COUNTY OF ALLEGHENY

SARA INNAMORATO
COUNTY EXECUTIVE

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

Air Monitoring Network Plan for Calendar Year 2024

January 31, 2024

ALLEGHENY COUNTY HEALTH DEPARTMENT
542 FOURTH AVENUE • PITTSBURGH, PA 15219
PHONE (412) 687-ACHD (2243) • FAX (412) 578-8325
WWW.ALLEGHENYCOUNTY.US/HEALTHDEPARTMENT

PHAB
Advancing public health performance

Contents

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

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:

- Site move of Avalon to the Avalon Elementary School
- Station (roof) reconfiguration at Liberty site
- New continuous $PM_{2.5}$ and PM_{10} monitors at Liberty site
- Addition of Aerosol Chemical Speciation Monitor (ACSM) at Lawrenceville site
- Addition of (continuous) $PM_{2.5}$ metals monitor (Xact) at Lawrenceville site
- Addition of aethalometer (black carbon) monitor at Lawrenceville site
- Addition of continuous scanning mobility particle sizer (SMPS) at Lawrenceville site
- Addition of True NO_2 monitoring at Parkway East site
- Method code changes to all continuous $PM_{2.5}$ monitors

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

- Addition of continuous $PM_{2.5}$ monitoring at South Fayette and Harrison sites
- Addition of meteorology (wind speed & direction) sensors at Avalon site
- Addition of hydrogen sulfide monitoring at Clairton site
- Addition of sulfur dioxide monitoring at Clairton site
- Addition of (special study) True NO_2 monitoring at Liberty site
- Addition of ceilometer to Mon Valley
- Move of Lawrenceville monitoring station (NCore, PAMS, NATTS, IMPROVE, ASCENT, and CSN) to the Chateau Neighborhood as the Air Quality Program is moving.

PLAN APPROVAL

The air monitoring network plan for calendar year 2024 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

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 2024 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 $PM_{2.5}$ 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_3) 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 $PM_{2.5}$ 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_2 monitors as near-road, area-wide, or vulnerable and susceptible population monitors.
11. The identification of any $PM_{2.5}$ 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

2.1.1 Aerosol Chemical Speciation Monitoring (ACSM) at Lawrenceville Site

This monitor is part of the Atmospheric Science and Chemistry Measurement Network (ASCENT) collaboration between Carnegie Mellon University and ACHD. ASCENT establishes a "mid-scale research infrastructure" project funded through the National Science Foundation (NSF) for comprehensive, high time-resolution, long-term characterization of aerosol chemical composition and physical properties, that will be supported by existing atmospheric composition monitoring networks. The ACSM measures organics, sulfate, nitrate, ammonium, and chloride.

2.1.2 Continuous $PM_{2.5}$ Metals Monitoring (Xact) at Lawrenceville Site

This monitor is part of the Atmospheric Science and Chemistry Measurement Network (ASCENT) collaboration between Carnegie Mellon University and ACHD. The Xact measures trace metals such as Antimony (Sb), Arsenic (As), Barium (Ba), Cadmium (Cd), Calcium (Ca), Chromium (Cr), Cobalt (Co), Copper (Cu), Iron (Fe), Lead (Pb), Mercury (Hg), Manganese (Mn), Nickel (Ni), Selenium (Se), Silver (Ag), Strontium (Sn), Titanium (Ti), Thallium (Tl), Vanadium (V), Zinc (Zn), etc.

2.1.3 Aethalometer at Lawrenceville Site

This monitor is part of the Atmospheric Science and Chemistry Measurement Network (ASCENT) collaboration between Carnegie Mellon University and ACHD. The monitor measures black carbon.

2.1.4 Scanning Mobility Particle Sizer (SMPS) at Lawrenceville Site

This monitor is part of the Atmospheric Science and Chemistry Measurement Network (ASCENT) collaboration between Carnegie Mellon University and ACHD. The monitor measures particle number size distribution and concentration.

2.1.5 True NO_2 Monitoring at Parkway East Site

ACHD made a method change in December of 2022 from chemiluminescence to cavity attenuated phase-shift spectroscopy (CAPS) for True NO_2 surveillance at the Parkway East site.

2.1.6 American Rescue Plan Direct Award

On July 7, 2021, EPA announced that it will make $50 million in American Rescue Plan (ARP) funding available to improve ambient air quality monitoring for communities across the United States. After careful review of Allegheny County's air monitoring network and

the numerous Environmental Justice Communities it serves, the Department was awarded $289K by the EPA to purchase new equipment for continuous monitoring of $PM_{2.5}$ and other criteria pollutants. The approved equipment and locations are listed in Table 3 below. All equipment except for the Teledyne N500 true NO_2 was received by Q2 of 2023.

Table 3 American Rescue Plan Equipment

AQS Number	Description of Equipment	Location	Purpose	Environmental Justice Community (Y/N?)
420030067	Teledyne T640	South Fayette	Continuous $PM_{2.5}$	N
420033007	Teledyne T640	Clairton	Continuous $PM_{2.5}$	Y
420031008	Teledyne T640x	Harrison	Continuous $PM_{2.5}$	Y
420031301	Teledyne T640x	North Braddock	Continuous $PM_{2.5}$	Y
420030008	Teledyne T700U	Lawrenceville	Gas Calibration	Y
420031376	Teledyne T700U	Parkway East	Gas Calibration	Y
420031301	Teledyne T700U	North Braddock	Gas Calibration	Y
420031376	Teledyne N500	Parkway East	NO_2	Y
420031301	Teledyne N100	North Braddock	SO_2	Y
420033007	Teledyne N100	Clairton	SO_2	Y
420030008	Teledyne N100	Lawrenceville	SO_2	Y
420031301	Teledyne N300	North Braddock	CO	Y
420030008	Teledyne N300	Lawrenceville	CO	Y
420031376	Teledyne N300	Parkway East	CO	Y

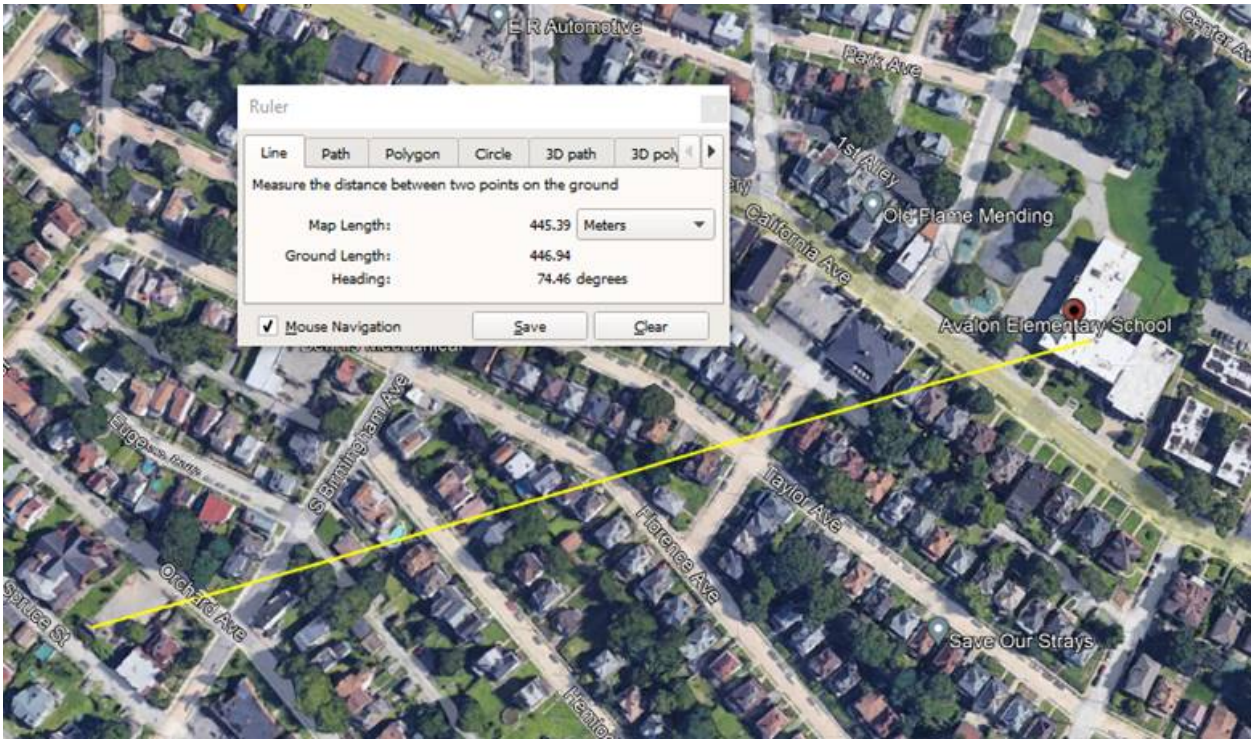
2.2 Monitoring Reductions

None.

2.3 Monitoring Relocations/Modifications

2.3.1 Site move of Avalon to the Avalon Elementary School

The Avalon monitoring station was moved from 520 Orchard Avenue, Pittsburgh PA 15202 to the Avalon Elementary School at 721 California Avenue, Pittsburgh, PA 15202 on June 30th, 2023. The new location is located less than 450 meters from the old location (as seen below). The move was necessitated due to the aging infrastructure at the old location. The new location will allow for a meteorology station (wind speed & direction) to be reinstalled, as the old site no longer met the minimum structural requirements to safely operate. ACHD plans to install the meteorology station in late 2023 or early 2024.



2.3.2 Station (roof) reconfiguration at Liberty Site

As noted in the last few annual network plans, the Liberty roof reconfiguration was performed in August of 2023. This required the use of a crane and took several days to complete. Careful planning minimized station data loss. The new location is easier to access and allows for better networking of all instruments to (eventually) one data logger.

2.3.3 $PM_{2.5}$, PM_{10} and PM_{COARSE} Monitoring Method Changes

A new Teledyne T640X was installed at the Liberty site on August 24th, 2023. This replaces the existing continuous $PM_{2.5}$ and PM_{10} monitors and allows for the addition of PM_{COARSE} monitoring. With this method change all continuous $PM_{2.5}$ monitors in the ACHD monitoring network now use either the Teledyne T640 ($PM_{2.5}$) or T640X ($PM_{2.5}$, PM_{10}, and PM_{COARSE}) 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.

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 2024.

3.1 Proposed Monitoring Additions

3.1.1 Continuous $PM_{2.5}$ Monitors at South Fayette and Harrison

ACHD plans to proceed with the installation of continuous $PM_{2.5}$ FEM monitors at all remaining $PM_{2.5}$ SLAMS sites that do not currently have continuous $PM_{2.5}$ coverage. A shortage of available staff, along with technical issues, delayed the completion of the project but 2 of 4 sites are now completed. The $PM_{2.5}$ FEM monitors will be candidates for designation as either a primary or collocated SLAMS $PM_{2.5}$ monitor in the network.

3.1.2 Hydrogen Sulfide Monitoring at Clairton Site

ACHD will expand continuous hydrogen sulfide (H_2S) surveillance by adding an H_2S analyzer at the Clairton monitoring site after necessary upgrades and repairs are made to the station.

3.1.3 True NO_2 Monitoring at Liberty Site as Part of a Special Study

ACHD will perform NO_2 surveillance at the Liberty site for up to 1 year to determine if a permanent NO_2 monitor is warranted there. For this special study, ACHD will use its one (1) spare True NO_2 monitor as a "working spare". While this analyzer was ordered in November 2022, it has not yet been received by ACHD. If one of the three sites that house permanent True NO_2 monitors malfunction, that site will get priority for NO_2 coverage and the working spare unit at the Liberty site will be redeployed there to minimize data loss.

3.1.4 Ceilometer in the Mon Valley

ACHD will install a ceilometer in the Mon Valley to measure the mixing layer height of the atmosphere. The ceilometer will be collocated with existing surface meteorology equipment.

3.1.5 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_2 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 has to 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 is relocating from the Clack Health Center Complex t to the Chateau neighborhood in the fall of 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 (Figures 3.4.1 and 3.4.2 below), which received EPA Region 3 approval.

