

# 2015 Air Quality Annual Report





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

**Annual Report  
for  
2015  
with  
1995-2015 Trends**



*Pictured on the front cover...*

ACHD staff work on the Lawrenceville monitoring site, atop the ACHD Air Quality office in Pittsburgh.



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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 2015.

For comparison to previous data, this report also provides 2014 data and twenty-year trends. For standards that require consecutive years' averages, multi-year averages are also given. Note that multi-year design values will be 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 will be calculated as such.

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

Official validated 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 air quality data for 2015 was certified in AQS in mid-2016.

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

Unofficial Air Quality Index (AQI) levels are also available each hour for all continuously monitored pollutants via ACHD phone recording at 412-578-8179.



## 1. Executive Summary

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The County recorded two exceedance days for 8-hour ozone in 2015, with no days above 0.085 parts per million (ppm). The ACHD monitors showed attainment of the 8-hour standard of 0.075 ppm for the first time. The highest 3-year average of the 4<sup>th</sup> maximum concentration for 2013-2015 was 0.073 ppm at Harrison.

For particulate matter 2.5 microns or less in diameter (PM<sub>2.5</sub>), one of the eight monitoring sites was above the annual standard of 12.0 µg/m<sup>3</sup> (micrograms/cubic meter): Liberty was 12.6 µg/m<sup>3</sup> for the years 2013-2015.

On a short-term basis, the Liberty FRM (Federal Reference Method) PM<sub>2.5</sub> monitor exceeded the 24-hour standard of 35 µg/m<sup>3</sup> seven times, leading to a 98<sup>th</sup>-percentile value of 34.9 µg/m<sup>3</sup>. On December 17, 2006, the new EPA 24-hour PM<sub>2.5</sub> standard of 35 µg/m<sup>3</sup> became effective. For the second time, data from all PM<sub>2.5</sub> monitors in Allegheny County show attainment of this standard.

Concurrent with the revised 24-hour PM<sub>2.5</sub> standard, the annual standard of 50 µg/m<sup>3</sup> for PM<sub>10</sub> was revoked. Annual averages are included in this report and may be included in future reports for comparative purposes.

A new 1-hour federal standard of 75 ppb was started 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.

A new 1-hour federal standard 100 ppb was started 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.

All exceedances of the short-term standards in 2015 are shown in the table on the next page. All other criteria pollutants were below the annual and short-term federal standards in 2015. 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.



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### 2015 Exceedances of the Short-Term Federal Standards

<b>Pollutant</b>	<b>Site</b>	<b>Date</b>	<b>Concentration</b>	<b>Standard</b>
Ozone	Harrison	6/10/2015	0.081 ppm (8-hr.)	0.075 ppm
Ozone	Harrison	6/11/2015	0.084 ppm (8-hr.)	0.075 ppm
PM <sub>2.5</sub>	Liberty	7 Days	Max = 58.1 µg/m <sup>3</sup>	35 µg/m <sup>3</sup>
SO <sub>2</sub>	Liberty	17 Hours	Max = 244 ppb	75 ppb
SO <sub>2</sub>	North Braddock	1 Hour	Max = 80 ppb	75 ppb



## 2. 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 have been designated nonattainment for 8-hour ozone, based on 2001-2003 monitored data. In February, 2011 the EPA had issued in 40 CFR part 52, Approval and Promulgation of Air Quality Implementation Plans; Pennsylvania; Determination of Attainment for the Pittsburgh-Beaver Valley 8-Hour Ozone Nonattainment area (this is for the old standard of 0.08 ppm). The monitor at Harrison had the highest 3-year average of 0.077 ppm for 2012-2014 in the area. It remained the highest in Allegheny County for 2013-2015 at 0.073 ppm. Allegheny County is in attainment of the 8-hour ozone standard of 0.075 ppm for the first time.



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

Allegheny County has been designated nonattainment for PM<sub>2.5</sub> as part of a multi-county Pittsburgh-Beaver Valley Area, based on 2001-2003 monitored data. Additionally, a five-municipality Liberty-Clairton Area was designated nonattainment as a separate area within Allegheny County. Monitored results for 2013-2015 show levels of attainment county-wide, excluding the Liberty-Clairton Area for the annual standard of 12 µg/m<sup>3</sup>. The Liberty-Clairton Area is still in violation of the new annual standard.



The County is developing a State Implementation Plan (SIP) for the control of PM<sub>2.5</sub> in the Liberty-Clairton Area. Funding from the County's Clean Air Fund has been approved for use in this SIP development. The County will also assist the PA DEP in the development of the Pittsburgh-Beaver Valley PM<sub>2.5</sub> SIP.

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

The County had monitored attainment for SO<sub>2</sub> for 10 consecutive years. EPA redesignated Allegheny County to attainment for SO<sub>2</sub> in 2004. However, the Liberty monitor is in nonattainment of the new 1-Hour NAAQS of 75 ppb. ACHD is in the process of developing a SIP for SO<sub>2</sub>.



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### Other Criteria

The County has monitored attainment for PM<sub>10</sub> for 21 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 18 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 28 consecutive years. EPA redesignated Allegheny County to attainment for CO in 2003.

For NO<sub>2</sub>, the County has monitored attainment for over 30 consecutive years and has been in attainment since promulgation of the standard.

For Lead (Pb), in 2014 the County had monitored nonattainment for the first time in over 25 years. The County has monitored attainment in 2015.



### 3. Air Monitoring Results

#### A. 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 0.075 parts per million (ppm) must not be exceeded by the 3-year average of the 4<sup>th</sup> highest 8-hour concentrations. The ozone season for Allegheny County extends from April 1 through October 31. The South Fayette monitor runs during the ozone season only.

There were two exceedance days overall for 8-hour ozone in 2015. None of the days included an exceedance at more than 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 2015, with exceedance concentrations and days shown in red. 2014 values are shown in gray for comparison.

8-Hour Std. = 0.075 ppm*						
Site	2014 8-Hour Maximum (ppm)	2015 8-Hour Maximum (ppm)	2014 Exceedance Days	2015 Exceedance Days	2012-2014 8-Hour 3-Yr. Avg. of 4 <sup>th</sup> Max. (ppm)	2013-2015 8-Hour 3-Yr. Avg. of 4 <sup>th</sup> Max. (ppm)
Harrison	0.076	0.084	2	2	0.077	0.073
Lawrenceville	0.071	0.073	0	0	0.073	0.068
South Fayette	0.072	0.073	0	0	0.070	0.066

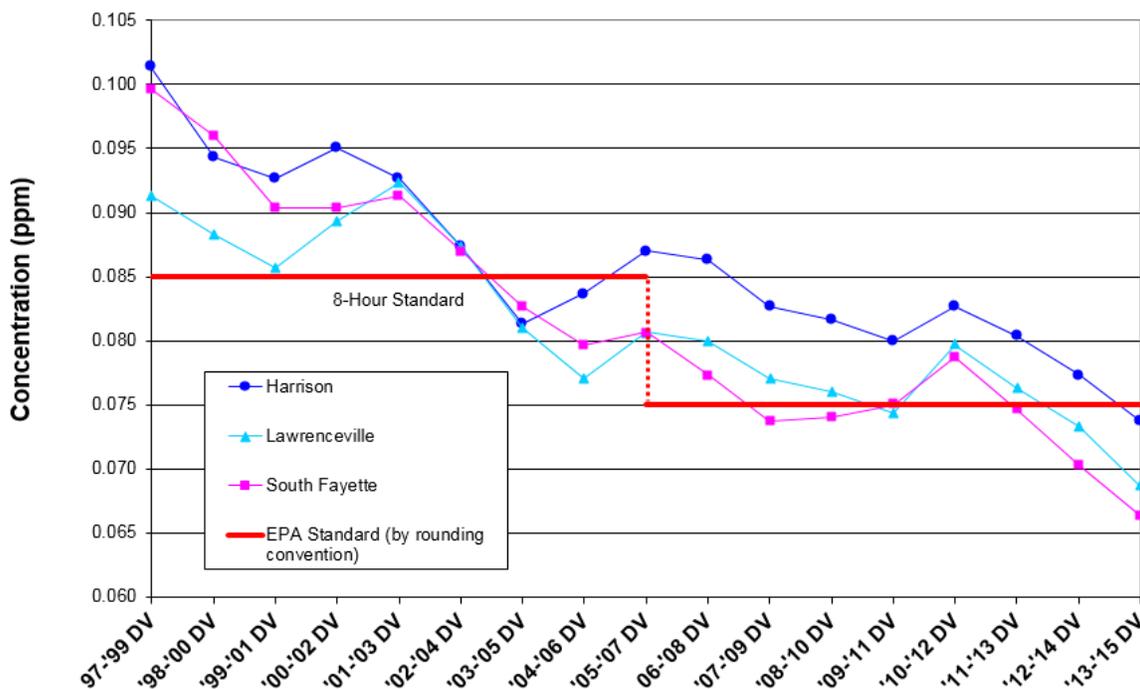
\* For comparison to the standards, values are truncated at 1/1000<sup>th</sup> ppm (e.g., 0.0816 truncates to 0.081 ppm). An exceedance day is one in which any 8-hour period has an average of greater than 0.075 ppm.



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Below is a chart showing the 8-hour design values for the three Allegheny County Health Department sites since 1997.

**8-Hour Ozone Design Values, ACHD Sites, 1997 to 2015**



## 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 2015, with 2014 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.



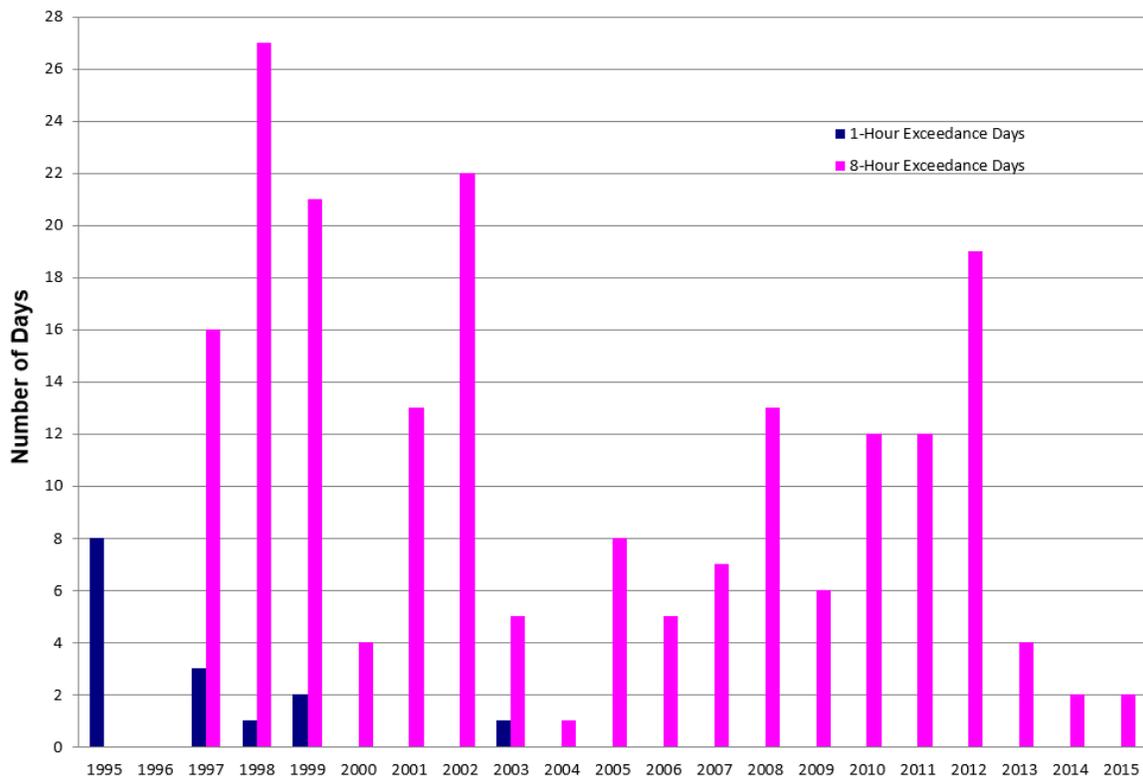
# 2015 AIR QUALITY ANNUAL REPORT

Former 1-Hour Std. = 0.12 ppm						
Site	2014 1-Hour Maximum (ppm)	2015 1-Hour Maximum (ppm)	2014 Exceedance Days	2015 Exceedance Days	2012-2014 Expected Exceedance Days	2013-2015 Expected Exceedance Days
Harrison	0.085	0.090	0	0	0.0	0.0
Lawrenceville	0.077	0.086	0	0	0.0	0.0
South Fayette	0.083	0.083	0	0	0.0	0.0

\* 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 1995-2015. Exceedance days represent days when at least one site exceeded the standard. 8-hour exceedance days are shown starting in 1997, when the 8-hour standard was promulgated.

