



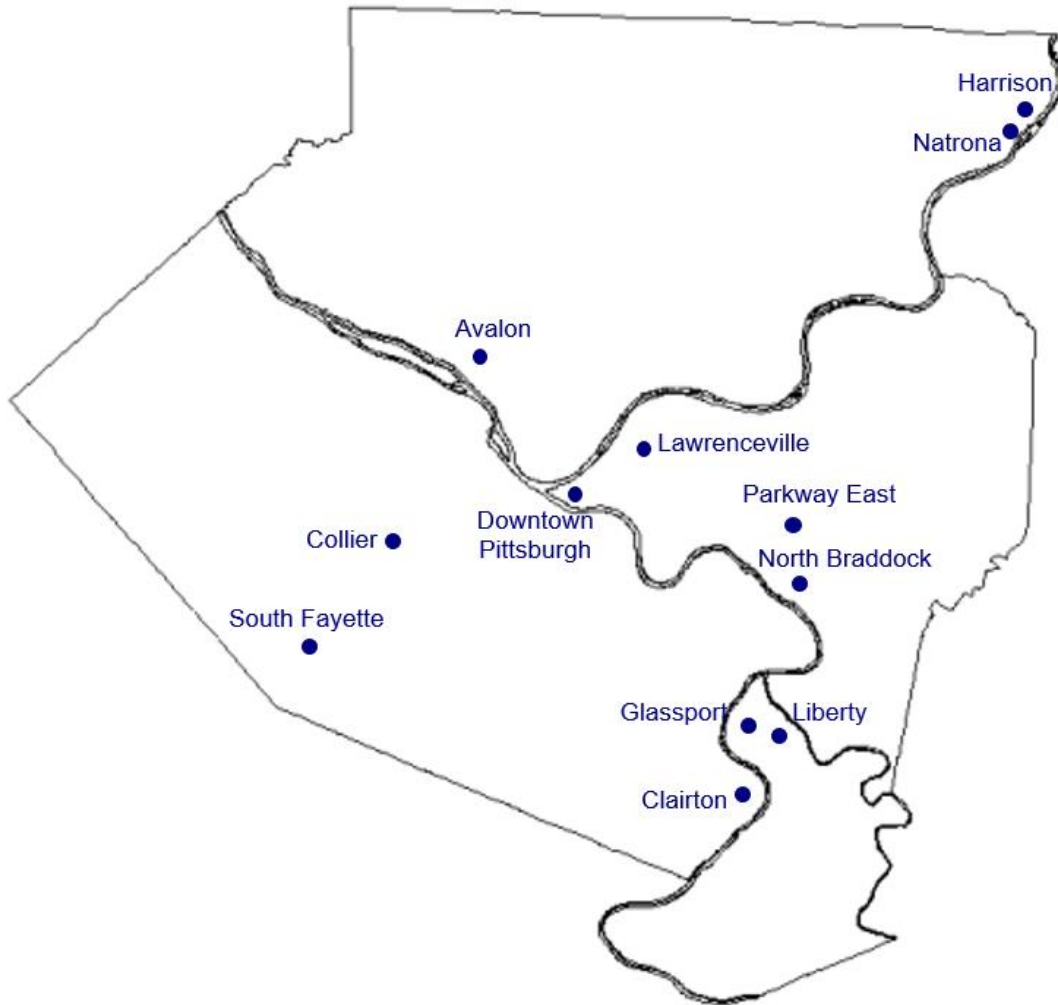
**Allegheny County Health Department  
Air Quality Program  
301 39<sup>th</sup> St., Bldg. #7  
Pittsburgh, PA 15201**

**Air Quality  
Annual Data Summary**

**Criteria Pollutants and Selected Other Pollutants**

**for  
2021**

Below is a map of all monitoring locations in 2021. Downtown Pittsburgh comprises the Flag Plaza site.



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## Preface

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This report reflects air quality as sampled and validated by the Allegheny County Health Department (ACHD) through the calendar year of 2021. The 2021 Annual Report will be completed after all the air toxics data are quality assured by ACHD.

For comparison to previous years, this report also provides 2020 data and twenty-year trends. For pollutant standards that require averages over consecutive years, multi-year averages are also given. Note that multi-year values were calculated as specified by the U.S. Environmental Protection Agency (EPA); if the standard requires calculations on a quarterly basis, such as with PM<sub>2.5</sub>, the multi-year average were calculated as such.

Exceedances are given for pollutants. An *exceedance* is a concentration that goes above a standard but does not necessarily constitute a *violation* of a standard. For some standards, a violation is a collection of several exceedances over a multi-year period. The standards for each pollutant are described in detail in the pollutant sections.

Official validated pollutant concentrations are submitted to EPA's Air Quality System (AQS) on a quarterly basis, and selected parameters are available at the AirData website: [www.epa.gov/airdata/](http://www.epa.gov/airdata/). Allegheny County 2021 air quality data will be submitted for certification in mid-2022.

Unofficial data for ozone and PM<sub>2.5</sub> are reported to EPA's AIRNow on an hourly basis and are available at the AIRNow website: [www.airnow.gov/](http://www.airnow.gov/).

Unofficial Air Quality Index (AQI) levels are also available each hour for SO<sub>2</sub>, Ozone and PM<sub>2.5</sub> that are continuously monitored, via the Allegheny County website: <https://alleghenycounty.us/hd/AQIReport.XLS>.

## Executive Summary

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All exceedances of the short-term standards in 2021 are shown in the table on the next page. All other criteria pollutants were below the annual and short-term federal standards in 2021.

Ozone: The County recorded one exceedance day for 8-hour ozone in 2021, with no days above the previous standard of 0.075 parts per million (ppm). The ACHD monitors showed attainment of the 8-hour standard of 0.070 ppm for the fifth time in six years (2015-2021). The 2016-2018 value at South Fayette was above the federal standard at 0.071 ppm. The highest 3-year average of the 4<sup>th</sup> maximum concentration for 2019-2021 was 0.066 ppm at the South Fayette monitor.

PM<sub>2.5</sub>: For particulate matter 2.5 microns or less in diameter (PM<sub>2.5</sub>), none of the eight monitoring sites was above the annual standard of 12.0 µg/m<sup>3</sup> (micrograms/cubic meter): Liberty was 11.2 µg/m<sup>3</sup> for the years 2019-2021.

In 2021, the Liberty FRM (Federal Reference Method) PM<sub>2.5</sub> monitor exceeded the 24-hour standard of 35 µg/m<sup>3</sup> four times, leading to a 98<sup>th</sup>-percentile value of 30.4 µg/m<sup>3</sup>. Data from the Liberty PM<sub>2.5</sub> monitor in Allegheny County met attainment of this standard for the past four 3-year periods.

SO<sub>2</sub>: A new 1-hour federal standard of 75 ppb was promulgated in 2010 for SO<sub>2</sub>. To attain this standard, the 3-year average of the 99<sup>th</sup> percentile of the daily maximum 1-hour average at each monitor must not exceed 75 ppb. Data from all ACHD monitors show attainment of the federal standard for the first time at yearend 2021.

NO<sub>2</sub>: A new 1-hour federal standard of 100 ppb was promulgated in 2010 for NO<sub>2</sub>. To attain this standard, the 3-year average of the 98<sup>th</sup> percentile of the daily maximum 1-hour average at each monitor must not exceed 100 ppb. Data from all ACHD monitors show attainment of the federal standard.

In the following table, ozone can have a short-term exceedance of either the 1-hour or 8-hour standard and will be labeled as such. The PM<sub>2.5</sub> short-term exceedances are for the 24-hour standard and the SO<sub>2</sub> short-term exceedances are for the 1-hour standard.

### 2021 Exceedances of the Short-Term Federal Standards

Pollutant	Site	Date	Concentration	Standard
Ozone	Harrison	8/24/2021	0.072 ppm (8-hr.)	0.070 ppm
PM <sub>2.5</sub>	Parkway East	2 Days	Max = 59.1 µg/m <sup>3</sup>	35 µg/m <sup>3</sup>
PM <sub>2.5</sub>	Liberty	4 Days	Max = 51.5 µg/m <sup>3</sup>	35 µg/m <sup>3</sup>
PM <sub>2.5</sub>	Lawrenceville	2 Days	Max = 46.7 µg/m <sup>3</sup>	35 µg/m <sup>3</sup>
PM <sub>2.5</sub>	Avalon	1 Day	Max = 38.0 µg/m <sup>3</sup>	35 µg/m <sup>3</sup>

## Attainment of the Federal Standards

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### 8-Hour Ozone

Allegheny County and the surrounding six counties of the Pittsburgh-Beaver Valley Area were designated nonattainment of the previous 1997 and 2008 standards (0.08 ppm and 0.075 ppm, respectively) for 8-hour ozone. The Pittsburgh-Beaver Valley Area has since been in attainment of these standards. For the 1997 standard the EPA used the 2009-2011 values to determine attainment on May 6, 2013, and for the 2008 standard the EPA used the 2013-2015 values to determine attainment on January 5, 2017. Allegheny County and surrounding counties have not been designated under the 2015 standard (0.070 ppm). The monitor at Harrison had the highest 3-year average of 0.068 ppm for 2018-2020 in the area. The monitor at South Fayette had the highest ozone levels in Allegheny County for 2019-2021 at 0.066 ppm. Allegheny County is in attainment of the current 8-hour ozone standard of 0.070 ppm at all sites based on 2019-2021 data.

### PM<sub>2.5</sub>

For the 1997 and 2006 standards, Allegheny County had been designated nonattainment for PM<sub>2.5</sub> as part of a multi-county Pittsburgh-Beaver Valley Area. Additionally, a five-municipality Liberty-Clairton Area was designated nonattainment as a separate area within Allegheny County. These areas have since been in attainment of these standards. In 2015, Allegheny County was designated a nonattainment area for the 2012 standards, and a State Implementation Plan (SIP) was developed for the attainment of this standard to demonstrate attainment by the end of 2021. Monitored results for 2019-2021 show levels of attainment county-wide for the annual standard of 12.0 µg/m<sup>3</sup>.

