



### **Air Quality Analysis for Fine Particulate Matter (PM<sub>2.5</sub>)**

The following information comes from the ambient air monitors operated by the state. Data from these monitors is uploaded to the 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.

PM<sub>2.5</sub> is airborne particulate matter with an aerodynamic diameter smaller than 2.5 micrometers. It results from both direct emissions from air pollution sources (primary PM<sub>2.5</sub>) and from atmospheric reactions between gaseous species that form particulate matter (secondary PM<sub>2.5</sub>). Airborne particulate matter can have adverse effects on the respiratory system and also on the heart.

In December 2012, EPA made the annual primary PM<sub>2.5</sub> standard more stringent, reducing it from 15 to 12 micrograms per cubic meter, based on the three-year average of annual means. The 24-hour primary PM<sub>2.5</sub> standard was retained at 35 micrograms per cubic meter, based on the 98<sup>th</sup> percentile of 24-hour measurements, averaged over three years.

The St. Louis area is officially classified as a nonattainment area for the previous annual PM<sub>2.5</sub> standard of 15 µg/m<sup>3</sup> although area monitors currently are showing compliance with this standard and the department is working with EPA to redesignate the area as attainment. The entire state is classified as unclassifiable/attainment based on the 24-hour PM<sub>2.5</sub> standard.

No monitors in Missouri that represent the appropriate area spatial scale of representativeness for comparison to the annual standard have recorded violations of the annual PM<sub>2.5</sub> standard of 12 µg/m<sup>3</sup>. The state of Missouri recommended to EPA a designation of attainment of the 2012 standard for the St. Louis area. EPA designated the area unclassifiable.

For more information about PM<sub>2.5</sub>, see the following EPA website, which includes links to additional information on health effects, standards, implementation, and other information:

<http://www.epa.gov/airquality/particlepollution>



# Annual PM<sub>2.5</sub> Design Values<sup>a</sup>

Date 07/24/17

Site	County	Annual Average (µg/m <sup>3</sup> )					CV - 12	# of days over > 12 µg/m <sup>3</sup>	Design Value		
		2013	2014	2015	2016	2017 <sup>cd</sup>			2017 <sup>c</sup>	13-15	14-16
<b>St. Louis</b>		Year-to-Date						> 12 µg/m <sup>3</sup> (2012 Std)	Year-to-Date		
Arnold West	Jefferson	9.7	10.5	11.6	8.3	8.5	16.3	38	10.6	10.1	9.5
Blair Street (Comb.) <sup>^</sup>	St. Louis City	11.0	11.4	10.4	8.5	7.6	17.3	26	10.9	10.1	8.8
Branch Street~	St. Louis City	11.4	12.0	10.4	9.7	8.8	16.1	38	11.3	10.7	9.6
Forest Park, I-64*	St. Louis City	9.6	10.9	9.2	8.7	7.9	18.3	27	9.9	9.6	8.6
Ladue (Comb.) <sup>^</sup>	St. Louis	11.3	10.5	10.3	8.7	9.3	17.2	41	10.7	9.8	9.4
South Broadway	St. Louis City	10.7	10.1	11.1	8.1	7.3	17.0	28	10.6	9.8	8.8
<b>Kansas City</b>											
Liberty	Clay	8.8	8.8	8.1	6.4	6.8	21.7	16	8.6	7.8	7.1
Richard Gebaur South	Cass	9.2	10.5	8.6	6.3	6.8	21.3	14	9.4	8.5	7.2
Troost	Jackson	9.9	9.2	8.2	8.9	10.3	19.1	56	9.1	8.8	9.1
Blue Ridge, I-70**	Jackson	7.6	7.6	7.3	6.2	7.9	22.7	26	7.5	7.0	7.1
<b>Springfield</b>											
MSU†	Greene	8.3	9.4	8.8	†	†	NA	NA	8.8	†	†
Hillcrest High School***	Greene	-	-	7.3	7.1	7.0	21.8	13	***	***	7.1
<b>Outstate</b>											
Eldorado Springs	Cedar	8.5	8.0	7.1	6.6	6.6	22.5	16	7.9	7.2	6.8
St. Joseph Pump Station	Buchanan	11.1	10.6	9.7	8.1	8.7	18.4	33	10.5	9.5	8.8
								<b>372</b>			

<sup>a</sup>Quality assured data through December 31, 2016.

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

<sup>d</sup>Annual Average concentration measured year-to-date. Annual averages may increase or decrease as more data is collected over the year.

<sup>^</sup>The Blair Street and Ladue Site's PM<sub>2.5</sub> design value is based on a combined site level statistic. That is, if a FEM sample is missing on a given day, a valid collocated FRM sample on that day will be substituted consistent with 40 CFR Part 50, Appendix N, 3.0 (d)(2).