### Ozone Exceedance Days, 1995 - 2015





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

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

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).

Annual averages for 2015 are given in the table below, with 2014 averages shown in gray. 2015 annual and 3-year averages that exceeded the standard are shown in red.

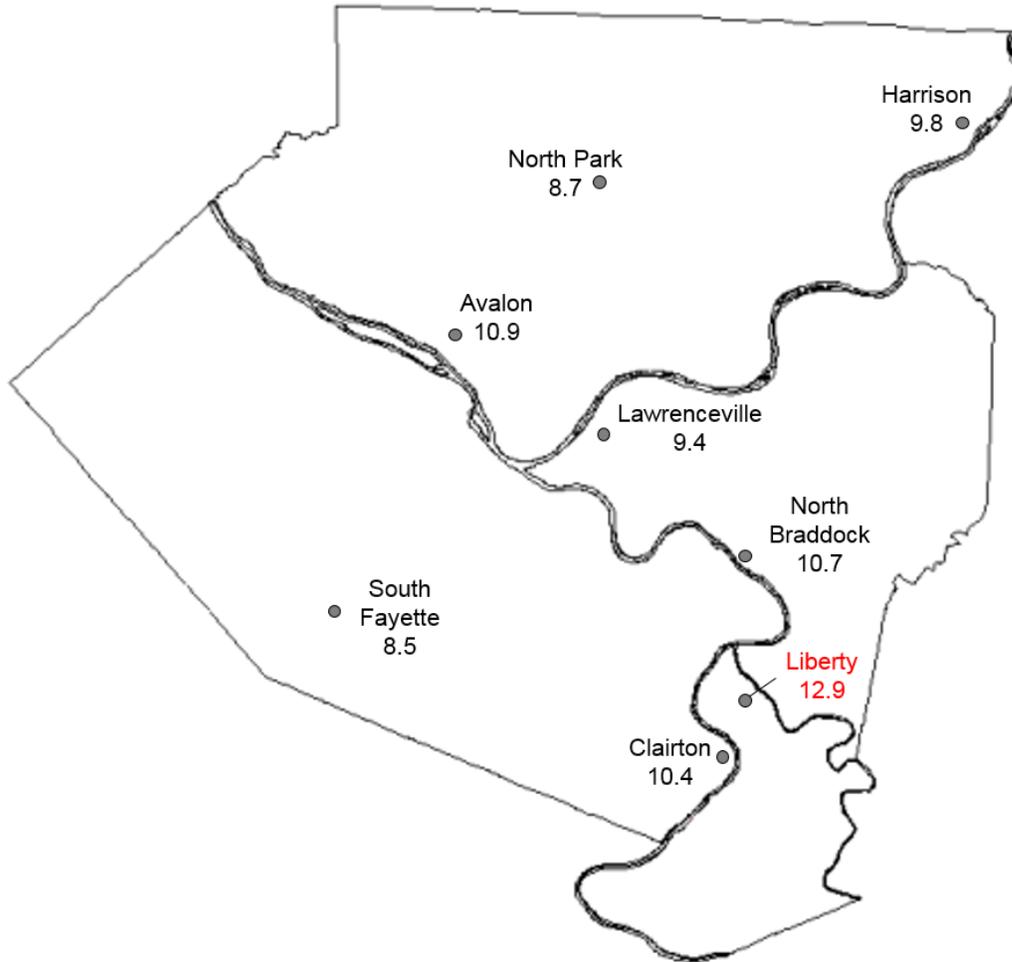
Annual Std. = 12.0 µg/m <sup>3</sup>				
Site	2014 Average	2015 Average	2012-2014 3-Year Average	2013-2015 3-Year Average
Liberty	12.7	12.9	13.0	12.6
Avalon	10.7	10.9	10.6	10.6
North Braddock	11.5	10.7	11.4	11.2
Clairton	9.8	10.4	9.5	9.9
Harrison	10.0	9.8	10.0	9.8
Lawrenceville	10.1	9.4	10.0	9.7
North Park	8.1	8.7	8.5	8.5
South Fayette	9.1	8.5	9.0	8.8



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2015 FRM annual averages are also shown on the map below. Sites that exceeded the standard are shown in red.

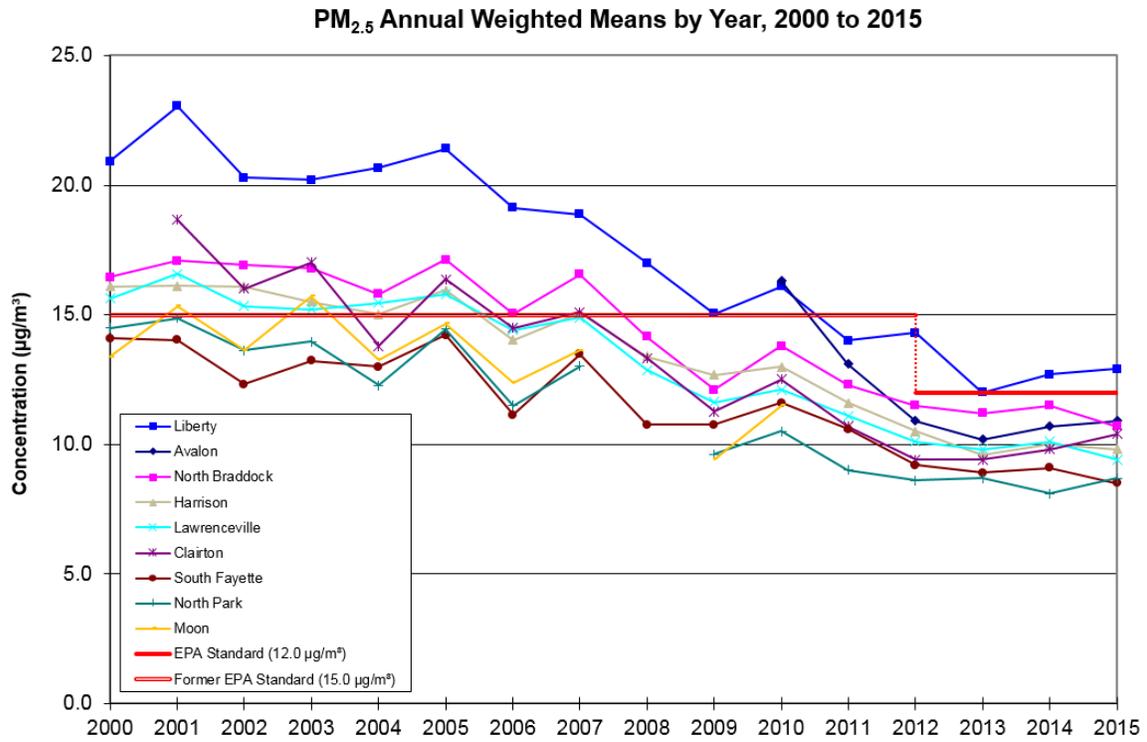
2015 PM<sub>2.5</sub> FRM Annual Averages by Site, in  $\mu\text{g}/\text{m}^3$





# 2015 AIR QUALITY ANNUAL REPORT

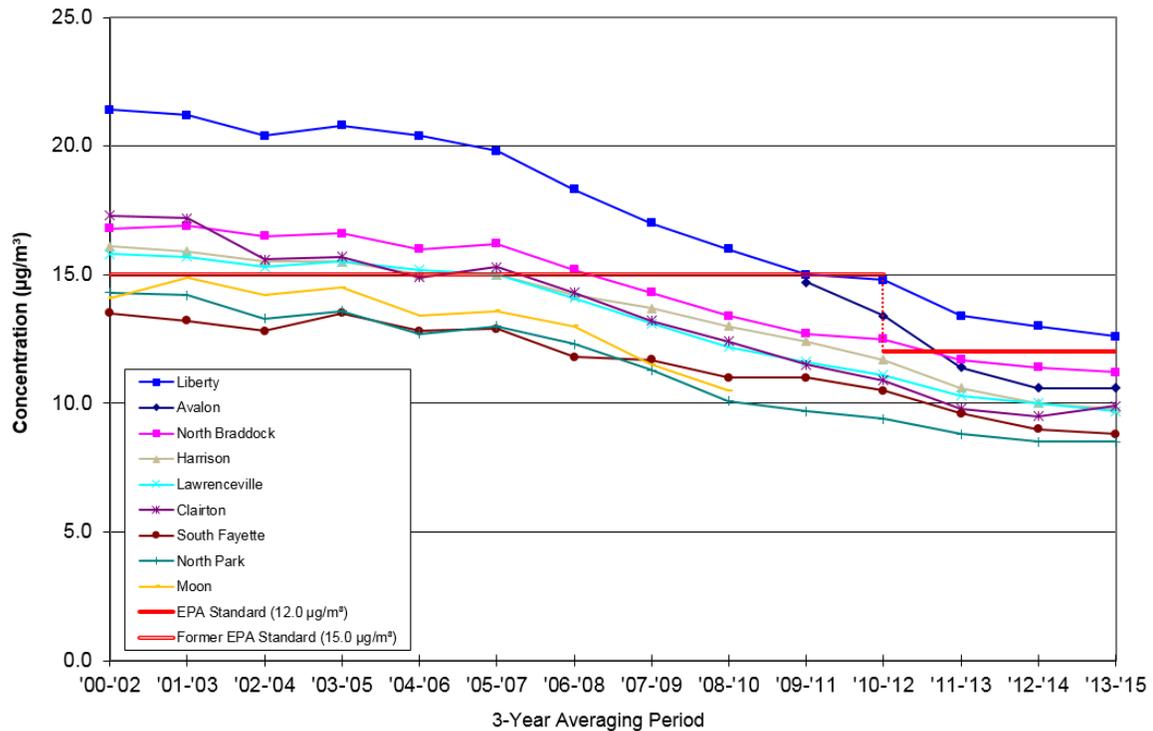
Long-term trends for the PM<sub>2.5</sub> annual averages and the PM<sub>2.5</sub> annual design values are shown in the charts below.