Urban NCore stations are to be generally located at urban or neighborhood scale to provide representative concentrations of exposure expected throughout the metropolitan area. The location must meet all siting and scale criteria of 40 CFR Part 58 and be approved by the EPA Regional Administrator. Through the information contained in this document, the Department is formally requesting that approval.

The site in Chateau would meet all EPA siting and ACHD program needs. Additionally, the location of an advanced air monitoring station in Pittsburgh's Chateau neighborhood would greatly benefit many underserved communities in that area. The Chateau neighborhood is located adjacent to several Environmental Justice communities (as identified by PA DEP Environmental Justice Areas Viewer). Its location there would help further inform the ACHD and other agencies/organizations of some environmental stressors and their effects on health outcomes (see Figure 3.4.3).

Historic air quality surveillance has already occurred in this area. Sampling for Ozone (performed by the PA DEP) occurred from 1997 through 2013 at the Carnegie Science Center, which is less than 700m southeast of the proposed site (see Figure 3.4.4). Additionally, historic particulate matter sampling (performed by ACHD) occurred from 1989 through 2020 at the Manchester Elementary School approximately 700m north of the proposed site.

Figure 3.4.1 Chateau Site Location

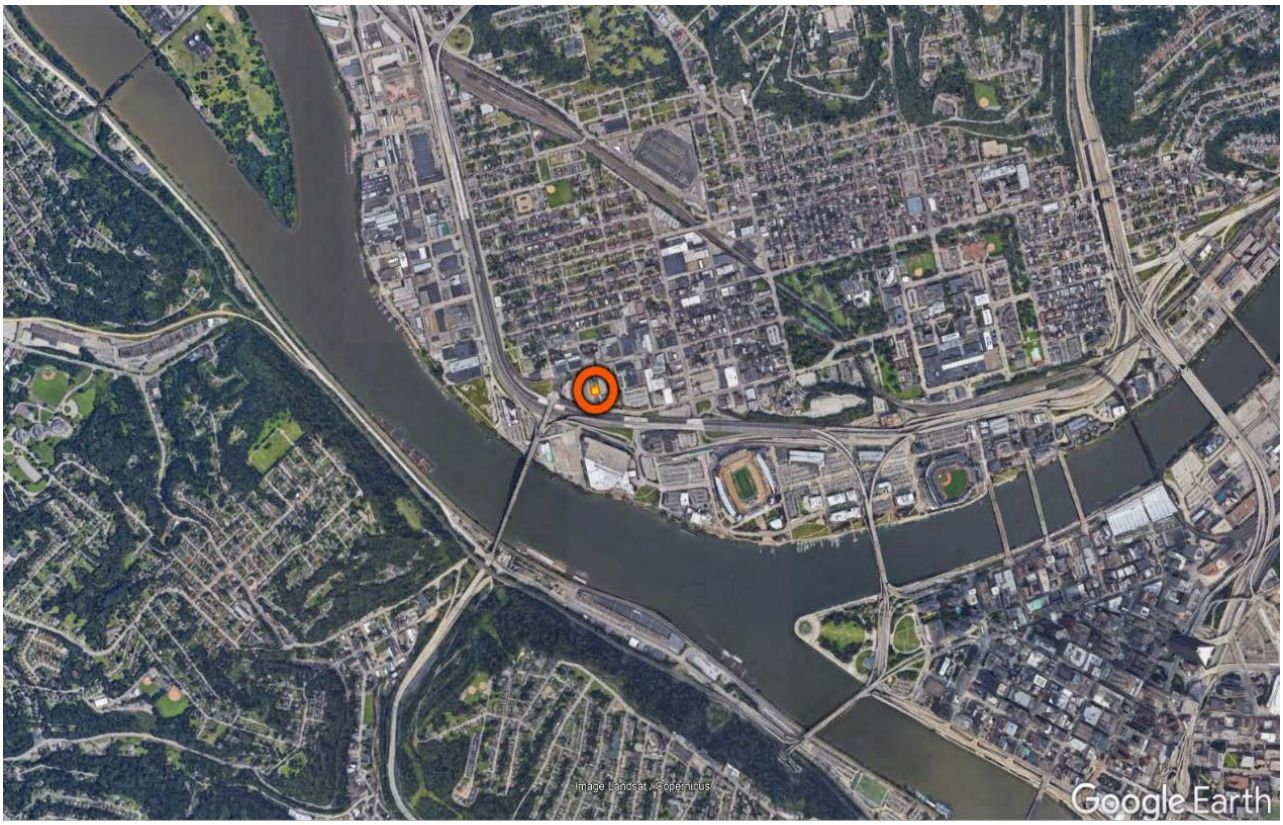


Figure 3.4.2 Chateau Site Building

Figure 3.4.3 Chateau Site Environmental Justice Areas

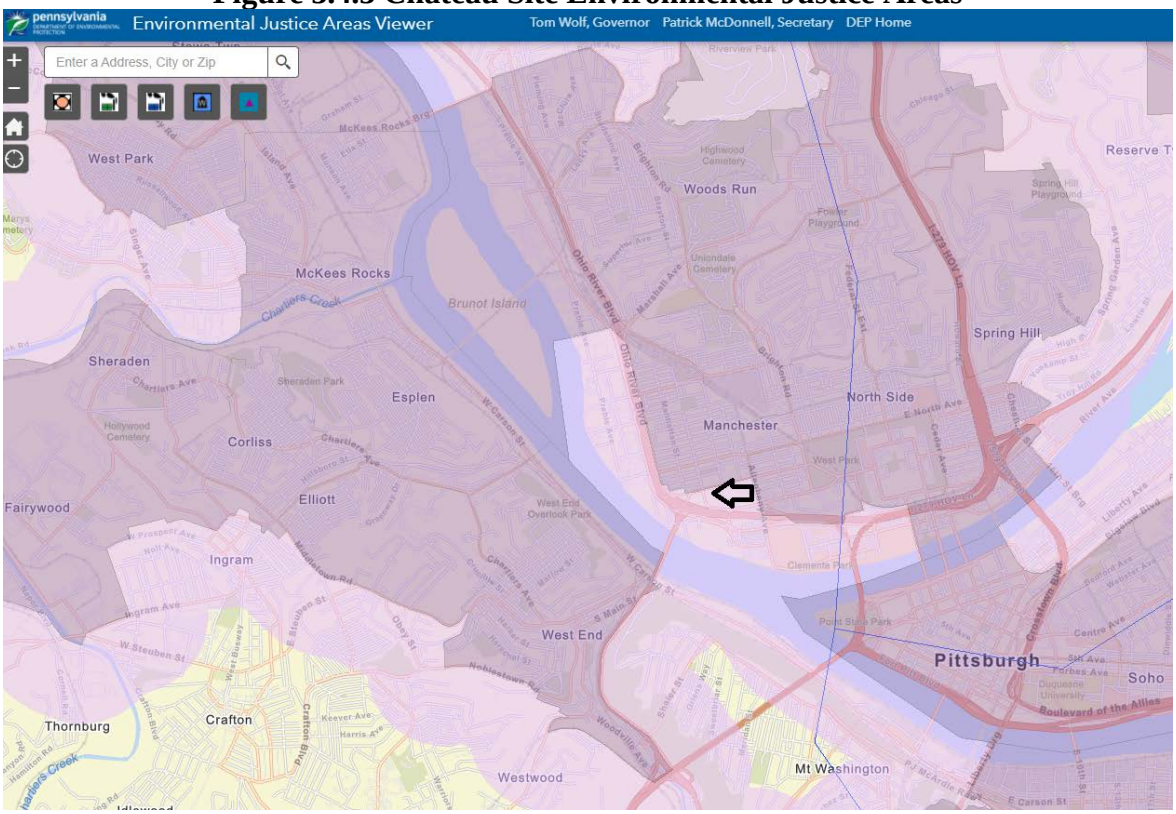
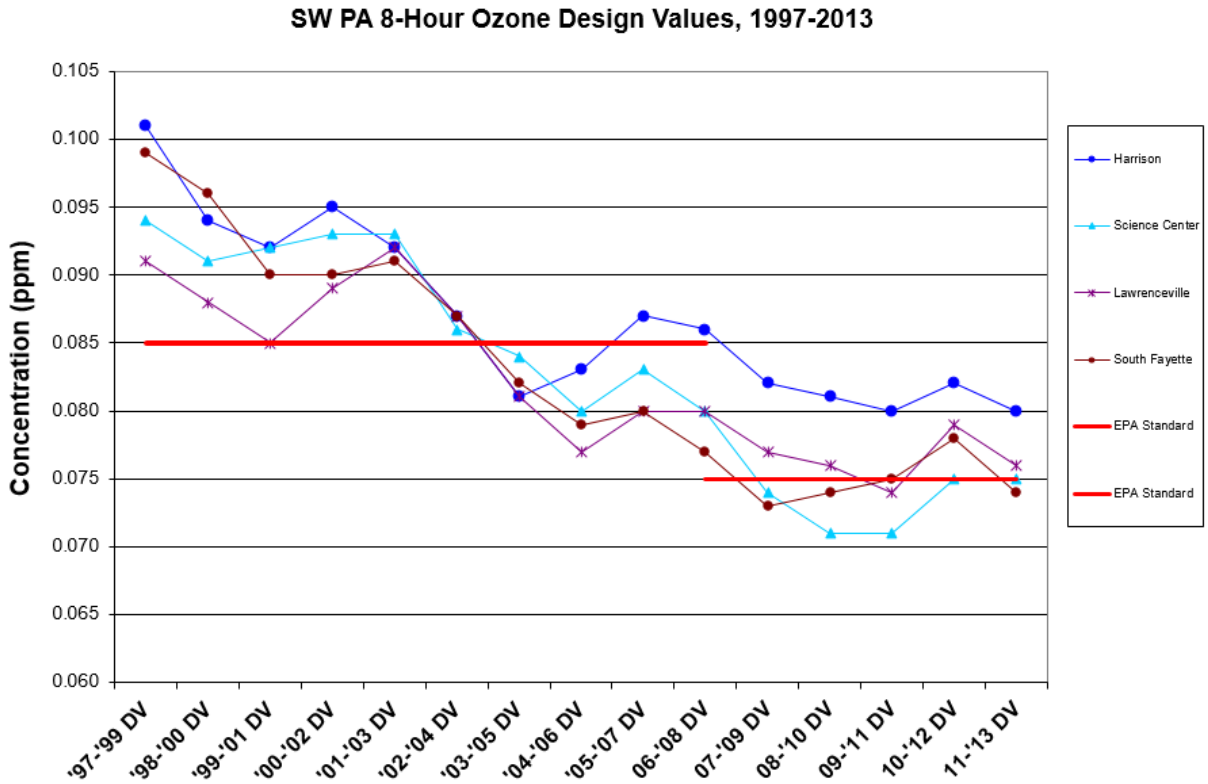