<sup>~</sup>The Branch Street monitor is classified as a unique middle scale monitoring site and not comparable to the annual PM<sub>2.5</sub> NAAQS. The concentrations reported are for informational purposes, only.

\*Near-Roadway site monitoring began on 1/1/2013.

\*\*Near-Roadway site monitoring began on 7/1/2013.

\*\*\*Monitor relocated from MSU and began monitoring on 4/16/2015.

†Monitoring discontinued on 4/15/2015.

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

**CV - 12:** The Critical Value (CV) for the Annual PM<sub>2.5</sub> NAAQS is the current year's annual average which, if monitored, could yield a violation of the 2012 annual PM<sub>2.5</sub> NAAQS for the most current three year period. (CV = 36.15 µg/m<sup>3</sup> - Last year's annual average - previous year's annual average).

The highlighted field indicates that the data set does not meet the completeness criteria of 40 CFR Part 50 Appendix N, Section 4 for the given site. Use of incomplete data for designation purposes is subject to EPA approval consistent with 40 CFR Part 50 Appendix N, 4 .(d).

**For more information about the implications of the daily Air Quality Index (AQI) for PM<sub>2.5</sub> concentrations and related health messages.**

<http://www.airnow.gov/>.

Disclaimer: Data presented on this page is not the Official EPA Air Quality System (AQS) data record and does not constitute the official data record used for regulatory purposes. However, efforts are made to present historical data that closely resembles the results queried from AQS, but rounding or calculation differences can occur.



## 24-Hour PM<sub>2.5</sub> Design Values<sup>a</sup>

Date 7/24/2017

Site	County	98 <sup>th</sup> Percentile					CV - 35	# of Exceedances > 35 µg/m <sup>3</sup> (2006 Std)	Design Value		
		2013	2014	2015	2016	2017 <sup>cd</sup>			2017 <sup>c</sup>	13-15	14-16
<b>St. Louis</b>											
Arnold West	Jefferson	23.5	25.2	24.3	18.8	17.6	63.4	1	24	23	20
Blair Street (Comb.) <sup>^</sup>	St. Louis City	23.3	27.8	23.3	19.6	17.2	63.6	0	25	24	20
Branch Street <sup>~</sup>	St. Louis City	23.8	27.0	22.9	21.1	17.4	62.5	0	25	24	20
Forest Park, I-64*	St. Louis City	20.6	29.0	20.7	20.2	16.5	65.6	0	23	23	19
Ladue (Comb.) <sup>^</sup>	St. Louis	22.5	24.5	23.5	19.3	18.1	63.7	0	24	22	20
South Broadway	St. Louis City	22.3	25.2	25.7	20.2	17.8	60.6	0	24	24	21
<b>Kansas City</b>											
Liberty	Clay	19.1	22.0	17.6	14.6	14.7	74.3	0	20	18	16
Richard Gebaur South	Cass	19.2	24.1	20.7	14.0	14.5	71.8	0	21	20	16
Troost	Jackson	21.5	21.2	17.6	19.9	22.4	69.0	0	20	20	20
Blue Ridge, I-70**	Jackson	18.3	18.3	17.0	13.9	16.5	75.6	0	18	16	16
<b>Springfield</b>											
MSU <sup>†</sup>	Greene	18.5	25.0	18.0	†	†	NA	NA	21	†	†
Hillcrest High School***	Greene	-	-	18.1	15.2	15.9	73.2	0	***	***	16
<b>Outstate</b>											
Eldorado Springs	Cedar	19.1	18.7	18.3	15.5	14.1	72.7	0	19	18	16
St. Joseph Pump Station	Buchanan	23.4	22.5	21.0	17.1	18.6	68.4	1	22	20	19

<sup>a</sup>Quality assured data through December 31, 2016.

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

<sup>d</sup>98<sup>th</sup> Percentile concentration measured year-to-date. 98<sup>th</sup> Percentile concentrations may change as more data is collected over the year.

<sup>^</sup>The Blair Street and Ladue Site's PM<sub>2.5</sub> design value is based on a combined site level statistic. That is, if a FEM sample is missing on a given day, a valid collocated FRM sample on that day will be substituted consistent with 40 CFR Part 50, Appendix N, 3.0 (d)(2).

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†Monitoring discontinued on 4/15/2015.

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

**CV - 35:** The Critical Value (CV) for the 24-hour PM<sub>2.5</sub> NAAQS is the current year's 98<sup>th</sup> percentile which, if monitored, could yield a violation of the 2006 24-Hour PM<sub>2.5</sub> NAAQS for the most current three year period. (CV = 106.5 µg/m<sup>3</sup> - 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 N, Section 4 for the given site. Use of incomplete data for designation purposes is subject to EPA approval consistent with 40 CFR Part 50 Appendix N, 4.(d).

**For more information about the implications of the daily Air Quality Index (AQI) for PM<sub>2.5</sub> concentrations and related health messages.**

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