### SO<sub>2</sub>

The County has monitored attainment for the annual and 24-hour SO<sub>2</sub> standards for several consecutive years. In 2013, EPA designated a 22-municipality nonattainment area in the Monongahela Valley region of Allegheny County for the 2010 1-hour standard of 75 ppb, and a SIP has been developed for this area. The Liberty monitor is in attainment of the standard, with 2019-2021 results showing a 3-year average of 59 ppb.

### Other Criteria

For PM<sub>10</sub> the County has monitored attainment for 27 consecutive years. EPA redesignated Allegheny County to attainment for PM<sub>10</sub> in 2003.

For 1-hour ozone, the County has monitored attainment for 24 consecutive years. EPA redesignated Allegheny County to attainment for the 1-hour ozone standard in 2001. EPA revoked this standard for Southwestern PA in 2005.

For CO, the County has monitored attainment for 34 consecutive years. EPA redesignated Allegheny County to attainment for CO in 2003.

For NO<sub>2</sub>, the County has monitored attainment for over 35 consecutive years and has been in attainment since the announcement of the standard.

For Lead (Pb), in 2014 the County had monitored nonattainment for the first time in over 25 years for the 0.15 µg/m<sup>3</sup> rolling 3-month average. The County has monitored attainment in 2015, 2016 and 2017.



## Air Monitoring Results

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### Ozone (O<sub>3</sub>)

The federal standard for ozone is based on maximum 8-hour averages within each 8-hour block period within a calendar day. The 8-hour standard of 0.070 parts per million (ppm) must not be exceeded by the 3-year average of the 4<sup>th</sup> highest 8-hour concentrations. Since 2016, the ozone season for Allegheny County extends from March 1 through October 31.

There was one exceedance day overall for 8-hour ozone in 2021. That day included an exceedance at only one monitor.

Based on predominant wind flow for Allegheny County, South Fayette is considered to represent incoming ozone levels, Lawrenceville represents ambient urban ozone levels, and Harrison represents outgoing ozone levels.

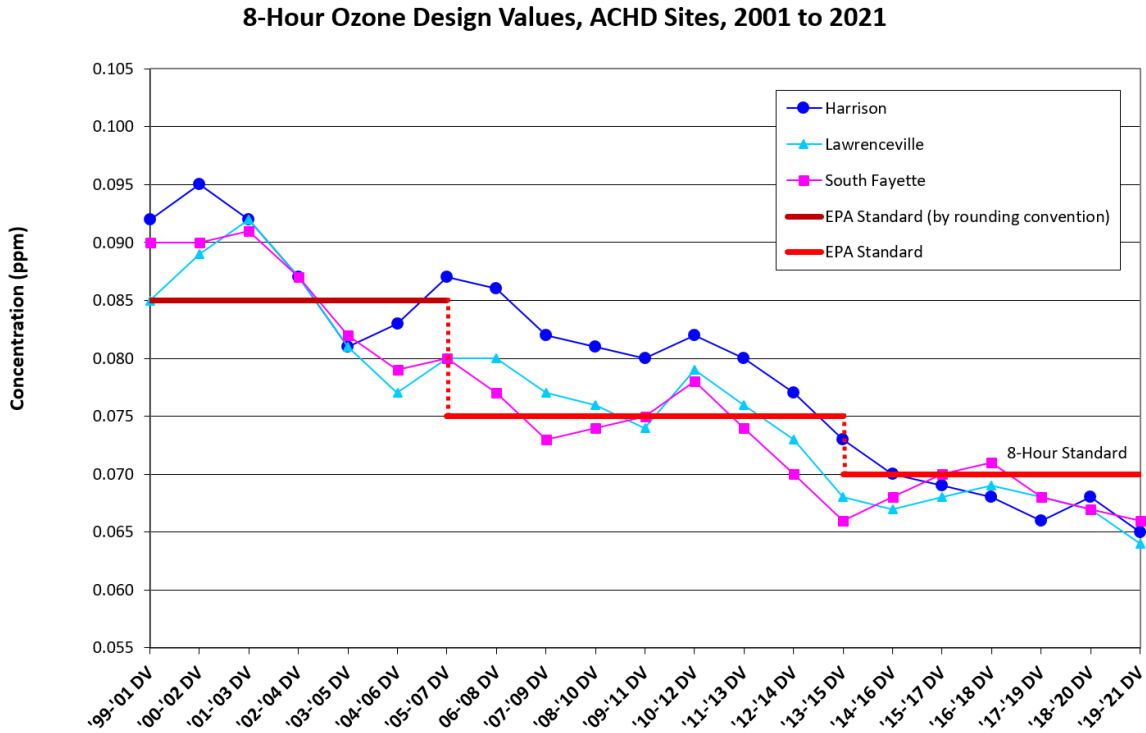
#### 8-Hour Ozone Concentrations

Maximum 8-hour ozone concentrations and exceedance days are given below for 2021, with exceedance concentrations and days shown in red. 2020 values are shown in gray for comparison.

8-Hour Standard = 0.070 ppm						
Site	2020 8-Hour Maximum (ppm)	2021 8-Hour Maximum (ppm)	2020 Exceedance Days	2021 Exceedance Days	2018-2020 8-Hour 3-Yr. Avg. of 4 <sup>th</sup> Max. (ppm)	2019-2021 8-Hour 3-Yr. Avg. of 4 <sup>th</sup> Max. (ppm)
South Fayette	0.071	0.070	2	0	0.067	0.066
Harrison	0.077	0.072	4	1	0.068	0.065
Lawrenceville	0.071	0.068	2	0	0.067	0.064

Note: For comparison to the standards, values are truncated at 1/1000<sup>th</sup> ppm (e.g., 0.0706 truncates to 0.070 ppm). An exceedance day is one in which any 8-hour period has an average of greater than 0.070 ppm.

Below is a chart showing the 8-hour design values for the three Allegheny County Health Department monitoring sites since 2001.



**1-Hour Ozone Concentrations**

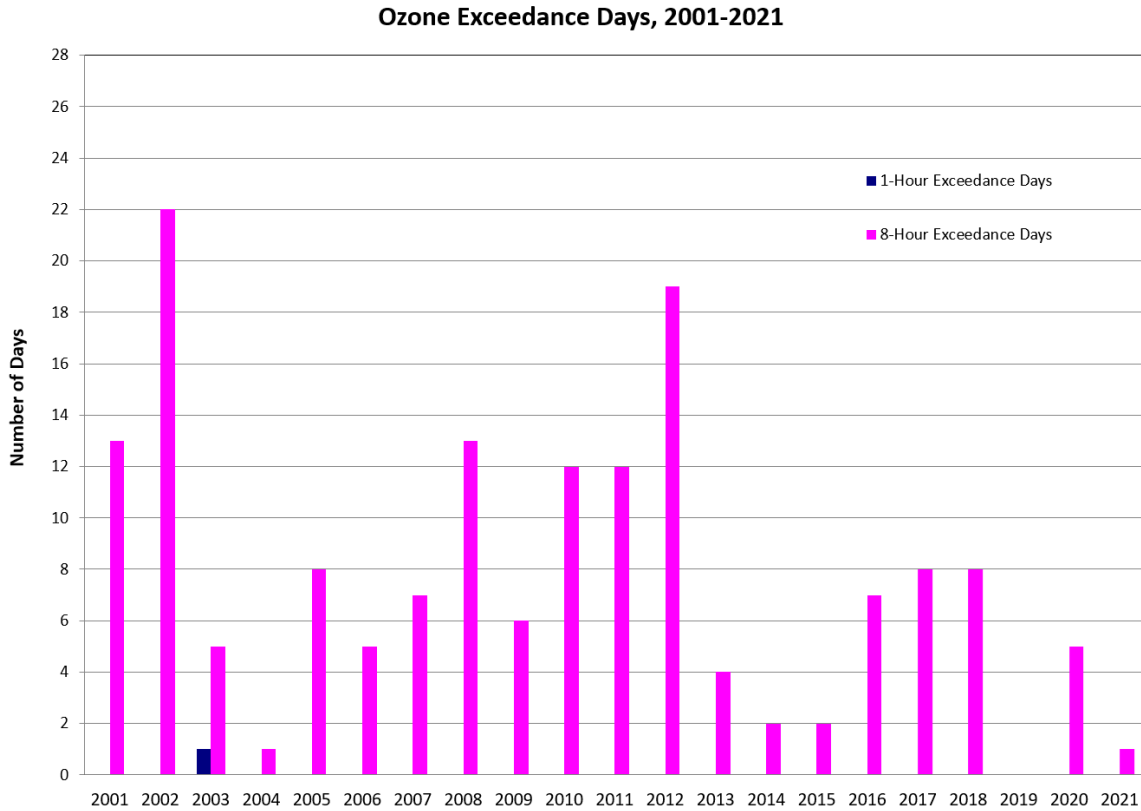
The 1-hour standard was revoked for the Pittsburgh-Beaver Valley Area in mid-2005. The former 1-hour standard of 0.12 ppm was not to be exceeded more than once a year, averaged over a 3-year period. 1-hour ozone maximums and exceedances are given in this report for comparative purposes.

Maximum 1-hour concentrations for ozone are given in the table that follows for 2021, with 2020 values shown in gray. “Expected” exceedance days are based on the 3-year average of the actual exceedance days per year, adjusted for missing data.

