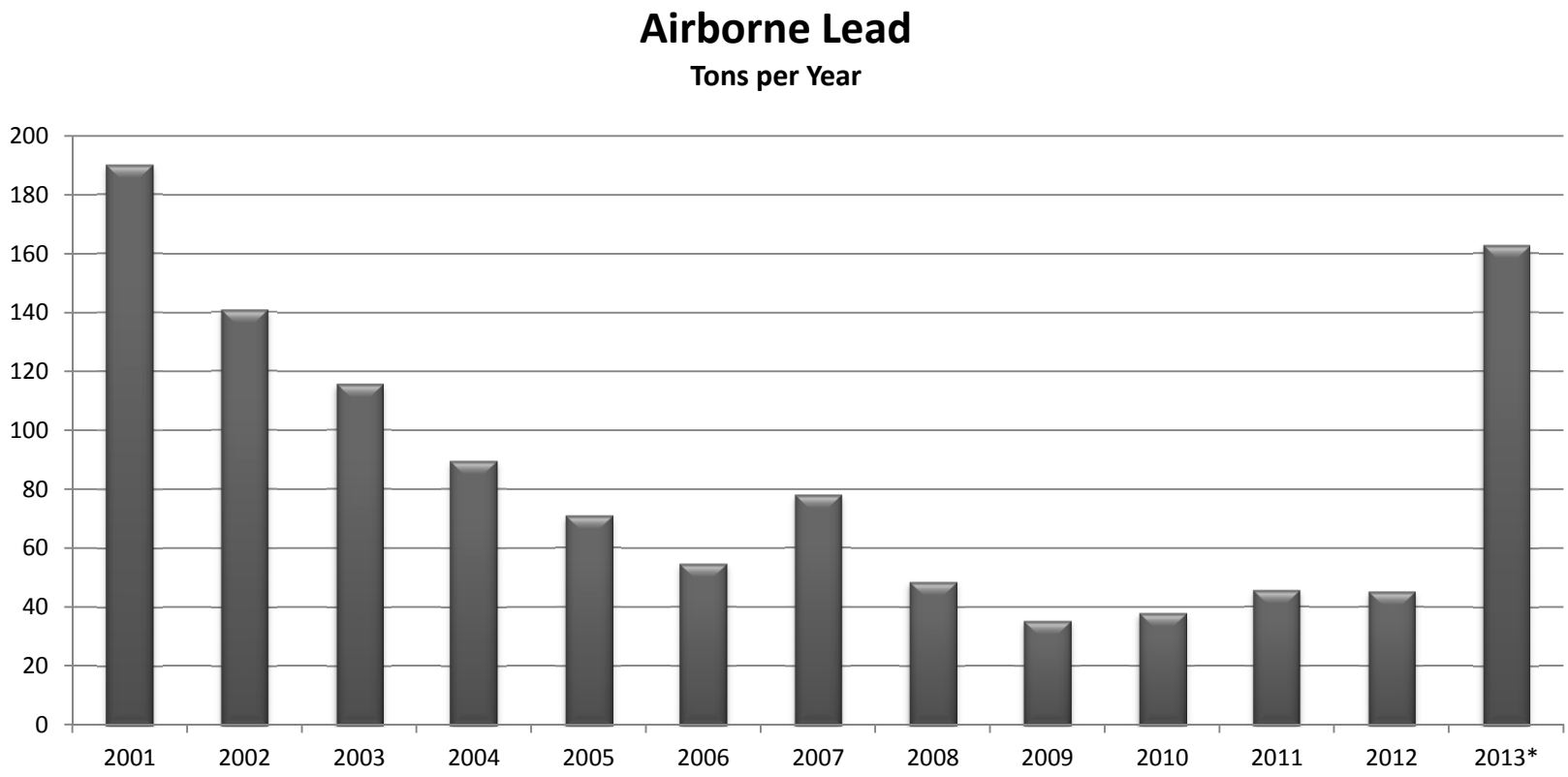
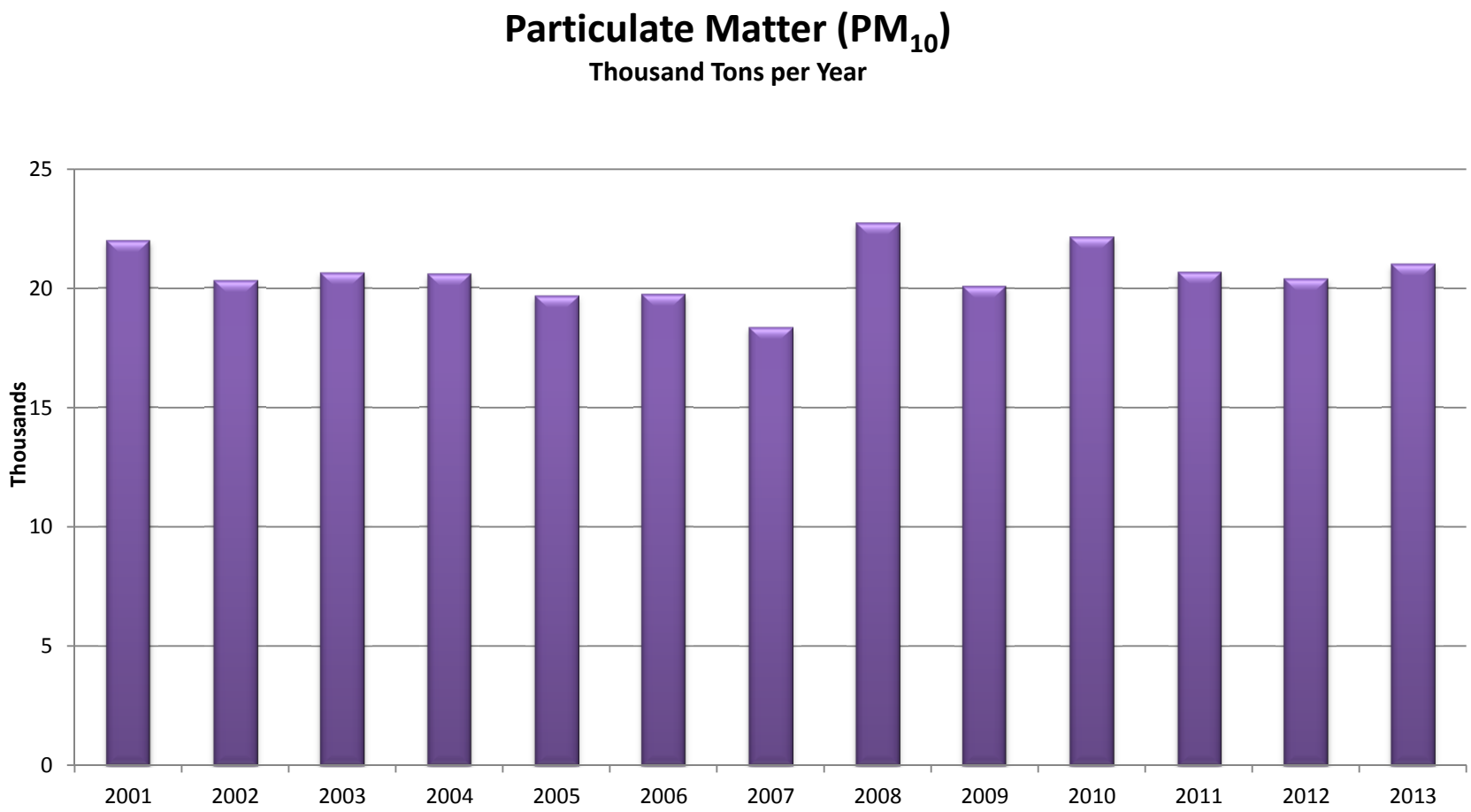
Airborne Lead (Pb) Point Source Emissions



* Increased lead emissions for 2013 are a result of stack testing at a single facility. The facility shut down the processes that release emissions through the tested stacks at the end of the 2013 emission year, and the increased emissions are believed to be a result of the shut down activities. Lead emissions are expected to be below 2012 and 2011 levels for the 2014 emission year.

