MISSOURI DEPARTMENT OF NATURAL RESOURCES

2017 Near-Roadway Ambient Air Monitoring Update

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Air Quality Advisory Committee Meeting (AQAC)
East-West Gateway, St. Louis MO
April 25, 2017

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Presentation Overview

- Network Requirements
- Data Analysis: Traffic Counts, NO_2, CO, Black Carbon, and Particulate Matter
- Website Resources

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Near-Roadway Requirements

- **NO_2:** Final rule revising the NAAQS*, published 2/9/2010; Revised 3/14/2013 and 12/30/2016
- requires near-road (i.e., $\leq$ 50 m) NO_2 monitoring at
  - 2 sites in the St. Louis CBSA and
  - 1 site in the Kansas City CBSA (based on population and traffic count).

  - First St. Louis site 1/2013
  - Second St. Louis site begin operation 1/2015
  - Kansas City site began operation 7/2013

Other Required Pollutants- **CO**, **$PM_{2.5}$** One site each required in St. Louis and Kansas City.

Other pollutants funded by EPA Grant: **Black Carbon**, **PM_{10}**, **$PM_{10\text{-}2.5}$**, **Meteorology**

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Near-Roadway Site Summary

Site	2010 AADT	FE-AADT	FE-AADT Rank in CBSA	Start Date	NO_2	CO	$PM_{2.5}$	Black Carbon	PM_{10} & $PM_{10\text{-}2.5}$	Meteorology	SO_2
St. Louis											
Forest Park (I-64 Westbound)	159,326	360,077	8	January 2013	X	X	X	X	X	X	
Rider Trail, I-70 (I-70 & 270 West of interchange)	161,338	364,634	7	January 2015	X					X	X
Kansas City											
Blue Ridge, I-70 (I-70 Westbound near Sterling Ave.)	114,495	347,582	3	July 2013	X	X	X	X	X	X	

AADT= Annual Average Daily Traffic Count

FE-AADT= Fleet Equivalent AADT- Adjustment for heavy duty vehicle counts

More Information: https://www3.epa.gov/ttn/amtic/nearroad.html

Data Trends

Black Carbon Annual Average Trends, 2003-2016

^Quality assured data through December 31, 2016
^^Near roadway
2016 data is reported under local condition

Note:
New monitor model used at all sites by 2014.

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Nitrogen Dioxide (NO_2) Annual 98th Percentile Trends, 2003-2016

^Quality assured data through December 31, 2016
^^Near Roadway Monitor
~<3 years of data
* Discontinued Monitor

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Carbon Monoxide (CO) Annual Average Trends, 2003-2016 (2nd Highs by site)

^Quality Assured data through December 31, 2016
^^Near Roadway Monitor

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$PM_{2.5}$ Annual Average Trends, 2003-2016 for Selected Sites

^Quality assured data through December 31, 2016
^^Near Roadway Monitor

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Traffic Counts

- Data provided by MoDOT
- Hourly data only available for Rider Trail I-70 and Blue Ridge I-70
- Lots of traffic count data (by length of vehicle, eastbound, westbound)
- Trends slides only use traffic count totals

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Acknowledgments

- MoDOT- Traffic count data
- MoDNR APCP data analysis: -Jerry Downs, Brandi Prater, Patricia Maliro
- Site Operation: MoDNR Environmental Services Program

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Website Resources

Monitoring Information- 'Bookmark'

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

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Monitoring Site GIS Map

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Active site detail

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Rider Trail I-70 Monitoring Site

Address: 13080 Hollenberg Dr.
Bridgeton, MO 63044

Pollutants monitored: Nitrogen dioxide (NO_2) and sulfur dioxide (SO_2)

Date established: Jan. 1, 2015

Site coordinates

- Latitude: 38.75264°
- Longitude: -90.44884°

County: St. Louis

EPA Site No: 291890016

The Rider Trail site off Interstate 70 at Exit 231B, Earth City, is the second air monitoring station in the St. Louis area to provide near-road data. The site is in compliance with the one-hour NO_2 standard of 100 parts per billion (ppb). The department began monitoring SO_2 at the site in May 2016. Preliminary data show that the site is in compliance with the one-hour SO_2 standard of 75 parts per billion (ppb). Both pollutants negatively affect respiration.

The following webpage provides additional information about SO_2 monitoring in the area: **dnr.mo.gov/bridgeton/index.html.**

Nitrogen Dioxide (NO_2) Data*

In 2010, EPA established a new one-hour NO_2 standard of 100 parts per billion.
An area is in compliance if the design value is at or below the standard.
The form to determine design value requires three years of data — the average NO_2 concentrations from each hour. The department and EPA calculate the design value, using the 98th percentile of one-hour daily maximum concentrations, averaged over three years.

Weekly summary of all sites that monitor NO_2

Preliminary up-to-date one-hour averages from Rider Trail.

- NO_2 data in the fifth column

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Division of Environmental Quality

Acting Director: Steve Feeler

Date: April 25, 2017

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