

**COUNTY OF**



**ALLEGHENY**

**SARA INNAMORATO**  
COUNTY EXECUTIVE

**Allegheny County Health Department  
Air Quality Program  
Monitoring Section  
Pittsburgh, Pennsylvania**

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# Air Monitoring Network Plan for Calendar Year 2025

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May 16, 2024



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**CERTIFICATION**

To the best of my knowledge, this plan has been checked for completeness and the details presented herein are accurate, error-free, legible, and representative of the methods employed by the Allegheny County Health Department Air Quality Program Monitoring Section to measure air quality.

David D. Good  
Program Manager, Air Monitoring & Source Testing

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## EXECUTIVE SUMMARY

Allegheny County Health Department's Air Quality Program: Monitoring (ACHD) operates an air monitoring network. Federal Regulations ([40CFR58.10](#)) require ACHD to prepare an annual monitoring network plan. ACHD must document the process for obtaining public comment and include any comments received through the public notification process within their submitted plan. Public comments received on the air monitoring plan must be included in the version submitted to the United States Environmental Protection Agency (EPA). All proposed additions, modifications, and discontinuations of State or Local Air Monitoring Station (SLAMS) monitors in ACHD's air monitoring network plan are subject to EPA approval.

### **The summary of air monitoring network changes since the previous approval includes:**

- Postponement of Lawrenceville Monitoring station site move due to unforeseen new construction and commercial operations in Chateau
- Updated method code changes to Teledyne continuous PM<sub>2.5</sub> monitor data collected before network data alignment

### **The summary of *proposed* air monitoring network changes includes:**

- Addition of continuous PM<sub>2.5</sub> monitoring at South Fayette and Harrison sites
- Addition of meteorology (wind speed & direction) sensors at Avalon and Clairton sites
- Addition of hydrogen sulfide monitoring at Clairton site
- Addition of sulfur dioxide monitoring at Clairton site
- Relocation of Lawrenceville monitoring station (NCore, PAMS, NATTS, IMPROVE, ASCENT, and CSN) after a new permanent site is located

**PLAN APPROVAL**

The air monitoring network plan for calendar year 2025 is hereby recommended for approval and commits the Allegheny County Health Department, Air Quality Program to present the plan to the EPA for approval.

**Allegheny County Health Department, Air Quality Program**

Signature:

*David D. Good*

Program Manager – Air Monitoring and Source Testing

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## 1.0 Annual Air Monitoring Network Plan Requirements

The Allegheny County Health Department's Air Quality Program: Monitoring has prepared the public comment version of the 2025 air monitoring network plan. In addition to the federal requirements, effort has been made to document all air monitoring performed in Allegheny County. The body of the plan focuses on the regulatory requirements for our SLAMS (state or local air monitoring stations network) sites, whereas Appendix A presents information regarding monitoring activities not required by the plan. Appendix A is included in response to public comments received regarding previous network plans and provides details about the non-SLAMS special study monitoring performed in Allegheny County. All monitoring data generated by ACHD is available through a right to know request ([Open Records page](#)).

40 CFR Part 58, §58.10 contains the air monitoring network plan requirements. Each year on July 1, the plan is to be submitted to the USEPA Regional (Region III) Administrator. A summary of the applicable requirements that parallels and condenses the regulatory text follows.

§58.10 (a) requires each agency to prepare an annual plan for an air quality surveillance system that consists of a network of SLAMS monitoring stations that can include Federal Reference Method (FRM), Federal Equivalent Method (FEM), and Approved Regional Method (ARM) monitors that are part of SLAMS, National Core Monitoring Network (NCORE), Chemical Speciation Network (CSN), Photochemical Assessment Monitoring Stations (PAMS), and Special Purpose Monitoring (SPM) stations. Prior to submittal, the plan must be made available for public inspection and comment for at least 30 days. In addition, the plan shall include:

1. A statement of whether the operation of each monitor meets the requirements of Appendices A, B, C, D, and E of 40CFR58, where applicable.
2. Any proposed SLAMS network modifications, including new or discontinued monitoring sites, new determinations that data are not of sufficient quality to be compared to the NAAQS, and changes in identification of monitors as suitable or not suitable for comparison against the annual PM<sub>2.5</sub> NAAQS. The EPA Regional Administrator has 120 days to approve or disapprove the plan.
3. A plan for making PAMS measurements as required in 40CFR58, Appendix D, Paragraph 5(a). The PAMS Network Description of Appendix D may be used to meet this requirement. The plan shall provide for the required PAMS measurements to begin by June 1, 2021 (promulgated delay of 2 years from original target date of 2019).
4. An Enhanced Monitoring Plan (EMP) for ozone (O<sub>3</sub>) in accordance with the requirements of 40CFR58, Appendix D, Paragraph 5(h). The EMP shall be submitted to the EPA Regional Administrator no later than October 1, 2019. This condition was satisfied in the 2020 plan (EPA letter dated October 28, 2019).



§58.10 (b) requires that the plan must contain the following information for each existing and proposed site:

1. The Air Quality System (AQS) site identification number.
2. The location, including street address and geographical coordinates.
3. The sampling and analysis method(s) for each measured parameter.
4. The operating schedules for each monitor.
5. Any proposals to remove or move a monitoring station within a period of 18 months following plan submittal.
6. The monitoring objective and spatial scale of representativeness for each monitor.
7. The identification of any sites that are suitable and sites that are not suitable for comparison against the annual PM<sub>2.5</sub> NAAQS (as described in §58.30).
8. The Metropolitan Statistical Area (MSA), Core Based Statistical Area (CBSA), Combined Statistical Area (CSA), or other area represented by the monitor.
9. The designation of any lead (Pb) monitors as either source-oriented or non-source-oriented (no longer applicable in Allegheny County).
10. The identification of required NO<sub>2</sub> monitors as near-road, area-wide, or vulnerable and susceptible population monitors.
11. The identification of any PM<sub>2.5</sub> FEMs and/or ARMs used in the monitoring agency's network where the data are not of sufficient quality to be compared to the NAAQS.

§58.10 (c) requires that the plan must document the process for obtaining public comment and include any comments received through the public notification process within their submitted plan.

§58.10 (d) The local agency shall perform and submit to the EPA Regional Administrator an assessment of the air quality surveillance system every 5 years to determine, at a minimum, if the network meets the monitoring objectives defined in Appendix D, whether new sites are needed, whether existing sites are no longer needed and can be terminated, and whether new technologies are appropriate for incorporation into the ambient air monitoring network. The network assessment must consider the ability of existing and proposed sites to support air quality characterization for areas with relatively high populations of susceptible individuals and, for any sites that are being proposed for discontinuance, the effect on data users other than the agency itself, such as nearby states and tribes or health effects studies. The agency must submit a copy of this 5-year assessment along with a revised annual network plan. The next assessment is due to be submitted to the EPA on July 1, 2025 (concurrent with the Annual Network Plan).

§58.10 (e) All proposed additions and discontinuations of SLAMS monitors in annual monitoring network plans and periodic network assessments are subject to approval according to §58.14.

## 2.0 Changes Since the Last Air Monitoring Network Plan

### 2.1 Monitoring Additions

None.

### 2.2 Monitoring Reductions

None.

### 2.3 Monitoring Relocations/Modifications

#### 2.3.1 Postponement of Site Move of Lawrenceville Monitoring Station to Chateau

The planned move of the Lawrenceville site that houses the NCore, PAMS, NATTS, IMPROVE, ASCENT, and CSN monitoring programs has been postponed due to a new probable construction project across from the proposed site in Chateau. In late 2023 it was announced that a gas fueling station was zoned to be constructed at 1315 Western Avenue, Pittsburgh, PA 15233 - directly across the street from the proposed new monitoring site: [https://apps.pittsburghpa.gov/redtail/images/23525\\_ZBA\\_079\\_of\\_2023\\_DCP-ZDR-2022-14292\\_1315\\_WESTERN\\_AVE\\_\(1\).pdf](https://apps.pittsburghpa.gov/redtail/images/23525_ZBA_079_of_2023_DCP-ZDR-2022-14292_1315_WESTERN_AVE_(1).pdf).

Due to the sensitivity of the air quality instruments the expected air emissions from the gas fueling station, while small in quantity, could disproportionately affect the measurement of trace quantities of pollutants those instruments were designed to detect. In other words, the proximity of the gas station to the instruments could show readings that are not representative of area-wide pollutant concentrations – particularly for volatile organic compounds and ozone precursors. The Department is actively assessing other properties that could house the current Lawrenceville monitoring station while meeting federal siting criteria for NCore sites.

#### 2.3.2 PM<sub>2.5</sub>, PM<sub>10</sub> and PM<sub>COARSE</sub> Monitoring Method Changes

All continuous PM<sub>2.5</sub> monitors in the ACHD monitoring network now use either the Teledyne T640 (PM<sub>2.5</sub>) or T640X (PM<sub>2.5</sub>, PM<sub>10</sub>, and PM<sub>COARSE</sub>) instrument. ACHD elected to change to the new data alignment algorithm provided and recommended by the manufacturer on all the T640 and T640X instruments in use in the air monitoring network. The EPA has since allowed for the data alignment algorithm to be used (under another new method code) retroactively for PM<sub>2.5</sub> data submitted to AQS before the approved release of the algorithm in the summer of 2023. This change has lessened some of the bias that was seen in historical Teledyne PM<sub>2.5</sub> FEM data compared to the PM<sub>2.5</sub> FRM data.

### **3.0 Proposed Changes to the Air Monitoring Network**

The following are the proposed changes to the air monitoring network beginning at the time of this plan's approval through calendar year 2025.

#### **3.1 Proposed Monitoring Additions**

##### **3.1.1 Continuous PM<sub>2.5</sub> Monitors at South Fayette and Harrison**

ACHD plans to proceed with the installation of continuous PM<sub>2.5</sub> FEM monitors at all remaining PM<sub>2.5</sub> SLAMS sites that do not currently have continuous PM<sub>2.5</sub> coverage. The Department is awaiting the arrival of new environmental shelters to house the units. The PM<sub>2.5</sub> FEM monitors will be candidates for designation as either a primary or collocated SLAMS PM<sub>2.5</sub> monitor in the network.

##### **3.1.2 Hydrogen Sulfide Monitoring at Clairton Site**

ACHD will expand continuous hydrogen sulfide (H<sub>2</sub>S) surveillance by adding an H<sub>2</sub>S analyzer at the Clairton monitoring site after necessary upgrades and repairs are made to the station – including a new environmental shelter.

##### **3.1.3 Addition of Meteorology (wind speed & direction) Sensors at Avalon and Clairton site**

ACHD will install a meteorology tower at the new Avalon site to provide wind speed and wind direction data for the area. A similar meteorology installation will occur at the Clairton site.

#### **3.2 Proposed Monitoring Reductions**

None.

#### **3.3 Proposed Monitoring Relocations/Modifications**

##### **3.3.1 Sulfur Dioxide Monitoring from South Fayette to Clairton Site**

ACHD proposes to relocate SO<sub>2</sub> monitoring that was discontinued at the South Fayette site to the Clairton site after necessary upgrades and repairs are made to the station. The originally proposed design would not meet EPA siting criteria and a special enclosure must be modified and craned up to the roof of the site.

### **3.4 Proposed Air Monitoring Site Relocations**

#### **3.4.1 Lawrenceville Monitoring Station (NCore)**

The ACHD Air Quality program has relocated from the Clack Health Center Complex to the Chateau neighborhood as of November 2023. The Lawrenceville monitoring station that includes the NCore, PAMS, NATTS, IMPROVE, and CSN monitoring will need to be relocated. In the 2023 Annual Monitoring Network Plan, ACHD proposed to move all the current monitoring operations at the Lawrenceville site to 836 Fulton Street in the Chateau neighborhood bordering Manchester, which received EPA Region 3 approval. Because of potential interferences that could occur with the construction and operation of a new gas fueling station (see Section 2.3.1 above) the Department is actively looking for alternative sites that could meet federal siting criteria to house the air monitoring operations currently at Lawrenceville.

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### 4.0 Air Monitoring Network Summary

Figure 4 and Table 4 are provided as overviews of the air monitoring network and presented here to show at a glance the numbers and general types of air monitors currently maintained by the Air Quality Program as well as the general location of each fixed monitoring site. To view live and recent data for all continuous monitors listed in the table, see the Air Quality Program website;

<https://www.alleghenycounty.us/Services/Health-Department/Air-Quality>

**Figure 4 Air Monitoring Network Map**



Table 4 Air Monitoring Network Summary

	SO <sub>2</sub>	CO	NO <sub>2</sub>	NO <sub>y</sub>	O <sub>3</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>	PM coarse	Meteorology	Air Toxics
Lawrenceville NCORE	CT	CT	C	CT	C	C	C I(3) SPC(3)	C	MET	TO15(6) TO11(6) PAH M ASCENT
Liberty	CT		C			C	C I(1), IQA(12) SPC(6)	C	MET	BTEX H2S
North Braddock	C	CT				C	C I(3)	C	MET	H2S
South Fayette					C		C I(3)			
Clairton	C						C		MET	H2S
Avalon							C		MET	
Glassport						C				
Harrison			C		C		C I(3)			
Parkway East (Near Road)		CT	C				C IQA(12)		MET	Aeth(C)
Total (Current Network)	C = 2 CT = 2	CT = 3	C = 3	CT = 1	C = 3	C = 4	C = 6 I = 6 IQA = 2 SPC = 2	C = 3	MET = 4	H2S = 2 Aeth(C) = 2

Tabular Summary Key

I = Intermittent or Filter-Based; C = Continuous; SPC = PM2.5 Speciation; T = Trace Level Monitor
(1), (3), (6), (12) = Sampling Frequency: (1) = daily, (3) = every 3rd day, (6) = every 6th day, (12) = every 12 <sup>th</sup> day
TO15 = SUMMA VOC; TO11 = Carbonyl VOC; Aeth = <u>Aethalometer</u> ; Black Carbon, Ultraviolet PM
QA = Collocated QA monitor; N = Non-FEM monitor (Special Study, non-regulatory use); H2S = Hydrogen Sulfide
PAH = Polycyclic Aromatic Hydrocarbons; M = PM10 Metals; BTEX = Charcoal Tube; MET = wind speed/direction
ASCENT = Aerosol Chemical Speciation Monitor, Continuous PM10 metals, Scanning Mobility Particle Sizer
Yellow Shading = Planned Monitors, Not Yet Operational; Red Shading = Candidate for Discontinuation/Relocation

## 5.0 Appendix A Requirements

40CFR58, Appendix A specifies the minimum quality system requirements applicable to SLAMS and other monitor types whose data are intended to be used to determine compliance with the NAAQS. ACHD is the Primary Quality Assurance Organization (PQAO) for this data set. A PQAO is also responsible for demonstrating data quality. ACHD has developed a quality system that is described and approved in quality management plans (QMP) and quality assurance project plans (QAPP). The purpose of these documents is to ensure that the monitoring results provide data of adequate quality for the intended monitoring objectives.