Former 1-Hour Standard = 0.12 ppm						
Site	2020 1-Hour Maximum (ppm)	2021 1-Hour Maximum (ppm)	2020 Exceedance Days	2021 Exceedance Days	2018-2020 Expected Exceedance Days	2019-2021 Expected Exceedance Days
Harrison	0.087	0.079	0	0	0.0	0.0
South Fayette	0.077	0.074	0	0	0.0	0.0
Lawrenceville	0.080	0.073	0	0	0.0	0.0

Note: For comparison to the standards, values are rounded to the nearest 1/100<sup>th</sup> ppm (e.g., 0.126 rounds up to 0.13 ppm). An exceedance day is one in which any hour has a concentration of 0.125 ppm or greater. Concentrations are shown here in thousandths of ppm for detail.

Below is a chart showing ozone exceedance days, both 1-hour and 8-hour, for all Allegheny County sites over the period 2001-2021. Exceedance days represent days when at least one site exceeded the standard.



## **Particulate Matter - 2.5 microns or less (PM<sub>2.5</sub>)**

### **PM<sub>2.5</sub> Filter-Based Monitors, Annual**

PM<sub>2.5</sub> is sampled using both intermittent filter-based and continuous monitors throughout the county. Both types of PM<sub>2.5</sub> monitors can be used for comparison to the federal standard of 12.0 on an annual basis and 35 µg/m<sup>3</sup> on a 24-hour basis.

Federal Reference Method (FRM) filter-based PM<sub>2.5</sub> monitors are used to determine attainment for an area. The annual federal standard for PM<sub>2.5</sub> is 12.0 µg/m<sup>3</sup> on an annual basis (3-year average). The ACHD had six PM<sub>2.5</sub> monitors across the county and additional monitors at several sites for quality assurance. The North Park monitor was discontinued in the fourth quarter of 2020.

Annual averages for 2021 are given in the table below, with 2020 averages shown in gray. The annual and 3-year standards were met in 2021.

<b>Annual Standard = 12.0 µg/m<sup>3</sup></b>				
<b>Site</b>	<b>2020 Average</b>	<b>2021 Average</b>	<b>2018-2020 3-Year Average</b>	<b>2019-2021 3-Year Average</b>
Liberty	9.8	11.8	11.1	11.2
North Braddock	9.0	10.7	9.7	9.9
Lawrenceville	7.7	9.8	8.5	8.8
Clairton	7.3	9.2	8.0	8.1
Harrison	7.3	8.2	8.4	8.1
South Fayette	6.6	7.8	7.4	7.3
North Park	5.7	--	6.6	6.3

Note: Starting 2017, the Avalon filter-based monitor is now a quality assurance monitor.

### **PM<sub>2.5</sub> Continuous Monitors, Annual**

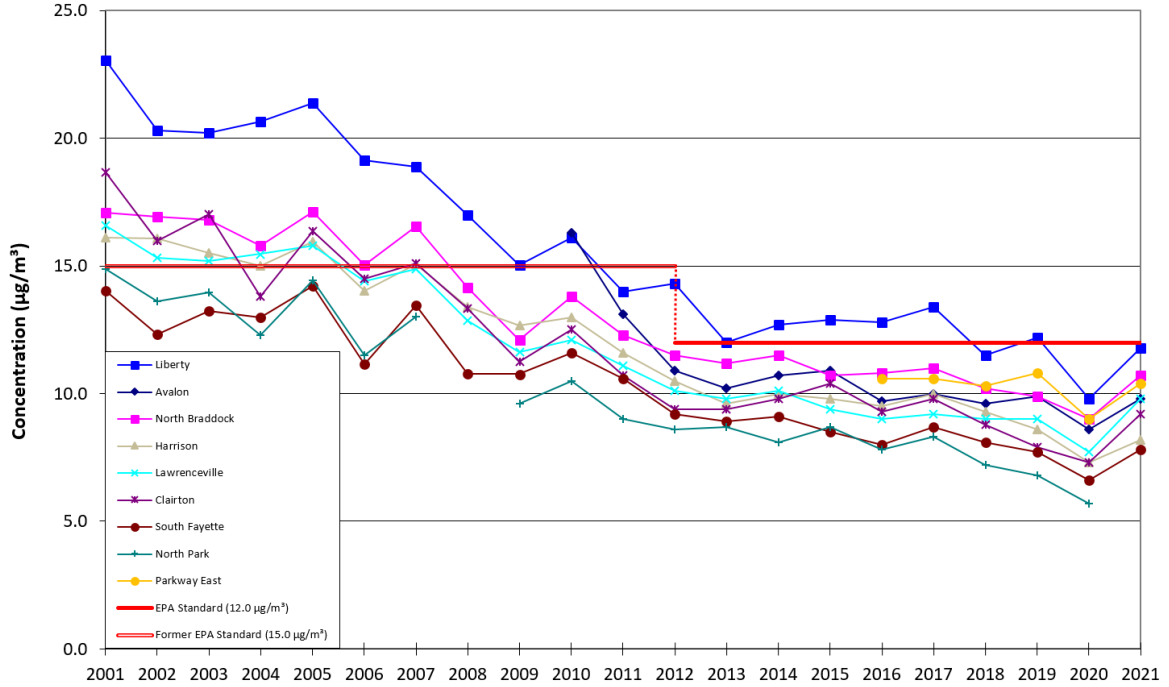
ACHD's four continuous PM<sub>2.5</sub> monitors are used mainly for AQI reporting. The Parkway East monitor started operation in 2016 and the Avalon monitor started operation in 2017; both monitors are used to determine attainment of the federal standards. Continuous monitors at Liberty and Lawrenceville are only used to determine attainment of the federal standards if the filter-based monitors are not in operation. Continuous data, that would replace the missing filter-based monitor data, are incorporated in the above table.

Annual averages for 2021 are given in the table below, with 2020 averages shown in gray. The annual and 3-year average standards were met in 2021.

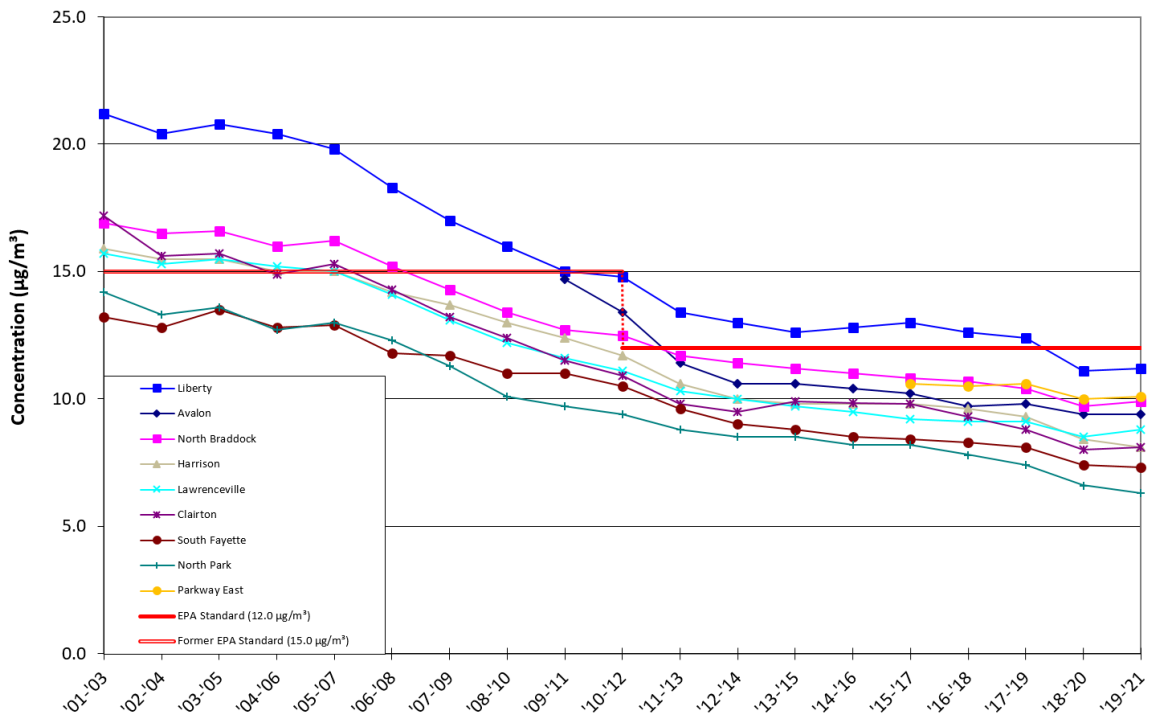
<b>Annual Standard = 12.0 µg/m<sup>3</sup></b>				
<b>Site</b>	<b>2020 Average</b>	<b>2021 Average</b>	<b>2018-2020 3-Year Average</b>	<b>2019-2021 3-Year Average</b>
Parkway East	9.0	10.4	10.0	10.1
Avalon	8.6	9.8	9.4	9.4

Long-term trends for the PM<sub>2.5</sub> annual averages and the PM<sub>2.5</sub> annual design values are shown in the charts below.

**PM<sub>2.5</sub> Annual Weighted Means by Year, 2001 to 2021**



**PM<sub>2.5</sub> Annual Design Values by 3-Year Period, 2001 to 2021**



PM<sub>2.5</sub> Filter-Based Monitors, 24-Hour

The 24-hour standard for PM<sub>2.5</sub> of 65 µg/m<sup>3</sup> on a 24-hour basis (3-year average of the 98<sup>th</sup>-percentile value) was revised in December 2006 to 35 µg/m<sup>3</sup>.

The maximum 2021 24-hour concentrations and number of exceedance days are shown in the following table, with 2020 values shown in gray. 98<sup>th</sup>-percentile values by year and by 3-year average are also shown. Exceedances in 2021 are shown in red.