Figure 3.4.4 Historic Ozone Surveillance



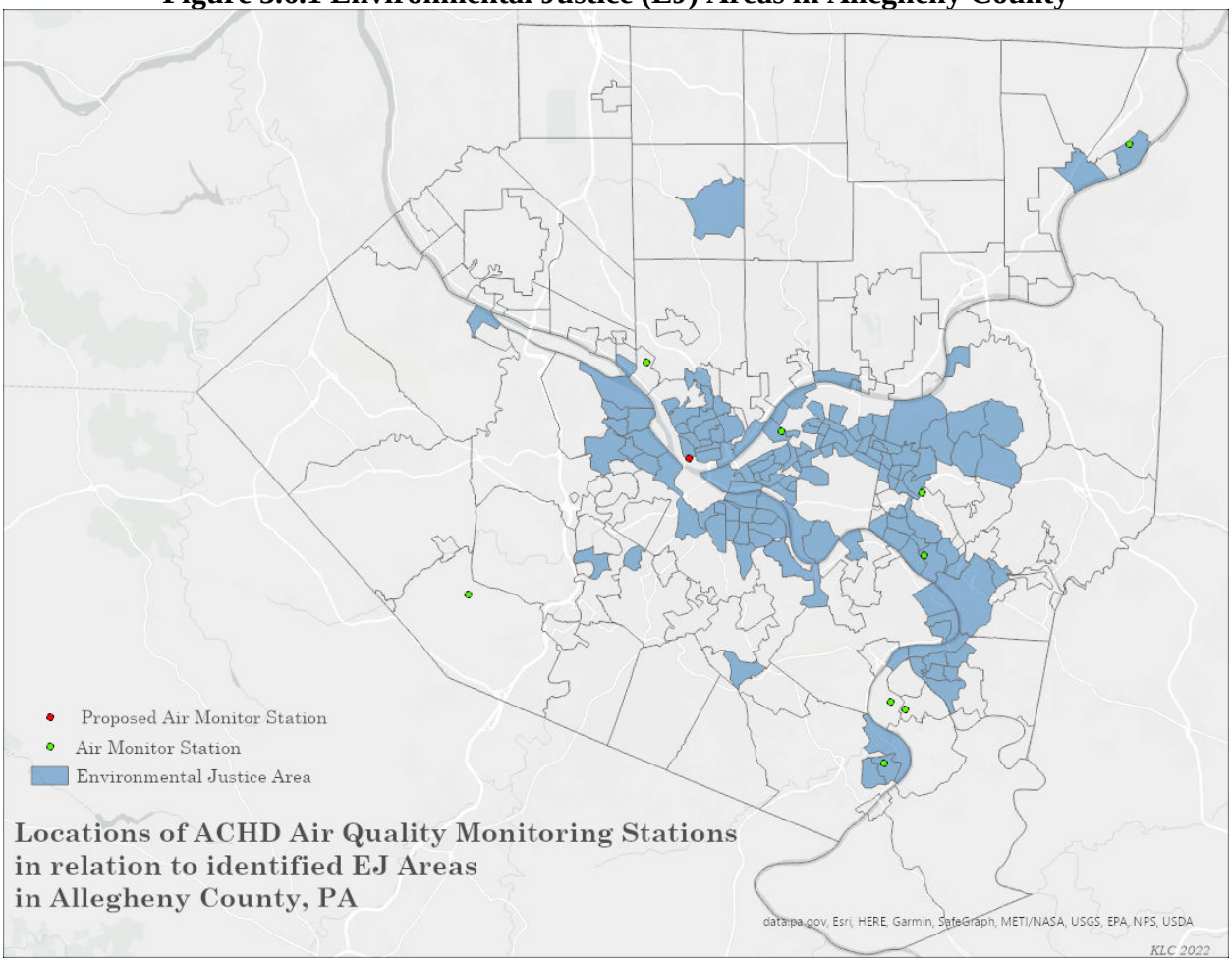
3.4.2 New Pittsburgh Monitoring Station

As noted in EPA and community feedback on the NCore site move, ACHD is proposing to operate a new station within the city of Pittsburgh for $PM_{2.5}$ and ozone surveillance that will be lost with the closing of the Lawrenceville site. While a new permanent site location has not yet been chosen, ACHD anticipates it being within 2 miles of the existing Lawrenceville station. The goal of the new station is to capture a similar airshed to what is being monitored now at the NCore site for long-term comparison to the new Chateau NCore site. In the meantime, ACHD will continue to (temporarily) operate a continuous PM2.5 and ozone monitor at the existing Lawrenceville NCore location after the station move to Chateau. It is unclear how long this temporary measure will be able to be sustained, but ACHD anticipates having the proposed new site fully operational before permanently decommissioning $PM_{2.5}$ and ozone surveillance at the existing Lawrenceville NCore site.

3.5 Environmental Justice Areas & Community Monitoring

Except for the South Fayette monitoring station, all ACHD air monitoring stations are located either inside of or directly adjacent to communities that are identified as Environmental Justice Areas by the PA DEP Environmental Justice Areas Viewer (see Figure 3.6.1 below). As per the approved 2022 Annual Network Plan, the Department is currently field-testing low-cost sensors for potential use as supplemental monitoring in Environmental Justice Communities throughout Allegheny County. After thorough field testing of Purple Air PA-II-FLEX sensors, the Department will provide the monitored area with correction factors to properly calibrate citizen-owned sensors to the closest continuous (regulatory) $PM_{2.5}$ monitor.

Figure 3.6.1 Environmental Justice (EJ) Areas in Allegheny County



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/Health-Department/Programs/Air-Quality/Air-Quality.aspx

Figure 4 Air Monitoring Network Map

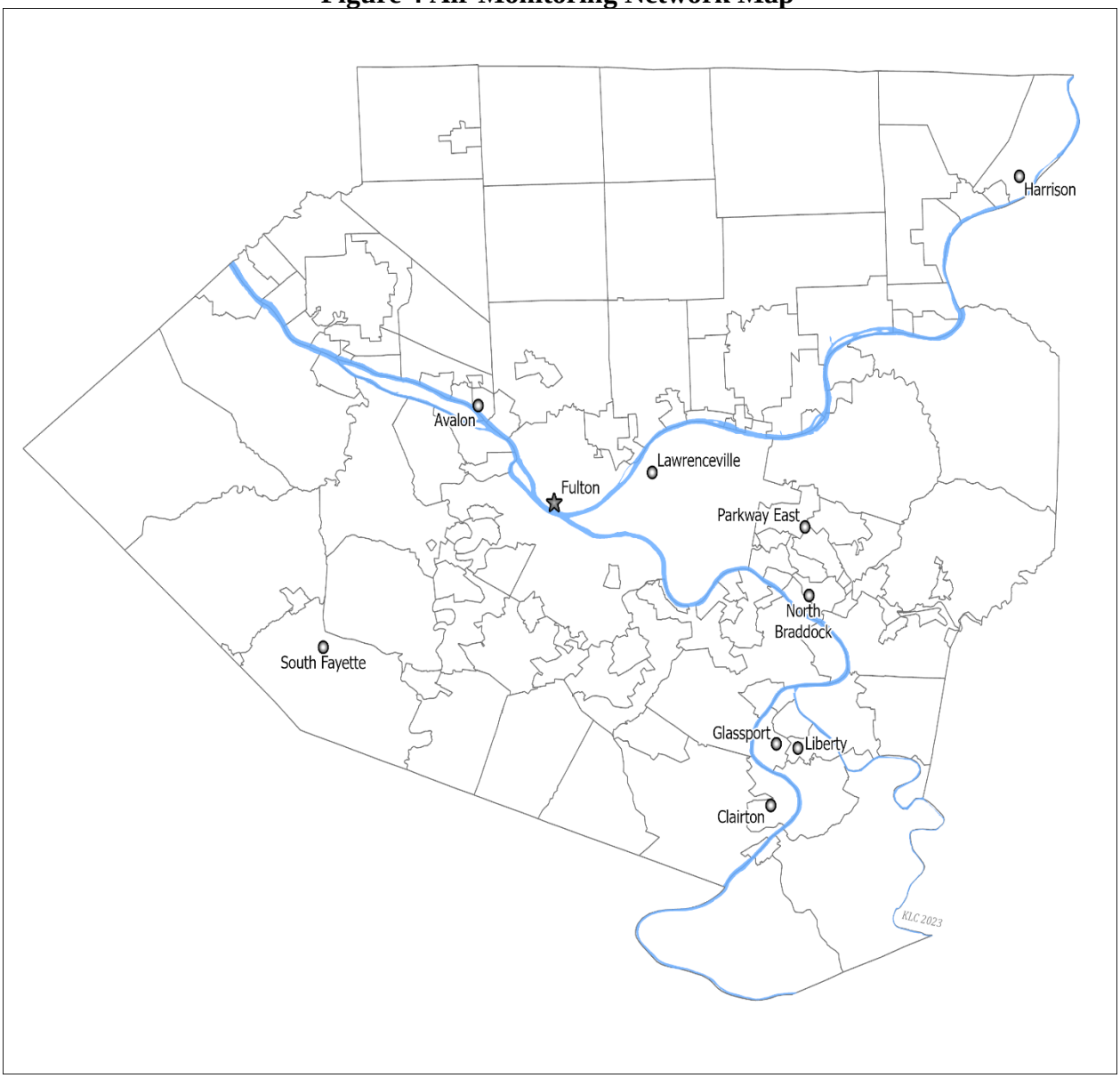


Table 4 Air Monitoring Network Summary

	SO_2	CO	NO_2	NO_y	O_3	PM_{10}	$PM_{2.5}$	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
Chateau (new proposed NCORE site on Fulton St)	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			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 12th day
TO15 = SUMMA VOC; **TO11** = Carbonyl VOC; **Aeth** = Aethalometer: 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.

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_2, CO, NO_y, NO_2, O_3, $PM_{2.5}$, and $PM_{10-2.5}$ (aka PM_{coarse}, Coarse PM, or PM_c). NO_y and PM_c 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_3 and true NO_2. 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_{10} mass sites, $PM_{2.5}$ mass sites, chemically-speciated $PM_{2.5}$ sites, and O_3 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_3) 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_2 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_2 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_2 monitoring requirements in urban areas. Applicable requirements are as follows;

- One near road NO_2 monitoring site is required in an MSA with a population $\geq$ 500,000 and < 2,500,000 people. Near-road NO_2 monitoring characterizes the maximum expected hourly NO_2 concentration due to mobile source emissions on major roadways.
- One area wide NO_2 monitor in MSA's with a population > 1 million. The Harrison NO_2 monitor has been in operation at the current location since 02/12/2014.
- One true NO_2 monitor is required at a PAMS site. The Lawrenceville NCORE site performs measurements of true NO_2 and NOy 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_2 monitors in each MSA is proportional to the product of the total amount of SO_2 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_2 emissions and 2019 census estimate for the CBSA, the PWEI is calculated at 94,101. SO_2 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_2 monitor is required within that CBSA. ACHD exceeds this minimum requirement with a total of three SO_2 monitors and an upcoming fourth monitor to be installed at the Clairton site.
- Each NCORE station must operate an SO_2 monitor. ACHD included an SO_2 monitor as part of the initial configuration of the Lawrenceville NCORE site.

Figure 8.4 Sulfur Dioxide Monitoring Map

* Clairton SO_2 monitor to be installed in 2023-2024

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/eiinformation.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_{10} Design Criteria

The number of required PM_{10} 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_{10} concentrations well below 80% of the PM_{10} NAAQS. Table D-4 indicates that 2 to 4 sites must monitor for PM_{10}. ACHD meets this requirement with 4 sites that monitor PM_{10}.