ACHD performs the requisite measurement quality checks that are used to assess data quality. ACHD also performs an internal second level audit as an added measure of the data quality. Data from these checks is submitted to the AQS within the same time frame as routinely-collected ambient concentration data. In addition to performing QA and QC checks, ACHD participates in external performance evaluation programs (which are independent assessments) and technical systems audit conducted by the EPA.

Regarding all data generated by the criteria pollutant monitors described in this network review, no later than May 1 of each year, ACHD submits a letter certifying accuracy and reliability of each previous calendar year's criteria air pollutant monitoring data reported to AQS to the Mid Atlantic Regional Administrator in hard copy. An electronic copy of this information will also be sent to the Mid-Atlantic Region Associate Director, Office of Air Monitoring and Planning.

ACHD's data certification will contain all required reports and will be accompanied with a statement from a responsible official who certifies that;

- All ambient concentration data and quality assurance data have been reported to the AQS database.
- The ambient data are accurate to the best of his or her knowledge taking into consideration all applicable quality assurance findings.

## 6.0 Appendix B Requirements

40CFR58, Appendix B specifies the minimum quality assurance requirements for the control and assessment of the quality of the ambient air monitoring data submitted to a Prevention of Significant Deterioration (PSD) reviewing authority or the EPA by an organization operating an air monitoring station, or network of stations, operated to comply with Part 51 New Source Review (NSR) - PSD.

At present, Appendix B requirements are not applicable since there is no PSD monitoring performed by ACHD nor performed by an external PSD PQAO within the county.

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## 7.0 Appendix C Requirements

40CFR58, Appendix C specifies the criteria pollutant monitoring methods (manual methods or automated analyzers) which must be used in SLAMS, NCORE stations (a subset of SLAMS) and PAMS (to be located at the NCORE site and considered to be another subset of SLAMS).

All criteria pollutant monitoring methods in the air monitoring network used for making NAAQS decisions at a SLAMS site are reference (FRM) or equivalent (FEM) methods. The FRM or FEM designation acceptance tests are performed by the manufacturer in accordance with the requirements of 40CFR50 and 40CFR53.

Methods employed at the Lawrenceville NCORE multipollutant site are either reference or equivalent methods. NCORE multipollutant parameters include SO<sub>2</sub>, CO, NO<sub>y</sub>, NO<sub>2</sub>, O<sub>3</sub>, PM<sub>2.5</sub>, and PM<sub>10-2.5</sub> (aka PM<sub>coarse</sub>, Coarse PM, or PM<sub>c</sub>). NO<sub>y</sub> and PM<sub>c</sub> do not have an associated NAAQS.

Methods to be employed at the Lawrenceville PAMS site are either reference or equivalent methods (where applicable). PAMS FEM monitoring parameters include O<sub>3</sub> and true NO<sub>2</sub>. PAMS monitoring which do not have FEM nor FRM designation include methods for meteorological measurements and speciated VOC monitoring methodologies, which are specified in PAMS guidance documents.

- Meteorological monitoring guidance is provided in QA Handbook, Volume IV - Meteorological Measurements found at <https://www3.epa.gov/ttn/amtic/qalist.html>.
- The Compendium of Methods for the Determination of Toxic Organic (<https://www3.epa.gov/ttn/amtic/airtox.html#compendium>) can be found on EPA's website. Carbonyl sampling and analysis is based upon TO-11A and the automated gas chromatography method is based upon TO-15.

## 8.0 Appendix D Requirements

40CFR58, Appendix D describes monitoring objectives and general criteria to be applied in establishing the required SLAMS ambient air quality monitoring stations and for choosing general locations for additional monitoring sites. Appendix D also describes specific requirements for the number and location of FRM, FEM, and ARM sites for specific pollutants, NCORE multipollutant sites, PM<sub>10</sub> mass sites, PM<sub>2.5</sub> mass sites, chemically-speciated PM<sub>2.5</sub> sites, and O<sub>3</sub> precursor measurement sites (PAMS). These criteria are used by EPA to evaluate the adequacy of the ACHD monitoring network.

The ACHD monitoring network provides air pollution data to the public in a timely manner, supports compliance with ambient air quality standards and emissions strategy development, and supports air pollution research studies. The location of the monitors in the network were chosen to correctly match the spatial scale represented by the sample of monitored air with the spatial scale most appropriate for the monitoring site type, air pollutant to be measured, and the monitoring objective.

General monitoring requirements are based on population density of the monitoring area. For Allegheny County, the Pittsburgh MSA (metropolitan statistical area) is referenced. The latest census (2020) determined the population of the Pittsburgh MSA to be 2,370,930 people. Some monitoring requirements are also based on individual pollutant design values, which are concentrations derived from past data generated by SLAMS monitors in Allegheny County. Air Quality Design Values (DV) referenced in this section are based on tables available at:

<http://www.epa.gov/airtrends/values.html>

Each state is required to operate at least one NCORE site. States may delegate this requirement to a local agency. The NCORE location is leveraged with other multipollutant air monitoring sites including the proposed PAMS site, CSN monitoring, and monitoring performed by academia. Site leveraging includes using the same monitoring platform and equipment to meet the objectives of the variety of programs where possible and advantageous.

Pollutant specific design criteria for SLAMS sites are codified in 40CFR58, Appendix D, Section 4. EPA updates this document routinely in response to NAAQS revisions and in response to evolving air monitoring network objectives. SLAMS sites are intended to address specific air quality management interests, and as such, are frequently single-pollutant measurement sites. The following sections parallel the CFR citations and provide the current, applicable requirements for each criteria pollutant.

## 8.1 Ozone Design Criteria

Ozone (O<sub>3</sub>) monitoring requirements are determined by the MSA population and ozone design value, as specified in Table D-2 of 40CFR58, Appendix D.

- Based on the population of the Pittsburgh MSA and the latest ozone design value, which is greater than 85% of the ozone NAAQS, ACHD is required to operate two ozone monitors. ACHD satisfies this requirement by operating three ozone monitors.
- Each NCORE site must operate an ozone monitor. ACHD satisfies this requirement by operating an ozone monitor at the Lawrenceville NCORE site.
- Within an ozone network, at least one ozone site for each MSA must be designed to record the maximum concentration for that metropolitan area. The maximum concentration monitor site should be selected in a direction from the city that is most likely to observe the highest ozone concentrations, more specifically, downwind during periods of photochemical activity. The Harrison monitor is assigned this designation.

**Figure 8.1 Ozone Monitoring Map**



## 8.2 Carbon Monoxide Design Criteria

EPA revised the minimum monitoring requirements for carbon monoxide (CO) on August 12, 2011 (40CFR58, Appendix D). Applicable requirements are;

- One CO monitor is required to be collocated with a near road NO<sub>2</sub> monitor in urban areas having a population of 1 million or more. ACHD included a CO monitor in the initial configuration of the Parkway East Near Road monitoring site, which was operational on 09/01/2014.
- One CO monitor is required at each NCORE site. ACHD has operated a trace level CO monitor at the Lawrenceville NCORE site since 4/1/2010.
- ACHD operates an additional CO monitor at the North Braddock site.

**Figure 8.2 CO Monitoring Map**



### 8.3 Nitrogen Dioxide Design Criteria

On January 22, 2010, EPA strengthened the health-based NAAQS for NO<sub>2</sub> by setting a new 1-hour NAAQS at 100 ppb. The existing annual average NAAQS of 53 ppb was retained. In addition, EPA revised the NO<sub>2</sub> monitoring requirements in urban areas. Applicable requirements are as follows;

- One near road NO<sub>2</sub> monitoring site is required in an MSA with a population  $\geq 500,000$  and  $< 2,500,000$  people. Near-road NO<sub>2</sub> monitoring characterizes the maximum expected hourly NO<sub>2</sub> concentration due to mobile source emissions on major roadways.
- One area wide NO<sub>2</sub> monitor in MSA's with a population  $> 1$  million. The Harrison NO<sub>2</sub> monitor has been in operation at the current location since 02/12/2014.
- One true NO<sub>2</sub> monitor is required at a PAMS site. The Lawrenceville NCORE site performs measurements of true NO<sub>2</sub> and NO<sub>y</sub> to fulfill PAMS and NCORE requirements, respectively.

**Figure 8.3 Nitrogen Dioxide Monitoring Map**

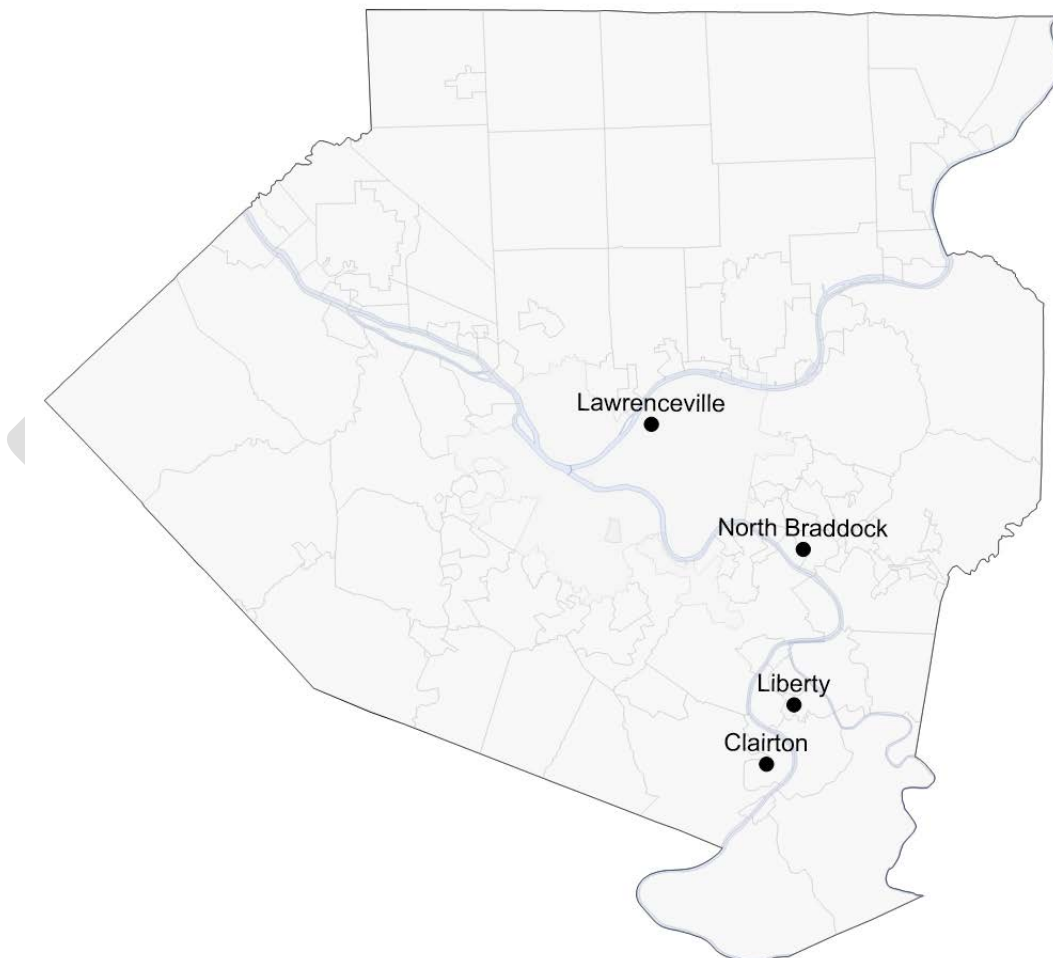


## 8.4 Sulfur Dioxide Design Criteria

The minimum number of required SO<sub>2</sub> monitors in each MSA is proportional to the product of the total amount of SO<sub>2</sub> emissions in the CBSA and its population as specified in 40CFR58, Appendix D, Section 4.4. The resulting value is defined as the Population Weighted Emissions Index (PWEI). Using the ACHD 2017 emission inventory aggregate SO<sub>2</sub> emissions and 2019 census estimate for the CBSA, the PWEI is calculated at 94,101. SO<sub>2</sub> requirements are as follows;

- For any MSA with a calculated PWEI value equal to or greater than 5,000, but less than 100,000, a minimum of one SO<sub>2</sub> monitor is required within that CBSA. ACHD exceeds this minimum requirement with a total of three SO<sub>2</sub> monitors and an upcoming fourth monitor to be installed at the Clairton site.
- Each NCORE station must operate an SO<sub>2</sub> monitor. ACHD included an SO<sub>2</sub> monitor as part of the initial configuration of the Lawrenceville NCORE site.

**Figure 8.4 Sulfur Dioxide Monitoring Map**



\* Clairton SO<sub>2</sub> monitor to be installed in 2024-2025

### 8.5 Lead (Pb) Design Criteria

40CFR58, Appendix D, Paragraph 4.5 states that local agencies are required to conduct ambient air Pb monitoring near Pb sources which are expected to or have been shown to contribute to a maximum Pb concentration in ambient air in excess of the NAAQS, considering the logistics and potential for population exposure. At a minimum, there must be one source-oriented SLAMS site located to measure the maximum Pb concentration in ambient air resulting from each non-airport Pb source which emits 0.50 or more tons per year and from each airport which emits 1.0 or more tons per year based on either the most recent National Emission Inventory (<http://www.epa.gov/ttn/chief/einformation.html>) or other scientifically justifiable methods and data (such as improved emissions factors or site-specific data) taking into account logistics and the potential for population exposure.

No lead monitoring is performed in Allegheny County. Bridgeville and Lawrenceville sites were discontinued as there are no point sources which emit greater than 0.5 tons per year. EPA approval of the 2018 Annual Network Plan allowed the sampling to end after 2017.

## 8.6 PM<sub>10</sub> Design Criteria

The number of required PM<sub>10</sub> monitors in each MSA is determined by the MSA population and design value, as specified in Table D-4 of Appendix D to 40CFR58.

- The Pittsburgh MSA has ambient PM<sub>10</sub> concentrations well below 80% of the PM<sub>10</sub> NAAQS. Table D-4 indicates that 2 to 4 sites must monitor for PM<sub>10</sub>. ACHD meets this requirement with 4 sites that monitor PM<sub>10</sub>.