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**PM<sub>2.5</sub> Annual Design Values by 3-Year Period, 2000 to 2015**



**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>.

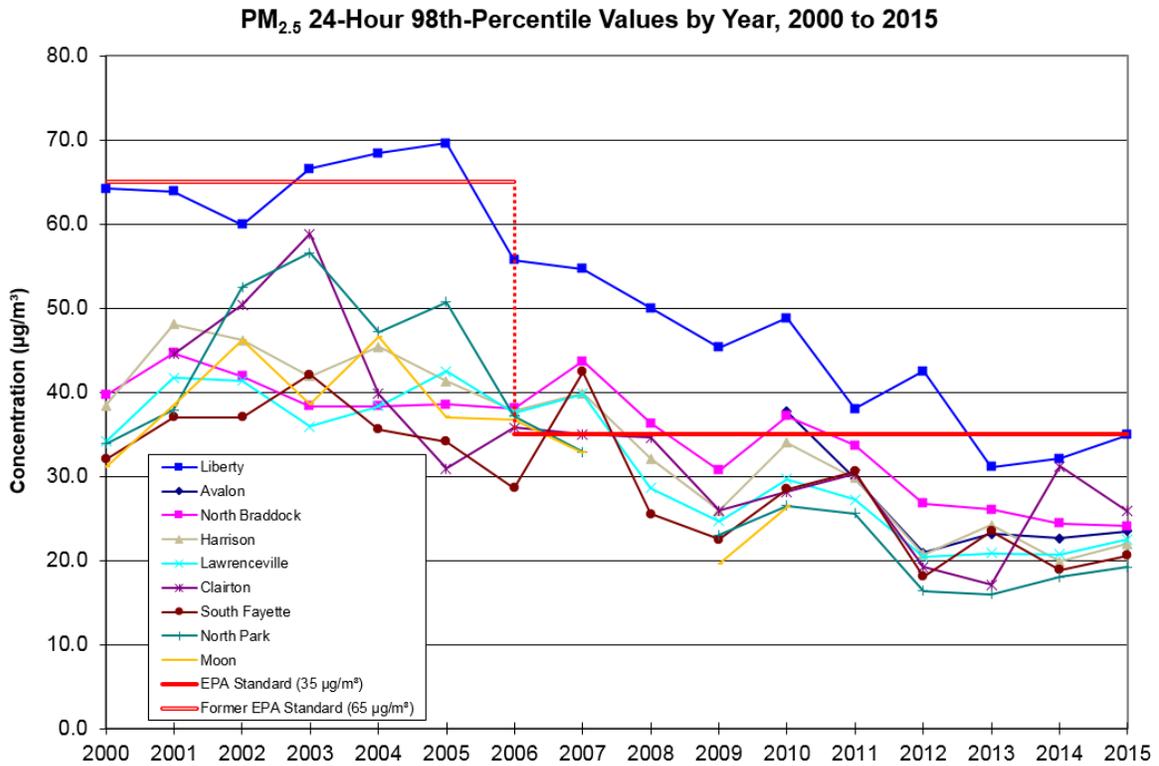
The maximum 2015 24-hour concentrations and number of exceedance days are shown in the following table, with 2014 values shown in gray. Values for 98<sup>th</sup>-percentile values by year and by 3-year average are also shown. Exceedances in 2015 are shown in red.

24-Hour Std. = 35 µg/m <sup>3</sup>								
Site	2014 24-Hour Max.	2015 24-Hour Max.	2014 24-Hour Exceed.	2015 24-Hour Exceed.	2014 98 <sup>th</sup> - Percentile Value	2015 98 <sup>th</sup> - Percentile Value	2012-2014 3-Year Avg. of 98 <sup>th</sup> - Percentile	2013-2015 3-Year Avg. of 98 <sup>th</sup> - Percentile
Liberty	63.8	58.1	4	7	32.2	34.9	35.3	32.7
Avalon	27.0	32.4	0	0	22.6	23.5	22.2	23.1
Clairton	35.3	30.5	0	0	31.2	25.8	22.5	24.7
North Braddock	28.3	28.0	0	0	24.4	24.1	25.8	24.9
Lawrenceville	30.4	27.3	0	0	20.7	22.5	20.6	21.3
South Fayette	21.8	24.1	0	0	18.9	20.6	20.2	21.0
Harrison	23.6	23.5	0	0	19.9	22.0	21.6	22.0
North Park	18.0	20.4	0	0	18.0	19.2	16.8	17.7



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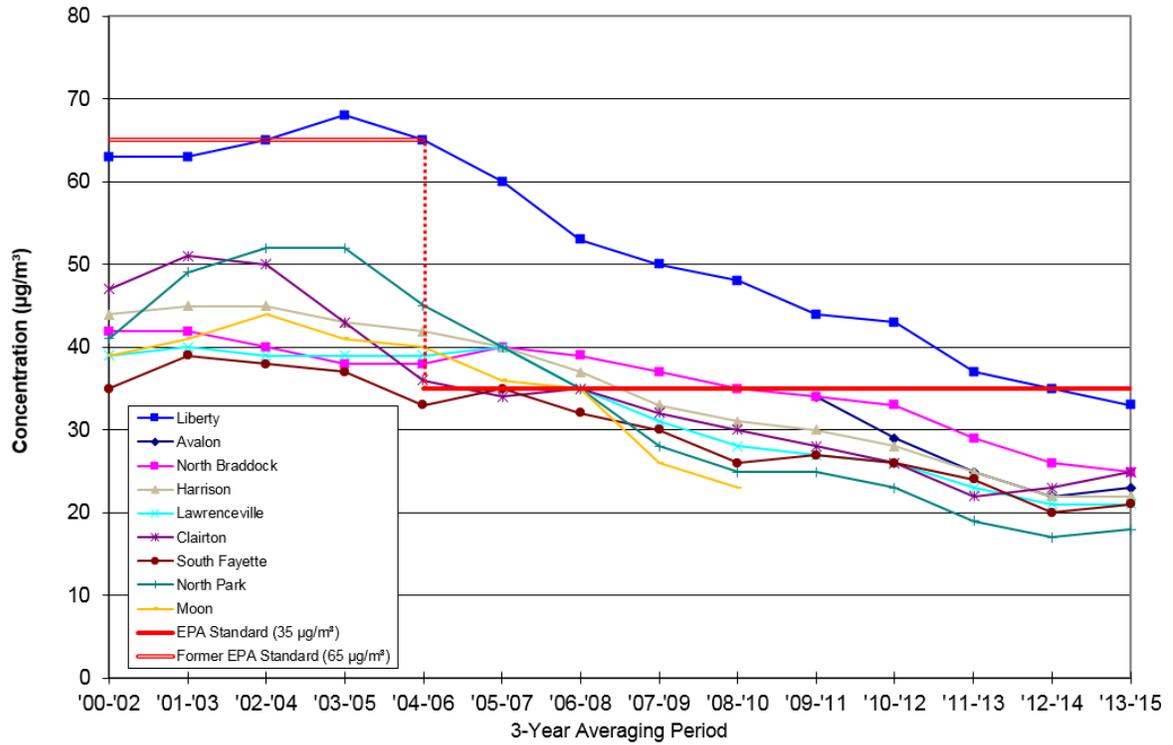
Long-term trends for the PM<sub>2.5</sub> 24-hour 98<sup>th</sup>-percentile by year and then design values by 3-year period are shown in the charts that follow.





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### PM<sub>2.5</sub> 24-Hour Design Values by 3-Year Period, 2000 to 2015





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### PM<sub>2.5</sub> Continuous Monitors

ACHD's two continuous PM<sub>2.5</sub> monitors are used mainly for AQI reporting. These monitors are not used formally in determining attainment of the federal standards, but they do provide estimates of the FRM filter-based values. Since 2007, ACHD reports both the raw (as measured from the monitor) and corrected (correlated to the FRM at the same site) continuous values. All data reported prior to 2007 is considered raw. Note that the Lawrenceville continuous PM<sub>2.5</sub> monitor was shut down for several months in 2015 due to a roof repair at the site.

Site	Annual Std. = 12.0 µg/m <sup>3</sup> [FRM]			24-Hour Std. = 35 µg/m <sup>3</sup> [FRM]		
	2014 RAW Average	2015 RAW Average	2015 CORRECTED Average	2014 RAW 24-Hour Maximum	2015 RAW 24-Hour Maximum	2015 CORRECTED 24-Hour Maximum
Lawrenceville	8.9	--	--	24.6	--	--
Liberty	11.6	12.2	13.0	49.2	51.7	63.5

### PM<sub>2.5</sub> Speciation Monitors

Physically, PM<sub>2.5</sub> is any particle that is 2.5 microns or less in diameter. Chemically, PM<sub>2.5</sub> is composed of many different chemical compounds. In addition to the FRM and continuous PM<sub>2.5</sub> monitors, the County operates two PM<sub>2.5</sub> speciation monitors that are used to measure specific components, or species, of the total collected sample. In the Pittsburgh metro area, the most dominant PM<sub>2.5</sub> species are sulfates and organic carbon compounds.

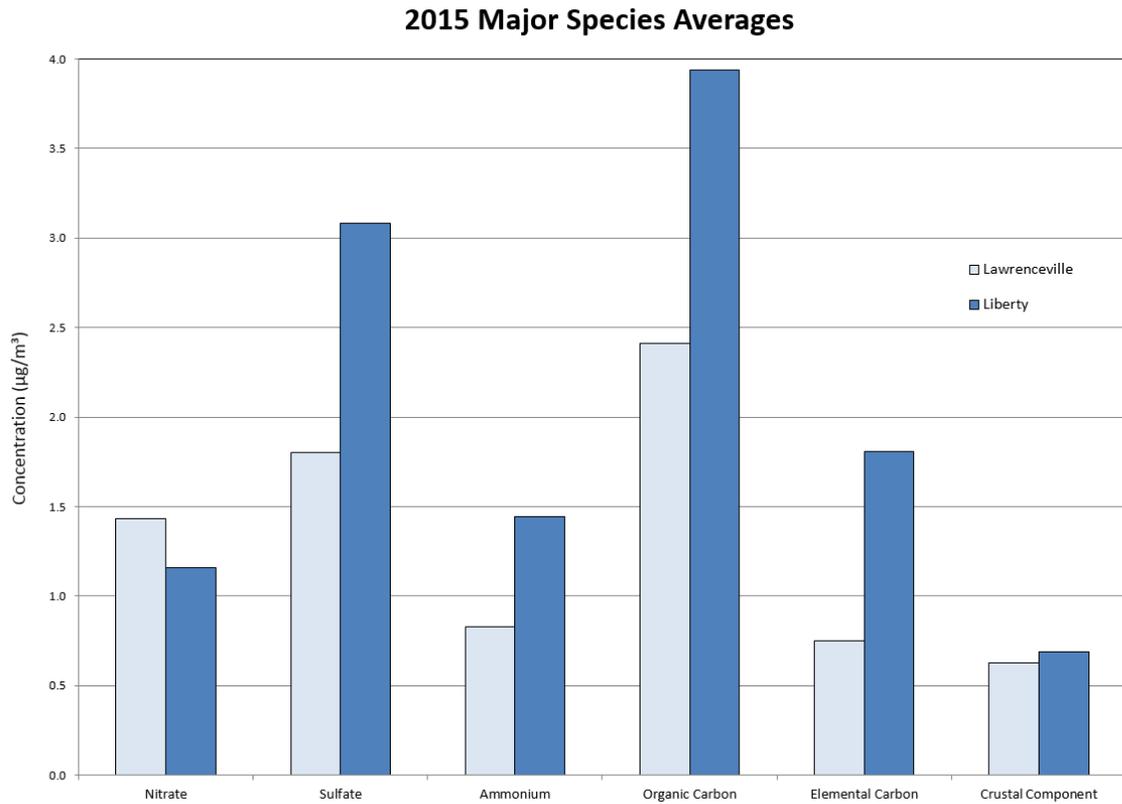
The averages of the major species concentrations are given below. Crustal component is made up of fine soil or minute dust particles. Additional material collected by the monitors and not shown below can include particle-bound water, trace amounts of metals and non-metals, and unspciated material.

Annual averages for major species at Lawrenceville and Liberty for 2015 are given below in µg/m<sup>3</sup>. Note that the Lawrenceville PM<sub>2.5</sub> speciation monitor was shut down for several months in 2015 due to a roof repair at the site.

Site	Nitrate	Sulfate	Ammonium	Organic Carbon	Elemental Carbon	Crustal Component
Lawrenceville	1.430	1.800	0.829	2.410	0.748	0.626
Liberty	1.158	3.084	1.444	3.941	1.806	0.691



2015 major species averages are also shown in the column chart below.





**C. 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 standards 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.

2015 maximums and averages are shown in the table below, with 2014 values shown in gray. There were no exceedances in 2015.