24-Hour Standard = 35 µg/m <sup>3</sup>								
Site	2020 24-Hour Max.	2021 24-Hour Max.	2020 24-Hour Exceed.	2021 24-Hour Exceed.	2020 98 <sup>th</sup> - Percentile Value	2021 98 <sup>th</sup> - Percentile Value	2018-2020 3-Year Avg. of 98 <sup>th</sup> - Percentile	2019-2021 3-Year Avg. of 98 <sup>th</sup> - Percentile
Liberty	41.0	51.5	3	4	27.2	30.4	31.5	32.3
North Braddock	30.3	29.2	0	0	20.5	24.8	22.3	22.4
Lawrenceville	30.9	46.7	0	2	18.1	23.1	19.7	21.0
Clairton	24.7	20.7	0	0	18.9	19.5	18.8	19.5
Harrison	22.5	23.7	0	0	16.4	17.6	18.8	18.2
South Fayette	25.2	23.2	0	0	15.7	17.8	16.7	16.7
North Park	16.9	--	0	--	16.9	--	15.1	15.5

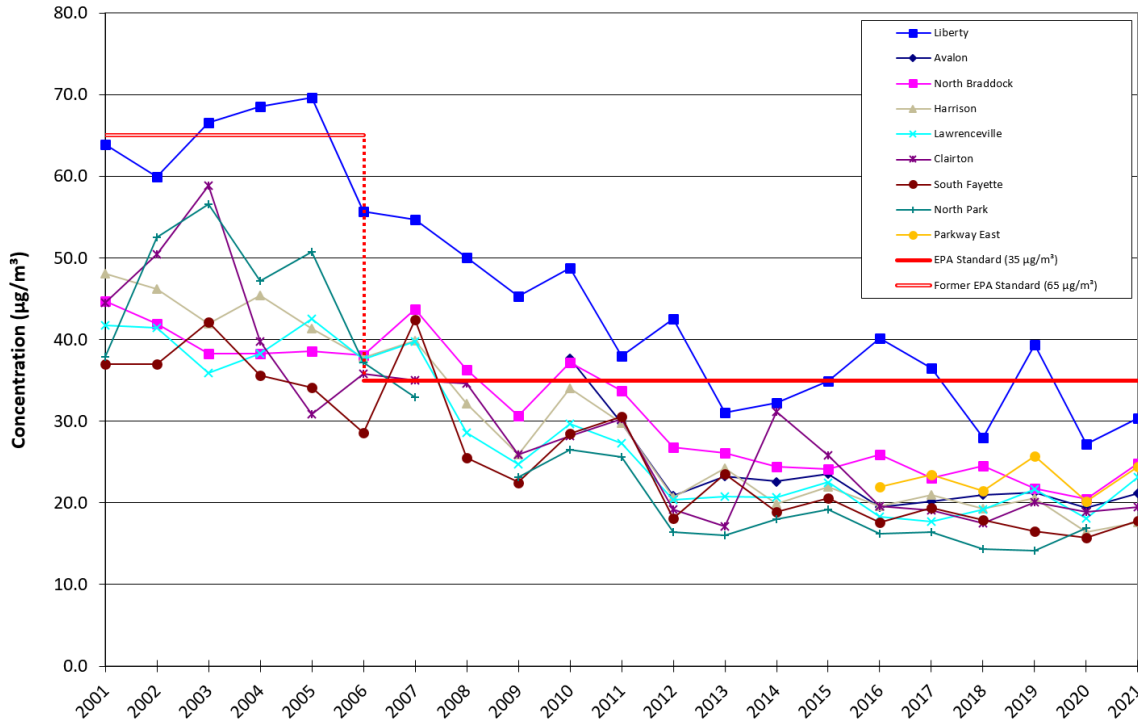
PM<sub>2.5</sub> Continuous Monitors, 24-Hour

The maximum 2021 24-hour concentrations and number of exceedance days are shown in the following table, with 2020 values shown in gray. 98<sup>th</sup>-percentile values by year and by 3-year average are also shown. Exceedances in 2021 are shown in red.

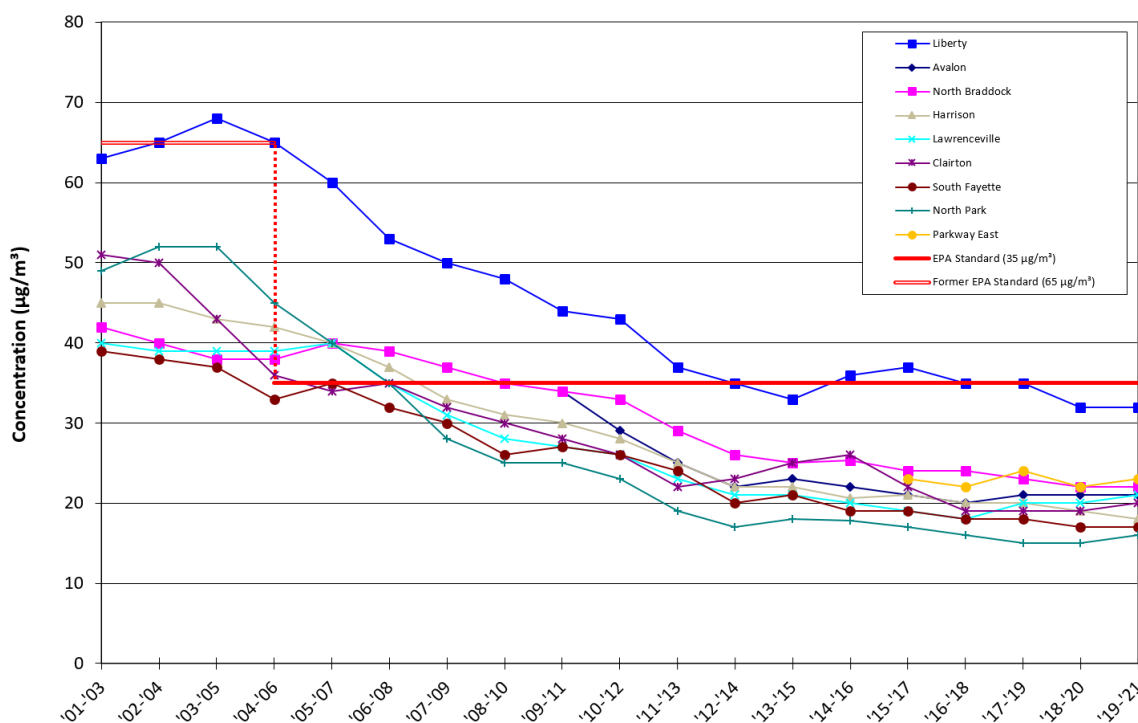
24-Hour Standard = 35 µg/m <sup>3</sup>								
Site	2020 24-Hour Max.	2021 24-Hour Max.	2020 24-Hour Exceed.	2021 24-Hour Exceed.	2020 98 <sup>th</sup> - Percentile Value	2021 98 <sup>th</sup> - Percentile Value	2018-2020 3-Year Avg. of 98 <sup>th</sup> - Percentile	2019-2021 3-Year Avg. of 98 <sup>th</sup> - Percentile
Parkway East	26.5	59.1	0	2	20.2	24.4	22.5	23.4
Avalon	41.0	38.0	1	1	19.4	21.2	20.6	20.6

Long-term trends for the PM<sub>2.5</sub> 24-hour 98<sup>th</sup>-percentile by year and the design values by 3-year period are shown in the charts that follow.

**PM<sub>2.5</sub> 24-Hour 98<sup>th</sup> Percentile Values by Year, 2001 to 2021**



**PM<sub>2.5</sub> 24-Hour Design Values by 3-Year Period, 2001 to 2021**





## Particulate Matter - 10 microns or less (PM<sub>10</sub>)

PM<sub>10</sub> is sampled using both intermittent filter-based and continuous monitors throughout the county. Both types of PM<sub>10</sub> monitors can be used for comparison to the federal standard of 150 µg/m<sup>3</sup> (24-hour). The 24-hour standard can be exceeded an average of once per year over a 3-year period. The PM<sub>10</sub> annual standard of 50 µg/m<sup>3</sup> was revoked by EPA in December 2006; annual averages have been given below for comparative purposes. The North Braddock filter-based monitor and the Monroeville continuous monitor were discontinued yearend 2015. The Avalon filter-based monitor was discontinued after the first quarter of 2017. The Manchester, South Fayette, and Liberty filter-based monitors and the Lincoln continuous monitor were discontinued in 2020.

2021 maximums and averages are shown in the tables below, with 2020 values shown in gray. There were no exceedances in 2021.

### PM<sub>10</sub> Filter-Based Monitors

Site	24-Hour Standard = 150 µg/m <sup>3</sup>		Former Annual Standard = 50 µg/m <sup>3</sup>	
	2020 24-Hour Maximum	2021 24-Hour Maximum	2020 Average	2021 Average
Clairton	31	24	10.9	12.3
Liberty	39	--	13.8	--
Manchester	38	--	12.3	--
South Fayette	20	--	9.3	--