**Figure 8.6 PM<sub>10</sub> Monitoring Map**





### 8.7 Fine Particulate Matter (PM<sub>2.5</sub>) Design Criteria

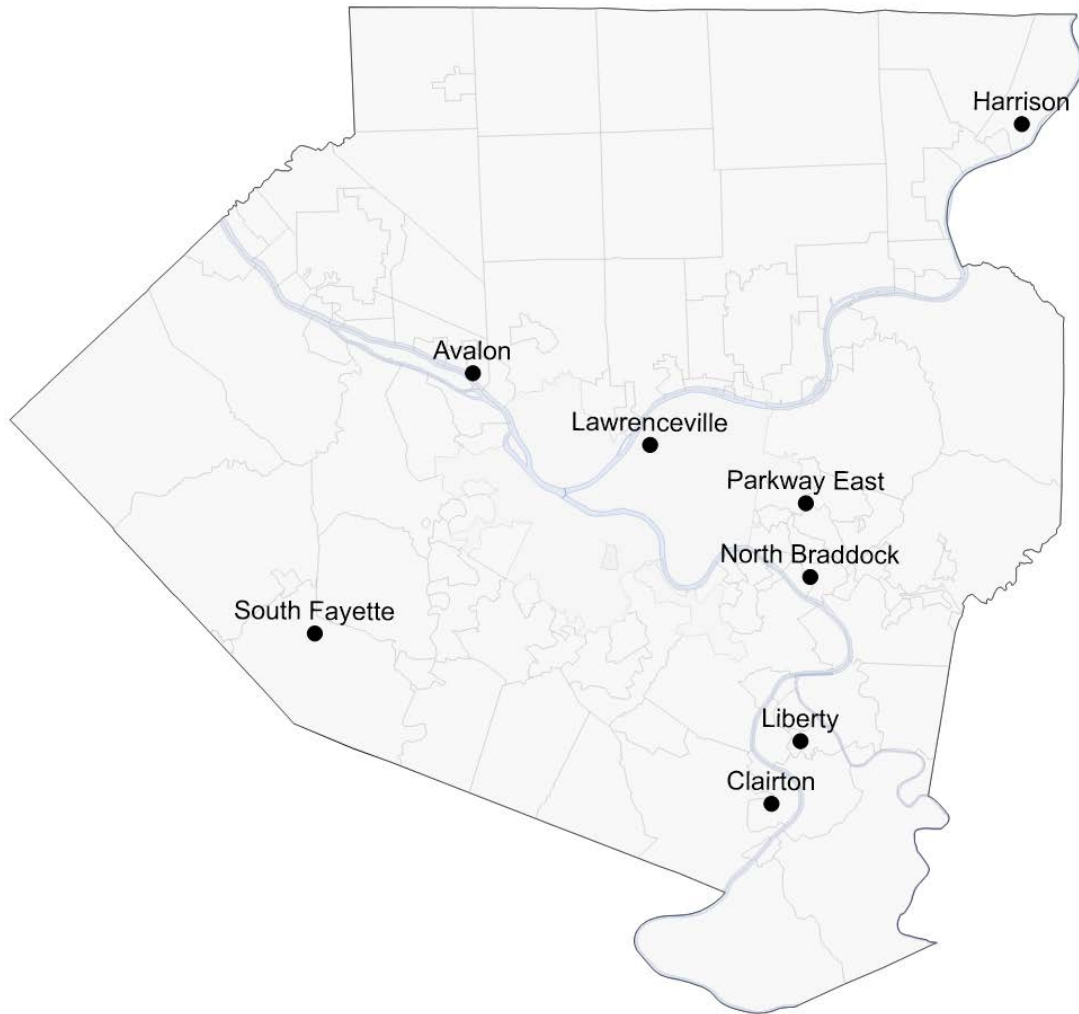
The number of required PM<sub>2.5</sub> monitors in each MSA is determined by the MSA population and design value, as specified in Table D-5 of 40CFR58, Appendix D.

- Pittsburgh MSA PM<sub>2.5</sub> 24 hour and annual design values are > 85% of the NAAQS, requiring a minimum of 3 PM<sub>2.5</sub> sites. ACHD exceeds this requirement with 8 sites that monitor PM<sub>2.5</sub>.
- Regarding FRM PM<sub>2.5</sub> samplers (seven sites), a minimum of 15%, or at least one, of the PM<sub>2.5</sub> monitoring sites must be collocated (rounded to one). ACHD meets this requirement by having collocated monitors at the Liberty site.
- At least one site (15% is required) that features a primary PM<sub>2.5</sub> FEM monitor must also operate a collocated PM<sub>2.5</sub> FRM sampler (40CFR58, Appendix A). This requirement is met at the Parkway East site. Parkway East, Clairton, and Avalon have the same PM<sub>2.5</sub> FEM model.
- At least one half of the minimum number of sites per MSA must operate continuous PM<sub>2.5</sub> monitors, requiring ACHD to operate 2 continuous PM<sub>2.5</sub> monitors. ACHD operates 6 continuous PM<sub>2.5</sub> monitors (Liberty, Lawrenceville, Avalon, Parkway East, Clairton, and North Braddock). See Section 10 for each site’s detailed information.
- For MSA’s above 1,000,000 people, at least one PM<sub>2.5</sub> monitor must be at a near road site. ACHD conducts continuous PM<sub>2.5</sub> monitoring at the Parkway East near road site.
- Each monitoring agency shall continue to conduct chemical speciation monitoring and analyses at sites designated to be part of the PM<sub>2.5</sub> Speciation Trends Network (STN). ACHD continues to conduct PM<sub>2.5</sub> speciation at the Liberty and Lawrenceville sites.
- Each NCORE site must monitor PM<sub>2.5</sub>. ACHD satisfies this requirement at the Lawrenceville NCORE site using filter-based monitoring as well as continuous PM<sub>2.5</sub> FEM monitoring.
- The required monitoring sites must be located to represent area-wide air quality. These will typically be either neighborhood or urban scale, although micro or middle scale may be appropriate in some urban areas. At least one monitoring site must be neighborhood scale or greater in an area of expected maximum concentration and one site must be sited in an area of poor air quality. At least one PM<sub>2.5</sub> site must monitor for regional background and at least one PM<sub>2.5</sub> site must monitor for regional transport. Table 8 shows the PM<sub>2.5</sub> network site scales and objectives.

**Table 8 PM<sub>2.5</sub> Monitor Scales and Objectives**

Site Name	Measurement Scale	Monitor Objective
Lawrenceville	Urban	Population Exposure
Liberty	Neighborhood	Population Exposure, Highest Concentration
North Braddock	Neighborhood	Population Exposure
Harrison Township	Neighborhood	Population Exposure
South Fayette	Neighborhood	Population Exposure, Regional Transport, Regional Background
Clairton	Neighborhood	Population Exposure, Welfare concerns
Avalon	Neighborhood	Population Exposure
Parkway East Near Road	Microscale	Population Exposure, Source Oriented

**Figure 8.7 PM<sub>2.5</sub> Monitoring Map**



### 8.8 Coarse Particulate Matter Design Criteria

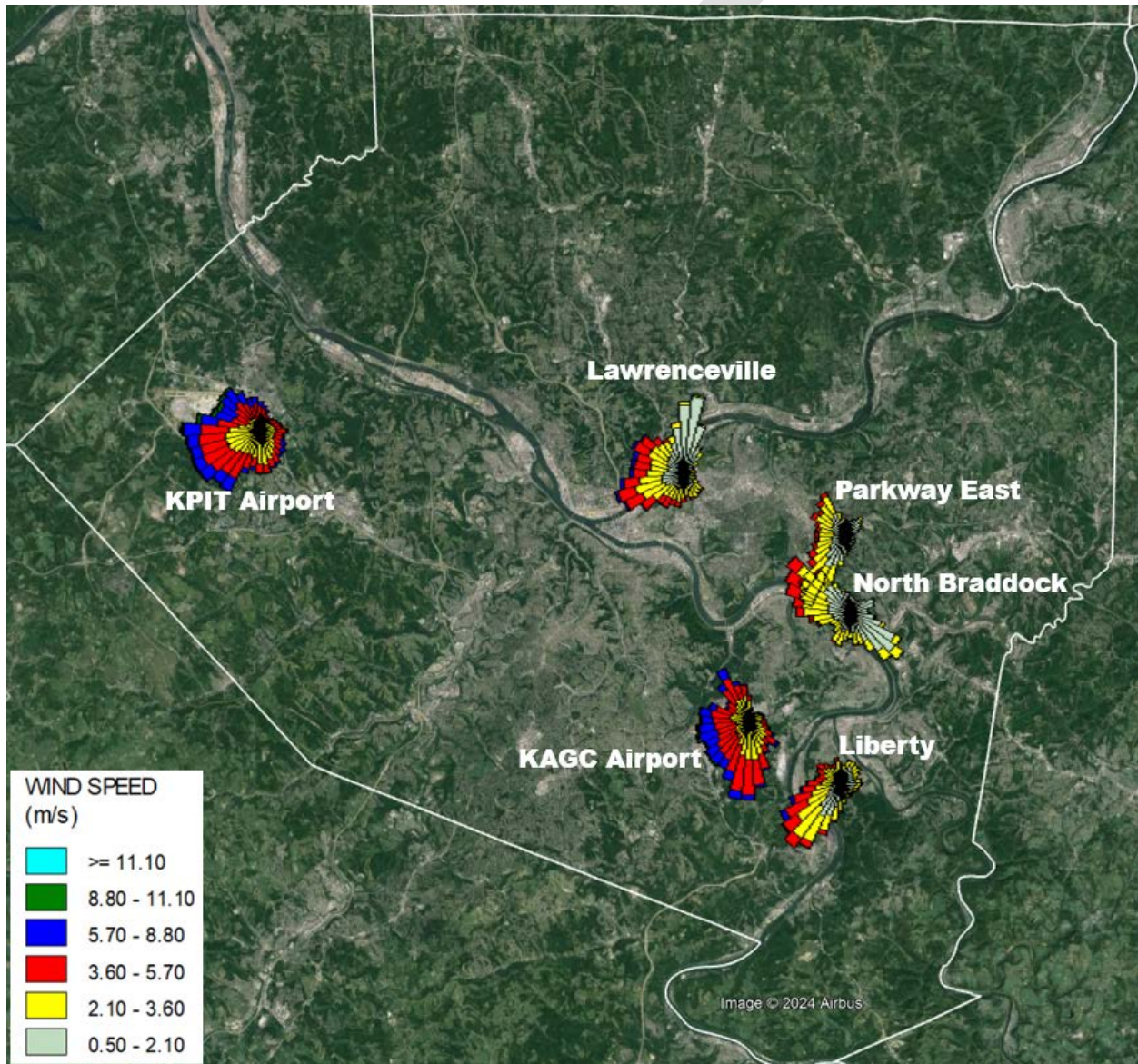
The only required monitors for  $PM_{10-2.5}$  are those required at NCORE Stations. Note that no NAAQS exists for coarse particulate matter. Coarse PM monitoring at the Lawrenceville NCORE site employs a Teledyne T640X mass monitor that uses scattered light spectrometry. The unit has designation as an approved FEM for  $PM_c$ . Coarse PM monitoring also occurs at the North Braddock and Liberty sites. ACHD only reports the  $PM_{2.5}$  and  $PM_{10}$  concentrations at those additional sites.

DRAFT

### 8.9 Meteorological Monitoring

The meteorological stations can show unique wind patterns at the different local sites and can be useful for modeling, source culpability, and other studies. Only two of the local sites, Lawrenceville and Parkway East, are required to have meteorological measurements as part of national networks. ACHD maintains additional meteorological measurements at the Liberty and North Braddock sites.

**Figure 8.9 Allegheny County Meteorological Map (Surface Wind Roses 2019-2023)**



## 9.0 Appendix E Requirements

40CFR58, Appendix E contains specific location criteria applicable to SLAMS, NCORE, and PAMS ambient air quality monitoring probes, inlets, and optical paths after the general location has been selected, based on the monitoring objectives and spatial scale of representation discussed in Appendix D. Adherence to these siting criteria is necessary to ensure the uniform collection of compatible and comparable air quality data.

Appendix E specifies probe and monitoring path siting criteria for ambient air quality monitoring. The key components of Appendix E include the following:

- Horizontal and Vertical Placement
- Spacing from Minor Sources
- Spacing from Obstructions
- Spacing from Trees
- Spacing from Roadways
- Cumulative Interferences on a Monitoring Path
- Maximum Monitoring Path Length
- Probe Material and Pollutant Sample Residence Time
- Waiver Provisions.

Discussion of Appendix E requirements will be contained in the next section.

## 10.0 Detailed Air Monitoring Site Descriptions

The following air monitoring network description discusses each monitoring site in detail. The first information block is labeled with the site name. Inside of the block is listed site specific information as follows:

- **Street Address**
- **AQS #** - unique 9-digit number used to identify the state, county and site in the AQS data base
- **Municipality** – where site is located
- **MSA** – Metropolitan Statistical Area
- **Latitude (N), Longitude (W)** – Site coordinates, given in WGS84 datum coordinates
- **Comments** – Specific site information of importance

The next blocks are designed to list details of each monitor at the site. Each monitor present at the time of the review is assigned its own block. The following information is listed:

**Sensor Type** – The name of the pollutant measured by the sampler and to provide further detail, FEM or FRM designation.

**Sensor Network Designation** – The name of the designated network:

- SLAMS – State or Local Ambient Air Monitoring Station that has EPA reference or equivalent method designation, including Primary, Secondary or Tertiary level of importance, where more than one sensor type is at the site. Waiver provisions.
- OTHER – Monitor that does not have EPA designated reference or equivalent status.

**Sensor Purpose Description** – The purpose of the sensor:

- Population Exposure, such as the Air Quality Index
- Regulatory Compliance with Federal or State regulation
- Research/Scientific Monitoring
- Specific Location Characterization
- Quality Assurance (Collocated)

**Sample Frequency** – Specifies how often a sample is taken.

- Continuous (also referred to as “Hourly”) – operates 24/7; applies predominately to gaseous analyzers, although some particulate samplers (TEOM, BAM, Aethalometer) operate continuously.
- Daily – a discrete sample is taken every day; applies to manual method particulate or toxics samplers.
  - Every Third Day – Manual method samplers that run every third day.
  - Every Sixth Day – Manual method or toxics samplers that run every sixth day.
  - Every Twelfth Day – Manual method QA samplers that run every twelfth day.

**Appendix A QA Assessment** – A “YES” indicates the sensor is maintained in accordance with the Quality Assurance (QA) requirements specified in 40CFR58, Appendix A.

**Monitor Start Date** – Specifies the start date for the current AQS pollutant parameter code. Note that AQS method codes may change, usually due to a change of manufacturer or monitor model employed at the site.

**Appendix C Monitoring Classification** – Each ambient air monitor is classified using the EPA “List of Designated Reference and Equivalent Methods”:

- Reference Method – a method of sampling that is specified in 40CFR53.
- Equivalent Method – a method that is designated as equivalent to the reference method, in accordance with 40CFR53 and 40CFR50.
- Automated – after sampling, the analysis results are available immediately.
- Manual – after sampling, a separate analysis at a laboratory is necessary.
- N/A – appears where there is no reference or equivalent method.

**Appendix C Monitoring Method** – Each ambient air monitor is classified by a specific method number.

**Monitoring Method Description** – Table 10 provides details about each type of sampler and analyzer utilized in the air monitoring network.

**Probe Height** – Distance from ground level that ambient air is sampled. 40CFR58, Appendix E lists acceptable probe heights for individual measurement parameters and spatial scales.

**Residence Time** – The amount of time that ambient air remains in contact with a probe line or manifold, considering total manifold and probe line inner volume and monitor flow rate. Residence time is applicable to reactive gas monitors that use probe lines or manifolds to deliver ambient air to the monitor. Section 7.2.1 of the QA Handbook Volume II recommends a probe residence time of ten seconds or less as optimal and over 20 seconds as unacceptable due to sample concentration loss at higher residence times.