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

Site	24-Hour Std. = 150 µg/m <sup>3</sup>		Former Annual Std. = 50 µg/m <sup>3</sup>	
	2014 24-Hour Maximum	2015 24-Hour Maximum	2014 Average	2015 Average
Liberty	64	64	18.4	22.0
North Braddock	43	42	18.8	21.7
Clairton	39	41	14.1	16.2
Avalon	46	36	15.8	18.1
Manchester	55	34	15.9	18.1
South Fayette	22	32	11.6	13.3

PM<sub>10</sub> Continuous Monitors

Site	24-Hour Std. = 150 µg/m <sup>3</sup>		Former Annual Std. = 50 µg/m <sup>3</sup>	
	2014 24-Hour Maximum	2015 24-Hour Maximum	2014 Average	2015 Average
Glassport	64	91	16.5	17.4
Lincoln	70	85	22.3	23.7
Liberty	63	78	17.4	19.7
North Braddock	64	60	26.4	24.6
Flag Plaza	46	42	18.0	18.5
Monroeville	36	35	14.5	13.6

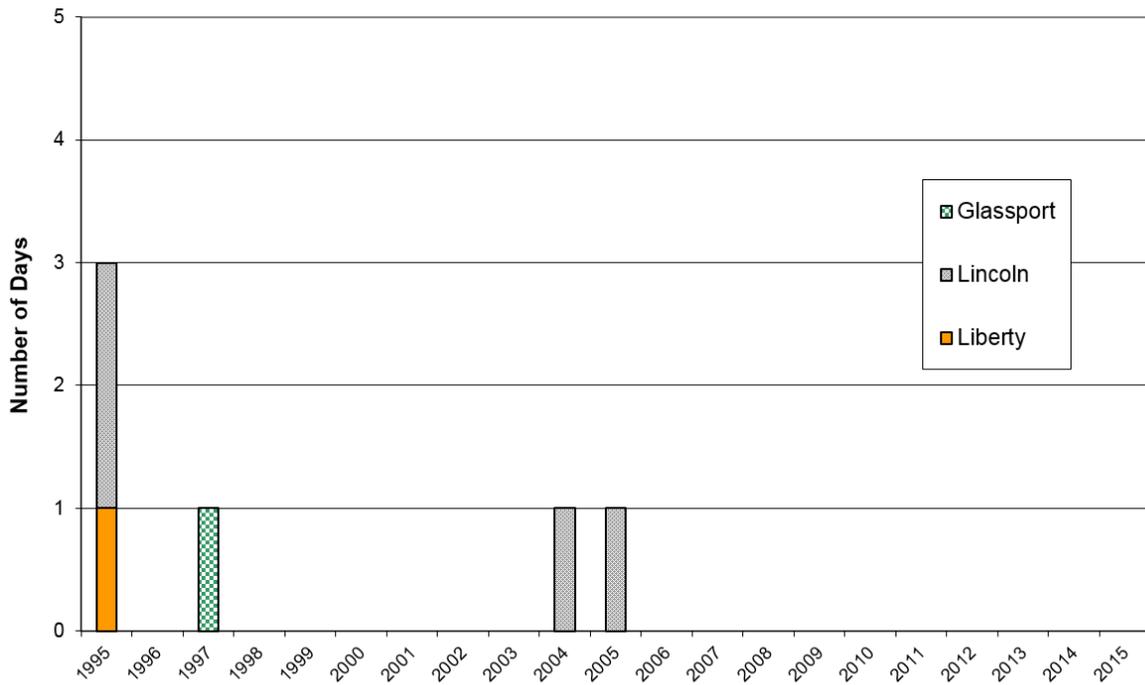
Note: North Braddock and Monroeville PM<sub>10</sub> Continuous Monitors became official the start of 2011.



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Below is a chart showing PM<sub>10</sub> 24-hour exceedances for the period 1995-2015. Continuous monitors began operation after 1992. For sites with both filter-based and continuous monitors, data for only the filter-based monitors are shown.

### PM<sub>10</sub> 24-Hour Exceedances, 1995-2015





**D. Sulfur Dioxide (SO<sub>2</sub>)**

Sulfur dioxide is monitored at five 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 started 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 2015 are shown in the table below, with 2014 values shown in gray. Exceedances in 2015 are shown in red. The NCore trace gas analyzer for SO<sub>2</sub> at Lawrenceville started operation in 2010 and Stowe was discontinued in 2011. The North Braddock SO<sub>2</sub> gas analyzer started operation in 2014.

Site	Former 24-Hour Std. = 0.14 ppm		Former Annual Std. = 0.03 ppm	
	2014 24-Hour Maximum	2015 24-Hour Maximum	2014 Average	2015 Average
Liberty	0.026	0.047	0.004	0.005
North Braddock	0.025	0.016	0.003	0.002
Avalon	0.011	0.014	0.002	0.001
Lawrenceville	0.008	0.008	0.001	0.001
South Fayette	0.009	0.006	0.001	0.001

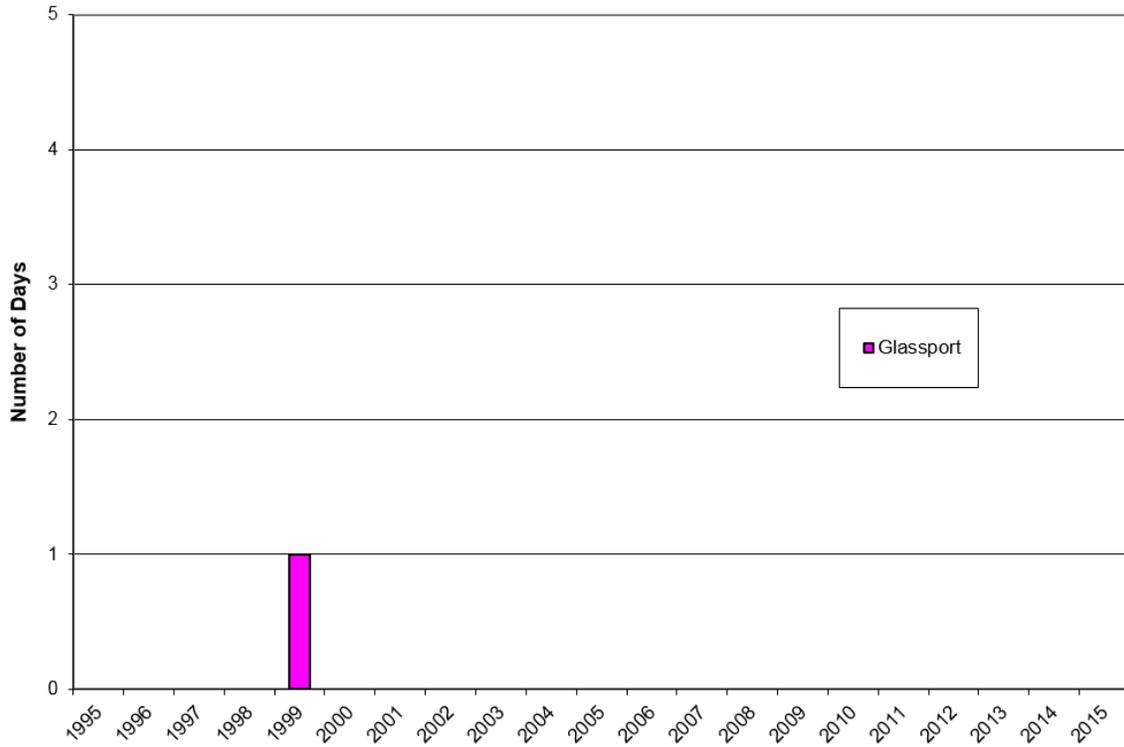
Site	1-Hour Std. = 75 ppb				
	2014 1-Hour Maximum	2015 1-Hour Maximum	2012-2014 99 <sup>th</sup> percentile	2013-2015 99 <sup>th</sup> percentile	2015 Exceedances
Liberty	122	244	101	99	17
North Braddock	126	80	--	71	1
Avalon	63	56	37	38	0
Lawrenceville	58	29	21	21	0
South Fayette	53	23	20	20	0

Note: North Braddock 2013-2015 99<sup>th</sup> percentile is a two year 99<sup>th</sup> percentile for 2014 and 2015.

SO<sub>2</sub> 24-hour exceedances are shown on the following page for 1995-2015. The former 24-hour standard can be exceeded once per year. Glassport was the last site to exceed the 24-hour standard in 1999.



Sulfur Dioxide 24-Hour Exceedances, 1995-2015

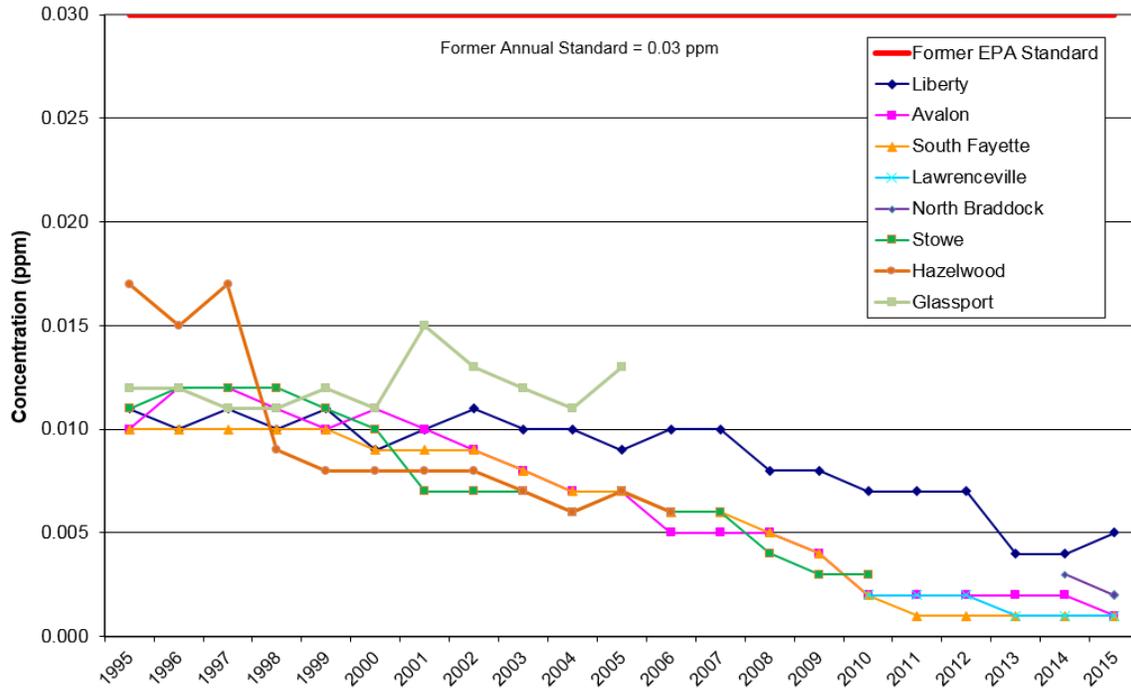


SO<sub>2</sub> annual average trends are shown below for 1995-2015.