Figure 8.6 PM_{10} Monitoring Map

8.7 Fine Particulate Matter ($PM_{2.5}$) Design Criteria

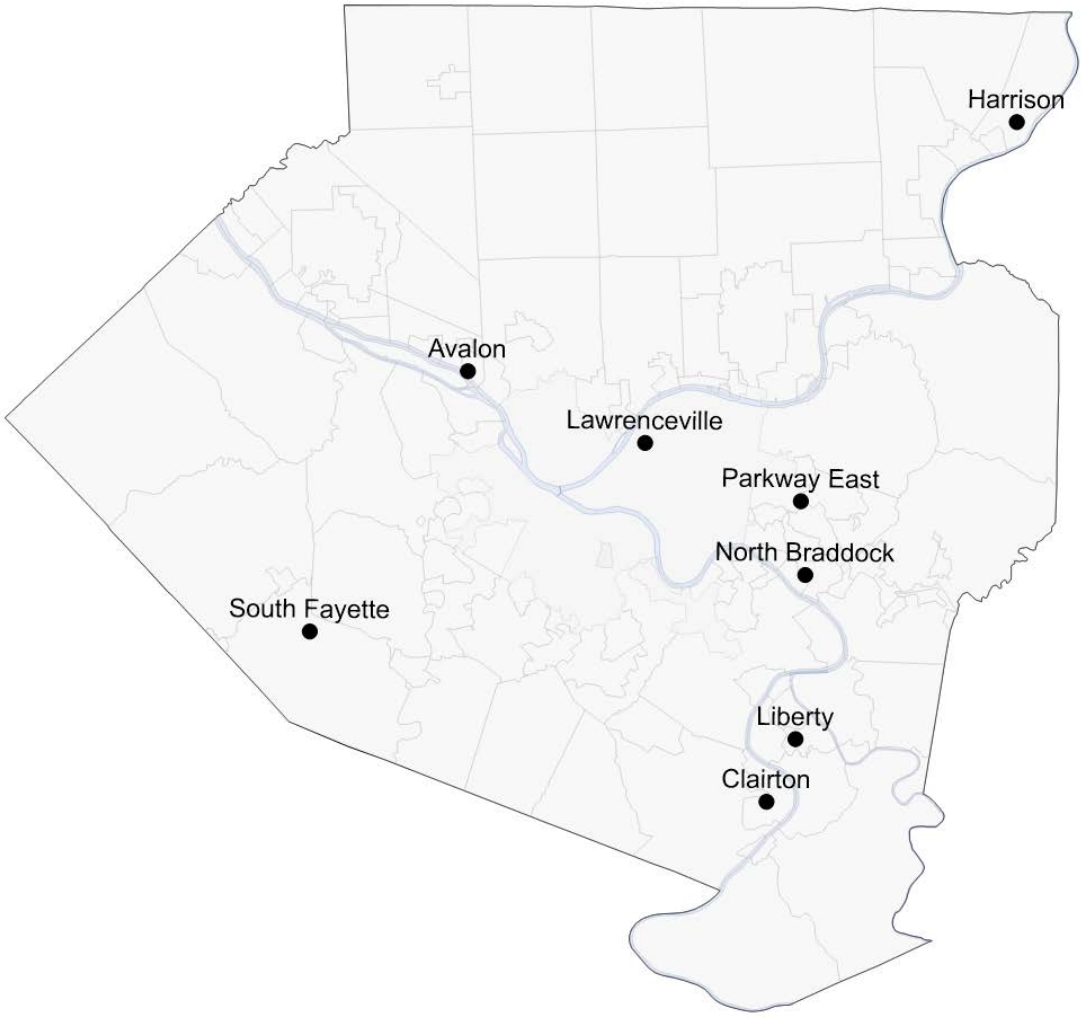
The number of required $PM_{2.5}$ monitors in each MSA is determined by the MSA population and design value, as specified in Table D-5 of 40CFR58, Appendix D.

- Pittsburgh MSA $PM_{2.5}$ 24 hour and annual design values are > 85% of the NAAQS, requiring a minimum of 3 $PM_{2.5}$ sites. ACHD exceeds this requirement with 8 sites that monitor $PM_{2.5}$.
- Regarding FRM $PM_{2.5}$ samplers (seven sites), a minimum of 15%, or at least one, of the $PM_{2.5}$ 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 $PM_{2.5}$ FEM monitor must also operate a collocated $PM_{2.5}$ FRM sampler (40CFR58, Appendix A). This requirement is met at the Parkway East site. Parkway East, Clairton, and Avalon have the same $PM_{2.5}$ FEM model.
- At least one half of the minimum number of sites per MSA must operate continuous $PM_{2.5}$ monitors, requiring ACHD to operate 2 continuous $PM_{2.5}$ monitors. ACHD operates 6 continuous $PM_{2.5}$ 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 $PM_{2.5}$ monitor must be at a near road site. ACHD conducts continuous $PM_{2.5}$ 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 $PM_{2.5}$ Speciation Trends Network (STN). ACHD continues to conduct $PM_{2.5}$ speciation at the Liberty and Lawrenceville sites.
- Each NCORE site must monitor $PM_{2.5}$. ACHD satisfies this requirement at the Lawrenceville NCORE site using filter-based monitoring as well as continuous $PM_{2.5}$ 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 $PM_{2.5}$ site must monitor for regional background and at least one $PM_{2.5}$ site must monitor for regional transport. Table 8 shows the $PM_{2.5}$ network site scales and objectives.

Table 8 $PM_{2.5}$ 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 $PM_{2.5}$ Monitoring Map



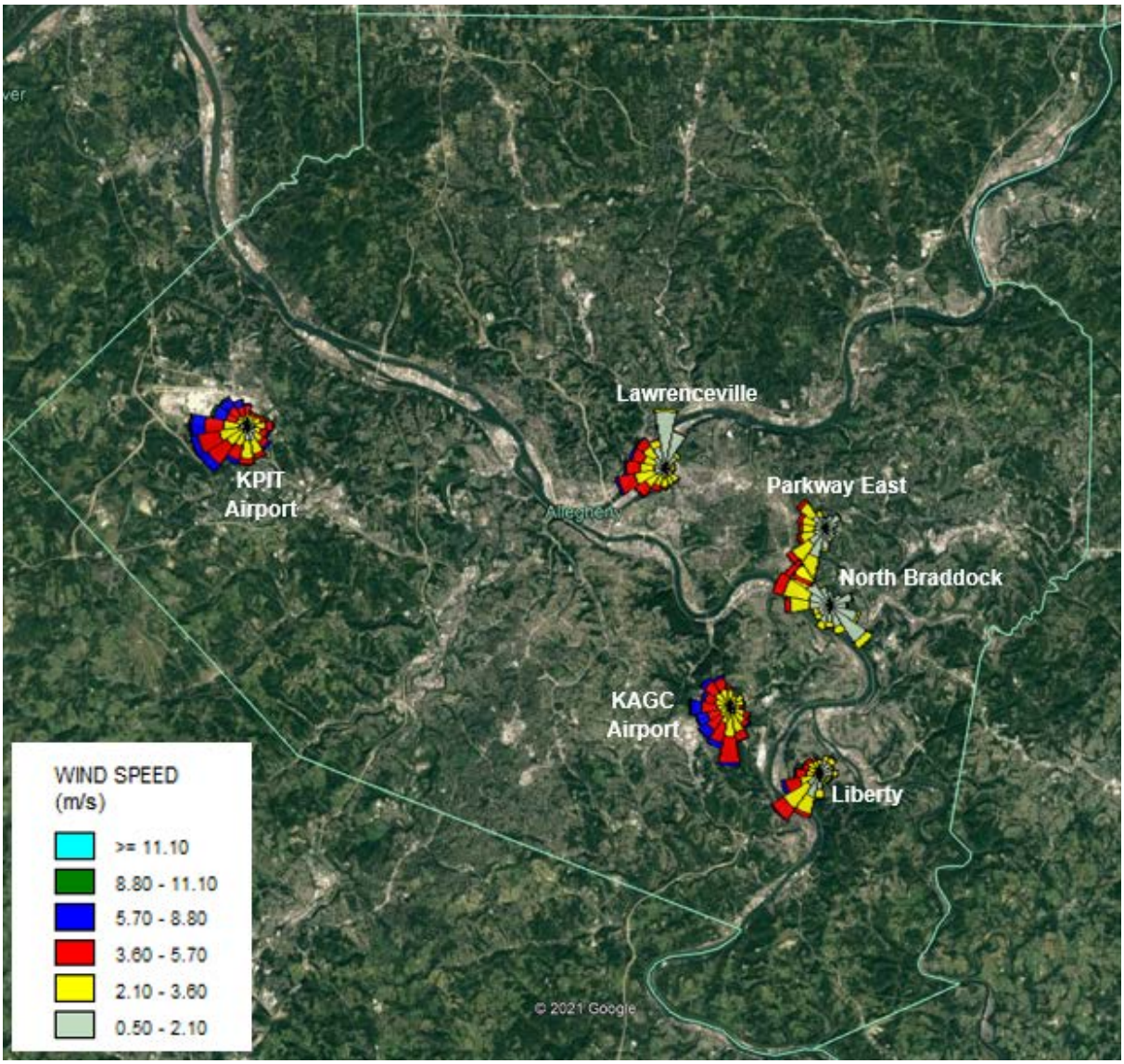
8.8 Coarse Particulate Matter Design Criteria

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.

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 2018-2022)



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
$PM_{2.5}$ FRM	R&P	2025	88101	145	Low Volume Sampler (filter) VSCC, very sharp cut cyclone
$PM_{2.5}$ FEM	Thermo	5014i	88101	183	Beta Attenuation Instrumental
	Teledyne API	T640	88101	636	Broadband Spectroscopy
	Teledyne API	T640X	88101	638	Broadband Spectroscopy
PM_{10} FRM	Tisch	TE-6070	81102	141	High Volume Sampler (filter)
PM_{10} FEM	R&P	1400	81102	79	Gravimetric Instrumental (TEOM)
	Teledyne API	T640X	81102	639	Beta Attenuation Instrumental
$PM_{2.5}$ 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 39th 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 $PM_{2.5}$ 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 $PM_{2.5}$ site that is used to determine compliance with national standards.		

Sensor Type	**Ozone**	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	**$PM_{10-2.5}$ (coarse)**	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	**$PM_{2.5}$** FRM	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	**$PM_{2.5}$** FEM	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	**PM_{10}** FEM	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	**$PM_{2.5}$ Speciation**	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	**Carbon Monoxide**	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	**Sulfur Dioxide**	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	**Total Reactive Oxides of Nitrogen (NO_y)**	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	**Nitrogen Dioxide (True NO_2)**	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	**PM_{10} Metals (See Section A2.1)**	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	**Volatile Organic Compounds (See Section A2.1)**	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	**Carbonyls**	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	**Polycyclic Aromatic Hydrocarbons**	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	**Volatile Organic Compounds**	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	**Aerosol Chemical Speciation Monitor (ACSM)**	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	**Xact $PM_{2.5}$ Metals**	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	**Scanning Mobility Particle Sizer (SMPS)**	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	**Aethalometer**	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)
39th Street (20 m)	Unavailable
Penn Avenue (86 m)	7,785 (PennDot 2015)
Butler Street (343 m)	7,371 (PennDot 2014)

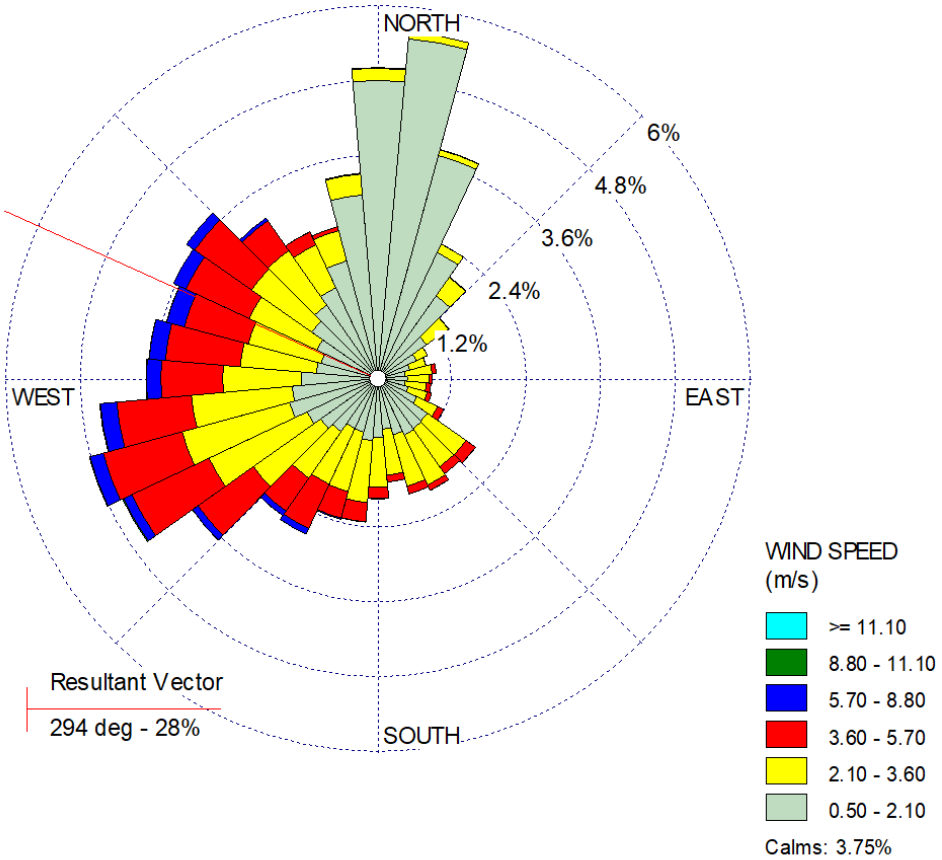
Direction	Predominant Land Use (Industry, Residential, Commercial or Agriculture)
North	Residential
East	Residential
South	Residential
West	Residential

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 (2018-2022)



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	**40.323761**	**Longitude (W)** Particulate and BTEX	**-79.868151**
Latitude (N) SO2, H2S	**40.324759**	**Longitude (W)** SO2, H2S	**-79.867030**
Comments	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 $PM_{2.5}$, PM_{10}, and sulfur dioxide. Significant ambient levels of benzene have also been measured and documented at this site. Liberty is a core $PM_{2.5}$ site that is used to determine compliance with national standards. At the request of US Steel, telemetry devices have been installed on the PM_{10}, $PM_{2.5}$, and SO_2 monitors that transmit continuous readings via radio signals to a location within the US Steel facility. Other transmitters are also in use: Glassport PM_{10} monitor and North Braddock SO_2 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.		