**Appendix D Design Criteria** – Appendix D requires a certain number of samplers per geographic area. A “YES” indicates that the number of monitors in that area meets or exceeds the requirement of 40CFR58, Appendix D.

**Appendix D Scale** – The specific “spatial scales of representation” describes the physical dimensions of the air parcel around the monitoring station throughout which actual pollutant concentrations are reasonably similar.

- Microscale – Areas with dimensions up to about 100 meters.
- Middle scale – Areas with dimensions from 100 meters to 0.5 kilometers.
- Neighborhood – Areas with dimensions from 0.5 to 4.0 kilometers and uniform land use.
- Urban scale – Areas with dimensions from 4 to 50 kilometers.

- Regional – Areas with dimensions ranging from tens to hundreds of kilometers and usually a rural area of reasonably homogeneous geography without large sources.
- National and Global Scales – Measurement scales that represent concentrations characterizing the nation and the globe.

**Appendix D Objective** – Describes the purpose/objective for monitoring at a site.

- Extreme Downwind
- General/Background Concentration
- Highest Concentration
- Maximum Ozone Concentration
- Maximum Precursor Emissions
- Population Exposure
- Regional Transport
- Source Oriented
- Quality Assurance
- Welfare Related

**Appendix E Siting Criteria** – Describes certain criteria applicable to ambient air quality sampling probes and monitoring paths, such as distances from trees, obstructions, traffic lanes, etc. A “YES” indicates that the sensor at the given site meets or exceeds the requirements of 40CFR58, Appendix E.



**Table 10 Monitoring Parameters and Methods**

Parameter	Mfg	Model #	Parameter Code	Method Code	Description
PM <sub>2.5</sub> FRM	R&P	2025	88101	145	Low Volume Sampler (filter) VSCC, very sharp cut cyclone
PM <sub>2.5</sub> FEM	Thermo	5014i	88101	183	Beta Attenuation Instrumental
	Teledyne API	T640	88101	636	Broadband Spectroscopy
	Teledyne API	T640X	88101	638	Broadband Spectroscopy
PM <sub>10</sub> FRM	Tisch	TE-6070	81102	141	High Volume Sampler (filter)
PM <sub>10</sub> FEM	R&P	1400	81102	79	Gravimetric Instrumental (TEOM)
	Teledyne API	T640X	81102	639	Beta Attenuation Instrumental
PM <sub>2.5</sub> Speciation	Met One SASS	SASS	multiple	812	Trace metals, Sulfate, Nitrate
	URG	3000N	multiple	812	Organic/Inorganic Carbon
PM coarse	Teledyne API	T640X	86101	640	Broadband Spectroscopy
Carbon Monoxide	TAPI	300A/E	42101	93	Gas Filter Correlation
Carbon Monoxide (trace)	TAPI	300 EU	42101	593	Gas Filter Correlation
Carbon Monoxide (trace)	Thermo	48i-TLE	42101	554	Gas Filter Correlation
Nitrogen Dioxide	TAPI	200A/E	42602	99	Chemiluminescence
Nitrogen Dioxide (trace)	TAPI	200EU	42602	599	Chemiluminescence
Nitrogen Dioxide (true)	Teledyne API	N500	42602	256	Cavity-Attenuated Phase-Shift (CAPs) spectroscopy
Reactive Oxides of Nitrogen (Noy)	TAPI	200EU/501	42600	699	Chemiluminescence
Sulfur Dioxide	Thermo	43i	42401	60	Ultra Violet Fluorescence
	TAPI	100E	42401	77	Ultra Violet Fluorescence
Sulfur Dioxide (trace)	Teledyne API	100EU / 100U	42401	600	Pulsed Fluorescence
Ozone	Thermo	49	44201	47	Ultraviolet Absorption
Black Carbon	TAPI	633	84313	894	Aethalometer Instrumental
Air Toxics (VOC)	ATEC	2200	multiple	150	6-liter SS canister / TO-15 lab analysis
AIR Toxics (Carbonyl)	ATEC	2200/8000	multiple	102	DNPH cartridge / TO-11 lab analysis
Air Toxics (PM10 Metals)	Tisch	TE-6070	Multiple		High Volume Sampler (filter)
Air Toxics (PAHs)	Tisch	TE-1000	Multiple		High Volume Sampler (PUF)
Air Toxics (hourly VOC)	CAS	Chromatotec AirmOzone	Multiple		Auto-Gas Chromatograph w/ Flame Ionization Detection
Mixing Height	Vaisala	CL-51	Multiple		High Range Ceilometer
Wind Speed/Direction	Met One	50.5	61103/61104	068	Sonic Anemometer
Rainfall	Met One	375	65102	013	Tipping bucket
Relative Humidity	Met One	083E	62201	061	Electronic RH Sensor
Solar / UV Radiation	Met One	094-1/6676	63301/63302	011	Electronic Sensors
Ambient Temperature	Met One	083E	62101	061	Electronic Temperature Sensor

**10.1 Lawrenceville**

Address	Allegheny County Health Department 301 39 <sup>th</sup> Street, Building 7 Pittsburgh, PA 15201		
AQS#	42-003-0008	MSA	Pittsburgh
Latitude (N)	40.465420	Longitude (W)	-79.960757
Comments	This is a population-based, community-oriented monitoring site that is an urban area downwind of Central Business District. The Lawrenceville monitoring site was selected as a PM <sub>2.5</sub> National Trends Site, later as an NCORE site and as the proposed PAMS site in 2019. The most significant local pollution is generated from mobile sources, but light industry scattered throughout the area is also a contributing factor. Lawrenceville is a core PM <sub>2.5</sub> site that is used to determine compliance with national standards.		

Sensor Type	<b>Ozone</b>	Appendix C Method Code	47
Network Designation	SLAMS	Probe Height Residence Time	12 Meters 4.9 Seconds
Purpose	Regulatory Compliance	Appendix D Design Criteria	Yes
Sample Frequency	Hourly	Appendix D Scale	Urban
Appendix A QA Assessment	Yes	Appendix D Objectives	Population Exposure
Monitor Start Date	1/1/1978	Appendix E Siting Criteria	Yes

Sensor Type	<b>PM<sub>10-2.5</sub> (coarse)</b>	Appendix C Method Code	640
Network Designation	Other / (NCORE)	Probe Height	12 Meters
Purpose	Research/Scientific Monitoring	Appendix D Design Criteria	Yes
Sample Frequency	Hourly	Appendix D Scale	Urban
Appendix A QA Assessment	Yes	Appendix D Objectives	Population Exposure
Monitor Start Date	4/1/2011	Appendix E Siting Criteria	Yes

Sensor Type	<b>PM<sub>2.5</sub> FRM</b>	Appendix C Method Code	145
Network Designation	SLAMS Primary	Probe Height	12 Meters
Purpose	Regulatory Compliance	Appendix D Design Criteria	Yes
Sample Frequency	Every 3 Days	Appendix D Scale	Urban
Appendix A QA Assessment	Yes	Appendix D Objectives	Population Exposure
Monitor Start Date	02/23/1999	Appendix E Siting Criteria	Yes

Sensor Type	<b>PM<sub>2.5</sub> FEM</b>	Appendix C Method Code	638
Network Designation	SLAMS Secondary	Probe Height	12 Meters
Purpose	Regulatory Compliance	Appendix D Design Criteria	Yes
Sample Frequency	Hourly	Appendix D Scale	Urban
Appendix A QA Assessment	Yes	Appendix D Objectives	Population Exposure
Monitor Start Date	08/07/2015	Appendix E Siting Criteria	Yes

Sensor Type	<b>PM<sub>10</sub> FEM</b>	Appendix C Method Code	639
Network Designation	SLAMS Primary	Probe Height	12 Meters
Purpose	Regulatory Compliance	Appendix D Design Criteria	Yes
Sample Frequency	Hourly	Appendix D Scale	Urban
Appendix A QA Assessment	Yes	Appendix D Objectives	Population Exposure
Monitor Start Date	01/01/2022	Appendix E Siting Criteria	Yes

Sensor Type	<b>PM<sub>2.5</sub> Speciation</b>	Appendix C Method Code	812
Network Designation	Other (CSN)	Probe Height (m)	12 Meters
Purpose	Research/Scientific Monitoring	Appendix D Design Criteria	Yes
Sample Frequency	Every Three Days	Appendix D Scale	Not Assigned
Appendix A QA Assessment	Yes	Appendix D Objectives	Unknown
Monitor Start Date	6/30/2001	Appendix E Siting Criteria	Yes

Sensor Type	<b>Carbon Monoxide</b>	Appendix C Method Code	593
Network Designation	SLAMS	Probe Height Residence Time	12 Meters 8.9 Seconds
Purpose	Regulatory Compliance	Appendix D Design Criteria	Yes
Sample Frequency	Hourly	Appendix D Scale	Neighborhood
Appendix A QA Assessment	Yes	Appendix D Objectives	Population Exposure
Monitor Start Date	4/1/2010	Appendix E Siting Criteria	Yes

Sensor Type	<b>Sulfur Dioxide</b>	Appendix C Method Code	600
Network Designation	SLAMS	Probe Height Residence Time	12 Meters 13.5 Seconds
Purpose	Regulatory Compliance	Appendix D Design Criteria	Yes
Sample Frequency	Hourly	Appendix D Scale	Neighborhood
Appendix A QA Assessment	Yes	Appendix D Objectives	Population Exposure
Monitor Start Date	4/1/2010	Appendix E Siting Criteria	Yes

Sensor Type	<b>Total Reactive Oxides of Nitrogen (NO<sub>y</sub>)</b>	Appendix C Method Code	699
Network Designation	Other (NCORE)	Probe Height Residence Time	12 Meters 13.1 Seconds
Purpose	Research/Scientific Monitoring	Appendix D Design Criteria	Yes
Sample Frequency	Hourly	Appendix D Scale	Neighborhood
Appendix A QA Assessment	Yes	Appendix D Objectives	Population Exposure
Monitor Start Date	4/2/2010	Appendix E Siting Criteria	Yes

Sensor Type	<b>Nitrogen Dioxide (True NO<sub>2</sub>)</b>	Appendix C Method Code	256
Network Designation	Other (Photochemical Assessment Monitoring Station)	Probe Height Residence Time	12 Meters 13.1 Seconds
Purpose	Research/Scientific Monitoring	Appendix D Design Criteria	Yes
Sample Frequency	Hourly	Appendix D Scale	Neighborhood
Appendix A QA Assessment	Yes	Appendix D Objectives	Population Exposure
Monitor Start Date		Appendix E Siting Criteria	Yes

Sensor Type	<b>PM<sub>10</sub> Metals (See Section A2.1)</b>	Appendix C Method Code	N/A
Network Designation	Other (National Air Toxics Trends Station)	Probe Height Residence Time	12 Meters
Purpose	Research/Scientific Monitoring	Appendix D Design Criteria	N/A
Sample Frequency	Every Six days	Appendix D Scale	N/A
Appendix A QA Assessment	N/A	Appendix D Objectives	N/A
Monitor Start Date	8/19/2020	Appendix E Siting Criteria	Yes

Sensor Type	<b>Volatile Organic Compounds (See Section A2.1)</b>	Appendix C Method Code	N/A
Network Designation	Other (National Air Toxics Trends Station)	Probe Height Residence Time	12 Meters
Purpose	Research/Scientific Monitoring	Appendix D Design Criteria	N/A
Sample Frequency	Every Six days	Appendix D Scale	N/A
Appendix A QA Assessment	N/A	Appendix D Objectives	N/A
Monitor Start Date	8/19/2020	Appendix E Siting Criteria	Yes

Sensor Type	<b>Carbonyls</b>	Appendix C Method Code	N/A
Network Designation	Other (NATTS: year-round) Other (PAMS 6/1 – 8/31)	Probe Height Residence Time	12 Meters
Purpose	Research/Scientific Monitoring	Appendix D Design Criteria	N/A
Sample Frequency	Every Six days (NATTS) Every Three days (PAMS)	Appendix D Scale	N/A
Appendix A QA Assessment	N/A	Appendix D Objectives	N/A
Monitor Start Date	8/19/2020	Appendix E Siting Criteria	Yes

Sensor Type	<b>Polycyclic Aromatic Hydrocarbons</b>	Appendix C Method Code	N/A
Network Designation	Other (National Air Toxics Trends Station)	Probe Height Residence Time	12 Meters
Purpose	Research/Scientific Monitoring	Appendix D Design Criteria	N/A
Sample Frequency	Every Six days	Appendix D Scale	N/A
Appendix A QA Assessment	N/A	Appendix D Objectives	N/A
Monitor Start Date	8/19/2020	Appendix E Siting Criteria	Yes

Sensor Type	<b>Volatile Organic Compounds</b>	Appendix C Method Code	N/A
Network Designation	Other (Photochemical Assessment Monitoring Station)	Probe Height Residence Time	12 Meters
Purpose	Research/Scientific Monitoring	Appendix D Design Criteria	N/A
Sample Frequency	Hourly during PAMS season (June 1 – August 31)	Appendix D Scale	N/A
Appendix A QA Assessment	N/A	Appendix D Objectives	N/A
Monitor Start Date	6/1/2021	Appendix E Siting Criteria	Yes

Sensor Type	<b>Aerosol Chemical Speciation Monitor (ACSM)</b>	Appendix C Method Code	N/A
Network Designation	ASCENT	Probe Height Residence Time	12 Meters
Purpose	Research/Scientific Monitoring	Appendix D Design Criteria	N/A
Sample Frequency	Hourly	Appendix D Scale	N/A
Appendix A QA Assessment	N/A	Appendix D Objectives	N/A
Monitor Start Date	7/1/2023	Appendix E Siting Criteria	Yes

Sensor Type	<b>Xact PM<sub>2.5</sub> Metals</b>	Appendix C Method Code	N/A
Network Designation	ASCENT	Probe Height Residence Time	12 Meters
Purpose	Research/Scientific Monitoring	Appendix D Design Criteria	N/A
Sample Frequency	Hourly	Appendix D Scale	N/A
Appendix A QA Assessment	N/A	Appendix D Objectives	N/A
Monitor Start Date	7/1/2023	Appendix E Siting Criteria	Yes

Sensor Type	<b>Scanning Mobility Particle Sizer (SMPS)</b>	Appendix C Method Code	N/A
Network Designation	ASCENT	Probe Height Residence Time	12 Meters
Purpose	Research/Scientific Monitoring	Appendix D Design Criteria	N/A
Sample Frequency	Hourly	Appendix D Scale	N/A
Appendix A QA Assessment	N/A	Appendix D Objectives	N/A
Monitor Start Date	7/1/2023	Appendix E Siting Criteria	Yes