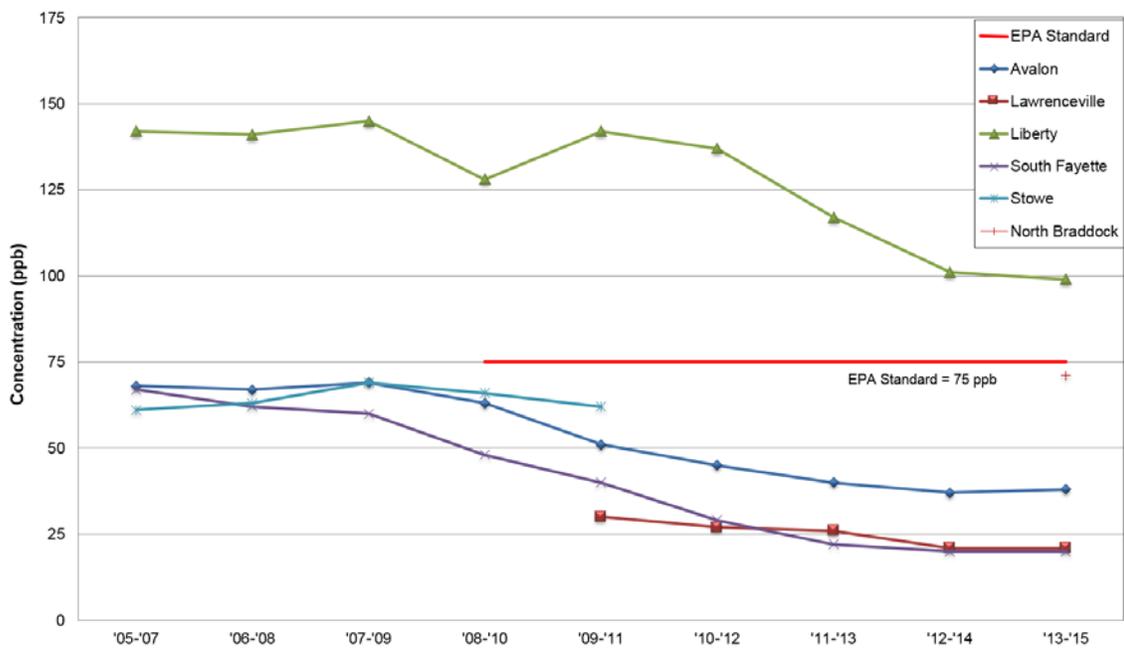
# 2015 AIR QUALITY ANNUAL REPORT

## Sulfur Dioxide Annual Averages, 1995-2015



SO<sub>2</sub> one-hour design value trends are shown below for 2005-2015.

## Sulfur Dioxide 1-HR Design Values, 2005 to 2015





**E. Carbon Monoxide (CO)**

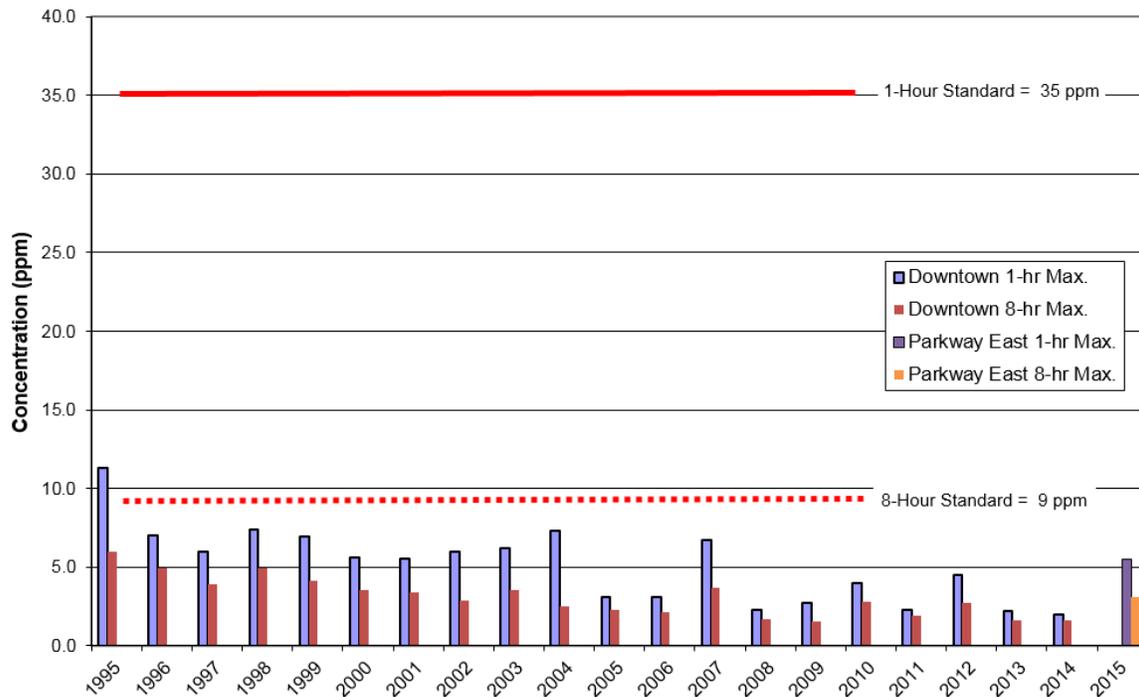
The County operates three carbon monoxide (CO) monitors; one in the Downtown Pittsburgh area. The NCore trace gas analyzer for CO at Lawrenceville started operation in 2010. The Parkway East, Near Road, trace gas analyzer for CO started operation on 9/1/2014 and the Downtown CO monitor was discontinued 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 2015 are shown in the table below, with 2014 values shown in gray.

Site	1-Hour Std. = 35 ppm		8-Hour Std. = 9 ppm	
	2014 1-Hour Maximum	2015 1-Hour Maximum	2014 8-Hour Maximum	2015 8-Hour Maximum
Parkway East	3.1	5.5	1.4	3.0
Lawrenceville	2.7	1.3	1.5	1.1
Flag Plaza	2.7	1.3	1.8	1.1
Downtown*	2.0	--	1.6	--

\* Note: The Downtown site was formerly referred to as the "Courthouse."

Carbon monoxide maximum trends are shown below for 1995-2015. The County has not exceeded the 8-hour standard since 1987.

**Carbon Monoxide 1-Hour and 8-Hour Maximum Trends, 1995-2015**





**F. 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. Starting in 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 started 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. 2015 averages are shown in the table below, with 2014 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 Std. = 100 ppb			
	2014 Average	2015 Average	2014 1-Hour Maximum	2015 1-Hour Maximum	2012-2014 98 <sup>th</sup> percentile	2013-2015 98 <sup>th</sup> percentile
Parkway East	13	13	42	51	--	42
Harrison	7	7	49	38	37	36
Lawrenceville	10	--	41	--	40	39

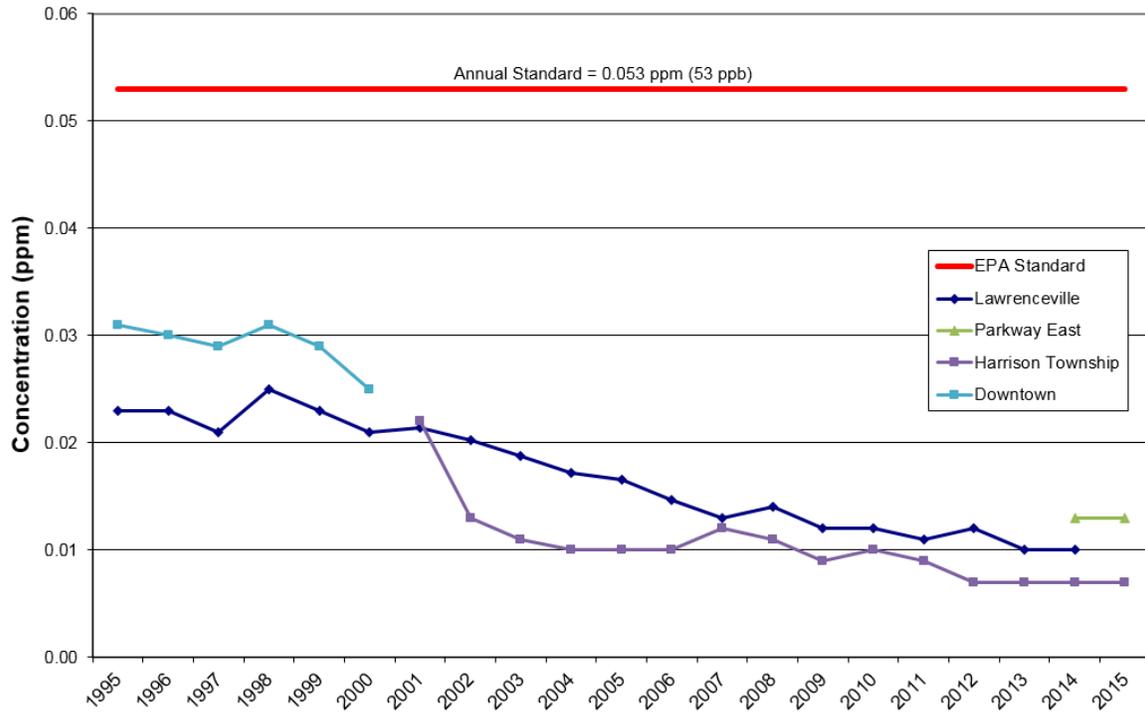
Note: Parkway East 2013-2015 98<sup>th</sup> percentile is a two year 98<sup>th</sup> percentile for 2014 and 2015. Lawrenceville 2013-2015 98<sup>th</sup> percentile is a two year 98<sup>th</sup> percentile for 2013 and 2014.

Long-term trends for NO<sub>2</sub> annual averages are shown on the following page for 1995-2015.



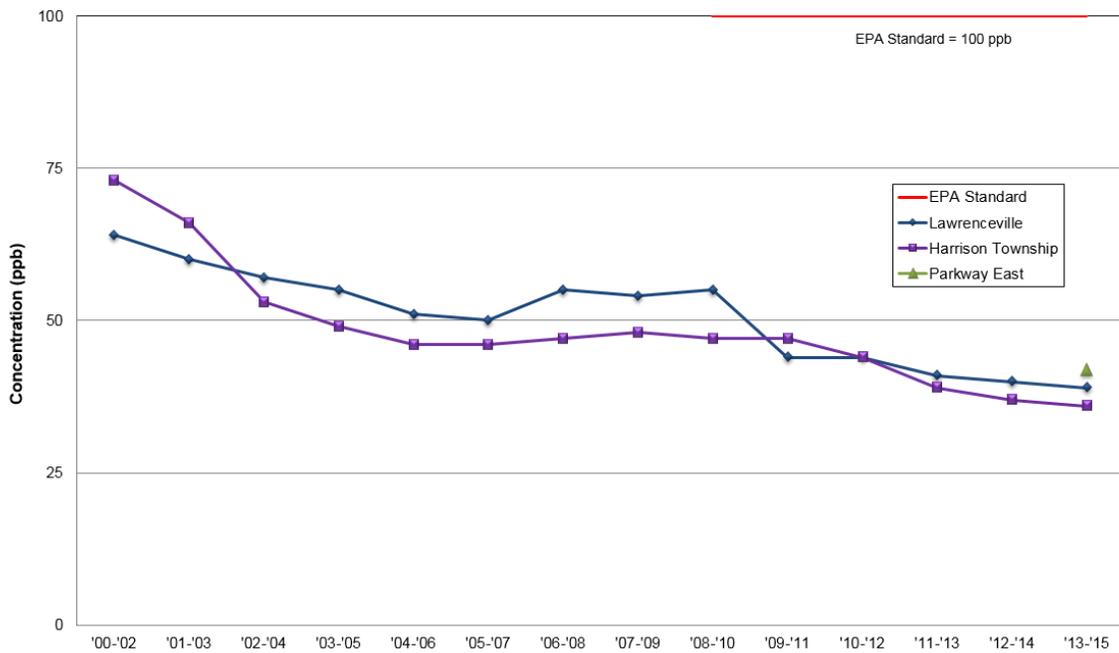
# 2015 AIR QUALITY ANNUAL REPORT

## Nitrogen Dioxide Annual Averages, 1995-2015



NO<sub>2</sub> one-hour design value trends are shown below for 2000-2015.

## Nitrogen Dioxide 1-HR Design Values, 2000 to 2015





**G. Lead (Pb)**

Lead is analyzed at the laboratory from the two TSP filter sites in the network. The federal standard was 1.5  $\mu\text{g}/\text{m}^3$  on a quarterly average basis; however, in 2009 the federal standard has changed to 0.15  $\mu\text{g}/\text{m}^3$  on a 3-month rolling average basis at local conditions. 2015 3-month rolling average maximums are shown in the table below, with 2014 3-month rolling average maximums shown in gray. Exceedances in 2015 are shown in red. Both Bridgeville and Natrona started operation in 2010. The Avalon monitor was moved to Lawrenceville the second quarter of 2011. The Natrona monitor was discontinued yearend 2014.

