



**National Ambient Air Quality Standards (NAAQS):**

National Ambient Air Quality Standards consist of primary and secondary standards. The primary standards define levels of air quality which EPA judges are necessary, with an adequate margin of safety, to protect the public health. The secondary standards define levels of air quality which EPA judges necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant. For PM<sub>2.5</sub> the levels of the primary and secondary standards are the same.

**National Ambient Air Quality Standard for PM<sub>2.5</sub> - Annual Standard:**

The annual standard is designed to provide an appropriate level of protection from long-term exposure to PM<sub>2.5</sub>. The standard is met when the annual design value is less than or equal to 12 µg/m<sup>3</sup>. The standard changed from 15 µg/m<sup>3</sup> to 12 µg/m<sup>3</sup> on March 18, 2013. The annual design value is calculated by averaging the annual means of 3 consecutive complete years of air quality data. The table below compares data collected from 2017 through year-to-date 2023 to the PM<sub>2.5</sub> annual standard.

**PM<sub>2.5</sub> Annual Means and Annual Design Values**

Site Name	Annual Means µg/m <sup>3</sup>							Annual Design Values				
	2017	2018	2019	2020	2021	2022	2023	2017-2019	2018-2020	2019-2021	2020-2022	2021-2023
Algonquin	8.3	9.5	10.2	9.3	10.2	9.0	9.4	9.3	9.6	9.9	9.5	9.5
Durrett Lane	8.9	10.2	10.4	9.7	11.2	9.8	10.6	<b>9.8</b>	<b>10.1</b>	<b>10.4</b>	<b>10.2</b>	<b>10.5</b>
Cannons Lane	7.9	9.1	9.6	9.2	9.9	8.5	8.9	8.8	9.3	9.6	9.2	9.1
Watson Lane	8.1	10.5	10.0	9.6	10.6	9.9	10.2	9.6	10.1	10.1	10.0	10.2

**Bold:** Design value for Louisville

**National Ambient Air Quality Standard for PM<sub>2.5</sub> - 24-Hour (Daily) Standard:**

The 24-hour standard is designed to provide an appropriate level of protection from short-term exposure to PM<sub>2.5</sub>. The standard is met when the 24-hour design value is less than or equal to 35 µg/m<sup>3</sup>. The design value is based on 3 consecutive complete years of air quality data and is calculated by taking the average of the 98<sup>th</sup> percentile value for each of the 3 years. The 98<sup>th</sup> percentile value is the 24-hour average out of a year of PM<sub>2.5</sub> monitoring data below which 98 percent of all 24-hour averages fall. The table below compares data collected from 2017 through year-to-date 2023 to the 24-hour standard for PM<sub>2.5</sub>.

**PM<sub>2.5</sub> Annual 98<sup>th</sup> Percentiles and 24-Hour Design Values**

Site Name	Annual 98 <sup>th</sup> Percentile Value µg/m <sup>3</sup>							24-Hour Design Values				
	2017	2018	2019	2020	2021	2022	2023	2017-2019	2018-2020	2019-2021	2020-2022	2021-2023
Algonquin	17.8	23.0	20.2	18.9	26.0	18.3	20.1	20.3	20.7	21.7	21.1	21.5
Durrett Lane	20.7	24.7	22.9	22.4	28.3	22.1	22.7	<b>22.8</b>	<b>23.3</b>	<b>24.5</b>	<b>24.3</b>	<b>24.4</b>
Cannons Lane	17.2	22.2	20.5	20.6	26.1	19.2	20.3	20.0	21.1	22.4	22.0	21.9
Watson Lane	17.7	24.3	21.4	21.3	27.2	21.8	23.8	21.1	22.3	23.3	23.4	24.3

**Bold:** Design value for Louisville



### 8-Hour Ozone Exceedances:

The National Ambient Air Quality Standard for ozone is measured as an 8-hour average. An ozone exceedance occurs when the highest 8-hour average for each day is greater than the NAAQS. The NAAQS was lowered from 80 ppb to 75 ppb in 2007 and from 75 ppb to 70 ppb in 2016. The data below lists the number of exceedances based on the NAAQS at the time the data was collected.