Sensor Type	<b>Aethalometer</b>	Appendix C Method Code	N/A
Network Designation	ASCENT	Probe Height Residence Time	12 Meters
Purpose	Research/Scientific Monitoring	Appendix D Design Criteria	N/A
Sample Frequency	Hourly	Appendix D Scale	N/A
Appendix A QA Assessment	N/A	Appendix D Objectives	N/A
Monitor Start Date	7/1/2023	Appendix E Siting Criteria	Yes

**Lawrenceville Meteorological Sensors**

- Wind Speed / Wind Direction
- Solar Radiation
- Total UV Radiation
- Solar Radiation
- Relative humidity
- Barometric Pressure
- Rain/Snow amounts
- Ambient Temperature
- Mixing Height (ceilometer)

**Lawrenceville Area Information**

Street Name		Traffic Count (AADT)
39 <sup>th</sup> Street (20 m)		Unavailable
Penn Avenue (86 m)		7,785 (PennDot 2015)
Butler Street (343 m)		7,371 (PennDot 2014)
Direction	Predominant Land Use (Industry, Residential, Commercial or Agriculture)	
North	Residential	
East	Residential	
South	Residential	
West	Residential	

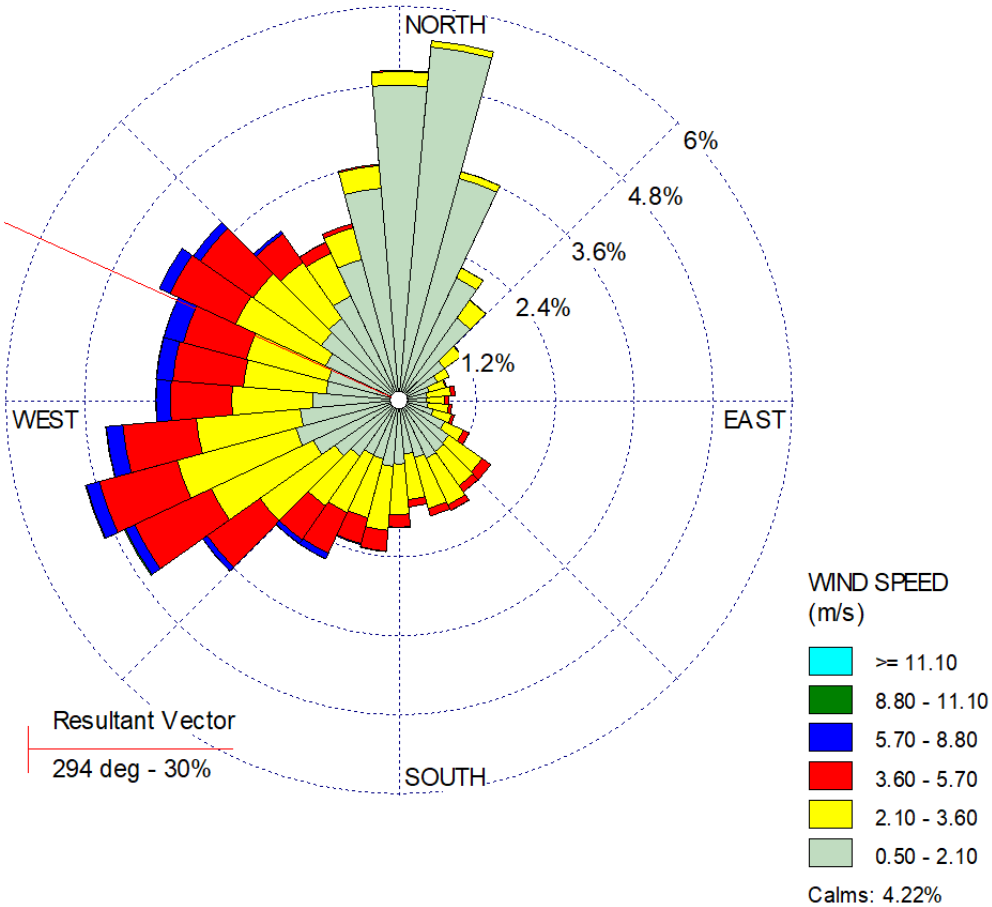
Direction	Obstructions	Height (m)	Distance (m)
North			
East			
South	Wall	1	2 to 3 m
West			

Direction	Topographic Features (hills, valleys, rivers, etc.)	General Terrain (flat, rolling, rough)
North		Flat
East		Flat
South		Flat
West		Flat

Figure 10.1.1 Lawrenceville Location Map



Figure 10.1.2 Lawrenceville Wind Rose (2019-2023)





**10.2 Liberty**

Address	South Allegheny High School 2743 Washington Blvd McKeesport, PA 15133		
AQS#	42-003-0064	MSA	Pittsburgh
Latitude (N) Particulate and BTEX	<b>40.323761</b>	Longitude (W) Particulate and BTEX	<b>-79.868151</b>
Latitude (N) SO <sub>2</sub> , H <sub>2</sub> S	<b>40.324759</b>	Longitude (W) SO <sub>2</sub> , H <sub>2</sub> S	<b>-79.867030</b>
Comments	<p>This site is in a suburban area about 3 km north-northeast (and primarily downwind) of the US Steel Clairton Coke Works. The area around this monitoring site has a long history of higher-than-average levels of PM<sub>2.5</sub>, PM<sub>10</sub>, and sulfur dioxide. Significant ambient levels of benzene have also been measured and documented at this site. Liberty is a core PM<sub>2.5</sub> site that is used to determine compliance with national standards.</p> <p>At the request of US Steel, telemetry devices have been installed on the PM<sub>10</sub>, PM<sub>2.5</sub>, and SO<sub>2</sub> monitors that transmit continuous readings via radio signals to a location within the US Steel facility. Other transmitters are also in use: Glassport PM<sub>10</sub> monitor and North Braddock SO<sub>2</sub> monitor and sonic anemometer. This real-time data allows the opportunity for US Steel to minimize fugitive emissions and to adjust production levels to keep particulate levels and gaseous emissions within allowable ambient levels in downwind communities.</p>		

Sensor Type	<b>PM<sub>2.5</sub> FRM</b>	Appendix C Method Code	145
Network Designation	SLAMS Primary	Probe Height	8 Meters
Purpose	Regulatory Compliance	Appendix D Design Criteria	Yes
Sample Frequency	Daily	Appendix D Scale	Neighborhood, Highest Concentration
Appendix A QA Assessment	Yes	Appendix D Objectives	Population Exposure
Monitor Start Date	1/23/1999	Appendix E Siting Criteria	Yes

Sensor Type	<b>PM<sub>2.5</sub> FRM</b>	Appendix C Method Code	145
Network Designation	SLAMS Secondary	Probe Height	8 Meters
Purpose	QA/Co-located Monitor	Appendix D Design Criteria	Yes
Sample Frequency	Every Twelve Days	Appendix D Scale	Neighborhood, Highest Concentration
Appendix A QA Assessment	Yes	Appendix D Objectives	Quality Assurance
Monitor Start Date	1/1/2005	Appendix E Siting Criteria	Yes

Sensor Type	<b>PM<sub>2.5</sub> FEM</b>	Appendix C Method Code	238
Network Designation	SLAMS Tertiary	Probe Height	8 meters
Purpose	QA/Co-located Monitor AQI Reporting	Appendix D Design Criteria	Yes
Sample Frequency	Hourly	Appendix D Scale	Neighborhood, Highest Concentration
Appendix A QA Assessment	Yes	Appendix D Objectives	Neighborhood, Highest Concentration
Monitor Start Date	11/01/2017	Appendix E Siting Criteria	Yes

Sensor Type	<b>PM<sub>10</sub> FEM</b>	Appendix C Method Code	239
Network Designation	SLAMS Primary	Probe Height	8 Meters
Purpose	Regulatory Compliance	Appendix D Design Criteria	Yes
Sample Frequency	Hourly	Appendix D Scale	Neighborhood
Appendix A QA Assessment	Yes	Appendix D Objectives	Population Exposure
Monitor Start Date	1/1/1992	Appendix E Siting Criteria	Yes

Sensor Type	<b>PM<sub>2.5</sub> Speciation</b>	Appendix C Method Code	Multiple
Network Designation	Other (CSN)	Probe Height	8 Meters
Purpose	Research/Scientific Monitoring	Appendix D Design Criteria	Yes
Sample Frequency	Every Six Days	Appendix D Scale	Unassigned
Appendix A QA Assessment	Yes	Appendix D Objectives	Population Exposure
Monitor Start Date	10/6/2003	Appendix E Siting Criteria	Yes

Sensor Type	<b>Sulfur Dioxide</b>	Appendix C Method Code	600
Network Designation	SLAMS	Probe Height Residence Time	8 Meters 11.5 Seconds
Purpose	Regulatory Compliance	Appendix D Design Criteria	Yes
Sample Frequency	Hourly	Appendix D Scale	Neighborhood
Appendix A QA Assessment	Yes	Appendix D Objectives	Population Exposure
Monitor Start Date	1/1/1969	Appendix E Siting Criteria	Yes

Sensor Type	<b>Hydrogen Sulfide</b>	Appendix C Method Code	N/A
Network Designation	Special Purpose monitor	Probe Height Residence Time	8 Meters 11.5 Seconds
Purpose	Research/Scientific Monitoring	Appendix D Design Criteria	N/A
Sample Frequency	Hourly	Appendix D Scale	N/A
Appendix A QA Assessment	N/A	Appendix D Objectives	N/A
Monitor Start Date	1/1/1981	Appendix E Siting Criteria	Yes

Sensor Type	<b>BTEX / Sorbent Tube</b> See Section A3.1	Appendix C Method Code	N/A
Network Designation	Special Purpose Monitor	Probe Height Residence Time	8 Meters 3.1 Seconds
Purpose	Research/Scientific Monitoring	Appendix D Design Criteria	N/A
Sample Frequency	Every Three Days	Appendix D Scale	Undetermined
Appendix A QA Assessment	N/A	Appendix D Objectives	N/A
Monitor Start Date	2/1/2014	Appendix E Siting Criteria	Yes

**Liberty Meteorological Sensors**

- Wind Speed / Wind Direction
- Ambient Temperature
- Barometric Pressure

**Liberty Area Information**

Street Name	Traffic Count (AADT)
Washington Blvd. (283 m)	2080 (PennDot 2013)

Direction	Predominant Land Use (Industry, Residential, Commercial or Agriculture)
North	Residential
East	Residential
South	Residential
West	Residential

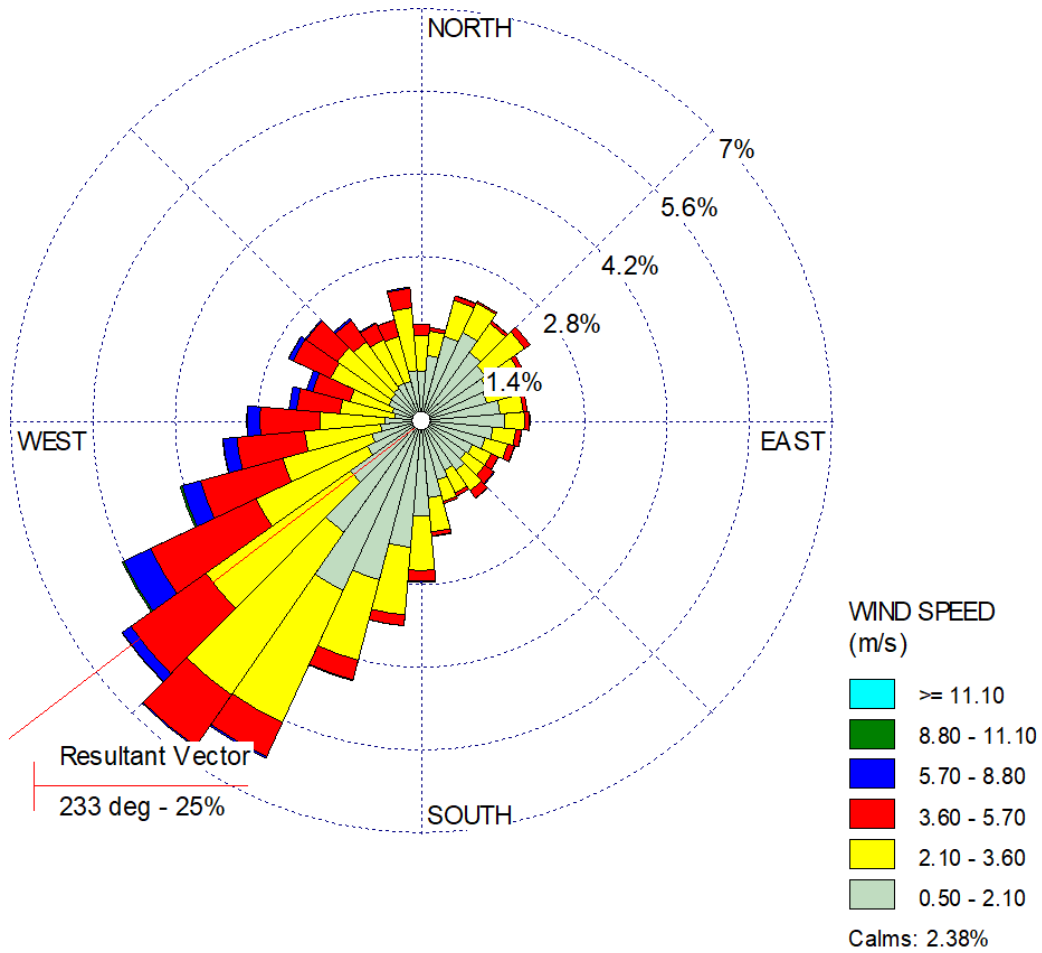
Direction	Obstructions	Height (m)	Distance (m)
North			
East			
South			
West			

Direction	Topographic Features (hills, valleys, rivers, etc.)	General Terrain (flat, rolling, rough)
North	Valley	Rough
East		Rolling
South	Valley	Rolling
West	River	Rolling

Figure 10.2.1 Liberty Location Map



Figure 10.2.2 Liberty Wind Rose (2019-2023)



**10.3 Glassport**

Address	Water Tower on High Street Glassport, PA 15045		
AQS#	42-003-3006	MSA	Pittsburgh
Latitude (N)	40.326008	Longitude (W)	-79.881703
Comments	Located in a residential area, this site is population oriented and is impacted by the US Steel Clairton Coke Works, the Irvin Works, and other sources in the Monongahela river valley. Glassport High Street is the site of the County’s last documented exceedance of the federal 24-hour PM <sub>10</sub> standard of 150 µg/m <sup>3</sup> (October 1997).		