Sensor Type	**$PM_{2.5}$** FRM	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	**$PM_{2.5}$** FRM	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	**$PM_{2.5}$** FEM	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	**PM_{10}** FEM	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	**$PM_{2.5}$ Speciation**	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	**Sulfur Dioxide**	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	**Hydrogen Sulfide**	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	**BTEX / Sorbent Tube** 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)

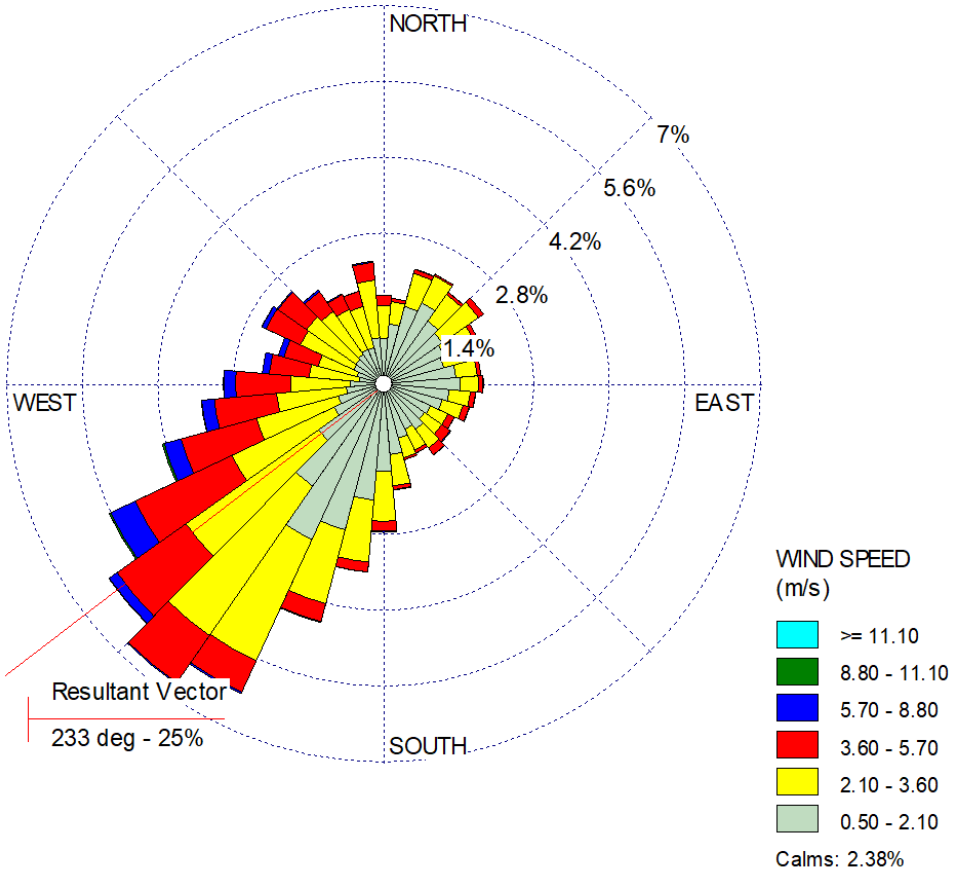
Direction	Predominant Land Use (Industry, Residential, Commercial or Agriculture)
North	Residential
East	Residential
South	Residential
West	Residential

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 (2018-2022)



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_{10} standard of 150 µg/m^3 (October 1997).		

Sensor Type	**PM_{10}** 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

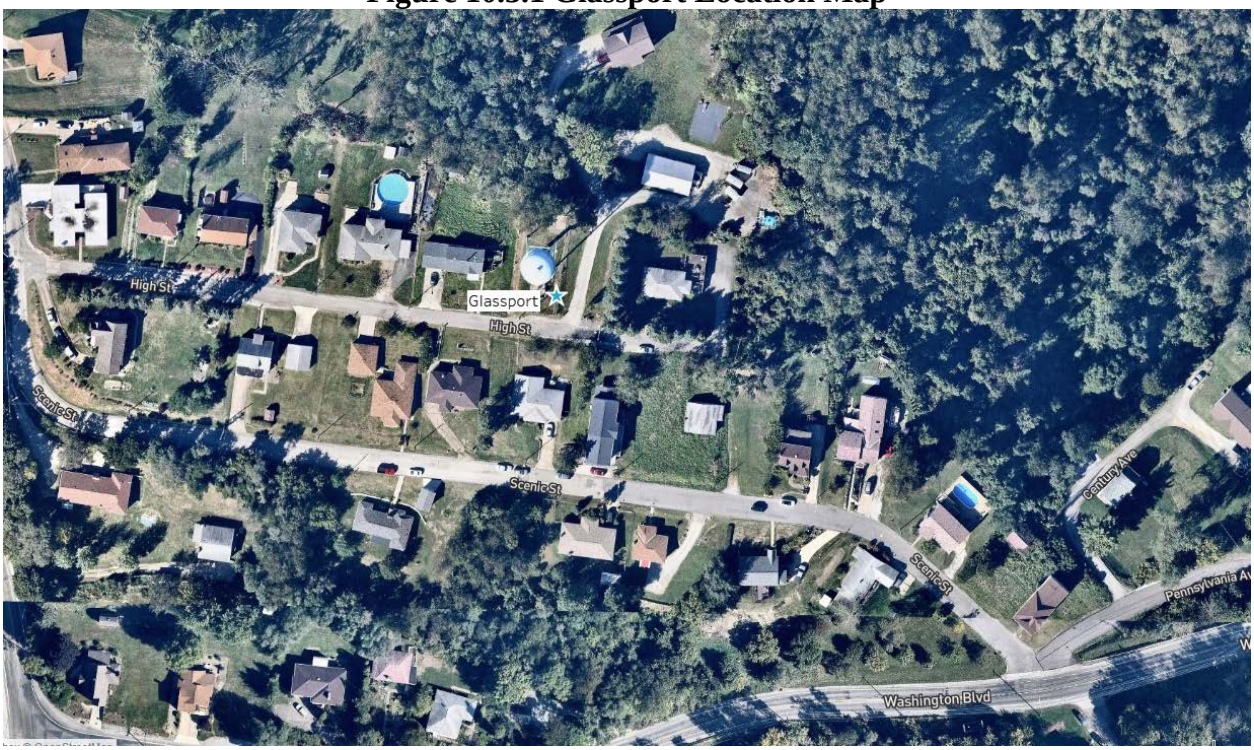
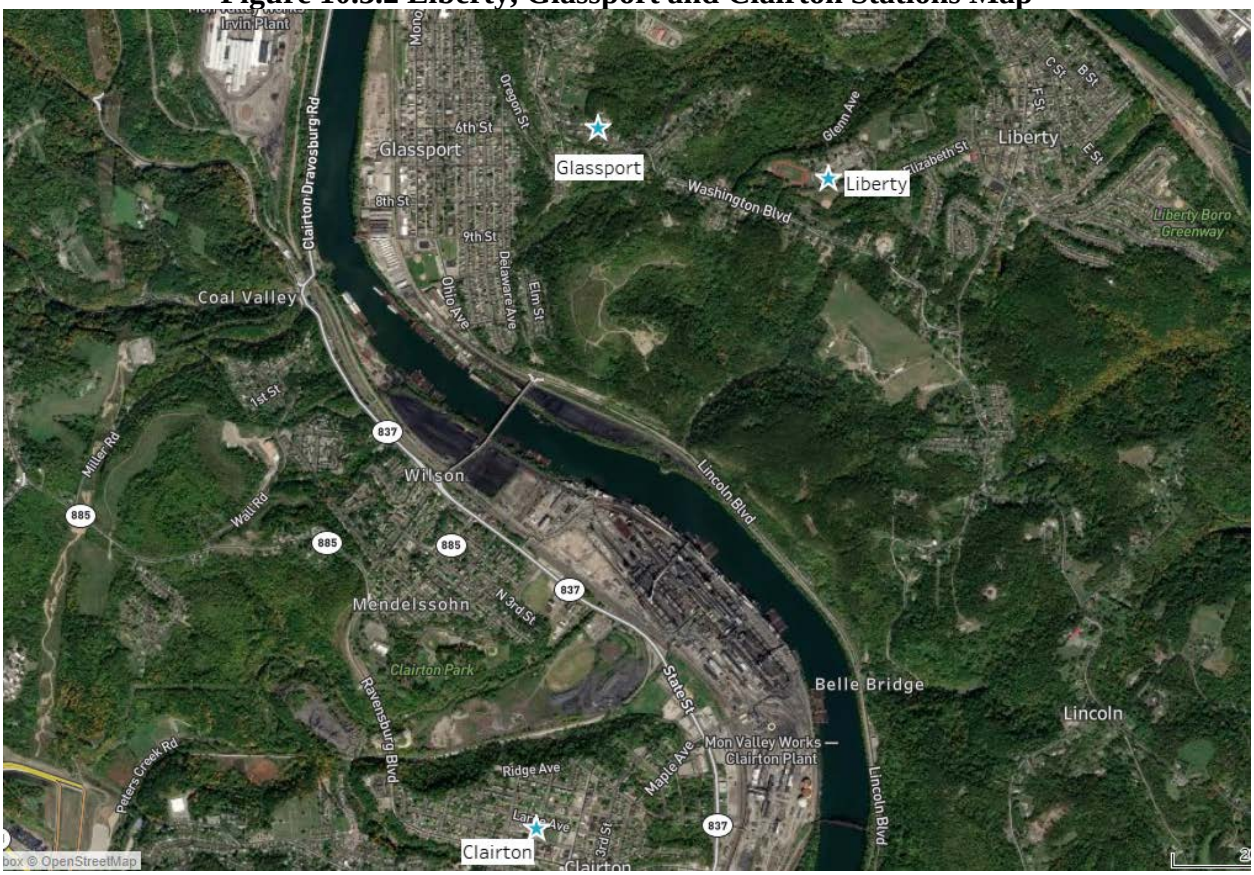


Figure 10.3.2 Liberty, Glassport and Clairton Stations Map



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 $PM_{2.5}$ site that is used to determine compliance with national standards.		

