



## **Air Quality Analysis for Nitrogen Dioxide**

The following information is for the ambient air monitors operated by the state. Data from these monitors is reported to the U.S. Environmental Protection Agency, or EPA's Air Quality System database, which constitutes the official record of air quality data. The monitoring information provided in the charts below highlights air pollutant levels (if any) that are in violation of the National Ambient Air Quality Standards.

In February 2010, EPA established a new 1-hour primary nitrogen dioxide standard of 100 parts per billion, based on the 3-year average of the 98<sup>th</sup> percentile of the yearly distribution of 1-hour daily maximum concentrations. On April 6, 2018, EPA retained, without revision, the current primary National Ambient Air Quality Standards (NAAQS) for nitrogen dioxide (NO<sub>2</sub>). For a full year of data, the 98<sup>th</sup> percentile corresponds to the 8<sup>th</sup> highest 1-hour daily maximum concentration. This standard was established on the basis of the health effects of nitrogen dioxide on the human respiratory system. Nitrogen oxides also contribute to the formation of ground-level ozone and to the formation of fine particulate matter in the air.

No monitors in Missouri have monitored nonattainment of this standard, and all counties in Missouri have been designated as unclassifiable/attainment by EPA, based on state recommendation.

The rule that implemented the revised standard in 2010 also included a new requirement for near-road nitrogen dioxide monitoring to help evaluate the potential impact of motor vehicle exhaust emissions on air quality near busy roadways. The first near-road site in Missouri began operation in January 2013 in St. Louis. The second near-road site, in Kansas City, began operation in July 2013. A third site, in the St. Louis area, began operation in January 2015. The following map shows the locations of nitrogen dioxide monitors in Missouri, including the first two near-road monitoring sites. The following tables will include monitoring data from these sites as the data become available, and monitoring results will be compared to the standard.

For more information about nitrogen dioxide, see the following EPA website, which includes links to additional information on health effects, standards, implementation, etc.:

<https://www.epa.gov/no2-pollution>



# One-hour Nitrogen Dioxide (NO<sub>2</sub>) Design Values<sup>a</sup>

Annual summary through January 13, 2019

Site	County	98 <sup>th</sup> Percentile Values					Critical Values	Exceedances	Design Values		
		Parts per billion (ppb)				Year-to-date			>100 ppb (2010 Standard)		
		2015	2016	2017	2018 <sup>b</sup>	2019 <sup>cd</sup>	CV - 100	2019 <sup>c</sup>	15-17	16-18 <sup>b</sup>	17-19 <sup>c</sup>
<b>St. Louis</b>											
Forest Park, I-64*	St. Louis City	46.1	44.1	44.6	47.2	21.6	209.7	0	45	45	38
Blair Street**	St. Louis City	45.5	44.1	46.7	45.8	20.9	209.0	0	45	46	38
Margaretta	St. Louis City	46.3	44.6	42.7	46.9	18.6	211.9	0	45	45	36
Rider Trail, I-70*	St. Louis	43.5	42.3	39.6	40.4	17.1	221.5	0	42	41	32
<b>OutState</b>											
Mark Twain State Park***	Monroe	9.2	7.8	8.8	8.8	3.4	283.9	0	9	8	7
<b>Kansas City</b>											
Troost	Jackson	52.3	46.4	46.9	48.4	20.7	206.2	0	49	47	39
Blue Ridge, I-70*	Jackson	44.7	38.9	44.1	43.0	18.3	214.4	0	43	42	35
								0			

<sup>a</sup>Quality assured data through Dec. 31, 2017.

<sup>b</sup>Preliminary data through Dec. 31, 2018. Do not quote, do not cite.

<sup>c</sup>Year-to-date preliminary data. Do not quote, do not cite.

<sup>d</sup>For 2019 the one-hour NO<sub>2</sub> concentrations are the eighth highest daily maximum 1-hour NO<sub>2</sub> average concentration measured year-to-date.

\*Near-Road sites.

\*\*National (Ncore) multi-pollutant site.

\*\*\*Background site.

\*\*\*3-year design value can not be calculated. Design value in red and bold is a violation of the NAAQS.

**CV - 100:**

The critical value (CV) is the current year's 98<sup>th</sup> percentile, which, if monitored, could yield a violation of the NO<sub>2</sub> standard for the most current three year period. (CV = 301.5 ppb – last year's 98<sup>th</sup> percentile – previous year's 98<sup>th</sup> percentile)

The highlighted field indicates that the data set does not meet the completeness criteria of 40 CFR Part 50 Appendix S, Section 3 for the given site. Use of incomplete data for designation purposes is subject to EPA approval consistent with 40 CFR Part 50 Appendix S, 3.1 (c).

Data Disclaimer:

Recent monitoring data is raw data. It has not been validated and may contain errors.

1. The data is obtained from automated, continuous instruments; no human has reviewed or checked the accuracy of recent data.
2. The recent data have been subject to only preliminary automated quality assurance procedures.
3. Special conditions such as power outages and equipment malfunction can produce invalid data.
4. The department posts this data for public awareness. Do not use the data in medical or scientific studies. Do not rely on the data for regulatory purposes.
5. Differences because of data rounding may exist between this report and reports generated by EPA's Air Quality System (AQS). In most cases historical data should be close to values calculated in AQS but differences are possible.
6. Contact the department's Air Pollution Control Program to obtain quality assured data. Typically, 90 days after the quarter of data measurement, quality assured data will appear in EPA's Air Quality Assurance System. However, ambient air monitoring data covering a whole year typically do not appear as certified data in EPA's system until the following May.