Particulate Matter (PM_{10}) Point Source Emissions



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Ambient Air Monitoring Trends

- Area wide criteria pollutant monitoring indicates decreasing trends over time.
- Revisions to the SO_2, NO_2, Lead, and Ozone NAAQS and revised monitoring network requirements has 'lowered the bar' for some areas.
- Some single source and area specific NAAQS violations are being addressed.

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NAAQS Being Met

- **NO_2**: No Missouri sites violate the 2010 1-hour (100 ppb) standard or annual standard (53 ppb)

–Near roadway NO_2 sites –two sites deployed in 2013.
–Second NO_2 site in St. Louis –deployed in 2015.
→No issues yet…

- **$PM_{2.5}$**: No Missouri sites violate the 1997 annual standard, 2006 24-hour $PM_{2.5}$ standard, or the 2012 Annual (12 µg/m^3) and 24-hour (35 µg/m^3) standard.

– Near roadway $PM_{2.5}$ sites- two monitors deployed in 2013. →No issues yet…

- **CO**: No Missouri sites violate the 1-hour (35 ppm) or 8-hour (9 ppm) standard.

– Near roadway CO sites- two monitors deployed in 2013. →No issues yet…

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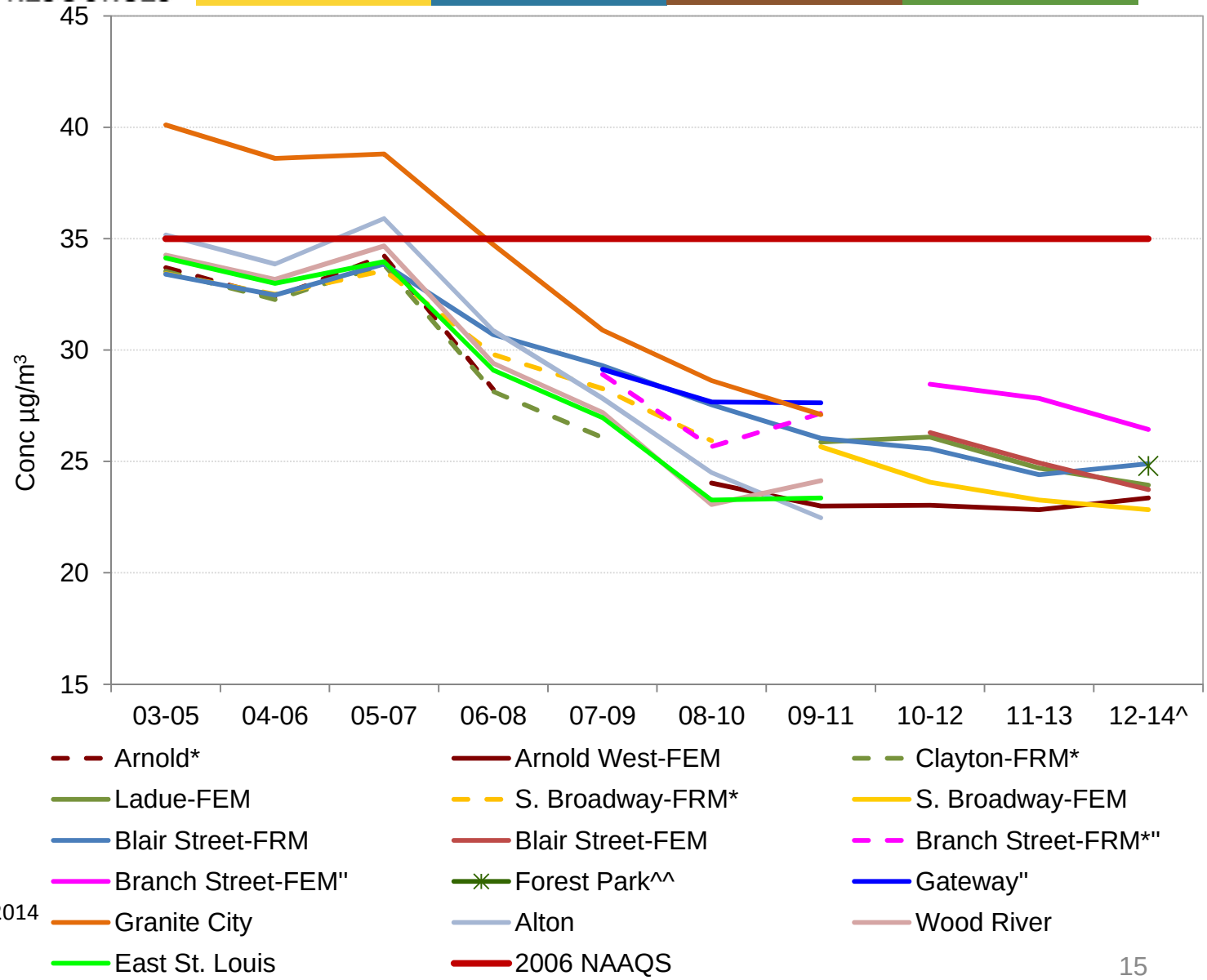
$PM_{2.5}$ 24-hour Average Ambient Air Monitoring Trends (2003-2014)