Sensor Type	PM <sub>10</sub> FEM	Appendix C Method Code	79
Network Designation	SLAMS	Probe Height	2 Meters
Purpose	Regulatory Compliance	Appendix D Design Criteria	Yes
Sample Frequency	Hourly	Appendix D Scale	Neighborhood
Appendix A QA Assessment	Yes	Appendix D Objectives	Population Exposure
Monitor Start Date	1/6/1995	Appendix E Siting Criteria	Yes

**Glassport Area Information**

Street Name	Traffic Count (AADT)
High Street (8m)	Unavailable
Scenic Street (53m)	Unavailable
Washington Blvd (140m)	2080 (PennDot 2013)
Pacific Ave. (202m)	4450 (PennDot 2012)

Direction	Predominant Land Use (Industry, Residential, Commercial or Agriculture)
North	Residential
East	Residential
South	Residential
West	Residential

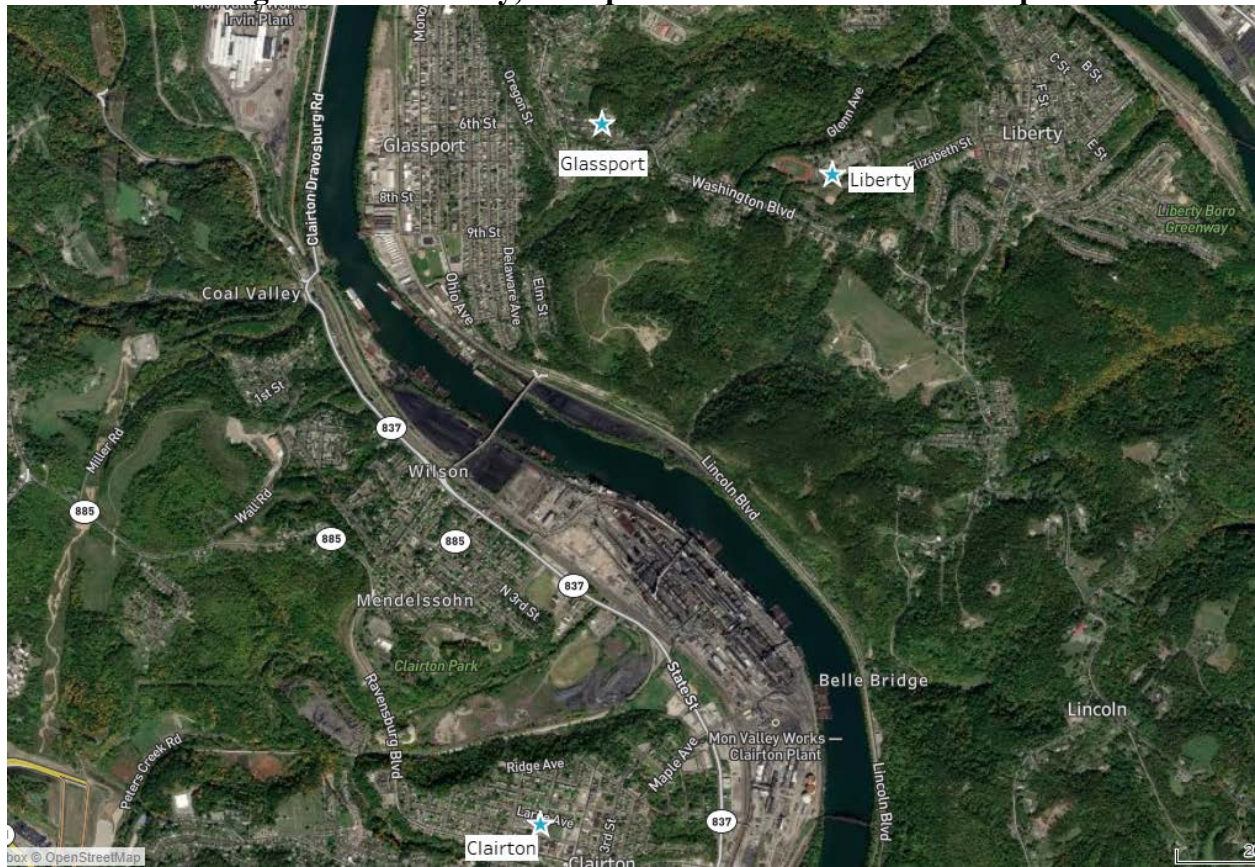
Direction	Obstructions	Height (m)	Distance (m)
North	Water Tower	25	9
East			
South			
West			

Direction	Topographic Features (hills, valleys, rivers, etc.)	General Terrain (flat, rolling, rough)
North		Flat
East		Flat
South		Flat
West	Valley	Flat

**Figure 10.3.1 Glassport Location Map**



Figure 10.3.2 Liberty, Glassport and Clairton Stations Map



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**10.4 North Braddock**

Address	North Braddock Borough Building 600 Anderson Street Braddock, PA 15104		
AQS#	42-003-1301	MSA	Pittsburgh
Latitude (N)	40.402328	Longitude (W)	-79.860973
Comments	This suburban site is population oriented. The area around this site is impacted by the US Steel Edgar Thomson Works, which is a basic steel production facility located about 1.5 km south-southwest from the monitoring site. North Braddock is a core PM <sub>2.5</sub> site that is used to determine compliance with national standards.		

Sensor Type	<b>PM<sub>2.5</sub> FRM</b>	Appendix C Method Code	145
Network Designation	SLAMS Primary	Probe Height	7 Meters
Purpose	Regulatory Compliance	Appendix D Design Criteria	Yes
Sample Frequency	Every Three Days	Appendix D Scale	Neighborhood
Appendix A QA Assessment	Yes	Appendix D Objectives	Population Exposure
Monitor Start Date	1/30/1999	Appendix E Siting Criteria	Yes

Sensor Type	<b>PM<sub>2.5</sub> FEM</b>	Appendix C Method Code	638
Network Designation	SLAMS Secondary	Probe Height	7 Meters
Purpose	Regulatory Compliance	Appendix D Design Criteria	Yes
Sample Frequency	Hourly	Appendix D Scale	Neighborhood
Appendix A QA Assessment	Yes	Appendix D Objectives	Population Exposure
Monitor Start Date	1/1/2022	Appendix E Siting Criteria	Yes

Sensor Type	<b>PM<sub>10</sub> FEM</b>	Appendix C Method Code	639
Network Designation	SLAMS	Probe Height	7 Meters
Purpose	Regulatory Compliance	Appendix D Design Criteria	Yes
Sample Frequency	Hourly	Appendix D Scale	Neighborhood
Appendix A QA Assessment	Yes	Appendix D Objectives	Population Exposure
Monitor Start Date	1/1/2011	Appendix E Siting Criteria	Yes

Sensor Type	<b>Sulfur Dioxide</b>	Appendix C Method Code	600
Network Designation	SLAMS	Probe Height Residence Time	7 Meters 14.4 Seconds
Purpose	Regulatory Compliance	Appendix D Design Criteria	Yes
Sample Frequency	Hourly	Appendix D Scale	Neighborhood
Appendix A QA Assessment	Yes	Appendix D Objectives	Population Exposure, Highest Concentration
Monitor Start Date	1/1/2014	Appendix E Siting Criteria	Yes

Sensor Type	<b>Carbon Monoxide</b>	Appendix C Method Code	93
Network Designation	SLAMS	Probe Height Residence Time	7 Meters 14.4 Seconds
Purpose	Regulatory Compliance	Appendix D Design Criteria	Yes
Sample Frequency	Hourly	Appendix D Scale	Neighborhood
Appendix A QA Assessment	Yes	Appendix D Objectives	Population Exposure
Monitor Start Date		Appendix E Siting Criteria	Yes

Sensor Type	<b>Hydrogen Sulfide</b>	Appendix C Method Code	N/A
Network Designation	Special Purpose monitor	Probe Height Residence Time	7 Meters 11.5 Seconds
Purpose	Research/Scientific Monitoring	Appendix D Design Criteria	N/A
Sample Frequency	Hourly	Appendix D Scale	N/A
Appendix A QA Assessment	N/A	Appendix D Objectives	N/A
Monitor Start Date	12/9/2020	Appendix E Siting Criteria	Yes

**North Braddock Meteorological Sensors**

- Wind Speed / Wind Direction
- Ambient Temperature
- Barometric Pressure

**North Braddock Area Information**

Street Name	Traffic Count (AADT)
Bell Avenue (13 m)	2882 (PennDot 2012)
Anderson St. (40 m)	Unavailable
Braddock Ave. (370 m)	6349 (PennDot 2015)

Direction	Predominant Land Use (Industry, Residential, Commercial or Agriculture)
North	Residential
East	Residential
South	Residential, Industry
West	Residential

Direction	Obstructions	Height (m)	Distance (m)
North			
East			
South			
West			

Direction	Topographic Features (hills, valleys, rivers, etc.)	General Terrain (flat, rolling, rough)
North	Hills	Rolling
East	Hills	Rolling
South	River	Rolling
West		Rolling

Figure 10.4.1 North Braddock Location Map

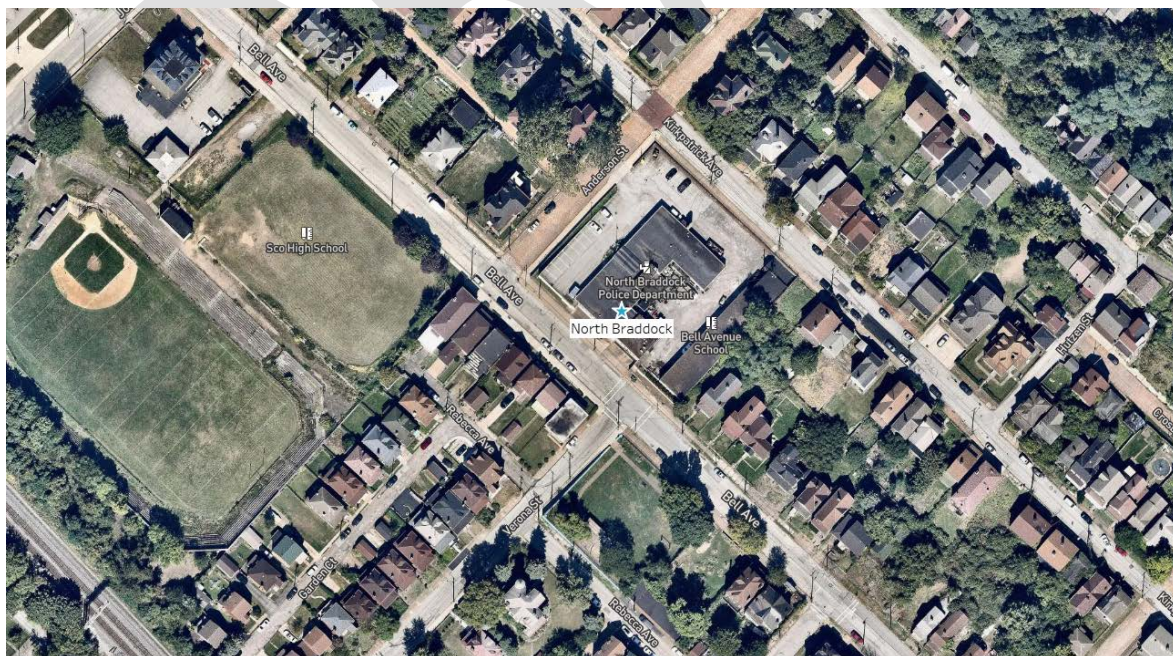
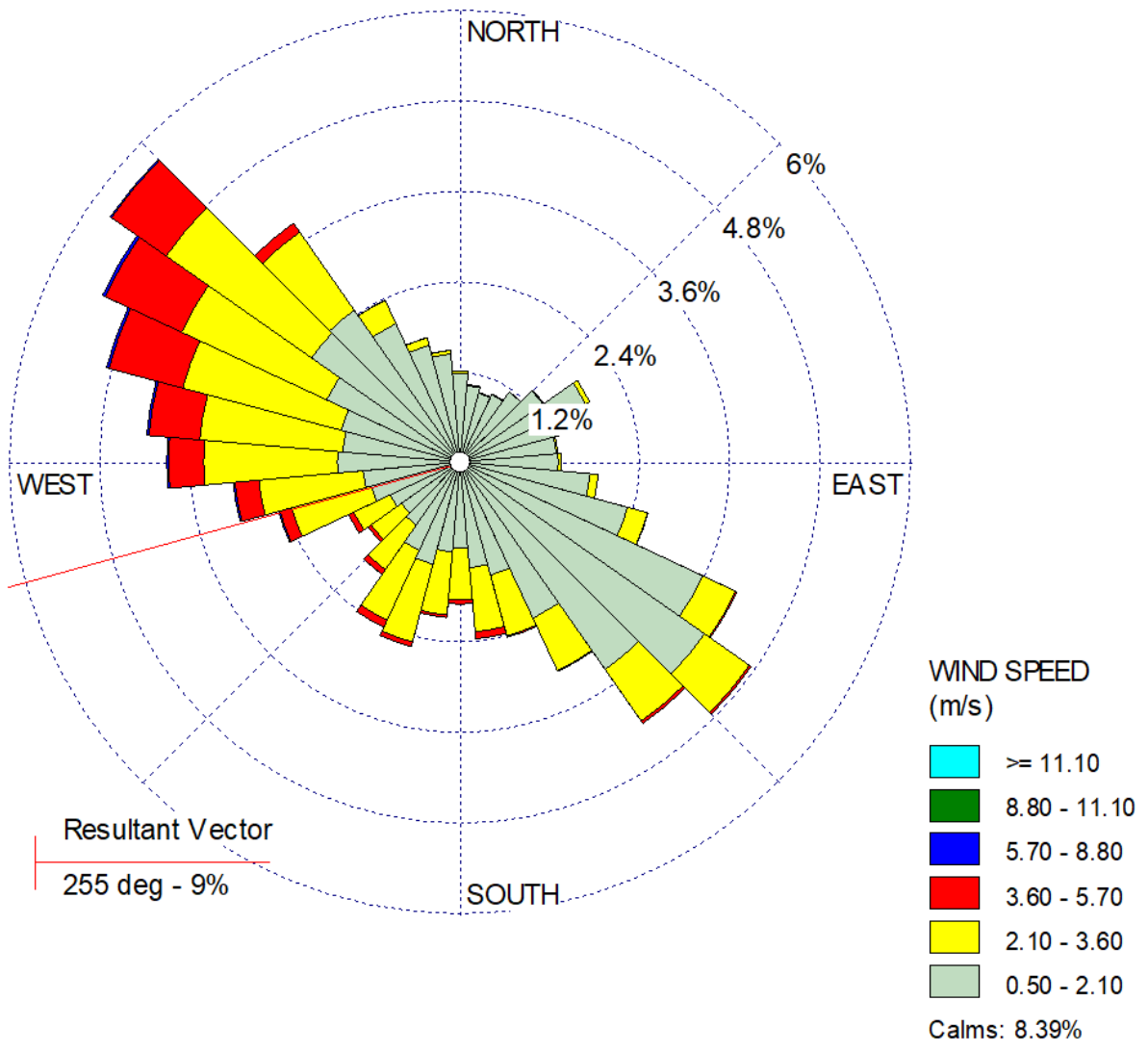


Figure 10.4.2 North Braddock Wind Rose (2019-2023)



**10.5 Harrison**

Address	Highlands Senior High School 1500 Pacific Avenue Natrona Heights, PA 15065		
AQS#	42-003-1008	MSA	Pittsburgh
Latitude (N)	40.617488	Longitude (W)	-79.727664
Comments	This suburban site is population-based and community oriented. This is a core PM <sub>2.5</sub> site used to determine compliance with national standards. This ozone monitoring site is positioned downwind of the Pittsburgh Central Business District and is expected to demonstrate maximum ozone concentrations. The nitrogen oxides monitor adds significant value to the ozone data and was upgraded to read True NO <sub>2</sub> concentrations in 2022.		