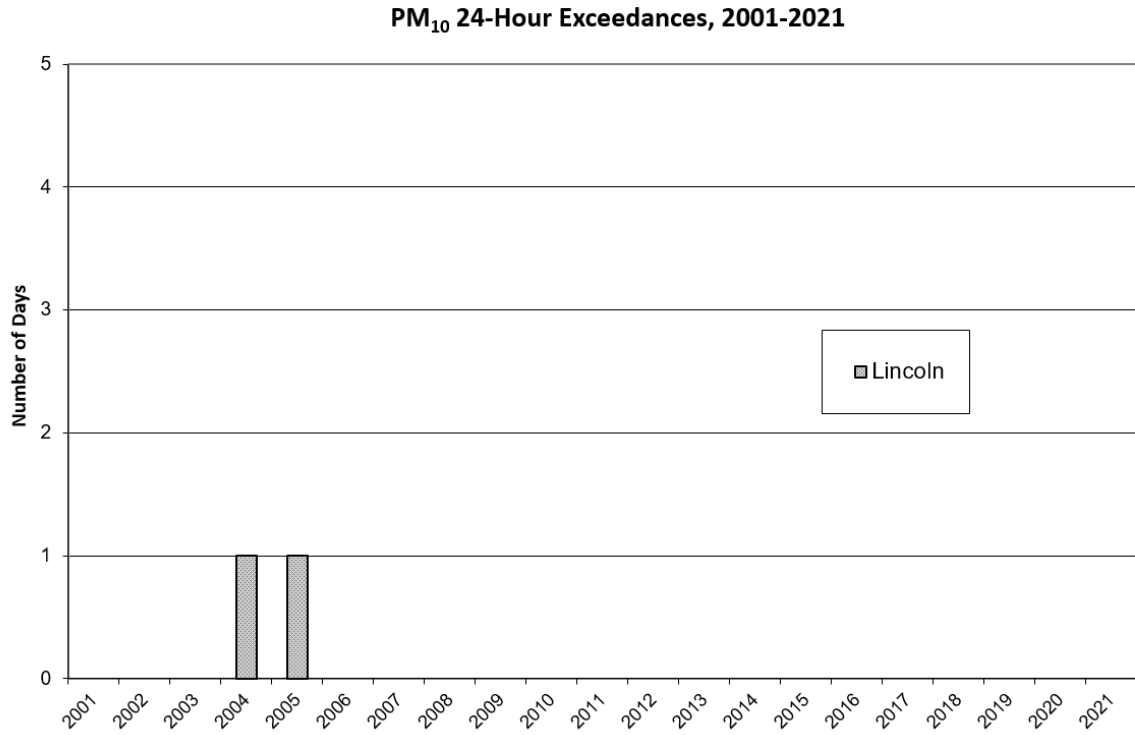
Note: Liberty was discontinued in November 2020; Manchester was discontinued in October 2020; and South Fayette was discontinued in July 2020

### PM<sub>10</sub> Continuous Monitors

Site	24-Hour Standard = 150 µg/m <sup>3</sup>		Former Annual Standard = 50 µg/m <sup>3</sup>	
	2020 24-Hour Maximum	2021 24-Hour Maximum	2020 Average	2021 Average
North Braddock	81	82	24.7	27.9
Glassport	46	58	13.0	15.6
Flag Plaza	64	58	13.2	15.1
Liberty	49	57	14.6	17.7
Lincoln	73	--	17.3	--

Note: Lincoln was discontinued yearend 2020

The following chart shows PM<sub>10</sub> 24-hour exceedances for the period 2001-2021. For sites with both filter-based and continuous monitors, data for only the filter-based monitors are shown.



## **Sulfur Dioxide (SO<sub>2</sub>)**

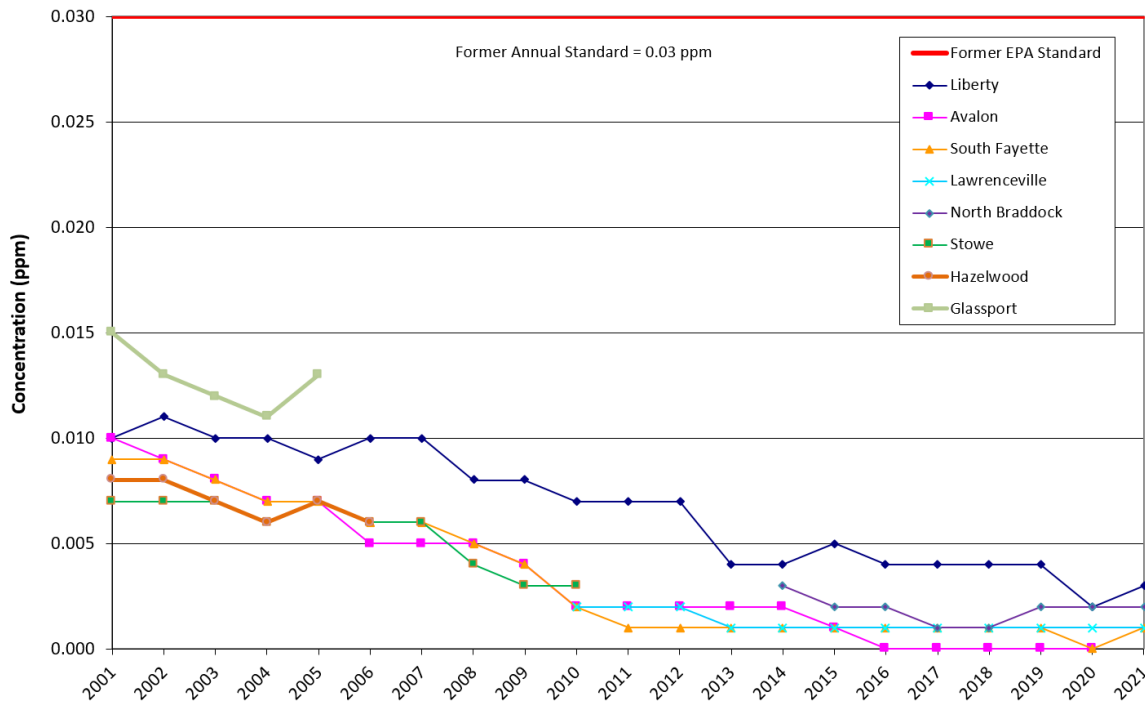
Sulfur dioxide is monitored at four sites in the County, mostly in industrial areas. The South Fayette monitor is used as a background monitor, providing a measurement of SO<sub>2</sub> entering Allegheny County from the southwest. The former primary federal standards were 0.14 ppm (24-hour average) and 0.03 ppm (annually); the new 1-hour primary federal standard of 75 ppb was promulgated in 2010. To attain this standard, the 3-year average of the 99<sup>th</sup> percentile of the daily maximum 1-hour average at each monitor must not exceed 75 ppb. Maximums and averages for 2021 are shown in the table below, with 2020 values shown in gray. There were no exceedances in 2021. The Avalon SO<sub>2</sub> gas analyzer was discontinued in November 2020.

	<b>Former 24-Hour Std. = 0.14 ppm</b>		<b>Former Annual Std. = 0.03 ppm</b>	
<b>Site</b>	<b>2020 24-Hour Maximum</b>	<b>2021 24-Hour Maximum</b>	<b>2020 Average</b>	<b>2021 Average</b>
Liberty	0.018	0.021	0.002	0.003
North Braddock	0.019	0.011	0.002	0.002
Lawrenceville	0.003	0.004	0.001	0.001
South Fayette	0.003	0.003	0.000	0.001
Avalon	0.002	--	0.000	--

	<b>1-Hour Standard = 75 ppb</b>				
<b>Site</b>	<b>2020 1-Hour Maximum</b>	<b>2021 1-Hour Maximum</b>	<b>2018-2020 99<sup>th</sup> percentile</b>	<b>2019-2021 99<sup>th</sup> percentile</b>	<b>2021 Exceedances</b>
North Braddock	105	69	64	58	0
Liberty	57	60	85	59	0
Lawrenceville	7	15	9	8	0
South Fayette	16	10	11	10	0
Avalon	5	--	6	7	--

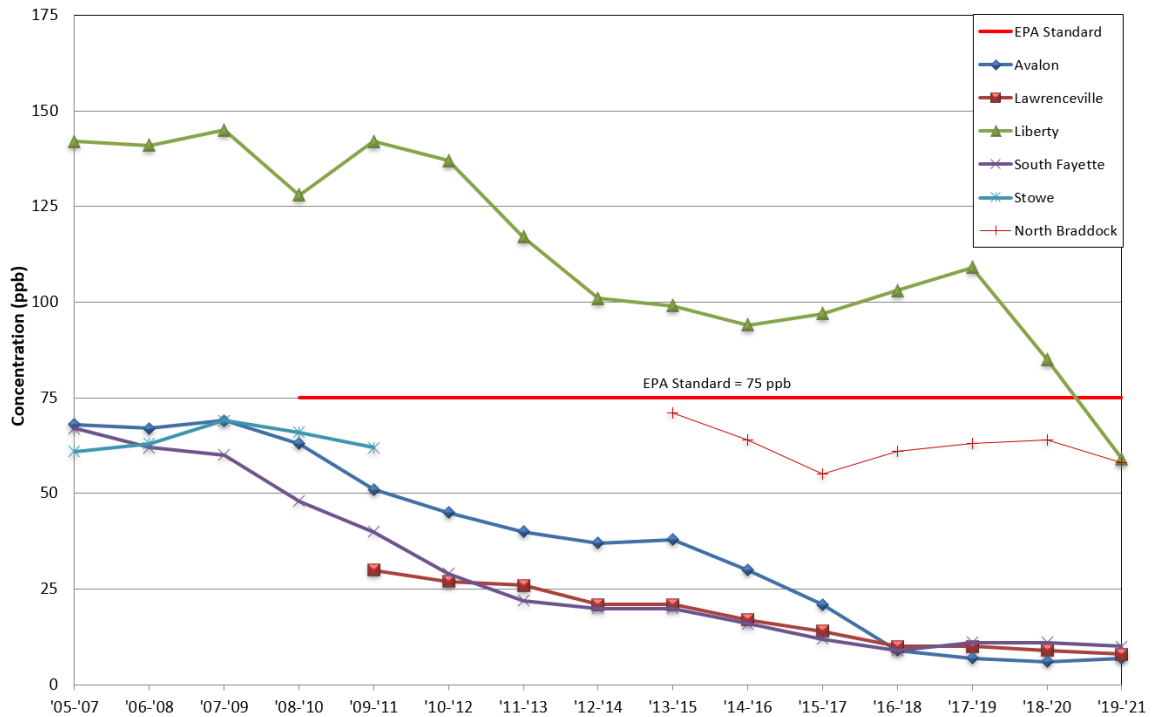
The former 24-hour standard can be exceeded once per year. Glassport was the last site to exceed the 24-hour standard in 1999. SO<sub>2</sub> annual average trends are shown on the following page for 2001-2021.

### Sulfur Dioxide Annual Averages, 2001-2021



SO<sub>2</sub> one-hour design value trends are shown below for 2005-2021.