- MO Sites in Compliance



^Quality assured through Dec 2014
*Discontinued
^^<3years of data
''Middle Scale

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

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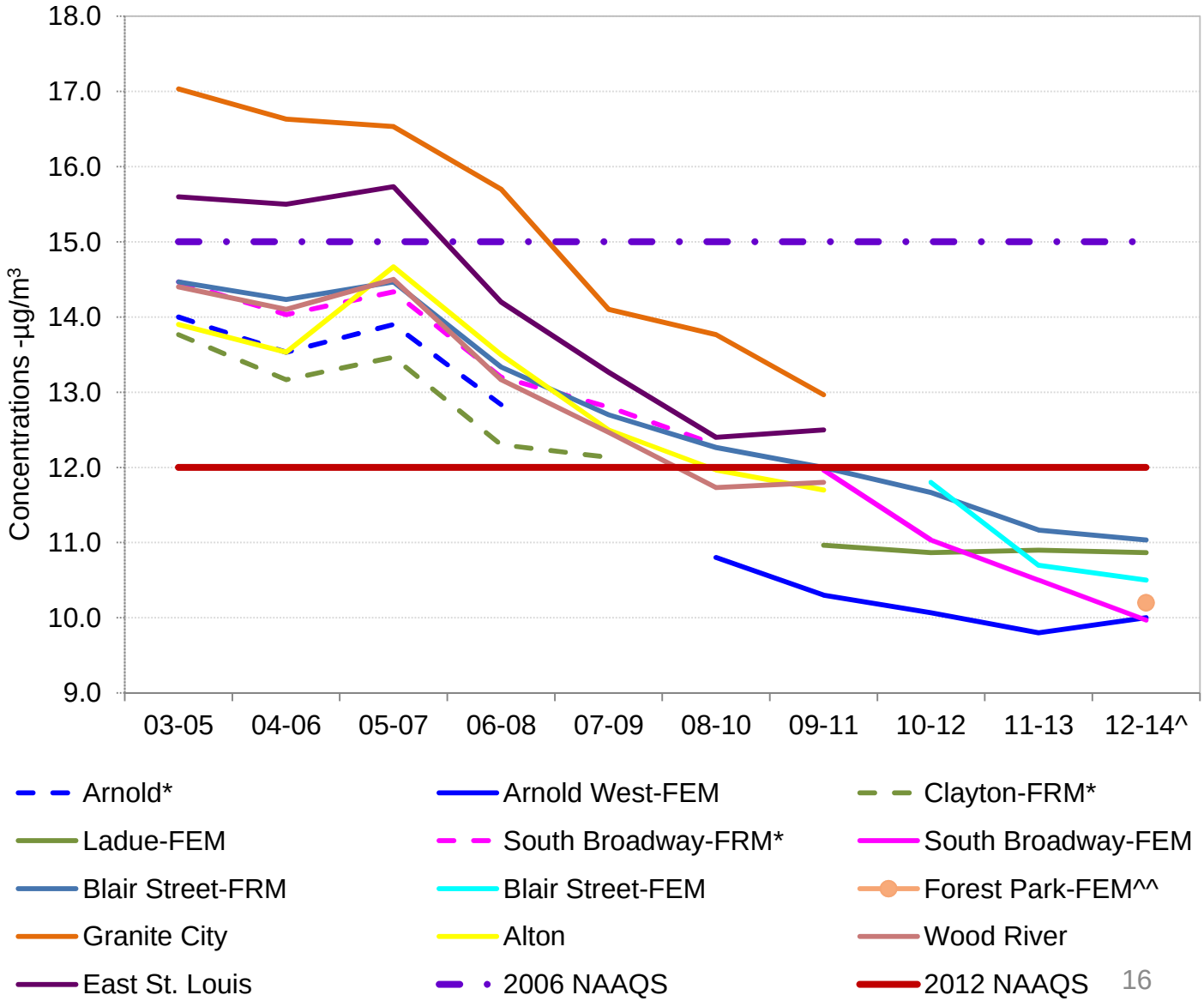
$PM_{2.5}$ Annual Average Ambient Air Monitoring Trends (2003-2014)

- MO Sites in Compliance



^Quality assured through Dec 2014
*Discontinued
^^<3years of data

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

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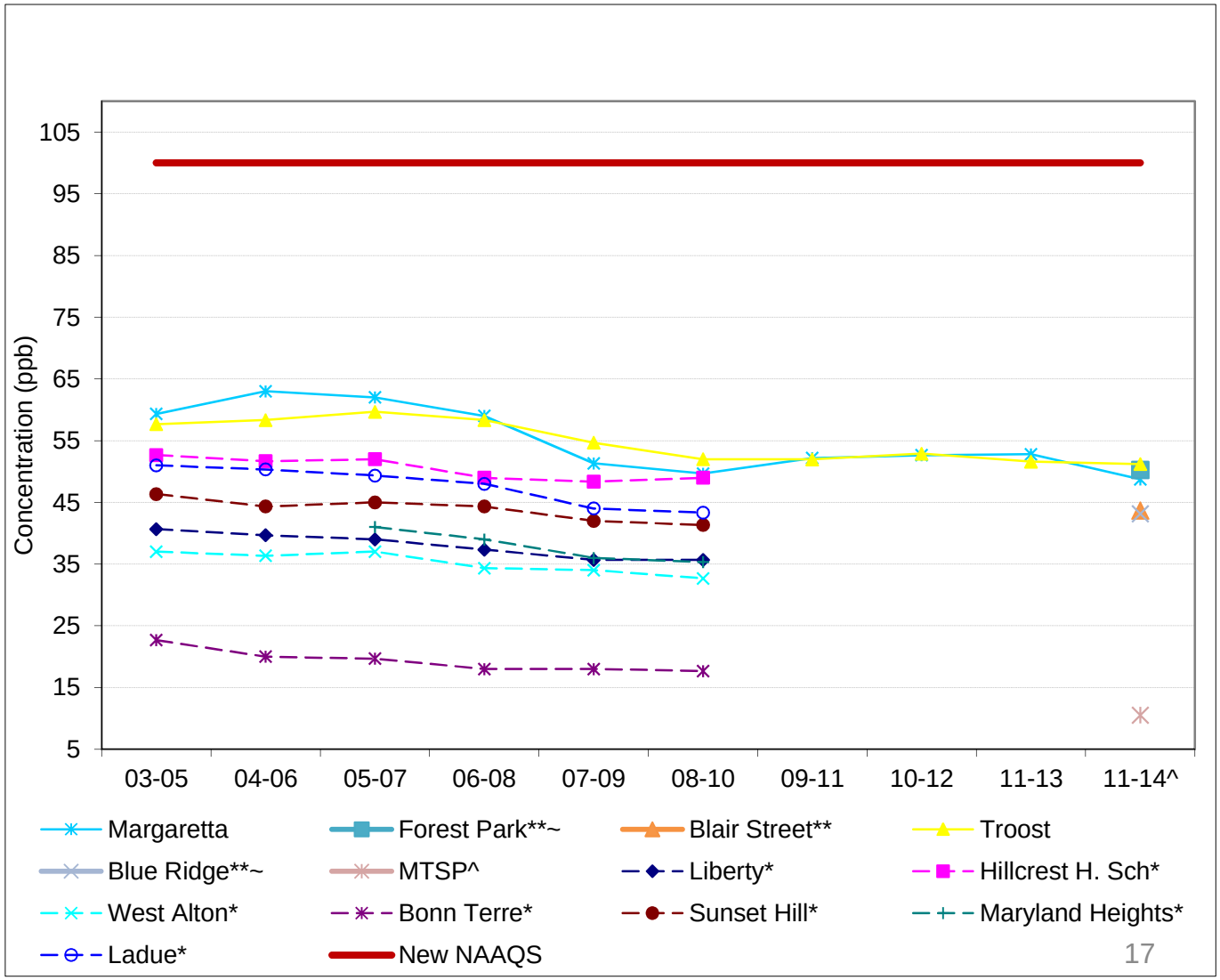
NO_2

Missouri 3-year Average of the 98th Percentile of the Daily 1-hr Maximum NO_2 Concentrations