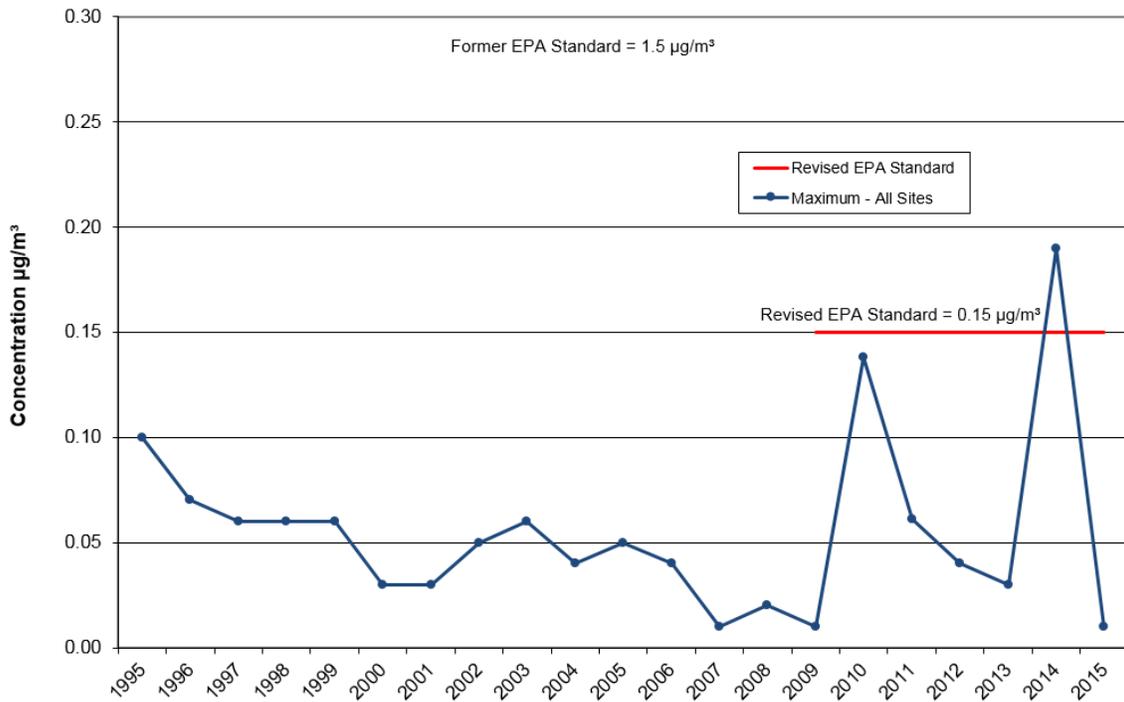
	3-Month Average Std. = 0.15 $\mu\text{g}/\text{m}^3$	
Site	2014 3-Month Average Maximum	2015 3-Month Average Maximum
Bridgeville	0.189	0.011
Natrona	0.022	--
Lawrenceville	0.007	0.008

Below is a chart showing 1995-2015 trends of the quarterly or 3-month average maximum lead concentration per year. Several sites have monitored lead since 1986; the maximum concentration from all sites is shown for each given year. 2008 and prior years are quarterly maximums, while 2009 and future years are maximum 3-month averages.



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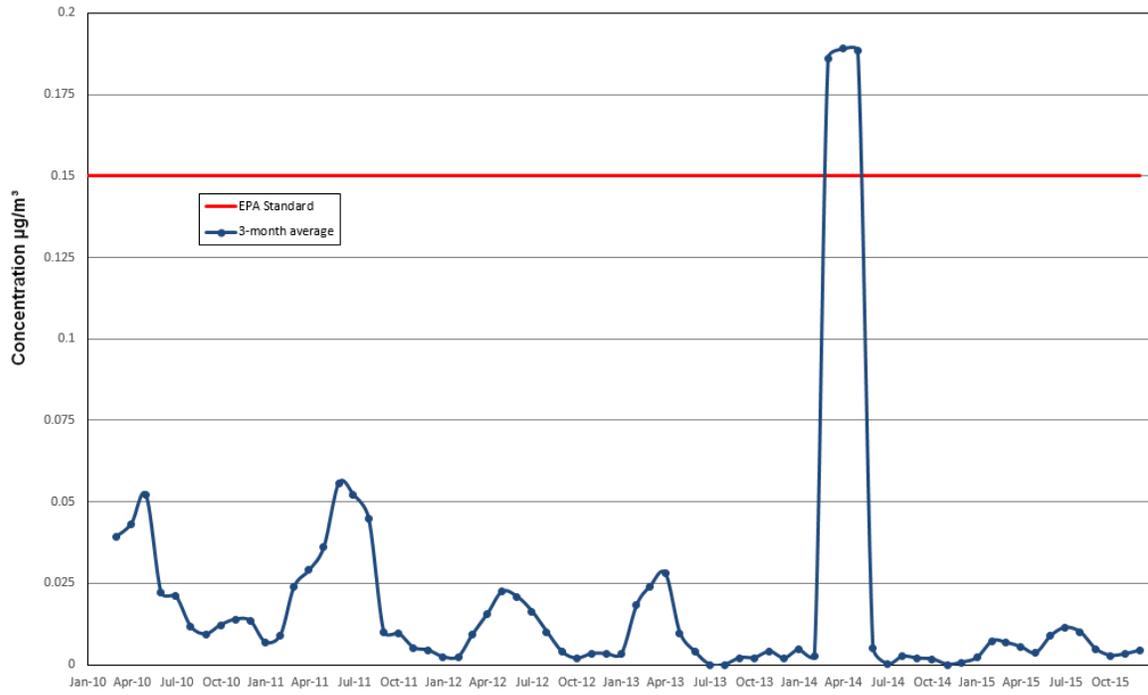
### Lead (Pb) Maximum, 1995-2015



Below is a chart showing the 3-month rolling average for Bridgeville. Note the month at the bottom of the chart represents the last month in the 3-month rolling average. For example, January 2011 represents the 3-month average of November 2010, December 2010, and January 2011.



### Bridgeville Lead 3-Month Rollong Averages 2010-2015





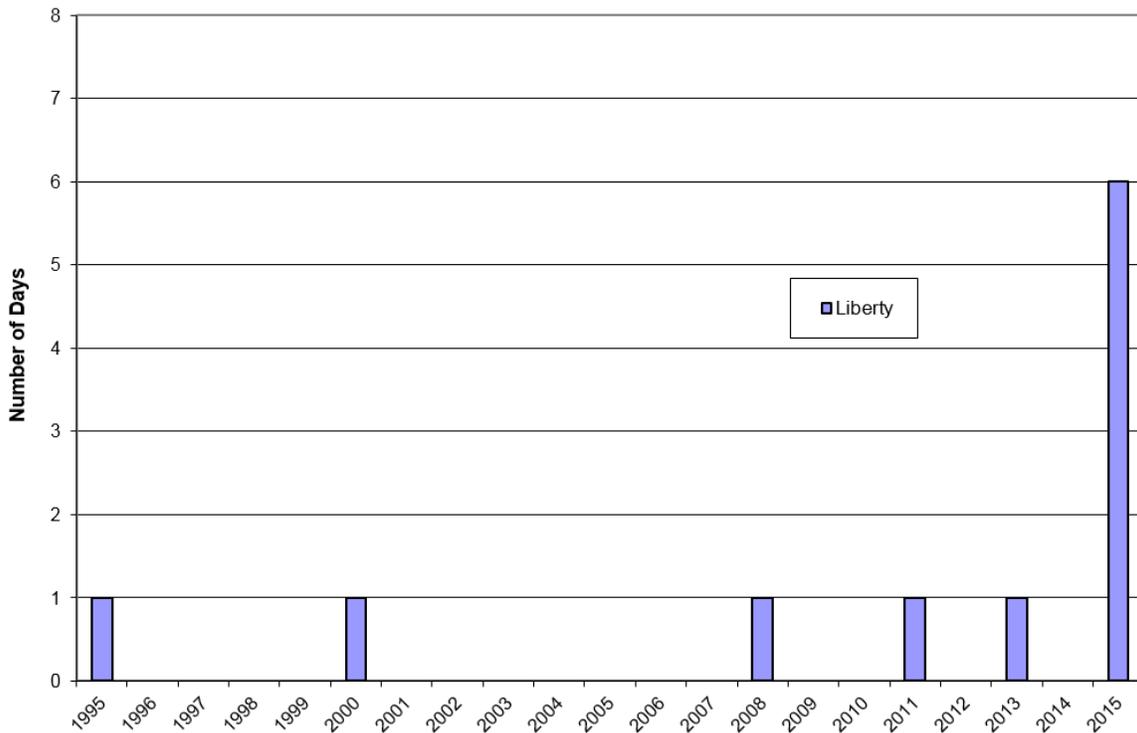
**H. Hydrogen Sulfide (H<sub>2</sub>S)**

There are no federal standards for hydrogen sulfide. However, 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 2015 are given in the table below, with 2014 values shown in gray. 2015 1-hour concentrations that exceeded the standard are shown in red. Long-term exceedances for 1995-2015 are also given in the chart below. Liberty 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.

	1-Hour PA Standard = 0.1 ppm			
Site	2014 1-Hour Maximum	2015 1-Hour Maximum	2014 Exceedances	2015 Exceedances
Liberty	0.083	0.140	0	6
Avalon	0.008	0.016	0	0
West Allegheny	0.002	--	0	--

**Hydrogen Sulfide 1-Hour Exceedances, 1995-2015**



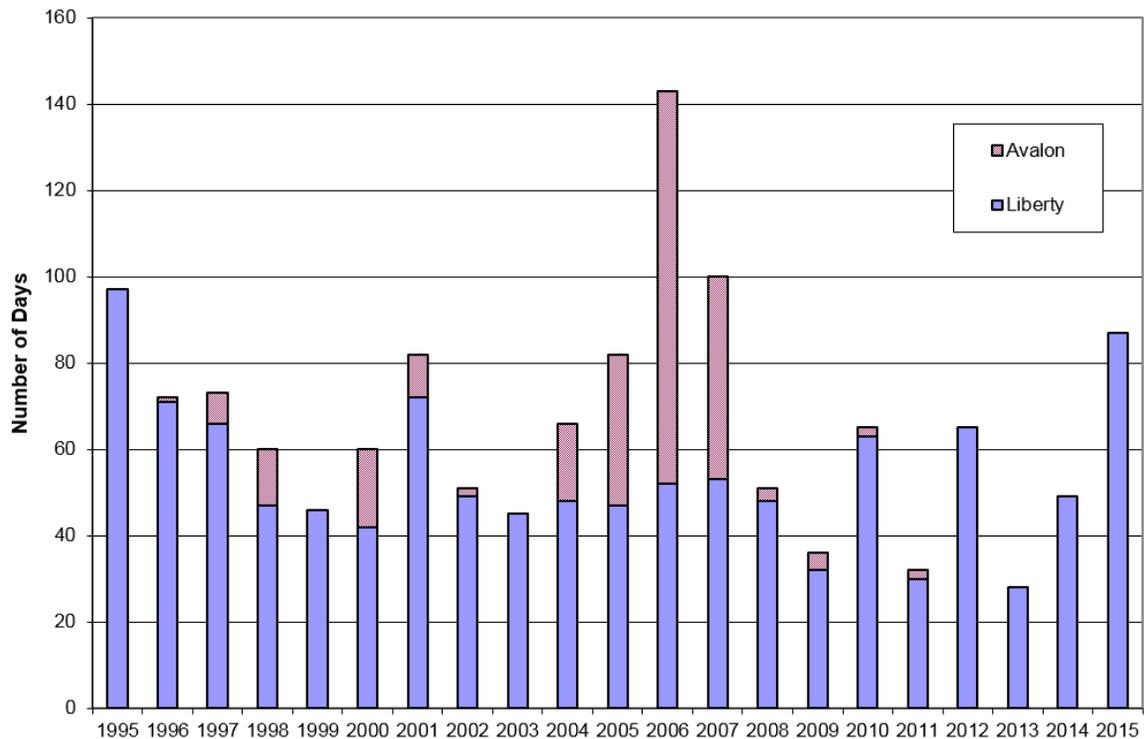


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Hydrogen sulfide 24-hour concentrations and exceedances for 2015 are next given in the following table, with 2014 values shown in gray. Long-term exceedances for 1995-2015 are also given in the chart below. Exceedances for 2015 are shown in red. Each exceedance constitutes a violation of the state H<sub>2</sub>S standards.