Sensor Type	**$PM_{2.5}$** FRM	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	**$PM_{2.5}$** FEM	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	**PM_{10}** FEM	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	**Sulfur Dioxide**	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	**Carbon Monoxide**	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	**Hydrogen Sulfide**	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

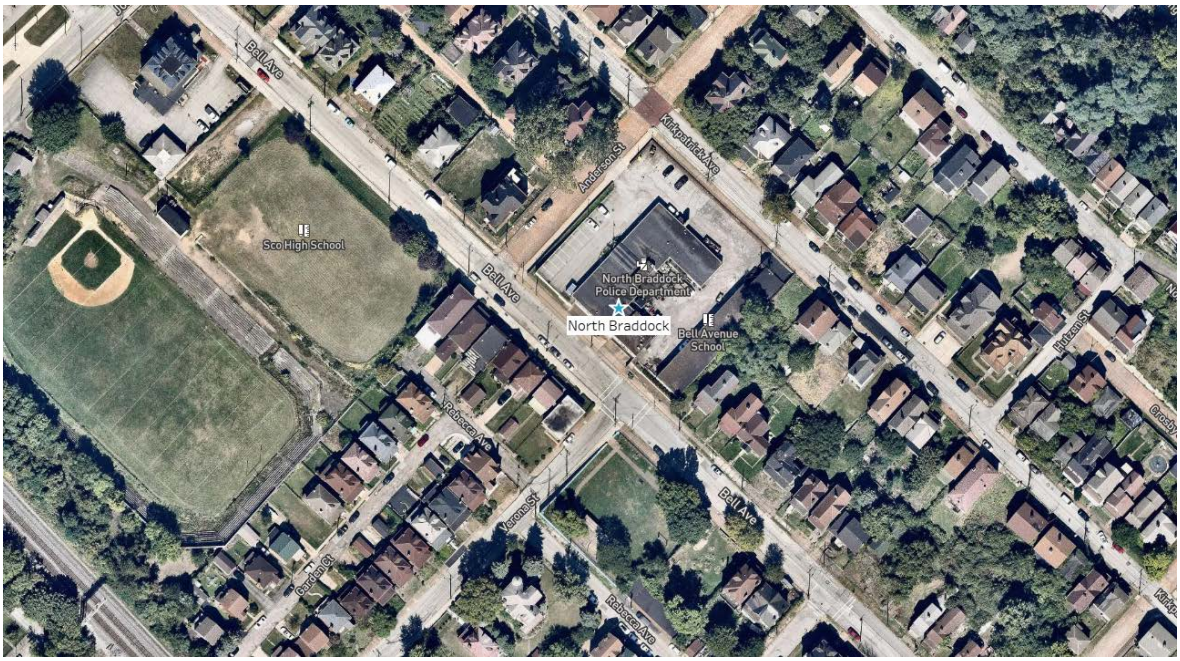
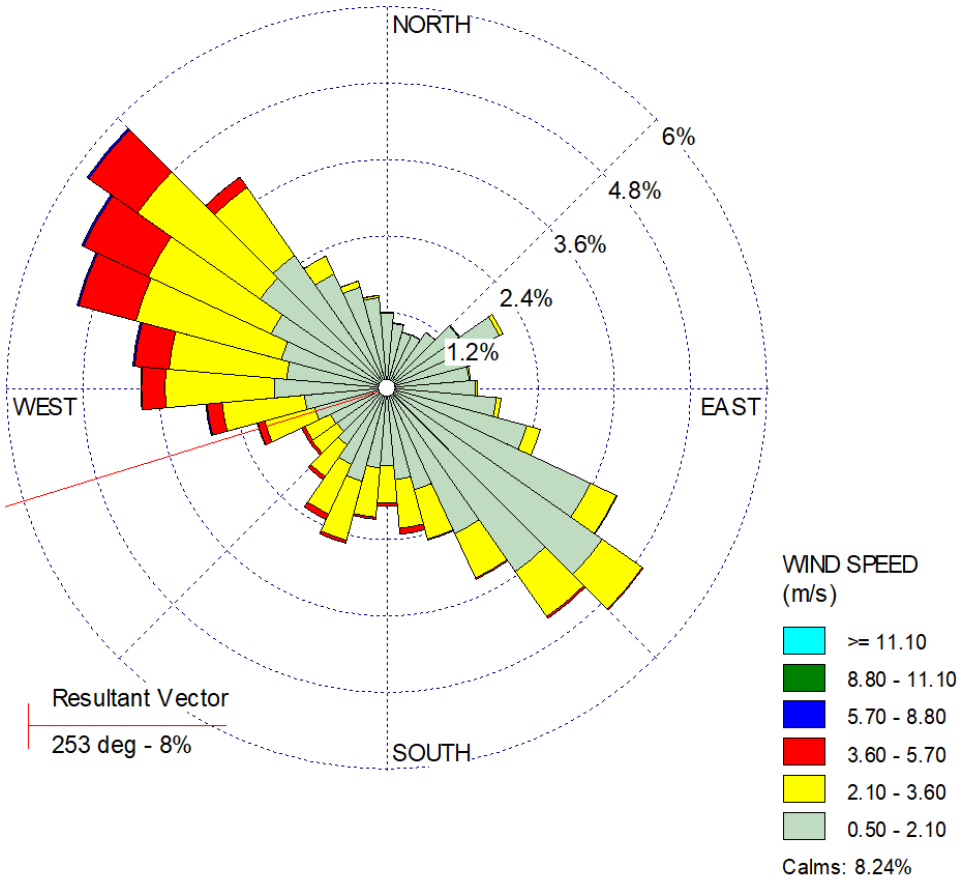


Figure 10.4.2 North Braddock Wind Rose (2018-2022)



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 $PM_{2.5}$ 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_2 concentrations in 2022.		

Sensor Type	**$PM_{2.5}$** FRM	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	**Ozone**	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	**Oxides of Nitrogen + True NO_2**	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

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_3 and $PM_{2.5}$. Located in the western portion of the county, this site monitors pollution levels entering the County on prevailing winds. South Fayette is a core $PM_{2.5}$ site that is used to determine compliance with national standards.		

Sensor Type	**$PM_{2.5}$** FRM	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	**Ozone**	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	**$PM_{2.5}$** FEM	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 PM2.5 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

Figure 10.7 Clairton Location Map

10.8 Avalon

Address	721 California Avenue Avalon, PA 15202		
AQS#	42-003-0002	MSA	Pittsburgh
Latitude (N)	40.499767	Longitude (W)	-80.071337
Comments	This is a population-oriented, suburban site previously impacted by the PM and SO_2 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_2 DV is half the 2010 DV and SO_2 monitoring was removed. Avalon is a core $PM_{2.5}$ site that is used to determine compliance with national standards.		

Sensor Type	**$PM_{2.5}$** FEM	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_2 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_2 are near network maximums.		

Sensor Type	**$PM_{2.5}$** FEM	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	**$PM_{2.5}$** FRM	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	**Oxides of Nitrogen + True NO_2**	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_X monitor that began 9/1/2014)	Appendix E Siting Criteria	Yes

Sensor Type	**Carbon Monoxide (CO)** 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	**Black Carbon Monitor** 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

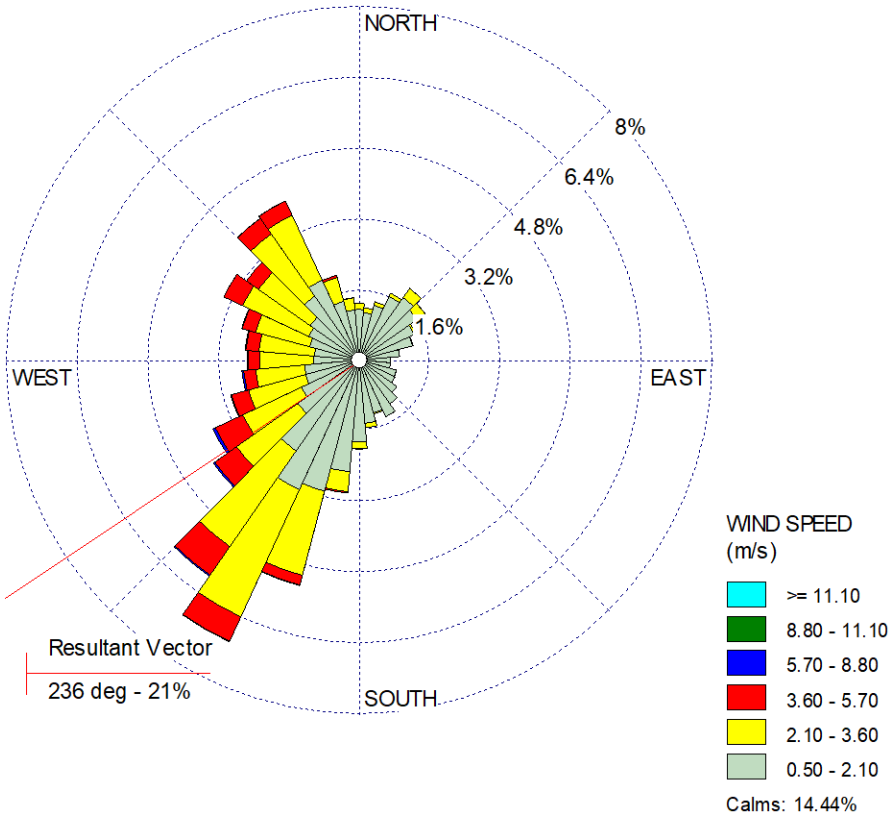
Direction	Obstructions	Height (m)	Distance (m)
North			

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 (2018-2022)



11.0 GLOSSARY OF TERMS AND ABBREVIATIONS

AADT 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.

Aethalometer 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.

BAM Beta Attenuation Monitor. This technology is used in the Thermo Scientific 5014i continuous particulate monitors, which have FEM designation for $PM_{2.5}$ measurement with the addition of a VSCC.

Benzene C_6H_6. A six-carbon aromatic ring known to be a carcinogen. Emitted by mobile and industrial sources in Allegheny County.

CO Carbon Monoxide. Measured using a continuous automated analyzer.

Criteria Pollutants Air pollutants considered harmful to public health and the environment (carbon monoxide, nitrogen dioxide, sulfur dioxide, ozone, lead, particulate matter: PM_{10}, $PM_{2.5}$)

FEM Federal Equivalent Method. Secondary methods approved by the USEPA for measurement of criteria pollutants and determination of compliance with NAAQS.

FRM Federal Reference Method. Primary measurement methods designated by the USEPA for measurement of criteria pollutants and determination of compliance with NAAQS.

Lead (Pb) Lead Monitoring. Laboratory analysis of Total Suspended Particle filters. This analysis is performed according to the federal reference method for lead monitoring.

NAAQS National Ambient Air Quality Standards. These standards apply only to the six criteria pollutants

NATTS National Air Toxics Trends Station. Air monitoring program to assess nationwide air toxics trends. The ACHD Lawrenceville station became a NATTS site in 2020.

NCore National Core Monitoring Network, consisting of multi-pollutant ambient air monitoring sites, and specializing in $PM_{2.5}$ and associated precursor gases.

Near Road Monitoring site designed to measure peak exposure to roadway emissions. Required monitoring parameters are NO_2, CO, and $PM_{2.5}$. Installation of near road monitoring sites were required by revisions to the NO_2 NAAQS during 2010.

NO_x Oxides of nitrogen, including nitric oxide and nitrogen dioxide. Measured using a continuous automated analyzer.

NO_y Total reactive nitrogen. A collective name for oxidized forms of nitrogen in the atmosphere such as nitric oxide (NO), nitrogen dioxide (NO_2), nitric acid (HNO_3), and numerous short lived and reactive organic nitrates (but **not** NH_3). These compounds play important roles in atmospheric ozone and ultra-fine particle formation.

O_3 Ozone. Measured using a continuous automated analyzer.

PAMS	Photochemical Assessment Monitoring Stations
PM_{10}	All suspended particles equal to or smaller than 10 microns.
$PM_{2.5}$	All suspended particles equal to or smaller than 2.5 microns. Frequently referred to as fine particulates.
PM (coarse)	All suspended particulates smaller than10 microns but larger than 2.5 microns, also often referred to as $PM_{10\text{-}2.5}$. EPA has not assigned a NAAQS to this parameter as of the date of this document.
SLAMS	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.
SO_2	Sulfur Dioxide. Measured using a continuous automated analyzer.
Sonic Anemometer	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.
Speciation	$PM_{2.5}$ speciation monitor. Multiple filter-based samples which yield a breakdown of $PM_{2.5}$ composition. Analytes include heavy metals, sulfates, nitrates and various species of carbon. Analysis is conducted by the US EPA national contract lab.
SPM	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.
TEOM	(Tapered Element Oscillating Microbalance) this technology is used by the Thermo-Scientific model 1400ab continuous particulate monitor, which has FEM designation for PM_{10} measurement.
TO11	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
TO15	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.
VSCC	Very Sharp Cut Cyclone. A particulate sizing device for use with $PM_{2.5}$ FRM and FEM monitors. The VSCC is commonly used to accomplish the final $PM_{2.5}$ 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 October 27, 2023. Comments can be made by e-mail and conventional mail until the close of business on November 27, 2023. 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**

Submit comments by conventional mail → **David D. Good**
301 39th Street, Building 7
Pittsburgh, PA 15201

12.1 Allegheny County Health Department Notification

The Allegheny County Health Department notified the public on October 27, 2023, 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.