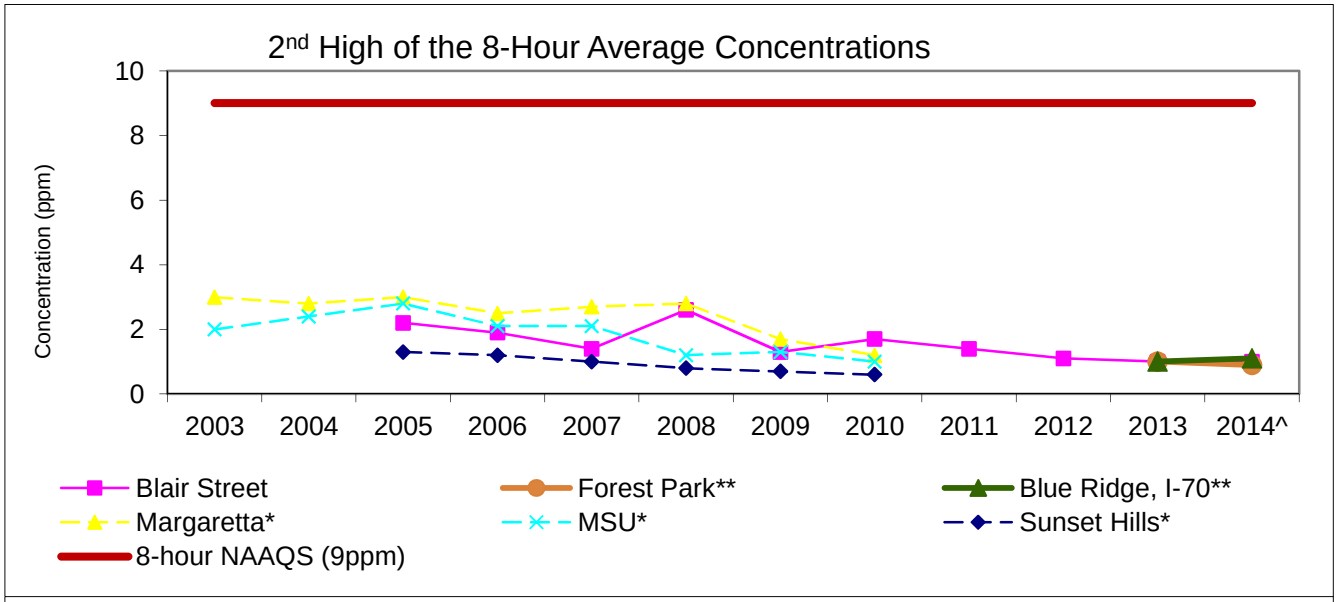
(1-hr NAAQS = 100ppb)

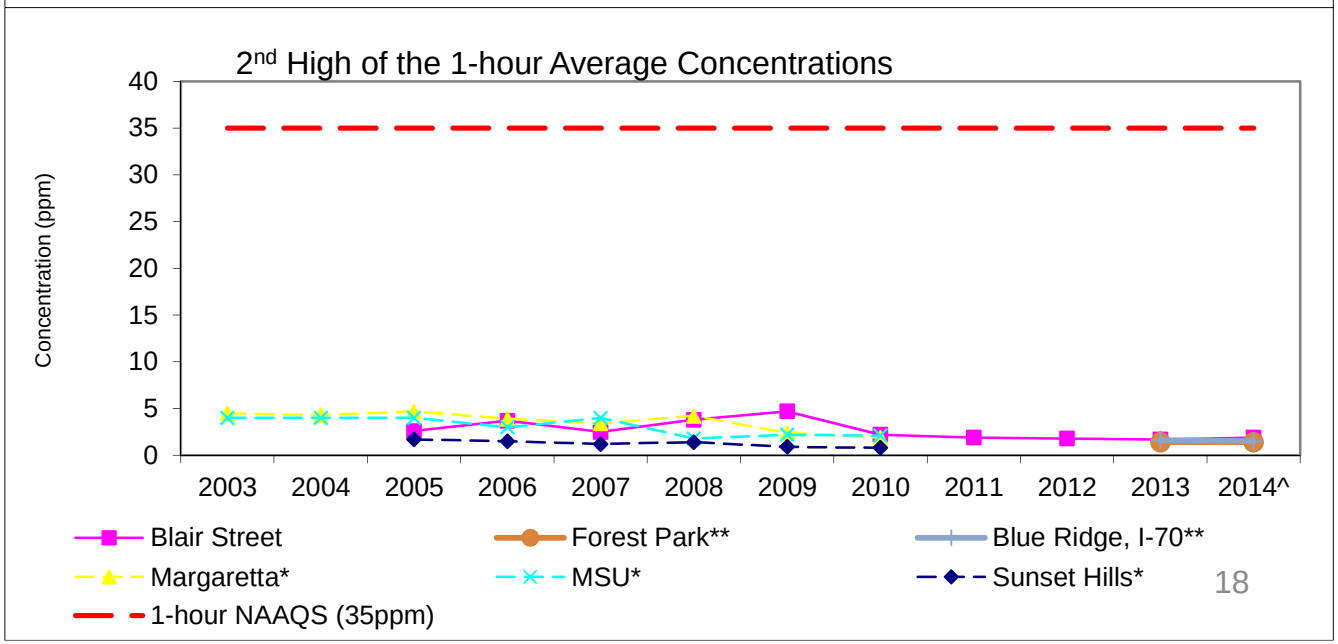


^Quality assured data through Dec, 2014
*Discontinued
~Near Roadway
**Less than 3 years of data
^2014 98th Percentile

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

Carbon Monoxide (CO)





^Quality assured data through Dec, 2014
**Near Roadway Monitor (<3yrs of data)
*Discontinued

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Opportunities for Improvement

- **Ozone**: Three MO sites in the St. Louis area violate the 2008 standard of 75 ppb based on 2012-2014 data. The 2012 ozone season is driving design values.
  – Monitoring period over which EPA may designate areas determines path forward.

- **SO_2**: Two areas: Jackson (partial), and Jefferson counties (partial), violate the 2010 1-hr standard. – *Attainment Demonstrations are being developed*
  Note: Jefferson county Mott St. and Buick North East SO_2 monitors anticipated to be in compliance by the end of 2015...

- **Lead**: Three areas: Herculaneum, Iron/Dent/Reynolds (partial counties) (Buick), and Holt Co. (Exide) violate the 2008 3-month standard of 0.15 µg/m^3. One intermittent violation in the Glover MO area (not expected to be recurring).
  –*Attainment Demonstrations for each area (sans Glover) have been submitted for SIP revisions.*
  No monitors are currently contributing to a lead NAAQS violation.