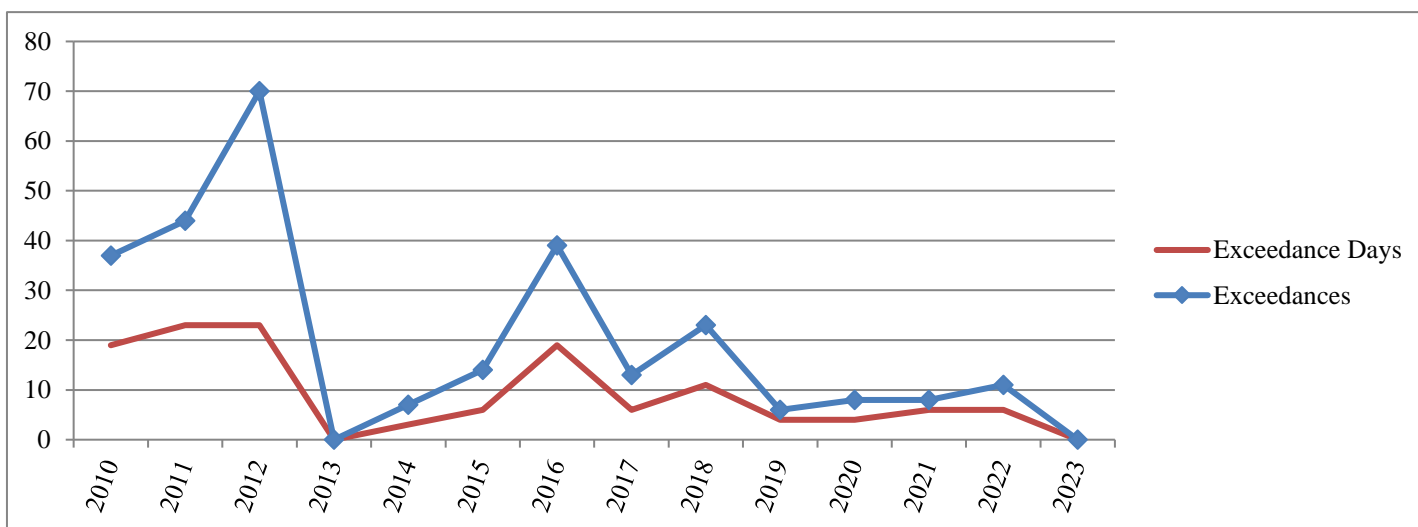
**2010-2023 8-Hour Ozone Exceedance Summary through April 16th**

Year	Charles-town	New Albany	Bates & Carri-thers	Watson	WLKY& Cannons Lane	Buckner	Shepherds-ville	Louisville MSA Total		Jefferson County Total	
								Exceedances	Days	Exceedances	Days
2010	4	2	3	3	15	8	2	37	19	21	15
2011	6	5	6	5	8	13	1	44	23	19	14
2012	8	13	7	11	13	14	4	70	23	31	17
2013	0	0	0	0	0	0	0	0	0	0	0
2014	1	2	0	2	2	0	0	7	3	4	3
2015	3	0	4	1	4	2	0	14	6	9	5
2016	7	6	5	3	14	3	1	39	19	22	16
2017	1	5	1	1	4	1	0	13	6	6	4
2018	4	5	3	2	6	1	2	23	11	11	8
2019	1	0	2	0	2	1	0	6	4	4	2
2020	0	1	1	1	4	0	1	8	4	6	4
2021	0	0	4	1	1	1	1	8	6	6	5
2022	1	0	1	1	6	2	0	11	6	8	6
2023	0	0	0	0	0	0	0	0	0	0	0

\* Cannons Lane replaced WLKY in 2010. Data through 2009 are from WLKY.

\* Carrithers replaced Bates in 2018. Data through 2017 are from Bates.