13.0 Public Comment and Response

13.1 Group Against Smog and Pollution (GASP)

(See the full comment document as received in Appendix B)

1. **ACHD must revise and/or clarify its Environmental Justice area assessments.**

   Response: The Department acknowledges that the PA Department of Environmental Protection has established new Environmental Justice (EJ) designations that took effect on September 16, 2023 while the final 2024 Air Monitoring Network Plan draft was being prepared to go into public comment. Since the monitoring network was evaluated in relation to the prior EJ area designations, the Department will utilize the updated EJ area designations going forward as the monitoring network and overall air quality monitoring in Allegheny County are evaluated.

2. **Protection of public health requires more than timely data updates on a website.**

   Response: This comment is beyond the scope and purpose of this document, as the Department continues to submit real time air quality data to AirNow while also posting those data to the website and dashboard. A more appropriate venue to discuss enhanced air quality communication strategies would be as a topic at an air quality advisory committee or subcommittee meeting.

3. **Projects around hydrogen sulfide and air toxics provide good examples of ACHD's good work, but also examples of projects that appear to occasionally suffer from unnecessary or unfortunate barriers.**

   Response: A major overhaul to the County website took place in 2023 while new air quality dashboards were introduced (including hydrogen sulfide and emissions inventory). While many of the datasets listed (NATTS, PAMS, CSN) are submitted to EPA, the Department will consider this comment as it expands the features and utility of the website to include other sampler data from special study projects.

4. **Air Quality Program communications around the wildfire smoke episodes took a troubling approach to public health on occasion this summer; ACHD should reconsider its stance on use of a rolling 24-hour average PM2.5 value.**

   Response: Please refer to response to comment no. 13.1.2

13.2 Clean Air Council and CREATE Lab (joint comments)

(See the full comment document as received in Appendix B)

1. **The Relocating the Lawrenceville monitoring station to the Chateau Neighborhood would result in the monitoring station no longer capturing the downwind effects of downtown Pittsburgh vehicular traffic emissions.**

   Response: As per Section 3.4.2 of this document, the Department is proposing a new monitoring station that includes $PM_{2.5}$ and ozone surveillance after the NCore station in Lawrenceville is ultimately relocated. This will help ensure that real time air quality is provided and long-term trends for the area can continue to be assessed. Monitoring that is source-oriented to vehicular air emissions occurs at the Parkway East monitoring station.

2. **As a necessary step in protecting public health from dangerous carcinogens, the Department should improve benzene monitoring and add monitoring for benzene soluble organics around the USS Clairton and Irvin facilities.**

   Response: Sampling at the fenceline of a facility is beyond the scope of this document. The Department has conducted community-level air toxics sampling (including benzene) for studies in around the Mon Valley. Additionally, the Department continues to perform air toxics sampling for VOCs (including benzene) at the Liberty air monitoring station. The Department submitted comments that supported the measures proposed (including fenceline monitoring) in the National Emission Standards for Hazardous Air Pollutants for Coke Ovens during the recent proposed rule by EPA in its Residual Risk and Technology Review.

3. **The Department should add a site-specific airborne lead monitor in the vicinity of the Edgar Thomson Steel Works because data from similar facilities indicates that the unmeasured fugitive and intermittent particulate ("UFIP") lead emissions are likely well above the required monitoring threshold.**

   Response: Emissions inventory revisions are beyond the scope this document. PM_{10} metals surveillance was performed at the North Braddock monitoring station between October 2020 and January 2023. The average lead concentration of 15.4 ng/m^3 during the length of the study was similar to lead concentration averages measured during the metals studies around Kopp Glass that took place in 2017 and 2020-2021. The Department will consider additional metals surveillance in the future and has since installed a new dust fall sampler in Braddock, but the emissions reported by the Edgar Thomson Steel Works do not exceed thresholds specified in Appendix D of 40 CFR Part 58 that would require lead surveillance.

4. **The Department should place a VOC monitor at the Avalon site, or another site in the vicinity of Neville Island, due to the concentration of large VOC sources on and near the island.**

Response: As cited in the comment, VOC (specifically, BTEX) surveillance at the Avalon monitoring station was discontinued in 2018 due to low uniform concentrations. Prior to that, additional VOC species were sampled for in the general downwind direction of and in proximity to Neville Island. The Department will evaluate other approaches to VOC surveillance on or around Neville Island but does not plan to restart VOC sampling at the Avalon monitoring station at this time.

5. **Air Monitoring Network Plans are due to the Environmental Protection Agency on the 1st of July of the prior year, and have a mandated 30-day public comment period preceding that date, yet the Department did not post the proposed 2024 AMNP for public comment until October 27, 2023...**

   Response: The Department acknowledges that the Annual Air Monitoring Network Plan was put out for public comment behind schedule in 2023, as numerous factors contributed to the delay – including some major revisions to the network that were not able to be completed until the summer of 2023. It should also be noted that the volume of network changes performed and proposed since the 2020 Annual Air Monitoring Network Plan was approved is significantly higher than the era preceding it, which represents an ambitious goal to update, modernize, and optimize certain aspects of the air monitoring network. Going forward, the Department will take that into consideration and devote greater resources to getting the Network Plan out for public comment on schedule.

6. **The Commenters support the implementation of a working spare system, and encourage the Department to expand it to utilize old monitors that may be in storage after discontinuation.**

   Response: When practical, and as resources permit, the Department will consider the usage of working spare units for further air quality surveillance such as special studies or enhanced quality assurance measures.

13.3 Birmingham Uptown Group

(See the full comment document as received in Appendix B)

1. **We are requesting an air quality monitoring and weather monitoring station to be installed within or as close to the Lindy Paving Second Ave. hot mix asphalt plant and Birmingham Bridge location as possible within the City of Pittsburgh. Recently, the group took that summary of data collection, observation and concern and submitted it to the EPA as part of a grant proposal for help with acquisition of additional monitoring and air sampling resources under GASP's umbrella. The EPA found the information compelling enough that our concerns were met with a grant award and we will have access to Sensit SPods and Purple Air monitors for installation and use over three years in the near future. A new ACHD monitor at or near this Second Ave. asphalt plant location as well as a weather station would further help bolster this investment by the EPA and further and more continuously monitor for pollution and mitigate potential health impact.**

   Response: The Department is open to evaluating data that are collected from the equipment obtained from the grant award to determine if further air quality surveillance is warranted in the form of a special study.

13.4 Other Public Comments (several commenters)

(See the full comment document as received in Appendix B)

1. **The 2024 Draft Air Monitoring Network Plan presented by the Allegheny County Health Department (ACHD) would lead to numerous gaps in the air monitoring network. These gaps would come from failing to pick up on important pollution sources and key pollutants. First, by moving a monitor from Lawrenceville to Chateau, the county would lose out on tracking downwind air quality effects from downtown Pittsburgh traffic. Second, the network plan should also enhance benzene monitoring around both the US Steel (USS) Clairton and Irvin facilities because recent data demonstrates that local ambient benzene concentrations are dangerously high and indicate that USS may be underreporting emissions from these facilities. Third, benzene soluble organic compounds, which are over 250 times as carcinogenic as benzene and known to be emitted by Clairton Coke Works, need to be monitored. Fourth, ACHD should add lead monitoring near the USS Edgar Thomson Works due to measured exceedances. Fifth, ACHD should place a VOC monitor near Neville Island (potentially at Avalon monitoring site) to measure the demonstrated VOC exceedances in the area. Lastly, I would like to add that presenting this plan in October means that ACHD is extremely late for the Environmental Protection Agency's July 1st deadline, and I am concerned that ACHD may not have sufficient time to properly consider and implement necessary changes to the air monitoring network.**

   Response: Please refer to responses to comment nos. 13.2.1, 13.2.2, 13.2.3, 13.2.4, and 13.2.5.

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_{10} Metals** using a HI-VOL PM_{10} 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_2S 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_2S 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 four collectors are maintained at Natrona Heights (x2), Collier Township and Braddock. 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^2/month, 30-day average not to exceed 1.5 mg/cm^2/month). Data is available upon request.

A4: Mon Valley Air Toxics and Odors Study

The ACHD Mon Valley area air toxics and odors study included a comprehensive assessment of volatile organic compounds (VOCs), PM_{10} metals and hydrogen sulfide (H_2S) in the Mon Valley. The goals of this ambient air study are: (1) to determine the spatial patterns and trends of select air toxics emissions and odors (e.g. hydrogen sulfide) in the Mon Valley, and (2) to characterize community air toxic concentrations to assist in analysis of health impacts and development of risk reduction strategies. The ambient air monitoring employed consists of a combination of active and passive sampling methodologies to measure species of known concern, and potentially identify others whose impact has not previously been known or quantified. The 16 monitoring locations in the Mon Valley include 4 established air monitoring stations and 12 additional locations for VOC sampling. Metals surveillance began in October of 2020 while VOC and (portable) H_2S sampling began in June of 2021. The full concurrent sampling took place through early January 2023.

Appendix B: Full Public Comments

COMMENTS OF THE GROUP AGAINST SMOG AND POLLUTION REGARDING THE ALLEGHENY COUNTY HEALTH DEPARTMENT DRAFT AIR MONITORING NETWORK PLAN FOR CALENDAR YEAR 2024

The Allegheny County Health Department ("Department" or "ACHD") Air Quality Program ("Program" or "AQP") published its Air Monitoring Network Plan for Calendar Year 2024 ("Draft Plan" or "2024 Plan") for public comment on October 27, 2023.[1] The Group Against Smog and Pollution ("GASP") has reviewed the Draft Plan and provides the following comments.

I. ACHD must revise and/or clarify its Environmental Justice area assessments.

The Draft Plan makes several assertions concerning air quality monitoring sites being in, outside of, or near to Environmental Justice ("EJ") communities.[2] Both the highlighted areas in Figure 3.6.1 and the notation "Tom Wolf, Governor" in Figure 3.4.3 strongly suggest the Draft Plan is using the older Pennsylvania Department of Environmental Protection ("PA DEP") EJ designations established in 2015.[3] The PA DEP has since established new EJ designations[4] that took effect September 16, 2023.[5] The 2024 Plan must use the most current designations or explain why use of the older designation is appropriate.

---

[1] Air Quality Program, Allegheny Cty. Health Dep't, *Air Monitoring Network Plan for Calendar Year 2024* (Oct. 27, 2023).

[2] *2024 Plan*, at § 2.1.6, Tbl. 3, § 3.4.1, Fig. 3.4.3, § 3.5, Fig. 3.6.1, and § 10.7.

[3] Pa. Dep't of Envtl. Prot., *Pennsylvania Environmental Justice Mapping and Screening Tool* (Dec. 1, 2023), https://gis.dep.pa.gov/PennEnviroScreen/ (hide the "PennEnviroScreen Score" layer, enable both the Environmental Justice Areas "2015" layer and "EJ Areas 2015" sub-layer); *see also* Exhibit "A" (attached).

[4] *See* https://gis.dep.pa.gov/PennEnviroScreen/ (hide the "PennEnviroScreen Score" layer, enable both the Environmental Justice Areas "2023" layer and "EJ Areas 2023" sub-layer); *see also* Exhibit "B" (attached).

[5] Pa. Dep't of Envtl. Prot., *How does DEP identify Environmental Justice (EJ) areas?*, https://www.dep.pa.gov/PublicParticipation/OfficeofEnvironmentalJustice/Pages/PA-Environmental-Justice-Areas.aspx (Dec. 1, 2023).

Additionally, the underlying PennEnviroScreen scores are available for areas outside of what the PA DEP designated as EJ communities.[6] Importantly, the PA DEP EnviroScreen tool allows users to examine the specific factors contributing to those scores.[7] As ACHD incorporates and addresses environmental justice principles in its reports, procedures, and policies, the Department and AQP should consider the EJ designations as well as EJ air quality factors that burden communities irrespective of the binary, in-or-out EJ determination.