### Sulfur Dioxide 1-HR Design Values, 2005 to 2021

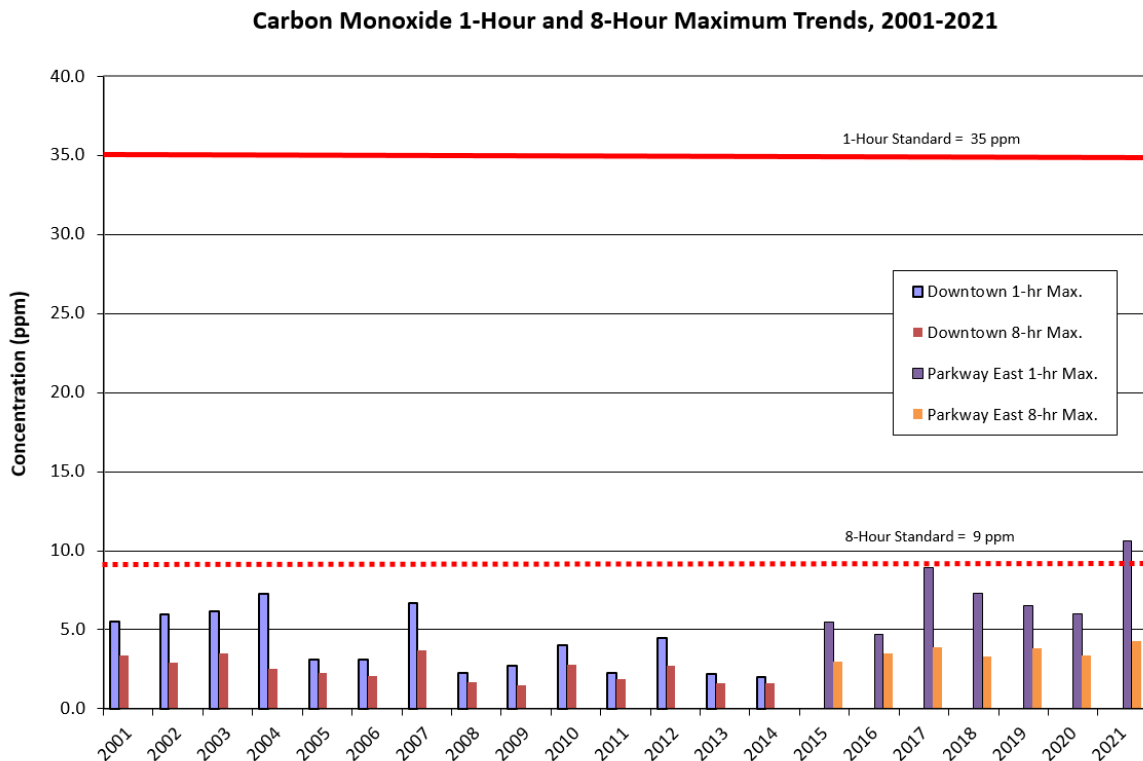


## Carbon Monoxide (CO)

The county operates two carbon monoxide (CO) monitors. The Lawrenceville trace gas analyzer for CO started operation in 2010. The Parkway East, Near Road, trace gas analyzer for CO started operation on 9/1/2014 and the Downtown CO monitor was discontinued on 8/27/2014. The federal standards for CO are 35 ppm on an hourly basis and 9 ppm on an 8-hour average basis. Maximums for 2021 are shown in the table below, with 2020 values shown in gray. The Flag Plaza CO gas analyzer was discontinued in 2020.

Site	1-Hour Standard = 35 ppm		8-Hour Standard = 9 ppm	
	2020 1-Hour Maximum	2021 1-Hour Maximum	2020 8-Hour Maximum	2021 8-Hour Maximum
Parkway East	6.0	10.6	3.4	4.3
Lawrenceville	1.9	2.3	1.4	1.1
Flag Plaza	1.8	--	1.3	--

Carbon monoxide maximum trends are shown below for 2001-2021. The County has not exceeded the 8-hour standard since 1987.



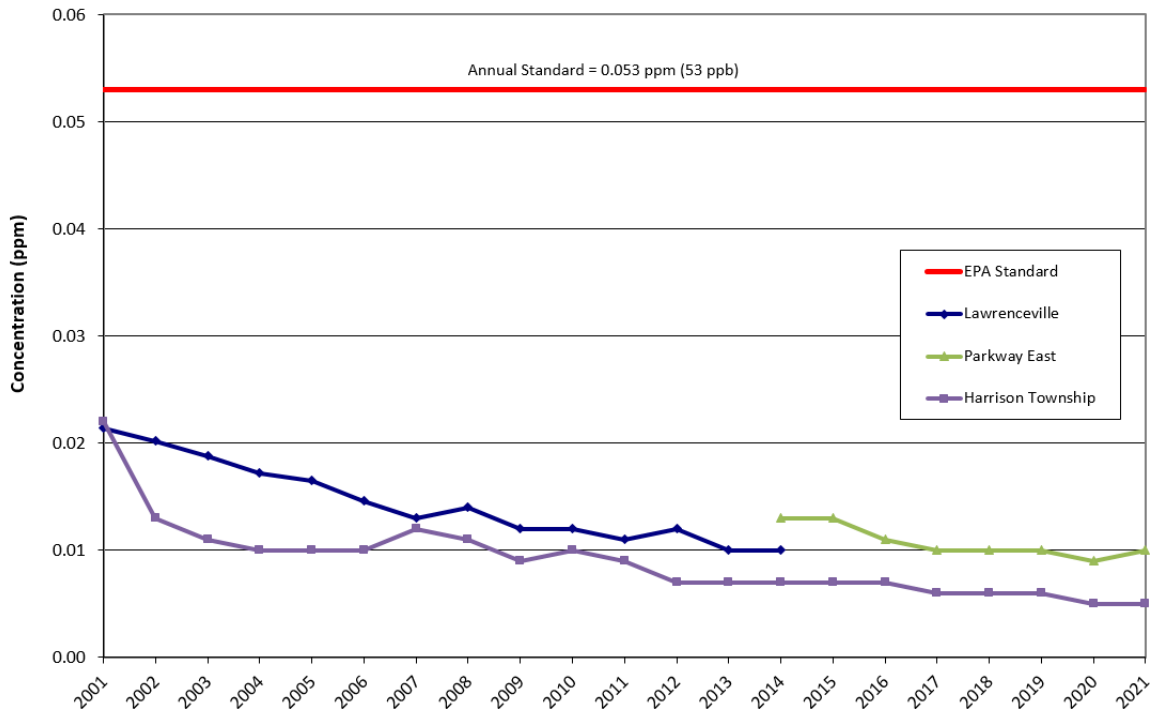
## **Nitrogen Dioxide (NO<sub>2</sub>)**

Nitrogen oxides are monitored at two sites in the County. Nitrogen dioxide (NO<sub>2</sub>) is calculated each hour by subtracting nitrogen oxide (NO) from the total nitrogen oxides (NO<sub>x</sub>) concentration. Since 2010, the standard for NO<sub>2</sub> is now 0.053 ppm (53 ppb) on an annual average basis. A new 1-hour federal standard 100 ppb was promulgated in 2010. To attain this standard, the 3-year average of the 98<sup>th</sup> percentile of the daily maximum 1-hour average at each monitor must not exceed 100 ppb. 2021 averages are shown in the table below, with 2020 values shown in gray. The Parkway East, Near Road, trace gas analyzer for NO<sub>2</sub> started operation on 9/1/2014 and the Lawrenceville NO<sub>2</sub> monitor was discontinued on 8/25/2014.

Site	Annual Std. = 53 ppb		1-Hour Standard = 100 ppb			
	2020 Average	2021 Average	2020 1-Hour Maximum	2021 1-Hour Maximum	2018-2020 98 <sup>th</sup> percentile	2019-2021 98 <sup>th</sup> percentile
Parkway East	9	10	51	46	35	35
Harrison	5	5	44	42	33	31

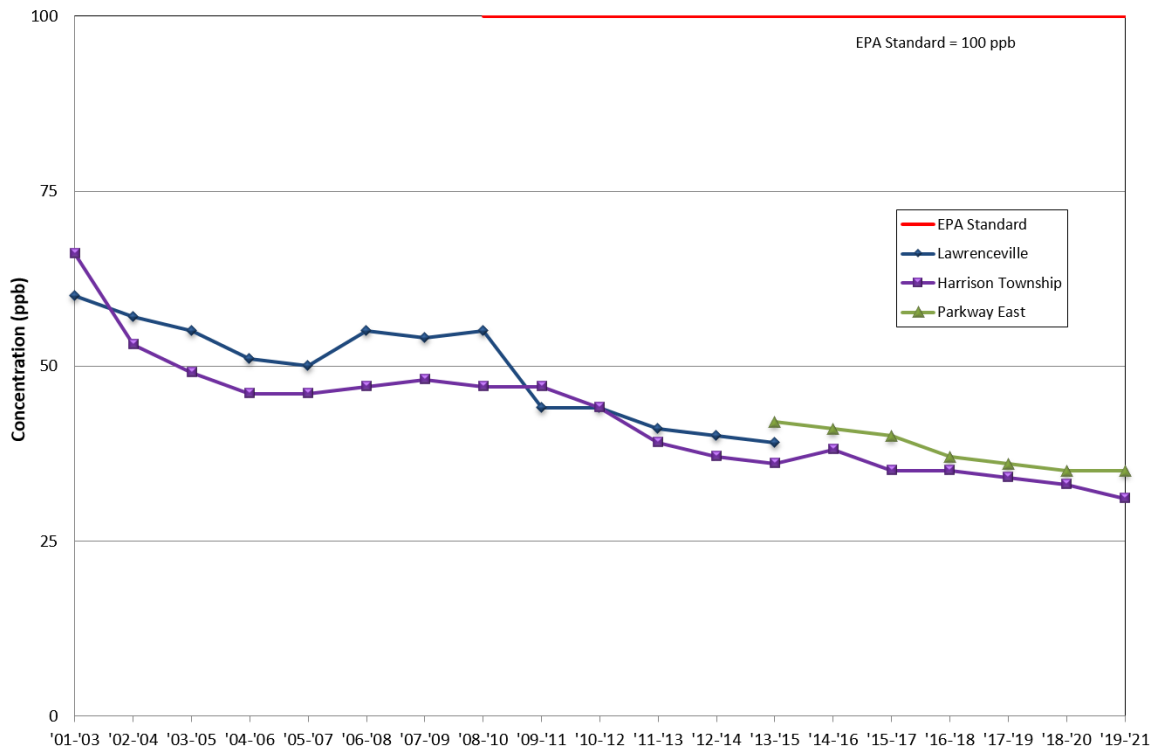
Long-term trends for NO<sub>2</sub> annual averages are shown on the following page for 2001-2021.