- **PM_{10}**: One small area in St. Louis City violates the 24-hour of 150 µg/m^3 NAAQS
  – Small area of impact, single source or cluster of sources. *Compliance plans/strategy for the area are being developed. Carthage is now in attainment and compliance plan has been submitted for SIP revision.*

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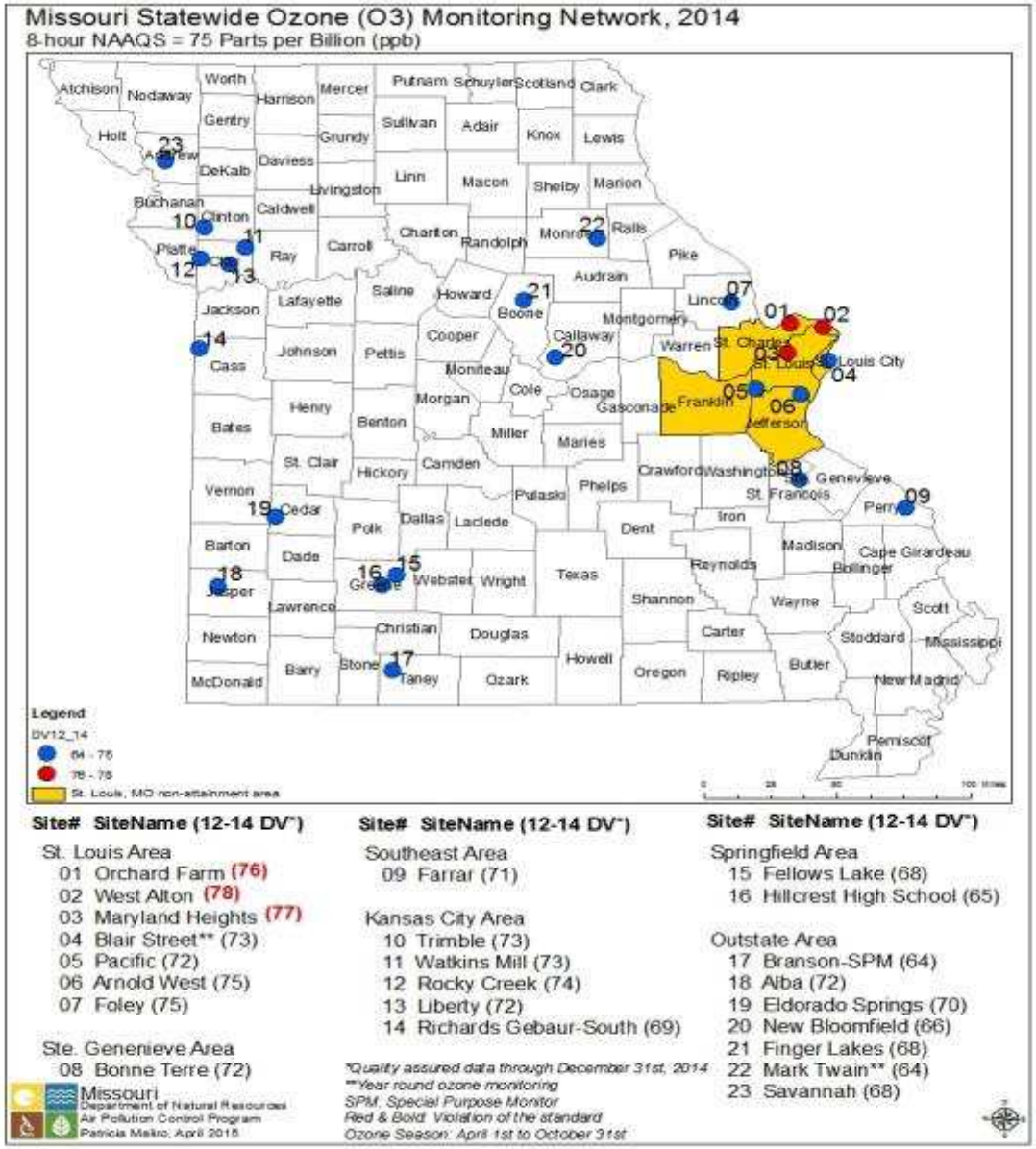
Ozone Monitoring Network



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

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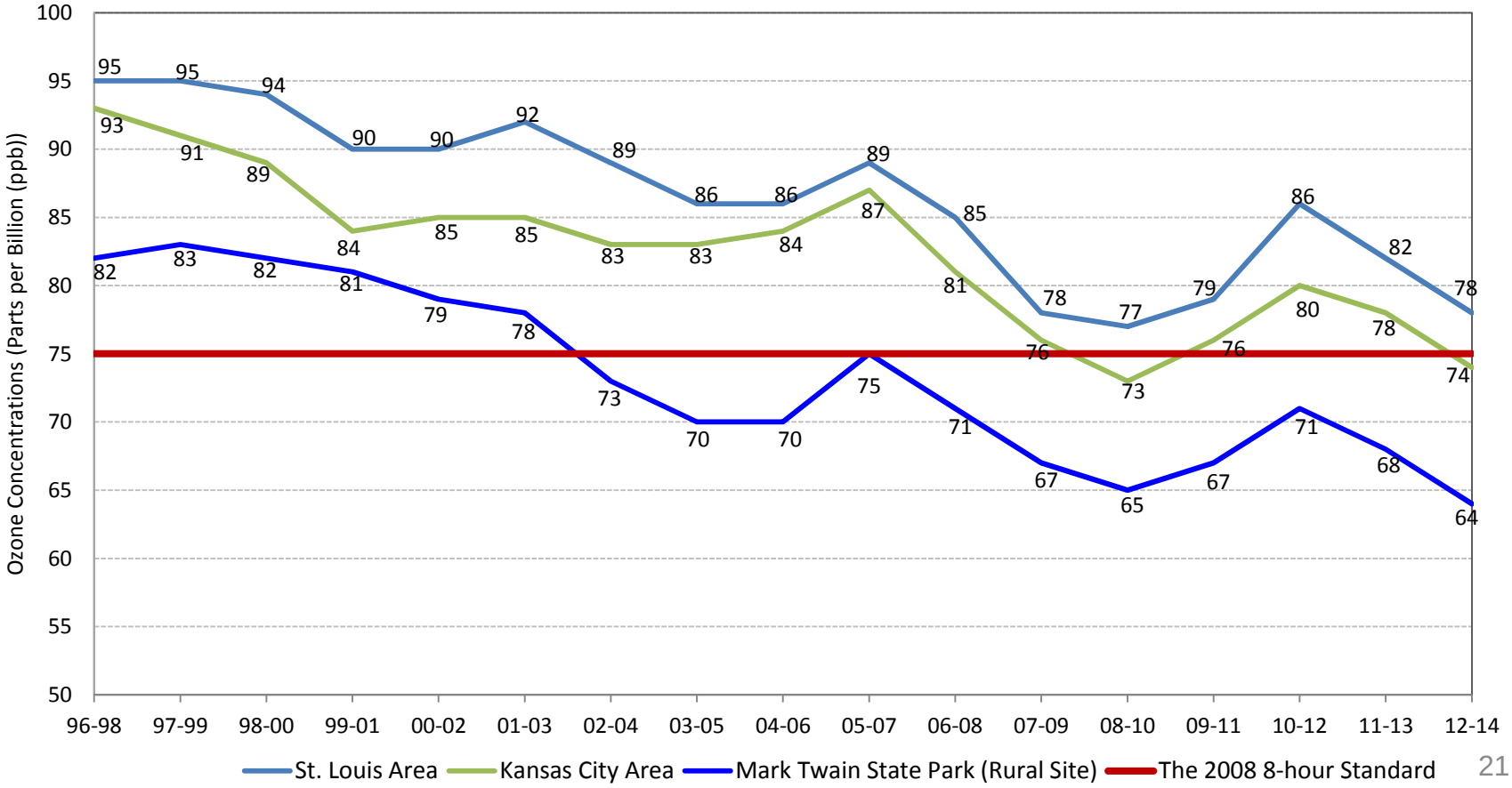
Ozone (O_3) Ambient Air Monitoring