**Historical Graph of 8-Hour Ozone Exceedances**



## National Ambient Air Quality Standard for Ozone - 8-Hour Standard:

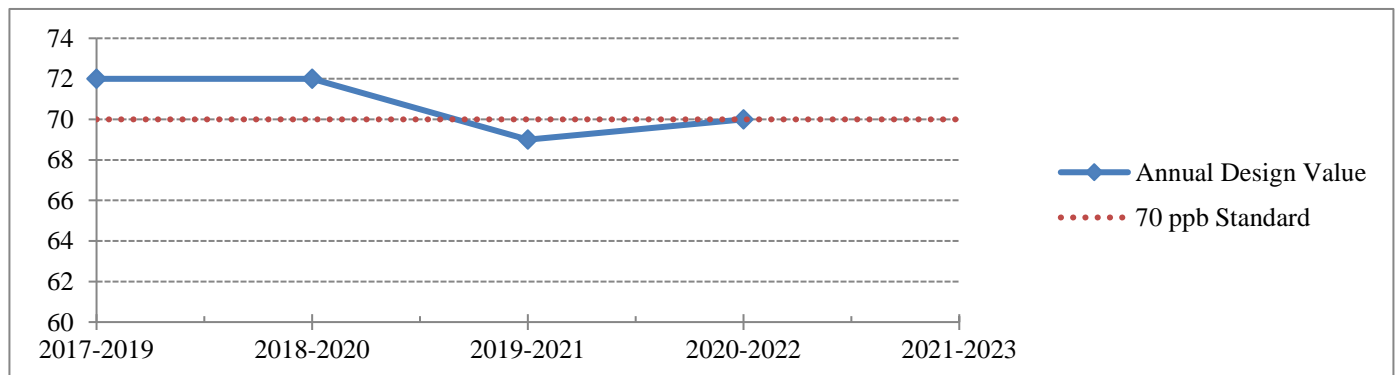
Attainment of the 8-hour standard for ozone at an individual monitor is achieved when the three-year average of the annual fourth-highest daily maximum (4<sup>th</sup> maximum) 8-hour average ozone concentration is less than 71 ppb. This three-year average is the design value for that monitor. The Louisville MSA row represents the largest 4<sup>th</sup> maximum and design value\* for all monitors within the MSA.

### 8-Hour Ozone 4<sup>th</sup> Maximums and Design Values through April 16th

Site Name	4 <sup>th</sup> Maximums							8-Hour Design Values				
	2017	2018	2019	2020	2021	2022	2023	2017-2019	2018-2020	2019-2021	2020-2022	2021-2023
Charlestown	68	71	64	63	63	64		67	66	63	63	
New Albany	74	73	63	66	64	63		70	67	64	64	
Bates/Carrithers	65	70	64	68	73	67		66	67	68	69	
Watson Lane	66	69	65	63	67	67		66	65	65	65	
Cannons Lane	72	77	68	71	69	72		72	72	69	70	
Algonquin	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA	
Buckner	64	69	65	61	65	63		66	65	63	63	
Shepherdsville	63	68	63	65	65	63		64	65	64	64	
Louisville MSA	74	77	68	71	73	72	#N/A	72	72	69	70	#N/A

\* Design Value calculations are approximations based on preliminary summary data and may differ from official design value calculations

### 8-Hour Ozone Design Value Trend Chart





**Attainment of the SO<sub>2</sub> Standard:**

Attainment of the new standard is achieved when the 3-year average of the 99<sup>th</sup> percentile annual distribution of the daily maxima is less than or equal to 75 ppb. Since this value can be calculated from historical data, the table below indicates those values based on 2017-2023 data.

**SO<sub>2</sub> Annual 99<sup>th</sup> Percentiles and Annual Design Values**

Site Name	Annual 99 <sup>th</sup> Percentiles (ppb)							Annual Design Values				
	2017	2018	2019	2020	2021	2022	2023	2017-2019	2018-2020	2019-2021	2020-2022	2021-2023
Watson Lane	14	16	15	15	13	12	10	15	15	14	13	12
Algonquin	11	12	6	5	4	4	7	10	8	5	4	5
Cannons Lane	7	8	9	8	9	8	8	8	8	9	8	8
New Albany	8	9	7	4	4	5	5	8	7	5	4	5

\* Design Value calculations are approximations based on preliminary summary data and may differ from official design value calculations