Sensor Type	<b>PM<sub>2.5</sub> FRM</b>	Appendix C Method Code	145
Network Designation	SLAMS	Probe Height	8 Meters
Purpose	Regulatory Compliance	Appendix D Design Criteria	Yes
Sample Frequency	Every Three Days	Appendix D Scale	Neighborhood
Appendix A QA Assessment	Yes	Appendix D Objectives	Population Exposure
Monitor Start Date	2/13/1999	Appendix E Siting Criteria	Yes

Sensor Type	<b>Ozone</b>	Appendix C Method Code	47
Network Designation	SLAMS	Probe Height Residence Time	10 Meters 4.9 Seconds
Purpose	Regulatory Compliance	Appendix D Design Criteria	Yes
Sample Frequency	Hourly	Appendix D Scale	Urban
Appendix A QA Assessment	Yes	Appendix D Objectives	Population Exposure, Highest Concentration
Monitor Start Date	2/12/2014	Appendix E Siting Criteria	yes

Sensor Type	<b>Oxides of Nitrogen + True NO<sub>2</sub></b>	Appendix C Method Code	256
Network Designation	SLAMS	Probe Height Residence Time	10 Meters 14.7 Seconds
Purpose	Regulatory Compliance	Appendix D Design Criteria	Yes
Sample Frequency	Hourly	Appendix D Scale	Neighborhood
Appendix A QA Assessment	Yes	Appendix D Objectives	Population Exposure
Monitor Start Date	2/12/2014	Appendix E Siting Criteria	Yes

**Harrison Area Information**

Street Name / Distance	Traffic Count (AADT)
Idaho Ave (31m)	Unavailable
Pacific Ave (103m)	Unavailable
Freeport Road (326 m)	8018 (PennDot 2008)

Direction	Predominant Land Use (Industry, Residential, Commercial or Agriculture)
North	Residential
East	Residential
South	Residential
West	Industrial

Direction	Obstructions	Height (m)	Distance (m)
North	Wall	3	20
East			
South			
West			

Direction	Topographic Features (hills, valleys, rivers, etc.)	General Terrain (flat, rolling, rough)
North		Flat
East		Rough
South	Valley	Rough
West	Valley	Rolling

Figure 10.5 Harrison Location Map



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**10.6 South Fayette**

Address	South Fayette Elementary School 3640 Old Oakdale Road McDonald, PA 15057		
AQS#	42-003-0067	MSA	Pittsburgh
Latitude (N)	40.375644	Longitude (W)	-80.169943
Comments	This suburban site is population-based and is the regional transport site for O <sub>3</sub> and PM <sub>2.5</sub> . Located in the western portion of the county, this site monitors pollution levels entering the County on prevailing winds. South Fayette is a core PM <sub>2.5</sub> site that is used to determine compliance with national standards.		

Sensor Type	<b>PM<sub>2.5</sub> FRM</b>	Appendix C Method Code	145
Network Designation	SLAMS	Probe Height	8 Meters
Purpose	Regulatory Compliance	Appendix D Design Criteria	Yes
Sample Frequency	Every Three Days	Appendix D Scale	Neighborhood
Appendix A QA Assessment	Yes	Appendix D Objectives	Population Exposure, Regional Transport, Upwind Background
Monitor Start Date	1/1/1995	Appendix E Siting Criteria	Yes

Sensor Type	<b>Ozone</b>	Appendix C Method Code	47
Network Designation	SLAMS	Probe Height Residence Time	8 Meters 5.3 Seconds
Purpose	Regulatory Compliance	Appendix D Design Criteria	Yes
Sample Frequency	Hourly	Appendix D Scale	Regional
Appendix A QA Assessment	Yes	Appendix D Objectives	General/Background, Regional Transport
Monitor Start Date	1/1/1980	Appendix E Siting Criteria	Yes

**South Fayette Area Information**

Street Name / Distance	Traffic Count (AADT)
Old Oakdale Rd. (142m)	Unavailable
Cannon Gate Dr. (377m)	Unavailable
Battle Ridge Rd. (554m)	5194 (PennDot 2014)



Direction	Predominant Land Use (Industry, Residential, Commercial or Agriculture)
North	Residential
East	Residential
South	Agriculture
West	Agriculture

Direction	Obstructions	Height (m)	Distance (m)
North			
East			
South			
West			

Direction	Topographic Features (hills, valleys, rivers, etc.)	General Terrain (flat, rolling, rough)
North		Rolling
East		Rolling
South		Rolling
West		Rolling

Figure 10.6 South Fayette Location Map



**10.7 Clairton**

Address	Clairton Education Center 501 Waddell Avenue Clairton, PA 15025		
AQS#	42-003-3007	MSA	Pittsburgh
Latitude (N)	40.294341	Longitude (W)	-79.885331
Comments	This is a population-oriented, suburban site that is located within an environmental justice area. Site selection was based on this location being within the Monongahela Valley and generally upwind of the USS Clairton Coke Works. During times of temperature inversions and atypical wind direction, the coke works and other sources in the Monongahela River valley impact this site.		

Sensor Type	<b>PM<sub>2.5</sub> FEM</b>	Appendix C Method Code	636
Network Designation	SLAMS Secondary	Probe Height	8 Meters
Purpose	Regulatory Compliance	Appendix D Design Criteria	Yes
Sample Frequency	Hourly	Appendix D Scale	Neighborhood
Appendix A QA Assessment	Yes	Appendix D Objectives	Population Exposure, Welfare Concerns
Monitor Start Date	4/2/2022 (replaced PM <sub>2.5</sub> FRM sampler that started 1/1/2001)	Appendix E Siting Criteria	Yes

**Clairton Area Information**

Street Name / Distance	Traffic Count (AADT)
Large Ave (29m)	Unavailable
Waddell Ave. (64m)	Unavailable
6th St. (144m)	Unavailable
Saint Clair Ave. (158m)	1763 (PennDot 2012)

Direction	Predominant Land Use (Industry, Residential, Commercial or Agriculture)
North	Residential
East	Residential
South	Commercial
West	Residential

Direction	Obstructions	Height (m)	Distance (m)

North			
East			
South			
West			

Direction	Topographic Features (hills, valleys, rivers, etc.)	General Terrain (flat, rolling, rough)
North	valley	rolling
East	valley	rolling
South		flat
West	valley	rolling

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Figure 10.7 Clairton Location Map



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**10.8 Avalon**

Address	721 California Avenue Avalon, PA 15202		
AQS#	42-003-0002	MSA	Pittsburgh
Latitude (N)	40.500840	Longitude (W)	-80.066488
Comments	This is a population-oriented, suburban site previously impacted by the PM and SO <sub>2</sub> coke battery emissions. Many odor and air pollution complaints were from communities near this monitoring site. However, the coke work battery permanently ceased operations in 2016. As a result, the 2016 1-hour SO <sub>2</sub> DV is half the 2010 DV and SO <sub>2</sub> monitoring was removed. Avalon is a core PM <sub>2.5</sub> site that is used to determine compliance with national standards.		

Sensor Type	<b>PM<sub>2.5</sub> FEM</b>	Appendix C Method Code	636
Network Designation	SLAMS (Primary)	Probe Height	10 Meters
Purpose	Regulatory Compliance	Appendix D Design Criteria	Yes
Sample Frequency	Hourly	Appendix D Scale	Neighborhood
Appendix A QA Assessment	Yes	Appendix D Objectives	Population Exposure
Monitor Start Date	7/12/2023 (replaced a site with an FEM that began 1/1/2017)	Appendix E Siting Criteria	Yes

**Avalon Area Information**

Street Name / Distance	Traffic Count (AADT)
California Ave (25m)	Unavailable
N School St (56m)	Unavailable
Center Ave (157m)	Unavailable
N Chestnut St (107m)	Unavailable

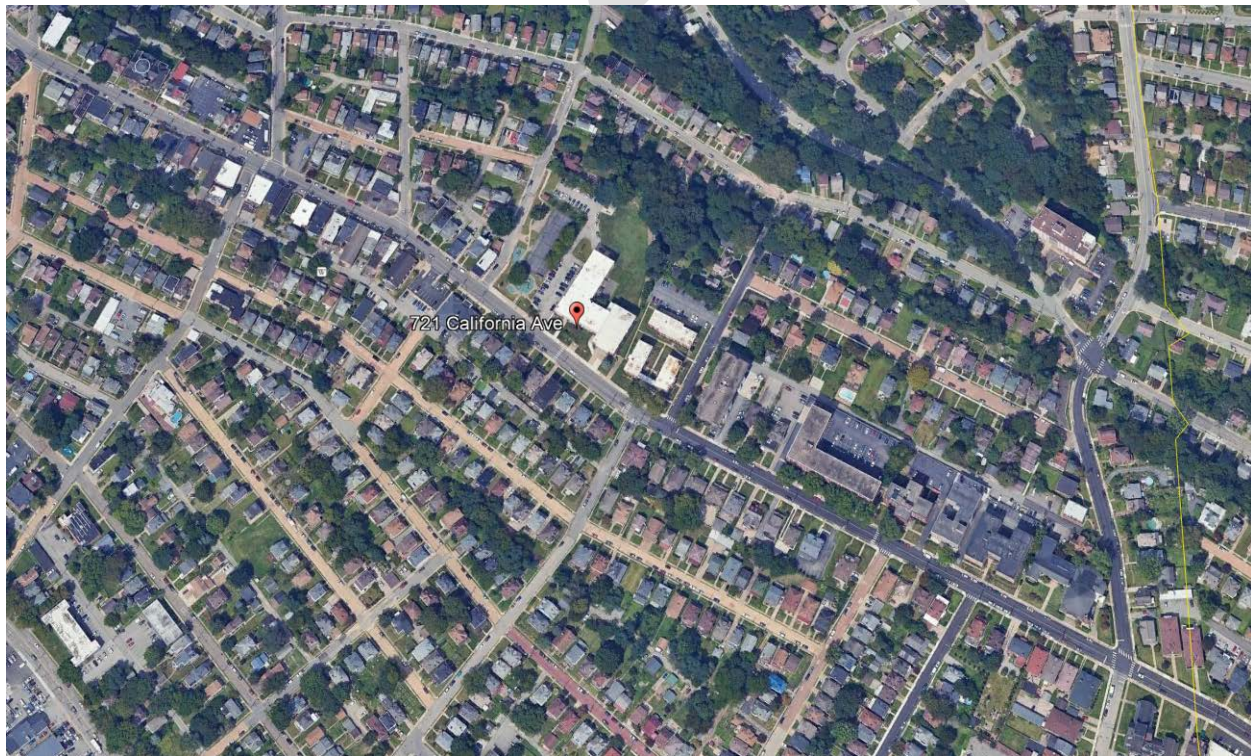
Direction	Predominant Land Use (Industry, Residential, Commercial or Agriculture)
North	Residential
East	Residential
South	Residential
West	Residential

Direction	Obstructions	Height (m)	Distance (m)
North	Trees	15	75
East	Building	15	64
South			

West			
------	--	--	--

Direction	Topographic Features (hills, valleys, rivers, etc.)	General Terrain (flat, rolling, rough)
North	Hill	Rolling
East		Flat
South	River	Flat
West		Flat

**Figure 10.8 Avalon Location Map**



**10.9 Parkway East**

Address	Hosanna House Event Center 400 Sherwood Road Pittsburgh, PA 15221		
AQS#	42-003-1376	MSA	Pittsburgh
Latitude (N)	40.437430	Longitude (W)	-79.863572
Comments	This site was installed to comply with NO <sub>2</sub> design criteria. Monitor inlets sample air at 18 meters from the nearest traffic lane of Route 376 (Parkway East). This location was approved by EPA as a near road monitoring site that measures population exposure to roadway emissions. Concentration data for CO and NO <sub>2</sub> are near network maximums.		

Sensor Type	<b>PM<sub>2.5</sub> FEM</b>	Appendix C Method Code	636
Network Designation	SLAMS	Probe Height	4 meters
Purpose	Regulatory Compliance	Appendix D Design Criteria	Yes
Sample Frequency	Hourly	Appendix D Scale	Microscale
Appendix A QA Assessment	Yes	Appendix D Objectives	Population Exposure, Source Oriented
Monitor Start Date	1/1/2016	Appendix E Siting Criteria	Yes

Sensor Type	<b>PM<sub>2.5</sub> FRM</b>	Appendix C Method Code	145
Network Designation	SLAMS Secondary	Probe Height	4 Meters
Purpose	QA/Co-located Monitor	Appendix D Design Criteria	Yes
Sample Frequency	Every Twelve Days	Appendix D Scale	Neighborhood, Highest Concentration
Appendix A QA Assessment	Yes	Appendix D Objectives	Quality Assurance
Monitor Start Date	1/10/2021	Appendix E Siting Criteria	Yes

Sensor Type	<b>Oxides of Nitrogen + True NO<sub>2</sub></b>	Appendix C Method Code	256
Network Designation	SLAMS	Probe Height Residence Time	3 Meters 5.3 Seconds
Purpose	Regulatory Compliance	Appendix D Design Criteria	Yes
Sample Frequency	Hourly	Appendix D Scale	Microscale
Appendix A QA Assessment	Yes	Appendix D Objectives	Highest Concentration
Monitor Start Date	12/9/2022 (replaces NO <sub>x</sub> monitor that began 9/1/2014)	Appendix E Siting Criteria	Yes

Sensor Type	<b>Carbon Monoxide (CO)</b> Trace Level	Appendix C Method Code	593
Network Designation	SLAMS	Probe Height Residence Time	3 Meters 3.4 Seconds
Purpose	Regulatory Compliance	Appendix D Design Criteria	Yes
Sample Frequency	Hourly	Appendix D Scale	Microscale
Appendix A QA Assessment	Yes	Appendix D Objectives	Highest Concentration
Monitor Start Date	9/1/2014	Appendix E Siting Criteria	Yes

Sensor Type	<b>Black Carbon Monitor</b> 7-channel Aethalometer	Appendix C Method Code	894
Network Designation	Other	Probe Height (m)	4 Meters
Purpose	Research/Scientific Monitoring	Appendix D Design Criteria	Yes
Sample Frequency	Hourly	Appendix D Scale	Microscale
Appendix A QA Assessment	Yes	Appendix D Objectives	Highest Concentration
Monitor Start Date	9/1/2014	Appendix E Siting Criteria	Yes

**Parkway East Meteorological Sensors**

- Wind Speed / Wind Direction
- Relative Humidity
- Ambient Temperature

**Parkway East Area Information**

Street Name / Distance	Traffic Count (AADT)
Penn Lincoln Parkway, Rt. I-376 (18 m)	75,971 (PennDot 2014)