24-Hour PA Standard = 0.005 ppm				
Site	2014 24-Hour Maximum	2015 24-Hour Maximum	2014 Exceedances	2015 Exceedances
Liberty	0.016	0.027	49	87
Avalon	0.002	0.003	0	0
West Allegheny	0.001	--	0	--

**Hydrogen Sulfide 24-Hour Exceedances, 1995-2015**





**I. Dustfall**

Dustfall (or total settled particulates) is more of a nuisance than a health hazard, in that the particles are too large to be inhaled into the respiratory system.

PA state standards for protection against dust nuisances are 23 tons/mile<sup>2</sup>/month on an annual average basis and 43 tons/mile<sup>2</sup>/month on a monthly basis.

Annual averages, monthly maximums, and exceedances for 2015 are shown in the table below, with 2014 values shown in gray. Exceedances for 2015 are shown in red. Each exceedance constitutes a violation of the state dustfall standards.

Only Collier, Natrona 8, and Natrona 9 dustfall collectors are in operation for 2009 and future years. North Braddock, Neville, Neville 2 and Forward dustfall collectors were discontinued year end 2008.

Site	Annual PA Standard = 23 tons/mile <sup>2</sup> /month		Monthly PA Standard = 43 tons/mile <sup>2</sup> /month		Monthly Exceedances	
	2014 Average	2015 Average	2014 Monthly Maximum	2015 Monthly Maximum	2014 Exceedances	2015 Exceedances
Natrona 9	26	19	40	31	0	0
Natrona 8	12	11	24	22	0	0
Collier	10	11	19	16	0	0



**J. Benzo(a)pyrene (B(a)P)**

Benzo(a)pyrene, or B(a)P, is a known carcinogen. There are no federal or state ambient standards for B(a)P.

24-hour maximums and annual averages for B(a)P in 2015 are shown below, with 2014 values shown in gray. Liberty typically shows the highest concentrations of B(a)P in Allegheny County.

<b>No Ambient Standard</b>				
<i>Concentrations given in ng/m<sup>3</sup>*</i>				
<b>Site</b>	<b>2014 24-Hour Maximum</b>	<b>2015 24-Hour Maximum</b>	<b>2014 Average</b>	<b>2015 Average</b>
Liberty	51	155	7	21
Avalon	2	3	0	1
South Fayette	0	4	0	0

Note: Nanograms/cubic meter (ng/m<sup>3</sup>) represents a smaller quantity than micrograms/cubic meter (µg/m<sup>3</sup>). There are 1000 nanograms in a microgram. Concentrations for B(a)P may therefore appear much greater than those for other compounds.



### **K. Hazardous Air Pollutants (HAPs)**

Hazardous Air Pollutants (HAPs), or air toxics, are a group of 187 EPA-classified pollutants that can cause cancer or other serious health effects or adverse environmental and ecological effects. HAPs are sampled by various methods at several locations in the county. HAPs are not criteria pollutants, and there are no federal ambient standards for these compounds.

HAPs monitoring methods and locations are summarized below:

#### Canister Toxics

SUMA canisters are in operation at Flag Plaza, Avalon, Stowe, and South Fayette. Canister concentrations represent 24-hour samples, collected every six days, which are analyzed at an out-of-County lab (Maryland). Canister toxics monitoring at Flag Plaza has been in operation for several years, while monitoring at Avalon, Stowe, and South Fayette is part of an ACHD in-house air toxics study started in 2006 and discontinued year end 2007.

#### Cartridge Toxics

Cartridge (carbonyl) monitoring is conducted at all of the canister sites at every-six-day intervals, and samples are analyzed at an out-of-County lab (Philadelphia). Cartridge toxics monitoring at Flag Plaza has been in operation for several years, while monitoring at Avalon, Stowe, and South Fayette is part of an ACHD in-house air toxics study started in 2006 and discontinued year end 2007.

#### Benzene

The HAP compound 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. However, the benzene monitor was inoperative in most of 2006 and 2007.

Results from the various techniques and sites are given below and on the following pages. Several additional compounds that are analyzed simultaneously with the canister and cartridge samples, but are not classified as HAPs, are also provided.



## 2015 AIR QUALITY ANNUAL REPORT

### Flag Plaza - Canister and Cartridge

Annual averages and 24-hour maximums for Flag Plaza canister and cartridge HAPs in 2015 are shown below, with 2014 values shown in gray. Several years of toxics data are available for Flag Plaza, and multi-year trends for selected compounds may be included in future reports.

Notes: Concentrations are given below in units of parts-per-billion (ppb) by volume; one ppb is equal to 1/1000<sup>th</sup> parts-per-million (ppm) by volume.

Flag Plaza				
HAP	2014 Average (ppb)	2014 24-Hour Maximum (ppb)	2015 Average (ppb)	2015 24-Hour Maximum (ppb)
Carbon disulfide	0.00	0.04	0.00	0.00
1,1,2-Trichloro-1,2,2-trifluoroethane (Freon 113) <sup>†</sup>	1.21	7.07	0.14	0.76
1,2-Dichloro-1,1,2,2-tetrafluoroethane (Freon 114) <sup>†</sup>	0.02	0.08	0.04	0.17
Ethyl acetate <sup>†</sup>	--	--	--	--
1,3-Butadiene	0.03	0.32	0.02	0.18
Hexane	0.09	0.40	0.17	1.00
Heptane <sup>†</sup>	0.06	0.46	0.11	0.47
Cyclohexane <sup>†</sup>	0.03	0.59	0.02	0.19
Isopropyl alcohol <sup>†</sup>	--	--	--	--
Methyl tert-butyl ether (MTBE, 2-methoxy-2-methyl-Propane)	0.00	0.00	0.00	0.00
Acetone* <sup>†</sup>	1.53	3.91	1.57	3.62
Methyl ethyl ketone (MEK, 2-Butanone)*	0.27	0.44	0.35	0.71
Methyl butyl ketone (2-Hexanone) <sup>†</sup>	0.00	0.00	0.01	0.08
Methyl isobutyl ketone (MIK, 4-Methyl-2-pentanone)*	0.01	0.09	0.03	0.34
Chloromethane	0.74	4.47	0.64	0.82
Methylene chloride (Dichloromethane)	0.16	0.95	0.13	0.66
Chloroform	0.03	0.45	0.07	2.00
Carbon tetrachloride	0.09	0.14	0.09	0.11
Bromoform (Tribromomethane)	0.00	0.00	0.00	0.00
Trichlorofluoromethane (Freon 11) <sup>†</sup>	0.29	1.81	0.28	0.36
Chloroethane	0.00	0.00	0.00	0.10
1,1-Dichloroethane	0.00	0.00	0.00	0.00
1,1,1-Trichloroethane (Methyl chloroform)	0.01	0.08	0.01	0.05
1,2-Dichloroethane (Ethylene dichloride)	0.01	0.08	0.00	0.00
Tetrachloroethylene	0.03	0.23	0.02	0.14
1,1,2,2-Tetrachloroethane	0.00	0.03	0.00	0.01
Bromomethane	0.00	0.00	0.00	0.00
1,1,2-Trichloroethane	0.00	0.00	0.00	0.00
Dichlorodifluoromethane (Freon 12) <sup>†</sup>	0.61	3.47	0.55	0.75
Trichloroethene (-ethylene, TCE)	0.00	0.02	0.00	0.09



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Flag Plaza				
HAP	2014 Average (ppb)	2014 24-Hour Maximum (ppb)	2015 Average (ppb)	2015 24-Hour Maximum (ppb)
1,1-Dichloroethylene (-ethene, DCE, Vinylidene chloride)	0.00	0.00	0.00	0.00
Bromodichloromethane <sup>†</sup>	0.00	0.00	0.00	0.00
1,2-Dichloropropane	0.00	0.03	0.00	0.02
trans-1,3-Dichloro-1-propene (-propylene)	0.00	0.01	0.00	0.01
cis-1,3-Dichloro-1-propene (-propylene)	0.00	0.00	0.00	0.02
Dibromochloromethane <sup>†</sup>	0.00	0.00	0.00	0.00
trans-1,2-Dichloroethene <sup>†</sup>	0.00	0.00	0.00	0.00
cis-1,2-Dichloroethene <sup>†</sup>	0.00	0.00	0.00	0.00
1,2-Dibromoethane (Ethylene dibromide)	0.00	0.06	0.00	0.00
Hexachloro-1,3-butadiene (Hexachlorobutadiene)	0.00	0.00	0.00	0.00
Chloroethene (Vinyl chloride)	0.00	0.04	0.00	0.04
m & p- Xylene	0.09	0.48	0.14	0.43
Benzene	0.35	2.57	0.79	1.95
Toluene	0.31	1.28	0.42	1.69
Ethylbenzene	0.03	0.14	0.04	0.14
o-Xylene	0.03	0.14	0.05	0.15
1,3,5-Trimethylbenzene <sup>†</sup>	0.01	0.07	0.00	0.03
1,2,4-Trimethylbenzene <sup>†</sup>	0.03	0.13	0.04	0.17
1-Ethyl-4-methylbenzene (4-Ethyltoluene) <sup>†</sup>	0.01	0.06	0.01	0.09
Styrene	0.03	0.31	0.02	0.17
Chlorobenzene	0.00	0.10	0.00	0.01
1,2-Dichlorobenzene <sup>†</sup>	0.00	0.00	0.00	0.00
1,3-Dichlorobenzene <sup>†</sup>	0.00	0.00	0.00	0.00
1,4-Dichlorobenzene	0.01	0.34	0.00	0.02
Benzyl chloride	--	--	--	--
1,2,4-Trichlorobenzene	0.00	0.00	0.00	0.00
1-Bromopropane ( <i>n</i> -propylbromide, nPB)	0.00	0.00	0.01	0.04
Tetrahydrofuran <sup>†</sup>	0.01	0.05	0.01	0.09
Acetaldehyde*	0.81	1.51	0.91	1.86
Acrolein*	0.03	0.43	0.03	0.09
Formaldehyde*	1.56	4.55	1.99	4.76
Propionaldehyde*	0.15	0.24	0.16	0.32
Benzaldehyde* <sup>†</sup>	--	--	0.13	0.42
Acrylonitrile	--	--	--	--
Acetonitrile	--	--	--	--

\*Value measured by cartridge (carbonyl) method. All other values are as measured by SUMA canister.

<sup>†</sup>Compound is not an official EPA-classified HAP.