### Nitrogen Dioxide Annual Averages, 2001-2021



NO<sub>2</sub> one-hour design value trends are shown below for 2001-2021.

### Nitrogen Dioxide 1-HR Design Values, 2001 to 2021



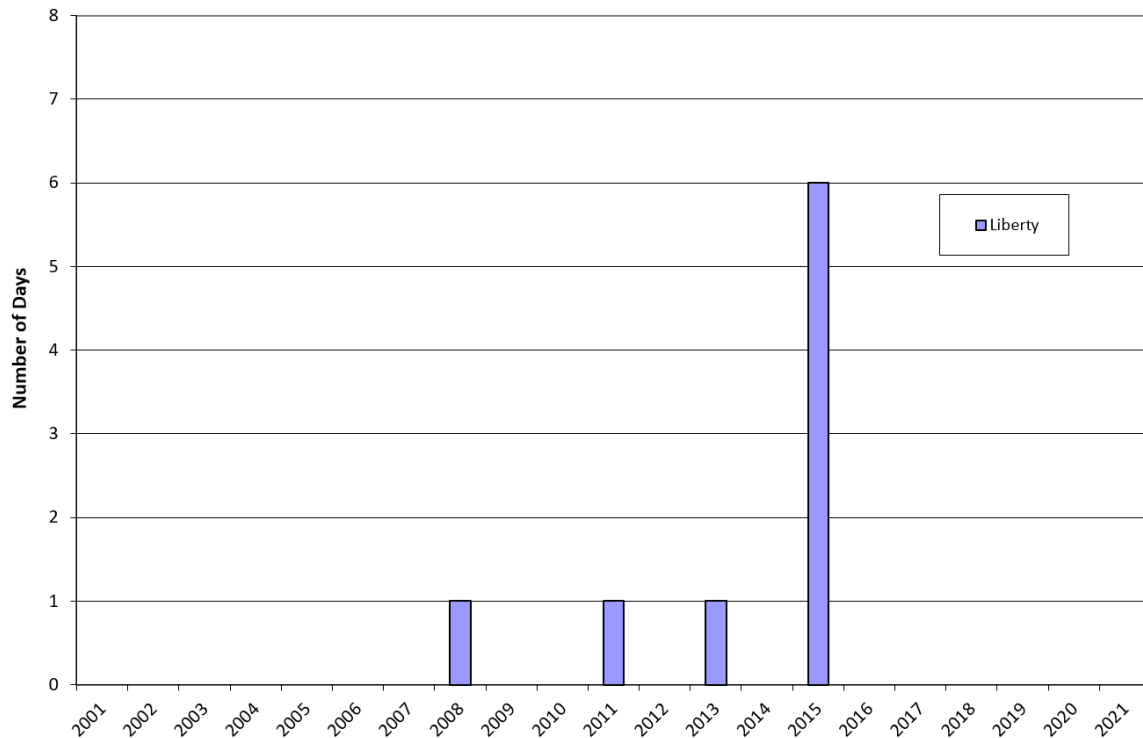
## Hydrogen Sulfide (H<sub>2</sub>S)

Although there are no federal standards for hydrogen sulfide, PA state standards for protection against odor nuisances are 0.1 ppm on a 1-hour basis and 0.005 ppm on a 24-hour average basis.

Hydrogen sulfide 1-hour concentrations for 2021 are given in the table below, with 2020 values shown in gray. Long-term exceedances for 2001-2021 are also given in the chart below. Liberty last exceeded the 1-hour PA standard six times in 2015. The West Allegheny monitor started operation in May 2009 and was discontinued on 8/29/2014. The Avalon monitor was discontinued on 9/15/20 and was installed in North Braddock on 12/9/20.

	1-Hour PA Standard = 0.1 ppm			
Site	2020 1-Hour Maximum	2021 1-Hour Maximum	2020 Exceedances	2021 Exceedances
Liberty	0.056	0.053	0	0
North Braddock	0.060	0.081	0	0
Avalon	0.002	--	0	--

**Hydrogen Sulfide 1-Hour Exceedances, 2001-2021**

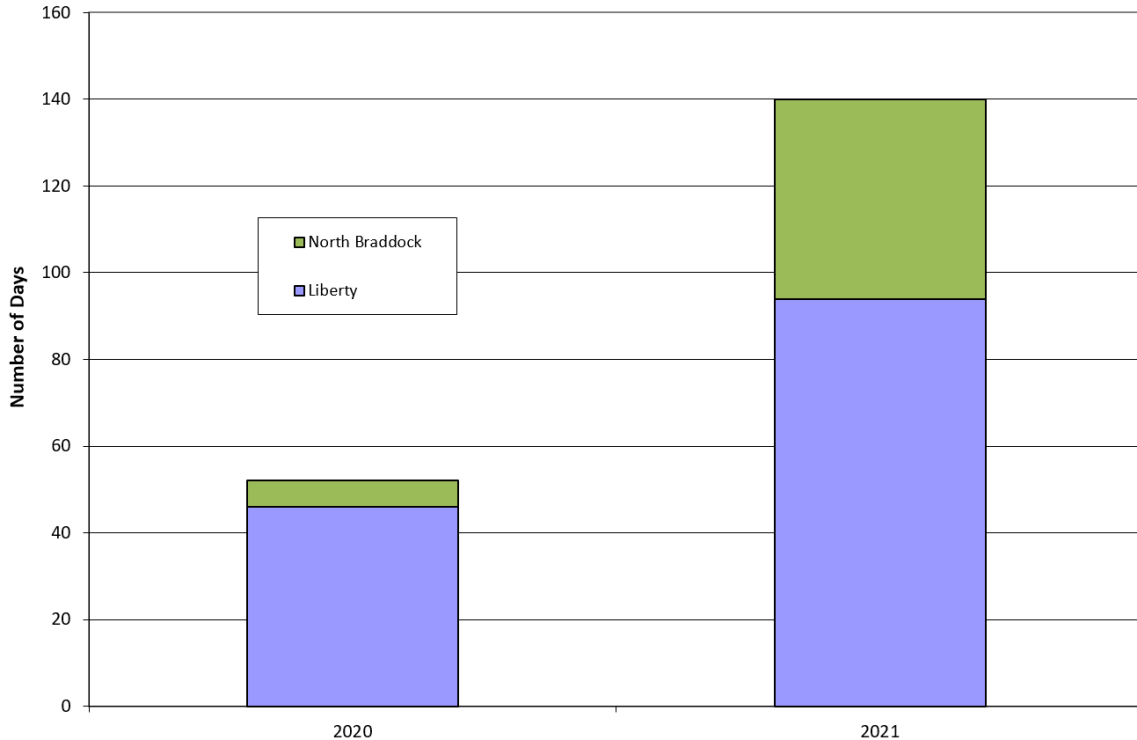




Hydrogen sulfide 24-hour concentrations and exceedances for 2021 are given in the following table, with 2020 values shown in gray. Long-term exceedances for 2020-2021 are also given in the chart below; these exceedances are daily maximum rolling 24-Hour averages. Exceedances for 2021 are shown in red. Each exceedance constitutes a violation of the state 24-Hour H<sub>2</sub>S standard. The Avalon monitor was discontinued on 9/15/20 and was installed in North Braddock on 12/9/20.

	24-Hour PA Standard = 0.005 ppm			
Site	2020 Rolling 24-Hour Maximum	2021 Rolling 24-Hour Maximum	2020 Daily Exceedances	2021 Daily Exceedances
Liberty	0.016	0.019	46	94
North Braddock	0.011	0.015	6	46
Avalon	0.001	--	0	--