1996-2014 8-hour Ozone Design Value Trends (ppb)
St. Louis and Kansas City Areas and a Rural Site[a]
([a]Quality Assured Data Through December 31, 2014)



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

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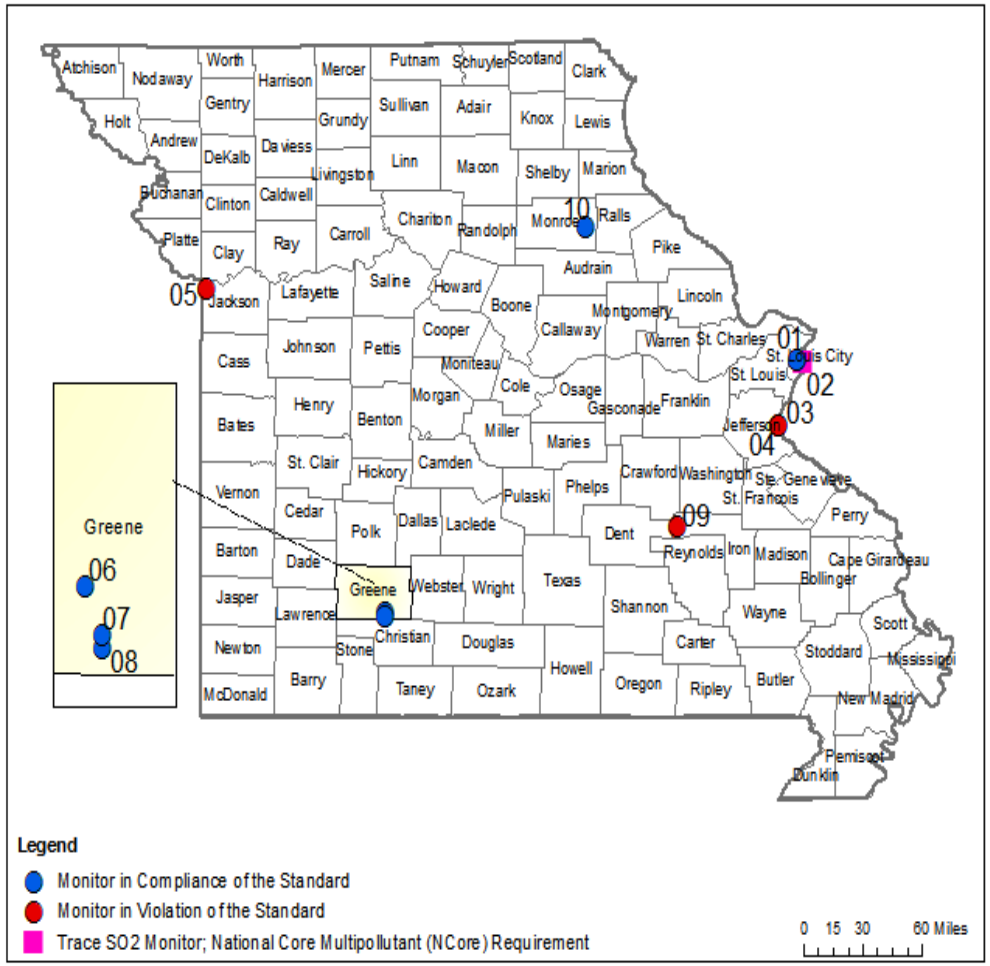
SO_2 Monitoring Network, 2014



Site# Site Name (12-14 Design Values* (ppb))