## Eight Highest one-hour NO<sub>2</sub> Values

Through January 13, 2019

**2018<sup>c</sup>**

Year-to-date in parts per billion (ppb)

<b><i>St. Louis</i></b>	<b>1<sup>st</sup> High</b>	<b>2<sup>nd</sup> High</b>	<b>3<sup>rd</sup> High</b>	<b>4<sup>th</sup> High</b>	<b>5<sup>th</sup> High</b>	<b>6<sup>th</sup> High</b>	<b>7<sup>th</sup> High</b>	<b>8<sup>th</sup> High</b>
Forest Park, I-64*	47.2	44.0	43.0	38.3	37.9	33.3	28.4	21.6
Blair Street**	38.4	34.1	34.1	30.0	29.7	28.2	26.3	20.9
Margaretta	41.7	40.6	38.1	32.2	32.2	31.1	30.7	18.6
Rider Trail, I-70*	31.1	30.4	30.0	29.4	29.3	25.6	21.4	17.1

### ***OutState***

Mark Twain State Park***	11.0	9.5	8.0	6.5	4.8	4.4	3.8	3.4
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### ***Kansas City***

Troost	42.2	35.6	34.3	34.3	32.2	24.9	21.7	20.7
Blue Ridge, I-70*	38.1	35.7	27.7	26.8	26.4	24.8	22.1	18.3

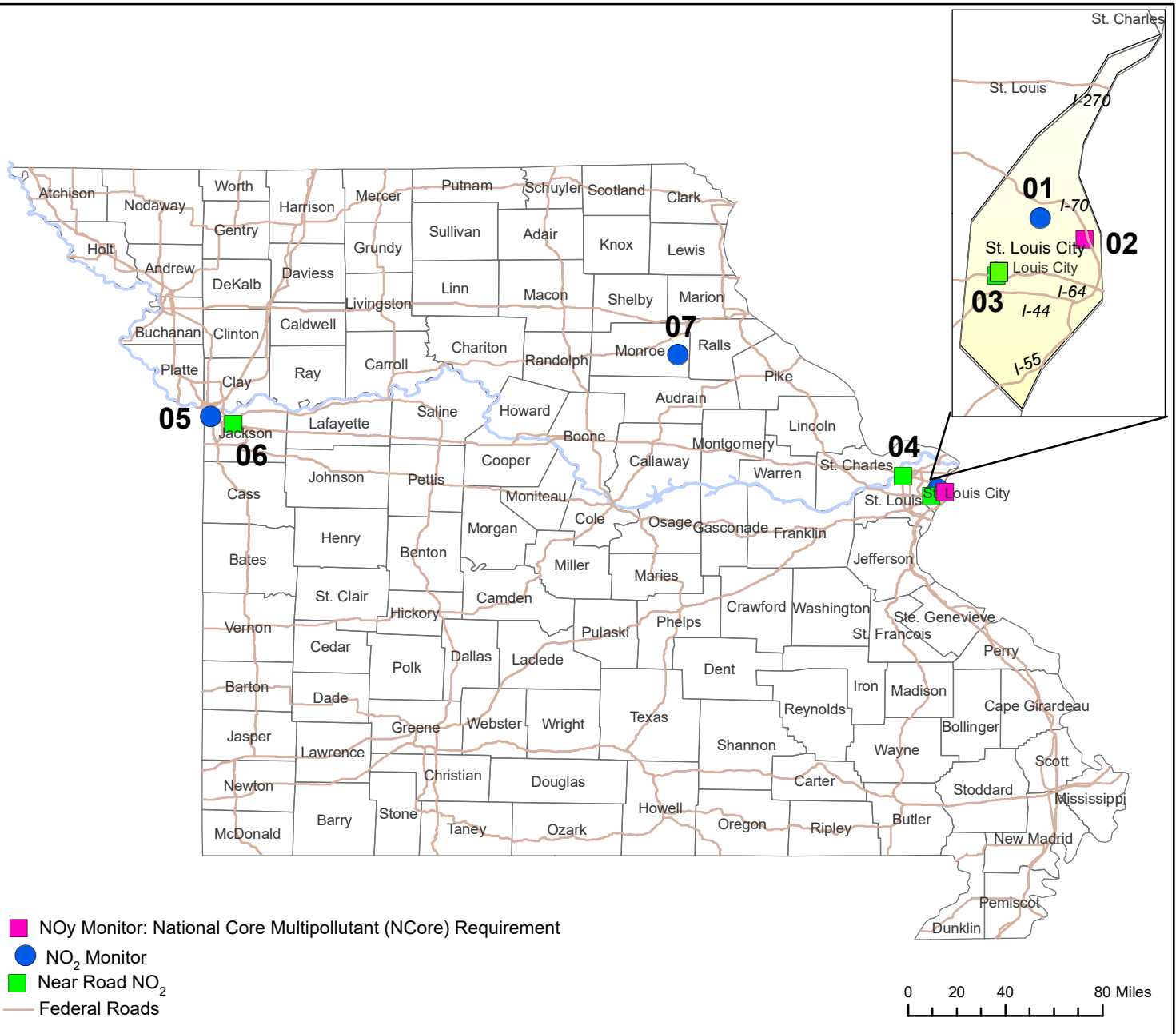
<sup>c</sup>Year-to-date preliminary data. Do not cite or quote.

\*Near-Road sites.

\*\*National (Ncore) multi-pollutant site.

\*\*\*Background site.

# Missouri Statewide Nitrogen Dioxide (NO<sub>2</sub>) Monitoring Network, 2019



## St. Louis Area

- 01 Margareta
- 02 Blair Street\*\*
- 03 Forest Park, I-64\*
- 04 Rider Trail, I-70\*

## Kansas City Area

- 05 Troost
- 06 Blue Ridge, I-70\*
- 07 Mark Twain State Park\*\*\*

\*Near-Road sites

\*\*National (NCore) multi-pollutant site

\*\*\*Background site