Direction	Predominant Land Use (Industry, Residential, Commercial or Agriculture)
North	Residential
East	Residential
South	Residential
West	Residential

Direction	Obstructions	Height (m)	Distance (m)
North			



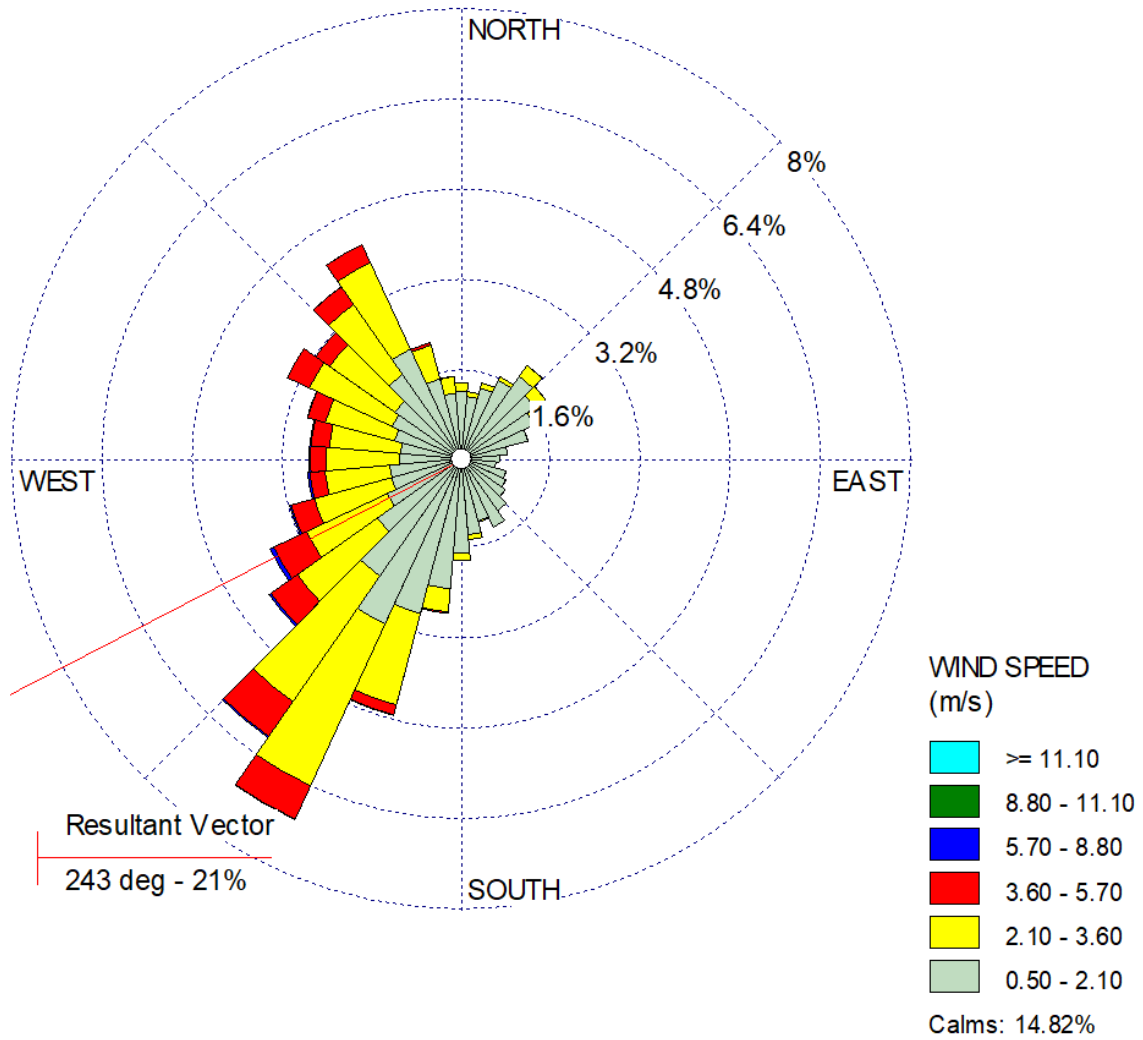
East	Trees	15	33
South			
West			

Direction	Topographic Features (hills, valleys, rivers, etc.)	General Terrain (flat, rolling, rough)
North		Rolling
East	Hill	Rough
South		Rolling
West		Rolling

Figure 10.9.1 Parkway East Location Map



Figure 10.9.2 Parkway East Wind Rose (2019-2023)



## 11.0 GLOSSARY OF TERMS AND ABBREVIATIONS

<b>AADT</b>	Annual Average Daily Traffic count. This is the unit of measure used in this report to indicate vehicular traffic density as received from Penn Dot (Pennsylvania Department of Transportation) and represents the daily two-way traffic count averaged over a calendar year for the indicated roadway segment. The year that the data was collected is included.
<b>Aethalometer</b>	A continuous monitor designed to measure diesel mobile emissions by quantifying black carbon particles. This is a research instrument and does not determine compliance with NAAQS.
<b>BAM</b>	Beta Attenuation Monitor. This technology is used in the Thermo Scientific 5014i continuous particulate monitors, which have FEM designation for PM <sub>2.5</sub> measurement with the addition of a VSCC.
<b>Benzene</b>	C <sub>6</sub> H <sub>6</sub> . A six-carbon aromatic ring known to be a carcinogen. Emitted by mobile and industrial sources in Allegheny County.
<b>CO</b>	Carbon Monoxide. Measured using a continuous automated analyzer.
<b>Criteria Pollutants</b>	Air pollutants considered harmful to public health and the environment (carbon monoxide, nitrogen dioxide, sulfur dioxide, ozone, lead, particulate matter: PM <sub>10</sub> , PM <sub>2.5</sub> )
<b>FEM</b>	Federal Equivalent Method. Secondary methods approved by the USEPA for measurement of criteria pollutants and determination of compliance with NAAQS.
<b>FRM</b>	Federal Reference Method. Primary measurement methods designated by the USEPA for measurement of criteria pollutants and determination of compliance with NAAQS.
<b>Lead (Pb)</b>	Lead Monitoring. Laboratory analysis of Total Suspended Particle filters. This analysis is performed according to the federal reference method for lead monitoring.
<b>NAAQS</b>	National Ambient Air Quality Standards. These standards apply only to the six criteria pollutants
<b>NATTS</b>	National Air Toxics Trends Station. Air monitoring program to assess nationwide air toxics trends. The ACHD Lawrenceville station became a NATTS site in 2020.
<b>NCore</b>	National Core Monitoring Network, consisting of multi-pollutant ambient air monitoring sites, and specializing in PM <sub>2.5</sub> and associated precursor gases.
<b>Near Road</b>	Monitoring site designed to measure peak exposure to roadway emissions. Required monitoring parameters are NO <sub>2</sub> , CO, and PM <sub>2.5</sub> . Installation of near road monitoring sites were required by revisions to the NO <sub>2</sub> NAAQS during 2010.
<b>NO<sub>x</sub></b>	Oxides of nitrogen, including nitric oxide and nitrogen dioxide. Measured using a continuous automated analyzer.
<b>NO<sub>y</sub></b>	Total reactive nitrogen. A collective name for oxidized forms of nitrogen in the atmosphere such as nitric oxide (NO), nitrogen dioxide (NO <sub>2</sub> ), nitric acid (HNO <sub>3</sub> ), and numerous short lived and reactive organic nitrates (but <b>not</b> NH <sub>3</sub> ). These compounds play important roles in atmospheric ozone and ultra-fine particle formation.
<b>O<sub>3</sub></b>	Ozone. Measured using a continuous automated analyzer.

<b>PAMS</b>	Photochemical Assessment Monitoring Stations
<b>PM<sub>10</sub></b>	All suspended particles equal to or smaller than 10 microns.
<b>PM<sub>2.5</sub></b>	All suspended particles equal to or smaller than 2.5 microns. Frequently referred to as fine particulates.
<b>PM<sub>(coarse)</sub></b>	All suspended particulates smaller than 10 microns but larger than 2.5 microns, also often referred to as PM <sub>10-2.5</sub> . EPA has not assigned a NAAQS to this parameter as of the date of this document.
<b>SLAMS</b>	State or Local Air Monitoring Stations Network. The SLAMS make up the ambient air quality monitoring sites that are operated by State or local agencies for the primary purpose of comparison to the National Ambient Air Quality Standards (NAAQS), but may serve other purposes. The SLAMS network includes stations classified as NCore, PAMS, and Speciation, and formerly categorized as NAMS, and does not include Special Purpose Monitors (SPM) and other monitors used for non-regulatory or industrial monitoring purposes.
<b>SO<sub>2</sub></b>	Sulfur Dioxide. Measured using a continuous automated analyzer.
<b>Sonic Anemometer</b>	A method to measure wind speed and wind direction that uses ultrasonic sound waves to precisely measure wind speed and wind direction. This method features much better accuracy, sensitivity and longevity as compared to the traditional “cup and vane” wind sensing method. The sonic anemometers utilized by the department are heated to avoid ice accumulation on the sensors.
<b>Speciation</b>	PM <sub>2.5</sub> speciation monitor. Multiple filter-based samples which yield a breakdown of PM <sub>2.5</sub> composition. Analytes include heavy metals, sulfates, nitrates and various species of carbon. Analysis is conducted by the US EPA national contract lab.
<b>SPM</b>	Special Purpose Monitor. An SPM is defined as any network monitor that the agency has designated as a special purpose monitor in its annual monitoring network plan and in AQS. SPMs do not count when showing compliance with the minimum requirements for the number and siting of monitors of various types.
<b>TEOM</b>	(Tapered Element Oscillating Microbalance) this technology is used by the Thermo-Scientific model 1400ab continuous particulate monitor, which has FEM designation for PM <sub>10</sub> measurement.
<b>TO11</b>	An EPA compendium method for air toxics sampling. Operated every 6 days for 24 hours, the sample is collected into a 2,4-DNPH (dinitrophenylhydrazine) cartridge and is analyzed by Eastern Research Group Laboratory. This procedure has been written specifically for the sampling and analysis of formaldehyde, the most important carbonyl that participates in ozone formation. However, the analysis also yields acetone, propionaldehyde, acetaldehyde, benzaldehyde, methyl ethyl ketone and methyl isobutyl ketone results
<b>TO15</b>	An EPA compendium method for air toxics sampling. Operated every 6 days for 24 hours, the sample is collected into a special prepared stainless-steel canister and is then sent to the laboratory for analysis. The analysis tests for 62 volatile organic compounds.
<b>VSCC</b>	Very Sharp Cut Cyclone. A particulate sizing device for use with PM <sub>2.5</sub> FRM and FEM monitors. The VSCC is commonly used to accomplish the final PM <sub>2.5</sub> size cut in low flow (16.7 lpm), continuous particulate monitors.

## 12.0 Public Comment Period

This network review is available for public comment beginning on May 16, 2024. Comments can be made by e-mail and conventional mail until the close of business on June 14, 2024. All comments received as well as ACHD responses were included in the final version submitted to EPA Region III.

Submit comments by e-mail → [David.Good@AlleghenyCounty.US](mailto:David.Good@AlleghenyCounty.US)

Submit comments by conventional mail → **David D. Good**  
**836 Fulton Street**  
**Pittsburgh, PA 15233**

### 12.1 Allegheny County Health Department Notification

The Allegheny County Health Department notified the public on May 16, 2024, to inform the public of the annual network plan comment period. The notice provides a web link to the draft annual network plan and explains how to submit written comments during the comment period.

## Appendix A: Special Study Projects

### A1: Introduction

ACHD frequently conducts investigations and studies using techniques that produce quantifiable results by methods that may not be classified by the USEPA as approved reference or equivalent methods. Often these investigations originate as responses to citizen concerns or complaints. This section briefly describes special studies that are currently ongoing or have been discontinued within the past year. Data from these studies is not submitted to the AQS database, however much of it is available for review on the ACHD webpage or through a right to know request ([Open Records page](#)).

### A2: Air Toxics Sampling

#### A2.1 Lawrenceville National Air Toxics Trends Station (NATTS)

The National Air Toxics Trends Station (NATTS) program was developed by the EPA to fulfill the need for long-term hazardous air pollutants (HAP) monitoring data of consistent quality. The Lawrenceville NCORE site was selected by the EPA for inclusion into the NATTS program and began operations in August of 2020. The NATTS monitoring is year-round on a 1 in 6-day sampling frequency. NATTS sampling includes:

- **Volatile Organic Compounds** using SUMMA canister sampling via EPA Compendium Method TO-15.
- **Carbonyls** using DNPH cartridge sampling via EPA Compendium Method TO-11A.
- **Polycyclic Aromatic Hydrocarbons** using glass cartridge PUF sampling via EPA Compendium Method TO-13A.
- **PM<sub>10</sub> Metals** using a HI-VOL PM<sub>10</sub> sampler and quartz fiber filters via EPA Compendium Method IO-3.5.

#### A2.2 Charcoal Tube Sampling

Charcoal tube sampling is used by ACHD to measure ambient concentrations of targeted VOCs. 24-hour average samples are collected at Liberty every three days. Sampling is performed using sampling pumps calibrated to 1 liter per minute. Each tube is exposed for 24 hours, from midnight to midnight. The exposed sorbent tubes are sent to the Allegheny County Medical Examiner's Laboratory for analysis by a GC/FID method for benzene, ethyl benzene, toluene, and xylenes (BTEX). Data is available upon request.

### **A2.3 Hydrogen Sulfide**

Hydrogen Sulfide is an odorous compound that has a very low odor threshold concentration. Expectedly, numerous ongoing community odor complaints are common near industries that release hydrogen sulfide. Traditionally, ACHD has measured H<sub>2</sub>S at monitoring sites impacted by the metallurgical coking industry. Hydrogen sulfide is routinely and continuously measured at the Liberty and North Braddock air monitoring sites. Recent hourly hydrogen sulfide data is available on the Air Quality Program's portion of the ACHD website and historic data is available to the public upon request. The Department references ambient H<sub>2</sub>S standards as listed in the Pennsylvania Code, Title 25, Chapter 131.3 (24-hour average not to exceed 0.005 ppm, 1-hour average not to exceed 0.1 ppm). Additional hydrogen sulfide surveillance is performed using portable hydrogen sulfide analyzers in and around the Mon Valley.

### **A3: Settled Particulate**

Total settled particulate, also commonly referred to as dust fall, is collected and quantified in various locations in Allegheny County using ASTM method D 1793, which yields monthly average concentrations. This simple method is employed in response to complaints of heavy dust deposits in communities. Currently two collectors are maintained at Braddock and Lawrenceville. The Department references settled particulate standards as listed in the Pennsylvania Code, Title 25, Chapter 131.3 (12-month average not to exceed 0.8 mg/cm<sup>2</sup>/month, 30-day average not to exceed 1.5 mg/cm<sup>2</sup>/month). Data is available upon request.