St. Louis Area, MO

01 Margaretta (26
02 Blair Street (46)
03 Herculaneum, Main Street** (172^^)
04 Herculaneum, Mott Street (143)

Kansas City, MO

05 Troost (150)

Springfield Area, MO

06 South Charleston (35)
07 Wildwood Lane^** (40^^)
08 James River-South^ (32)

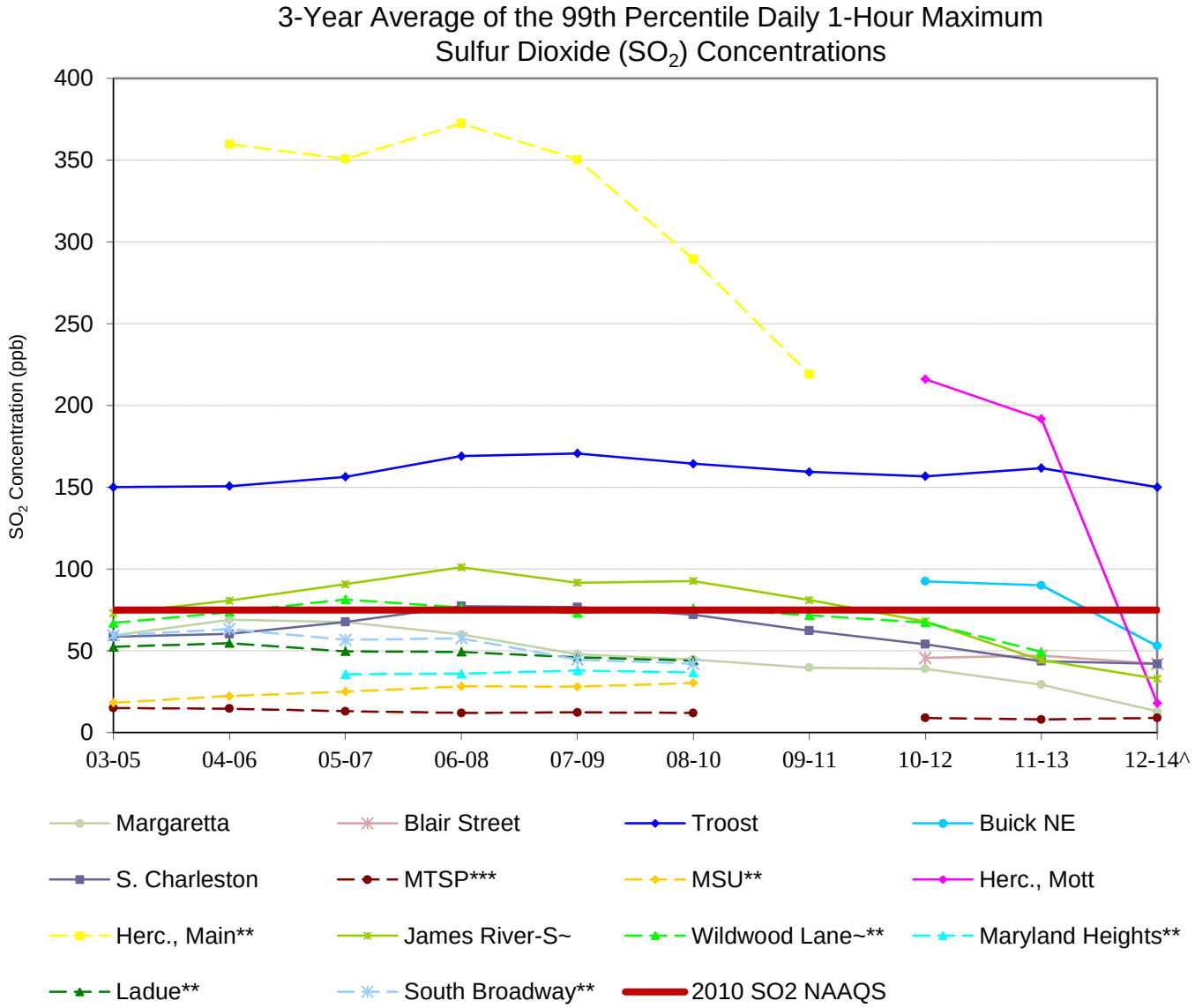
Outstate Area

09 Buick NE (76)
10 Mark Twain State Park (8^^)

**Quality assured data through December 31st, 2013*
***Discontinued monitor*
^Industry monitor
^^Less than 3 years of data

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

SO_2



^Quality assured data through Dec, 2014
~Industry
**Discontinued
***<3years of data

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

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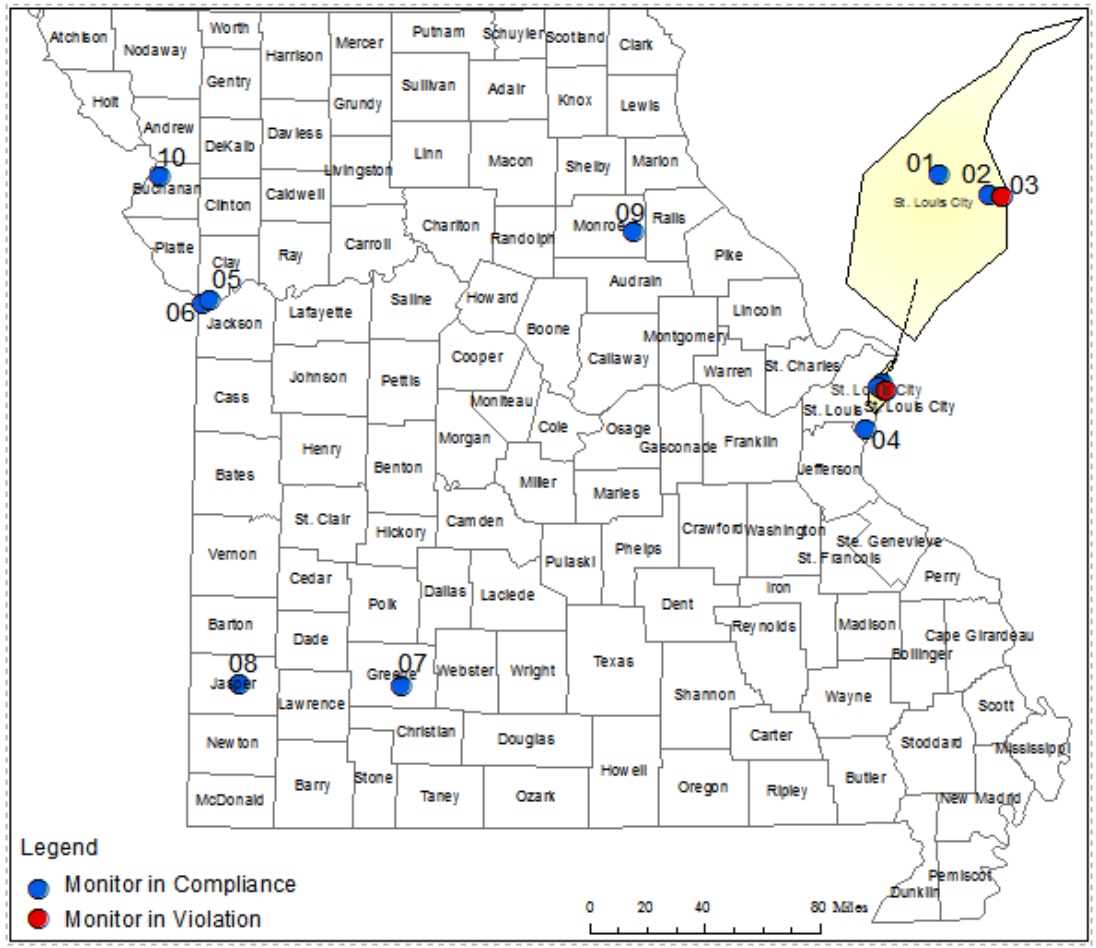
PM_{10} Monitoring Network, 2014



Site# Site Name (12-14 # of Expected Exceedances*)

St. Louis Area, MO

01 Hall Street** (0.0)
02 Margaretta** (0.0)
03 Blair Street (0.0)
04 Branch Street** (**2.1**)
05 Oakville** (0.0)

Kansas City, MO

06 Troost (0.0)
07 Front Street** (0.0)

Springfield Area, MO

08 Hillcrest High School**^ (0.0)

Outstate Area

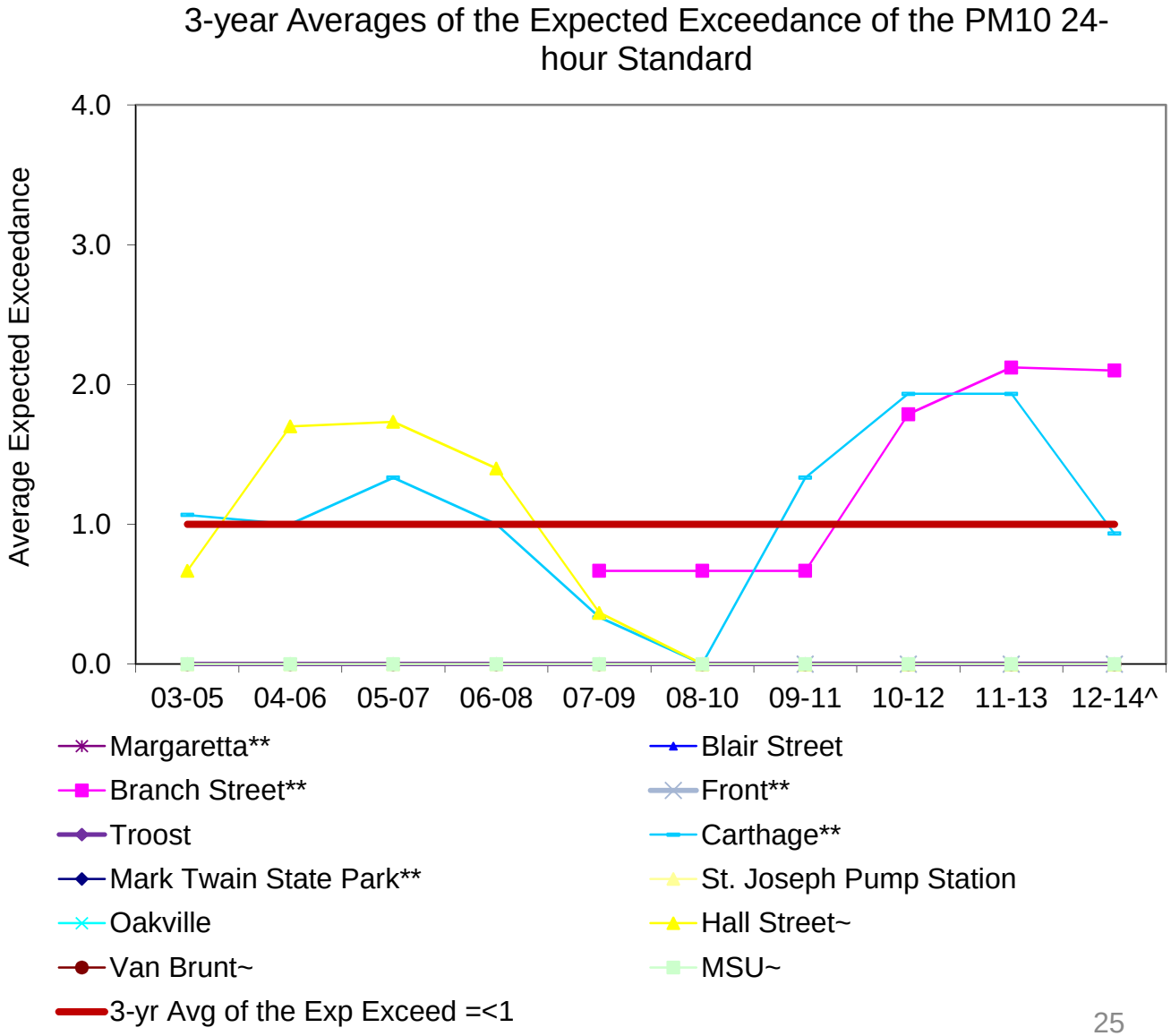
09 Carthage** (0.9)
10 Mark Twain State Park**(0.0)
11 St. Joseph Pump Station (0.0)