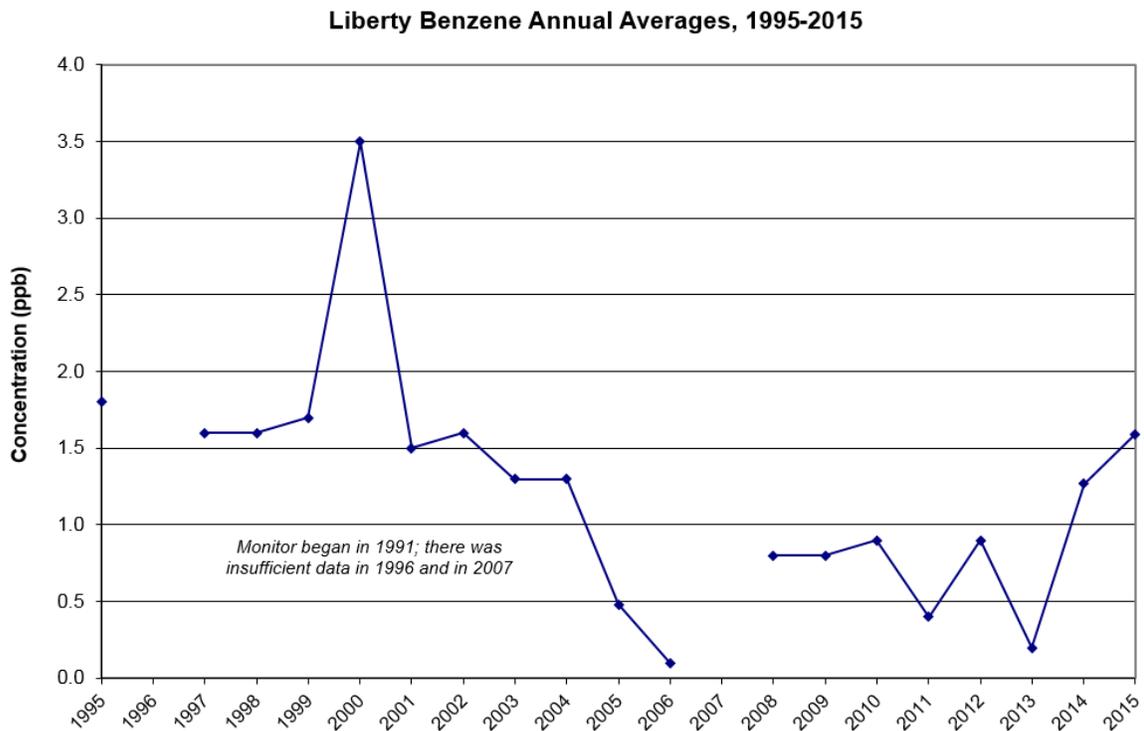


## Benzene

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. The annual average and 24-hour maximum for benzene in 2015 are shown below, with 2014 values shown in gray.

Site	2014 Average (ppb)	2014 24-Hour Maximum (ppb)	2015 Average (ppb)	2015 24-Hour Maximum (ppb)
Liberty	1.27	9.26	1.59	11.54
Avalon	0.24	1.62	0.27	1.43

A chart showing Liberty benzene annual averages for 1995-2015 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.





4. Short-Term Exceedances

Exceedances of the federal short-term primary standards are listed below for the years 2001 through 2015 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> 65 µg/m <sup>3</sup>	2001	Liberty	5	99 µg/m <sup>3</sup>
	2002	Liberty	1	70 µg/m <sup>3</sup>
	2003	Liberty	9	102 µg/m <sup>3</sup>
	2004	Liberty	7	94 µg/m <sup>3</sup>
	2005	Liberty	10	100 µg/m <sup>3</sup>
	2006	Liberty	3	101 µg/m <sup>3</sup>
35 µg/m <sup>3</sup>	2007	Liberty	46	61.7 µg/m <sup>3</sup>
	2007	Lawrenceville	12	50.7 µg/m <sup>3</sup>
	2007	N. Braddock	6	50.0 µg/m <sup>3</sup>
	2007	Harrison	5	51.8 µg/m <sup>3</sup>
	2007	South Fayette	4	43.6 µg/m <sup>3</sup>
	2007	Moon	1	40.7 µg/m <sup>3</sup>
	2007	Clairton	1	40.4 µg/m <sup>3</sup>
	2007	North Park	1	39.6 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	N. Braddock	3	40.6 µg/m <sup>3</sup>
	2010	Lawrenceville	2	41.5 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>	
8-Hour Ozone	2001	Harrison	8	0.101 ppm



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Standard	Year	Site	Number of Exceedances	Maximum Concentration
0.08 ppm	2001	Lawrenceville	4	0.095 ppm
	2001	South Fayette	7	0.098 ppm
	2002	Harrison	14	0.105 ppm
	2002	Lawrenceville	16	0.107 ppm
	2002	South Fayette	17	0.110 ppm
	2003	Harrison	2	0.121 ppm
	2003	Lawrenceville	5	0.122 ppm
	2003	South Fayette	4	0.111 ppm
	2004	South Fayette	1	0.089 ppm
	2005	Harrison	6	0.107 ppm
	2005	Lawrenceville	1	0.085 ppm
	2005	South Fayette	4	0.103 ppm
	2006	Harrison	4	0.093 ppm
	2006	Lawrenceville	2	0.086 ppm
	2006	South Fayette	1	0.087 ppm
0.075 ppm	2007	Harrison	4	0.099 ppm
	2007	Lawrenceville	3	0.092 ppm
	2007	South Fayette	1	0.087 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	
8-Hour Ozone	2013	Harrison	4	0.085 ppm
0.075 ppm	2013	Lawrenceville	1	0.095 ppm



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Standard	Year	Site	Number of Exceedances	Maximum Concentration
	2013	South Fayette	2	0.089 ppm
	2014	Harrison	2	0.076 ppm
	2015	Harrison	2	0.084 ppm
1-Hour Ozone	2003	Lawrenceville	1	0.130 ppm
0.12 ppm	2003	South Fayette	1	0.132 ppm
24-Hour PM <sub>10</sub>	2004	Lincoln	1	162 µg/m <sup>3</sup>
150 µg/m <sup>3</sup>	2005	Lincoln	1	157 µg/m <sup>3</sup>
1-Hour SO <sub>2</sub>	2010	Liberty	34	215 ppb
75 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



## 5. Air Quality Index

The Air Quality Index (AQI) is a method of quantifying air quality on any given day according to the highest measurements. EPA's AQI scale is shown below:

Air Quality Index (AQI) Values	Levels of Health Concern	Colors
<i>When the AQI is in this range:</i>	<i>...air quality conditions are:</i>	<i>...as symbolized by this color:</i>
<b>0 to 50</b>	<b>Good</b>	<b>Green</b>
<b>51 to 100</b>	<b>Moderate</b>	<b>Yellow</b>
<b>101 to 150</b>	<b>Unhealthy for Sensitive Groups</b>	<b>Orange</b>
<b>151 to 200</b>	<b>Unhealthy</b>	<b>Red</b>
<b>201 to 300</b>	<b>Very Unhealthy</b>	<b>Purple</b>
<b>301 to 500</b>	<b>Hazardous</b>	<b>Maroon</b>

The Pennsylvania Department of Environmental Protection (PA DEP) forecasts daily AQI levels for PM<sub>2.5</sub> (year-round) and for ozone (April through Oct.) for Southwestern Pennsylvania.

Allegheny County AQI levels according to actual monitored results for 2001-2015 are shown in the table below, by number of days.

Year	<i>Good Days</i>	<i>Moderate Days</i>	<i>Unhealthy for Sensitive Groups Days</i>	<i>Unhealthy Days</i>
2001	123	192	45	5
2002	144	172	44	5
2003	156	172	28	9
2004	141	182	36	7
2005	136	182	36	11
2006	156	173	32	4
2007	136	174	47	8
2008	187	157	20	2
2009	214	136	14	1
2010	146	163	48	8



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<b>Year</b>	<b><i>Good Days</i></b>	<b><i>Moderate Days</i></b>	<b><i>Unhealthy for Sensitive Groups Days</i></b>	<b><i>Unhealthy Days</i></b>
<b>2011</b>	176	156	30	3
<b>2012</b>	136	183	46	1
<b>2013</b>	175	175	15	0
<b>2014</b>	169	179	16	1
<b>2015</b>	166	181	16	2

The Unhealthy for Sensitive Groups range represents an exceedance level for criteria pollutants.

In Allegheny County, unhealthy days can occur during different air quality scenarios. Elevated PM<sub>2.5</sub> days can be either widespread or localized and can also coexist with elevated ozone concentrations in summer months.

Days in the unhealthy ranges are shown below for 2015, broken down by air quality scenario.

<b>2015 Unhealthy Scenarios</b>	<b><i>Unhealthy for Sensitive Groups Days</i></b>	<b><i>Unhealthy Days</i></b>
Elevated PM <sub>2.5</sub> - Liberty Only	7	1
Elevated PM <sub>2.5</sub> - Widespread	0	0
Elevated Sulfur Dioxide Only	6	1
Elevated Ozone Only	2	0
Elevated PM <sub>2.5</sub> with Elevated Sulfur Dioxide	1	0
Elevated PM <sub>2.5</sub> with Elevated Ozone	0	0
Elevated Ozone with Elevated Sulfur Dioxide	0	0
Elevated PM <sub>2.5</sub> , Elevated Ozone and Elevated Sulfur Dioxide	0	0

Note: On the unhealthy SO<sub>2</sub> day, PM<sub>2.5</sub> was unhealthy for sensitive groups.



## 6. Pollutants, Sources, and Health Effects

EPA promulgated the National Ambient Air Quality Standards (NAAQS) for six criteria pollutants. In addition, the State of Pennsylvania has also adopted standards for hydrogen sulfide (H<sub>2</sub>S) and dustfall (total settled particulate matter). The Clean Air Act also defines Hazardous Air Pollutants (HAPs) but does not address specific ambient limits for these compounds.

<i>Pollutant</i>	<i>Primary Sources</i>	<i>Health Effects</i>
<u><i>Criteria Pollutants</i></u>		
Ozone – O <sub>3</sub> (colorless gas)	Formed in hot, sunny conditions from vehicle, commercial, and industrial emissions	Respiratory problems; eye, nose, and throat irritation
Particulate Matter – PM (solid or liquid particles)	Coke plants, steel mills, power plants, road dust, vehicles	Respiratory problems; small particles may also aggravate heart conditions
Sulfur Dioxide – SO <sub>2</sub> (colorless gas)	Power plants, coke plants	Respiratory problems
Carbon Monoxide – CO (colorless, odorless gas)	Motor vehicles, especially congested areas	Heart or lung disease; headache; fatigue; impaired reflexes and alertness
Nitrogen Dioxide – NO <sub>2</sub> (colorless, odorless gas)	Power and industrial plants, motor vehicles	Respiratory problems; eye irritation
Lead – Pb (in particulates)	Incinerators, glass making, metallurgical facilities	Headache; fatigue; sleep and digestive disorders



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<i>Pollutant</i>	<i>Primary Sources</i>	<i>Health Effects</i>
	<u><i>Other</i></u>	
Hydrogen Sulfide – H <sub>2</sub> S (colorless, pungent gas)	Coke plants, waste treatment plants	Respiratory problems; eye irritation; malodorous
HAPs (often carcinogens)	Various, including motor vehicles, chemical and power plants, steel mills, dry cleaners, print shops	Can be carcinogenic; can cause birth defects
Benzo(a)pyrene – B(a)P	Coke plants	Carcinogen



## 7. Air Monitoring Network

Below is a table of monitor sites according to pollutant types, current through 2015. 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>	Pb	H <sub>2</sub> S	HAPs	Dustfall	Met
Flag Plaza		C			C				I(6), I(6)		
Manchester					I(6)						
Lawrenceville	C(T)	C(T)		C	C	C, I(1) C, I(6) SPC(3)	I(6) I(6)		I		C
North Park						I(6)					
Monroeville					C						
Avalon	C				I(6)	C, I(3)		C	I		C
Bridgeville							I(3)				
Harrison			C	C		I(3)					
Natrona										I, I	
N. Braddock	C				C, I(6) I(6)	I(3)					C
Liberty	C				C, I(3) I(6)	C, I(1) I(6) SPC(6)		C	I		C
Glassport					C						
Lincoln					C						
Clairton					I(6)	I(6)					
South Fayette	C			C(S)	I(6)	I(3)					C
Collier										I	
Parkway East		C(T)	C(T)						BC		C
<b>Total</b>	C = 5	C = 3	C = 2	C = 3	C = 7 I = 8	C = 4 I = 10 SPC = 2	I = 3	C = 2	C = 1 I = 5	I = 3	C = 6

**KEY** C = Continuous; I = Intermittent or Filter-Based; BC = Black Carbon (Aethalometer, Continuous data)  
 (1), (3), or (6) = Sampling Frequency [for example, (3) means every third day]  
 SPC = Speciation; (S) = Seasonal Continuous Monitor; (T) = Trace Level Monitor



### ***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: [www.dep.state.pa.us/dep/deputate/airwaste/ag/default.htm](http://www.dep.state.pa.us/dep/deputate/airwaste/ag/default.htm).

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

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