Hydrogen Sulfide Daily Maximum Rolling 24-Hour Exceedances, 2020-2021



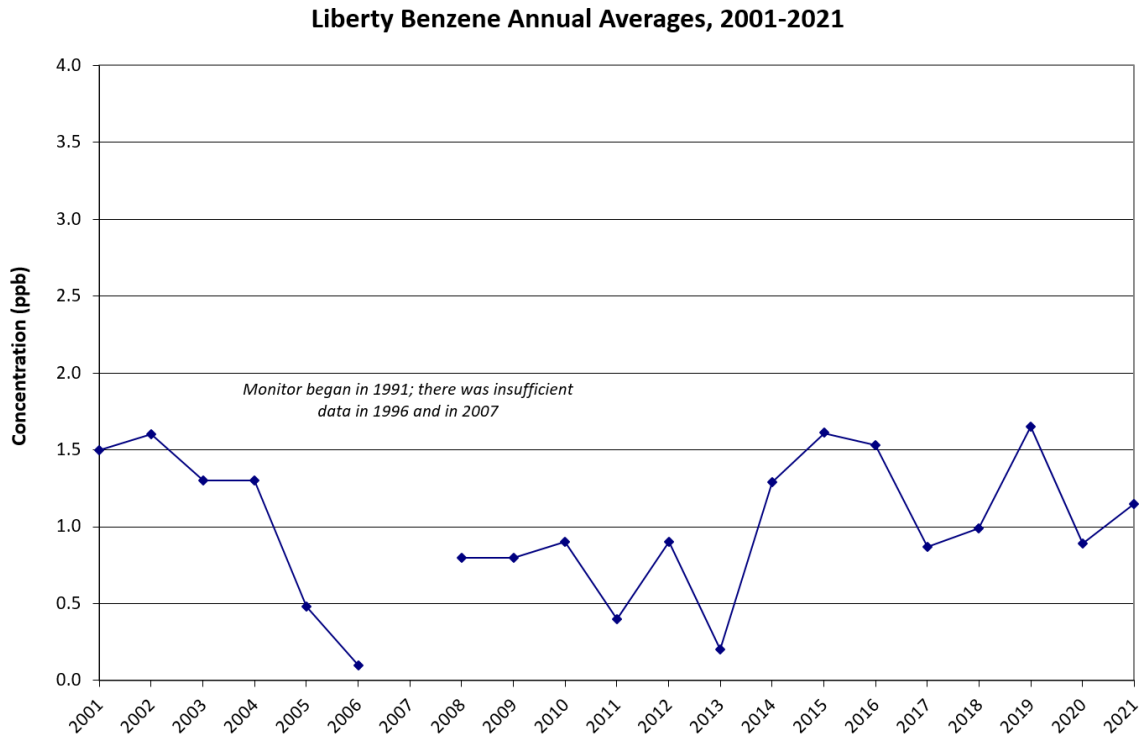
## **Benzene**

Additionally, benzene was measured continuously at Liberty through 2013. ACHD started monitoring benzene at Liberty in January and Avalon in April of 2014 using charcoal tubes on a 24-hour basis. Monitoring of benzene at Avalon was discontinued in 2018. The annual average and 24-hour maximum for benzene in 2021 are shown below, with 2020 values shown in gray.

Site	2020 Average (ppb)	2020 24-Hour Maximum (ppb)	2021 Average (ppb)	2021 24-Hour Maximum (ppb)
Liberty	0.89	8.66	1.15	6.48

**Note: Also, data below the Method Detection Limit (MDL) is reported as the (MDL/2); formerly zero for years 2014-2019.**

A chart showing Liberty benzene annual averages for 2001-2021 is shown below. The continuous monitor began operation in 1991 and was not operational in 1996, most of 2006, 2007, and portions of 2011, 2012 and 2013.



## Short-Term Exceedances

Exceedances of the federal short-term primary standards are listed below for the years 2008 through 2021 for each standard. Exceedances are given by year, site, number of exceedances, and maximum concentration.

Standard	Year	Site	Number of Exceedances	Maximum Concentration
24-Hour PM <sub>2.5</sub> 35 µg/m <sup>3</sup>	2008	Liberty	31	70.8 µg/m <sup>3</sup>
	2008	N. Braddock	4	38.4 µg/m <sup>3</sup>
	2008	Harrison	2	41.3 µg/m <sup>3</sup>
	2008	Clairton	1	40.6 µg/m <sup>3</sup>
	2008	Lawrenceville	1	39.7 µg/m <sup>3</sup>
	2009	Liberty	12	92.1 µg/m <sup>3</sup>
	2009	Harrison	1	43.5 µg/m <sup>3</sup>
	2010	Liberty	25	69.9 µg/m <sup>3</sup>
	2010	Lawrenceville	2	41.5 µg/m <sup>3</sup>
	2010	N. Braddock	3	40.6 µg/m <sup>3</sup>
	2010	Harrison	2	39.7 µg/m <sup>3</sup>
	2010	Clairton	1	37.0 µg/m <sup>3</sup>
	2011	Liberty	10	59.0 µg/m <sup>3</sup>
	2011	Avalon	1	35.6 µg/m <sup>3</sup>
	2011	N. Braddock	1	35.5 µg/m <sup>3</sup>
	2012	Liberty	9	54.7 µg/m <sup>3</sup>
	2013	Liberty	6	43.6 µg/m <sup>3</sup>
	2014	Liberty	4	63.8 µg/m <sup>3</sup>
	2015	Liberty	7	58.1 µg/m <sup>3</sup>
	2016	Liberty	13	56.0 µg/m <sup>3</sup>
2017	Liberty	10	77.7 µg/m <sup>3</sup>	
2017	Parkway East	1	44.9 µg/m <sup>3</sup>	
2017	N. Braddock	1	41.6 µg/m <sup>3</sup>	
2018	Liberty	2	43.8 µg/m <sup>3</sup>	
2019	Liberty	9	66.4 µg/m <sup>3</sup>	
2020	Liberty	3	41.0 µg/m <sup>3</sup>	
2020	Avalon	1	41.0 µg/m <sup>3</sup>	

Standard	Year	Site	Number of Exceedances	Maximum Concentration
24-Hour PM <sub>2.5</sub> 35 µg/m <sup>3</sup>	2021	Parkway East	2	59.1 µg/m <sup>3</sup>
	2021	Liberty	4	51.5 µg/m <sup>3</sup>
	2021	Lawrenceville	2	46.7 µg/m <sup>3</sup>
	2021	Avalon	1	38.0 µg/m <sup>3</sup>
8-Hour Ozone 0.075 ppm  0.070 ppm	2008	Harrison	10	0.091 ppm
	2008	Lawrenceville	7	0.084 ppm
	2008	South Fayette	3	0.079 ppm
	2009	Harrison	6	0.084 ppm
	2009	Lawrenceville	1	0.077 ppm
	2010	Harrison	6	0.105 ppm
	2010	Lawrenceville	7	0.087 ppm
	2010	South Fayette	5	0.089 ppm
	2011	Harrison	10	0.085 ppm
	2011	Lawrenceville	3	0.095 ppm
	2011	South Fayette	6	0.086 ppm
	2012	Harrison	16	0.094 ppm
	2012	Lawrenceville	7	0.089 ppm
	2012	South Fayette	6	0.085 ppm
	2013	Harrison	4	0.085 ppm
	2013	Lawrenceville	1	0.095 ppm
	2013	South Fayette	2	0.089 ppm
	2014	Harrison	2	0.076 ppm
	2015	Harrison	2	0.084 ppm
	2016	Harrison	1	0.076 ppm
2016	Lawrenceville	3	0.077 ppm	
2016	South Fayette	4	0.081 ppm	
2017	Harrison	1	0.071 ppm	
2017	South Fayette	8	0.082 ppm	
2018	Harrison	5	0.087 ppm	
2018	Lawrenceville	6	0.079 ppm	
2018	South Fayette	3	0.078 ppm	

<b>Standard</b>	<b>Year</b>	<b>Site</b>	<b>Number of Exceedances</b>	<b>Maximum Concentration</b>
8-Hour Ozone 0.070 ppm	2020	Harrison	4	0.077 ppm
	2020	Lawrenceville	2	0.071 ppm
	2020	South Fayette	2	0.071 ppm
	2021	Harrison	1	0.072 ppm
1-Hour SO <sub>2</sub> 75 ppb	2010	Liberty	34	215 ppb
	2010	South Fayette	1	108 ppb
	2010	Avalon	2	97 ppb
	2010	Stowe Township	3	93 ppb
	2011	Liberty	45	450 ppb
	2012	Liberty	43	199 ppb
	2013	Liberty	9	99 ppb
	2013	Lawrenceville	2	100 ppb
	2014	Liberty	14	122 ppb
	2014	North Braddock	5	126 ppb
	2015	Liberty	17	244 ppb
	2015	North Braddock	1	80 ppb
	2016	Liberty	4	171 ppb
	2017	Liberty	18	163 ppb
	2017	North Braddock	3	127 ppb
	2018	Liberty	11	155 ppb
2018	North Braddock	3	113 ppb	
2019	Liberty	5	85 ppb	
2019	North Braddock	2	83 ppb	
2020	North Braddock	2	105 ppb	

## Air Monitoring Network

Below is a table of monitor sites corresponding to pollutant types, current through 2021. Meteorological monitors (wind and temperature) are also included.

	SO <sub>2</sub>	CO	NO <sub>x</sub>	O <sub>3</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	H <sub>2</sub> S	HAPs	Dustfall	Met
Flag Plaza					C					
Lawrenceville	C(T)	C(T)		C		C, I(3) SPC(3)		I(6) NATTS(6)		C
Avalon						C				
Harrison			C	C		I(3)				
Natrona									I, I	
N. Braddock	C				C	I(3)	C			C
Liberty	C				C	C, I(1) I(12) SPC(6)	C	I		C
Glassport					C					
Clairton					I(6)	I(6)				
South Fayette	C			C		I(3)				
Collier									I	
Parkway East		C(T)	C(T)			C, I(12)		BC		C
<b>Total</b>	C = 4	C = 2	C = 2	C = 3	C = 4 I = 1	C = 4 I = 8 SPC = 2	C = 2	C = 1 I = 3	I = 3	C = 4

**KEY** C = Continuous; I = Intermittent or Filter-Based; BC = Black Carbon (Aethalometer, Continuous data)  
 (1), (3), (6), or (12) = Sampling Frequency [for example, (3) means every third day]  
 SPC = Speciation; (S) = Seasonal Continuous Monitor; (T) = Trace Level Monitor  
 NATTS = National Air Toxics Station: PM10 metals, volatile organic compounds, carbonyls, polycyclic aromatic hydrocarbons

## ***Additional Information***

For more information concerning Allegheny County air quality data, contact the ACHD Air Quality Program, Planning and Data Analysis Section, at 412-578-8120, or at [Shaun.Vozar@AlleghenyCounty.US](mailto:Shaun.Vozar@AlleghenyCounty.US).

For information concerning Pennsylvania Air Quality, visit: <http://www.dep.state.pa.us/dep/deputate/airwaste/aq/default.htm>.

For information about national air quality, visit EPA's website: [www.epa.gov](http://www.epa.gov).

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This report was compiled by the following ACHD staff:

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