**Quality assured data through December 31st, 2013*
^Relocated from MSU, April 2015 (-)
***Continuous monitor.*

The 24-hour standard is attained when the expected number of exceedances is less than or equal to one (1) when averaged over three (3) calendar years.

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

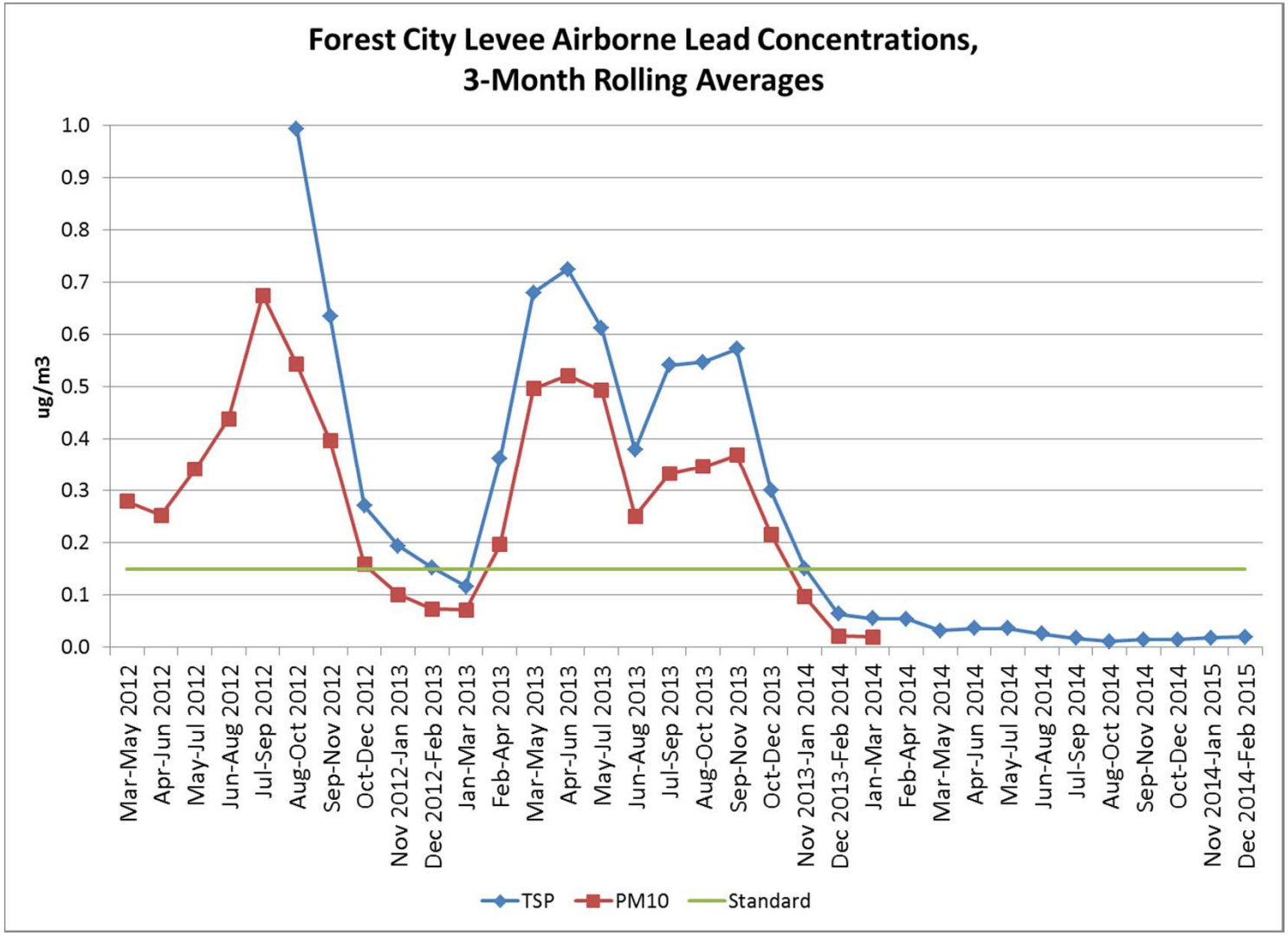
PM_{10}



^Quality Assured data through Dec 31, 2014
**Continuous Monitor
~Discontinued

Data Source: Environmental Protection Agency Air Quality System (EPA AQS), AMP480 Report, 04/30/2015

Lead Monitoring -Exide Trends



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New Projects-Near-Roadway

The second St. Louis Near-Roadway Monitoring site at Rider Trail/I-70 was installed in January 2015

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Other Projects -Blair St., St. Louis City

- Xact

  →continuous metals monitoring (1-hour averages)
  →supplement the NATTS PM_{10} metals sampling

- The Sunset OC/EC Monitoring

  →Organic and Elemental Carbon Monitor Evaluation Project

  →Began 2011

  →Possible collocated sampling project

View and Download Site Data at: http://www.epa.gov/airdata/

Design Value Reports: http://dnr.mo.gov/env/apcp/airpollutants.htm

2015 Monitoring Network Plan: http://dnr.mo.gov/env/apcp/docs/2015-monitoring-network-plan.pdf

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Division of Environmental Quality

Director: Leanne Tippett Mosby

June 23, 2015

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.