II. ACHD must improve air quality data communications and outreach.

All monitoring network plans must "include a statement of whether the operation of each monitor meets the requirements of appendices A, B, C, D, and E of [40 C.F.R. Part 58], where applicable."[8] Appendix D states that one objective "ambient air monitoring networks must be designed to meet" is to "[p]rovide air pollution data to the general public in a timely manner."[9] ACHD's 2024 Plan asserts that the Department "provides air pollution data to the public in a timely manner."[10] GASP has taken issue with the way ACHD provides that data to the public in comments on ACHD Annual Air Monitoring Network Plans for the calendar years 2020,[11]

---

6 *See* https://gis.dep.pa.gov/PennEnviroScreen/ (enable both the "PennEnviroScreen Score" layer and "PennEnviroScreen 2023" sub-layer); *see also* Exhibit "C" (attached).

7 *See* https://gis.dep.pa.gov/PennEnviroScreen/ (hide the "PennEnviroScreen Score" layer, enable both the "Environmental Justice Indicators" layer and applicable sub-layer of interest); *see also* Exhibit "D" (attached) (showing the "Environmental Justice Indicators \ Environmental Exposures \ Toxic Air Emissions" layer).

8 40 C.F.R. § 58.10(a)(1).

9 40 C.F.R. Part 58, App. D § 1.1(a)

10 *2024 Plan,* at § 8.0.

11 Air Quality Program, Allegheny Cty. Health Dep't, *2020 Air Monitoring Network Plan*, App. B (July 1, 2019), https://www.alleghenycounty.us/Health-Department/Resources/Data-and-Reporting/Air-Quality-Reports/Air-Quality-Reports-and-Studies.aspx (expand "Archived Reports").

2022,[12] and 2023.[13] There have been a few distinct improvements over the years but several issues remain.

A. Protection of public health requires more than timely data updates on a website.

A declared purpose of the federal Clean Air Act ("CAA") is "to protect and enhance the quality of the Nation's air resources so as to promote the public health and welfare and the productive capacity of its population."[14] One of a few declared policies in Pennsylvania's Air Pollution Control Act is "to protect the air resources of the Commonwealth to the degree necessary for the . . . protection of public health, safety and well-being of its citizens."[15] Allegheny County's Air Pollution Control Regulations list "[p]rotection of the health, safety and welfare of all its citizens" as a declared policy and purpose for the regulations. Taken together, there can be no mistake that ACHD, as the agency charged with implementing these laws and regulations, must place a high value on the public's health and the public's well-being.

Certainly, limiting air pollution emissions is a significant, critical, and resource-intensive aspect of fulfilling this mission, but public outreach and education have been part of the approach for decades. The 1977 Clean Air Act amendments required the creation of "an air quality monitoring system throughout the United States which . . . utilizes uniform air quality monitoring criteria and methodology and measures such air quality according to a uniform air

---

[12] Air Quality Program, Allegheny Cty. Health Dep't, *Air Monitoring Network Plan for Calendar Year 2022*, App. B (Jan. 11, 2022), https://www.alleghenycounty.us/Health-Department/Resources/Data-and-Reporting/Air-Quality-Reports/Air-Quality-Reports-and-Studies.aspx (expand "Archived Reports").

[13] Air Quality Program, Allegheny Cty. Health Dep't, *Air Monitoring Network Plan for Calendar Year 2023*, App. C (Dec. 21, 2022), https://www.alleghenycounty.us/Health-Department/Resources/Data-and-Reporting/Air-Quality-Reports/Air-Quality-Reports-and-Studies.aspx (expand "Archived Reports").

[14] 42 U.S.C. § 7401(b)(1).

[15] 35 P.S. § 4002(a).

quality index."[16] An additional requirement for this system was "periodic analysis and reporting to the general public by the [EPA] Administrator with respect to air quality based upon such data."[17] The 1977 CAA Amendments also included a requirement for State Implementation Plans to:

> "contain measures which will be effective to notify the public during any calendar [year] on a regular basis of instances or areas in which any national primary ambient air quality standard is exceeded or was exceeded during any portion of the preceding calendar year to advise the public of the health hazards associated with such pollution, and to enhance public awareness of the measures which can be taken to prevent such standards from being exceeded and the ways in which the public can participate in regulatory and other efforts to improve air quality."[18]

Critically, as the modern Air Quality Index ("AQI") regulations were first being adopted, scientific research had advanced such that it was providing the EPA with an "expanded understanding . . . as to the nature of the relationships between exposure to ambient concentrations of [ozone and particulate matter] and the health effects likely to be experienced, especially near the level of the [National Ambient Air Quality Standards ("NAAQS")].[19] Specifically, the EPA "recognized that for these pollutants there may be no thresholds below which health effects are not likely to occur, but rather a continuum of effects potentially extending down to background levels."[20] The impact of these observations would be that "exposures to ambient concentrations just below the numerical level of the standards may result

---

16 42 U.S.C.§ 7619(a)(1); *see also* Clean Air Act Amendments of 1977, Pub. L. No. 95-95 § 309, 91 Stat. 685, 781 (Aug. 7, 1977).

17 42 U.S.C.§ 7619(a)(4).

18 42 U.S.C. § 7427; *see also* Clean Air Act Amendments of 1977, Pub. L. No. 95-95 § 124, 91 Stat. 685, 725 (Aug. 7, 1977).

19 Air Quality Index Reporting, 64 Fed. Reg. 42,530, 42,532 (Aug. 4, 1999).

20 *Id*.

in exposures of concern for the most sensitive individuals . . . [while] exposures to ambient concentrations just above the numerical level of the standards are not likely to result in exposures of concern for most healthy people."[21] To borrow EPA's phrase, even where NAAQS levels protect public health with an adequate margin of safety, exposure to air meeting the NAAQS cannot be thought of as absolutely "risk-free."[22]

Given this background, it should not be surprising the EPA's vision for the AQI was not to simply parrot NAAQS compliance but rather, to protect public health and reduce this "risk" through communications, outreach, and education. To support this position, the EPA stated that the levels appropriate for the air quality index requirements of CAA section 319 "do not necessarily depend on the NAAQS levels that may be appropriate under [CAA] section 109."[23] Then, in keeping with the "expanded understanding" noted above, and to further contrast the AQI with the NAAQS, the EPA stated the AQI "provides information on air quality and health that will help individual citizens take prudent, self[-]protective actions to avoid or reduce exposures of concern and to avoid contributing to air pollution on days when unhealthy air quality is projected."[24]

While ACHD's 2024 Plan does not and need not address the AQI specifically, the purpose of going through the AQI background is to establish two points:

1. The Department and AQP must take the obligation to "[p]rovide air pollution data to the general public" very seriously. Perhaps the simple language of the requirement supports overlooking its importance, but compliance with this passage must be aimed

---

21 *Id*.

22 *Id*.

23 *Id*., n. 4; see 42 U.S.C. §§ 7619 and 7409.

24 64 Fed. Reg. at 42,532.

at enhancing public awareness and equipping individuals with the information needed to take self-protective, exposure-avoidant actions.

2. There must be a plan in place to effect these outcomes. As discussed below, even among very positive steps, it feels as if inconsistency in approach or the lack of a communications strategy limits the impact on public health.

B. *Projects around hydrogen sulfide and air toxics provide good examples of ACHD's good work, but also examples of projects that appear to occasionally suffer from unnecessary or unfortunate barriers.*

GASP raised concerns in varying levels of detail over outreach on non-NAAQS pollutants in comments to the 2020, 2022, 2023 Network Plans.[25] ACHD responses to the 2022 and 2023 comments acknowledged on-going work to "provide the public easier access to both monitored criteria and non-criteria pollutant" information as well as "sampler data from special studies."[26] Over the past four years, the AQP published a comprehensive hydrogen sulfide (H_2S) source apportionment study[27] and created a platform ("Dashboard") showing H_2S levels dating back to 2017.[28] Both projects represented significant steps toward the educating and supporting the public on a topic of significant concern to many local residents.

On the other hand, Department and AQP outreach has not mentioned or addressed excess levels of H_2S once this year, and that is despite 95 exceedance of the State 24-hour average H_2S standard at ACHD's Liberty Borough monitoring station in 2023, thereby making 2023 the worst

---

[25] *See* links in footnotes 11-13 above.

[26] *2022 Plan*, at § 13.1.3; *2023 Plan*, at § 13.1.4.

[27] Air Quality Program, Allegheny Cty. Health Dep't, *Analysis and Attribution of Hydrogen Sulfide (H_2S) Exceedances at the Liberty Monitoring Site from January 1, 2020 through March 1, 2022* (Mar. 3, 2022),), https://www.alleghenycounty.us/Health-Department/Resources/Data-and-Reporting/Air-Quality-Reports/Air-Quality-Reports-and-Studies.aspx (expand "Other Air Quality Studies").

[28] H_2S Dashboard, https://www.alleghenycounty.us/Health-Department/Programs/Air-Quality/Hydrogen-Sulfide.aspx.

year for such exceedances since 2017.[29]. A 2022 ACHD response to monitor plan comments stated that the Department would "improve public outreach and education efforts [through] expanding the usage of Allegheny Alerts for rapid air quality communication to citizens in affected communities."[30] In fact, ACHD utilized the Alert system in 2022 when H_2S levels exceeded the State 1-hour H_2S standard,[31] but no such communications occurred in 2023 to explain the substantial backslide or run of 17 days out of 19 in November when H_2S exceeded the standard. It simply isn't clear if or when the public can expect an Alert, and thus it isn't clear if there is a plan or strategy in place to utilize communications for improving public health.

An example of air quality monitoring aimed directly at supporting a concerned public was the Mon Valley Air Toxics and Odors Study.[32] Unfortunately, the sampling ended nearly one year ago and the Department has not published any findings. As the description in the Draft Plan makes clear, it was a complex study, and properly assessing the results is important. At the same time, that analysis would have benefited concerned residents who had an opportunity to comment on coke and steel-plant NESHAP revisions this summer. The underlying data were available, but again, the public would have benefited from Health Department authorities weighing in.

Similarly, ACHD gathers other air toxics data gathered at its Liberty site, PAMS data, NATTS data, $PM_{2.5}$ CSN data, and in the near future, ASCENT data. The amount and quality of data the Program gathers is extremely impressive, but to tie this section together with the previous section, it feels as if the capacity to gather data is far outstripping the in-house capacity

---

29 *See* H_2S Dashboard ("Yearly Exceedances" tab).

30 *2020 Plan*, at § 13.1.1.

31 *See* Exhibit "E" (attached).

32 *2024 Plan*, App. A § A4.

to put it to a good, public health use. Naturally, some of the data have exquisitely narrow audiences and uses, and perhaps simply sharing the data with nationally minded researchers is the goal, but the point is that as the network expands, data access and opportunities for public education should be considered.

C. *AQP communications around the wildfire smoke episodes took a troubling approach to public health on occasion this summer; ACHD should reconsider its stance on use of a rolling 24-hour average $PM_{2.5}$ value.*

In comments on the 2022 Monitoring Network Plan, GASP noted that the AQI calculation in 40 C.F.R. Part 58, the calculations used for the AirNow platform's NowCast AQI, and the approach on the AQP website all differ.[33] The comment focused on how uniformity benefited the public and maintaining three approaches could only serve to cause confusion. ACHD's response – essentially – was that it would stick with the three approaches because each had a role.[34]

Agree to disagree, but at the time the response felt tolerable.

On June 28, 2023, around 6:00 a.m., just as the worst of a wildfire smoke episode was settling in, ACHD sent out an Allegheny Alert advising recipients of the message that "current monitored amounts [of $PM_{2.5}$] can be found at [the AQP website]."[35] While true, the AQI values displayed are based on rolling 24-hour averages.[36] At that moment (or very near to it), the rolling average $PM_{2.5}$ concentration at the Parkway East monitor was 47.4 $\mu g/m^3$ and the most recent hourly reading was 170.3 $\mu g/m^3$.[37] An online NowCast calculator for the 12 hours ending

---

33 *2022 Plan*, App. B.

34 *2022 Plan*, at § 13.1.2.

35 *See* Exhibit "F" (attached).

36 https://www.alleghenycounty.us/Health-Department/Programs/Air-Quality/Air-Quality.aspx.

37 *See* Exhibit "G" (attached).

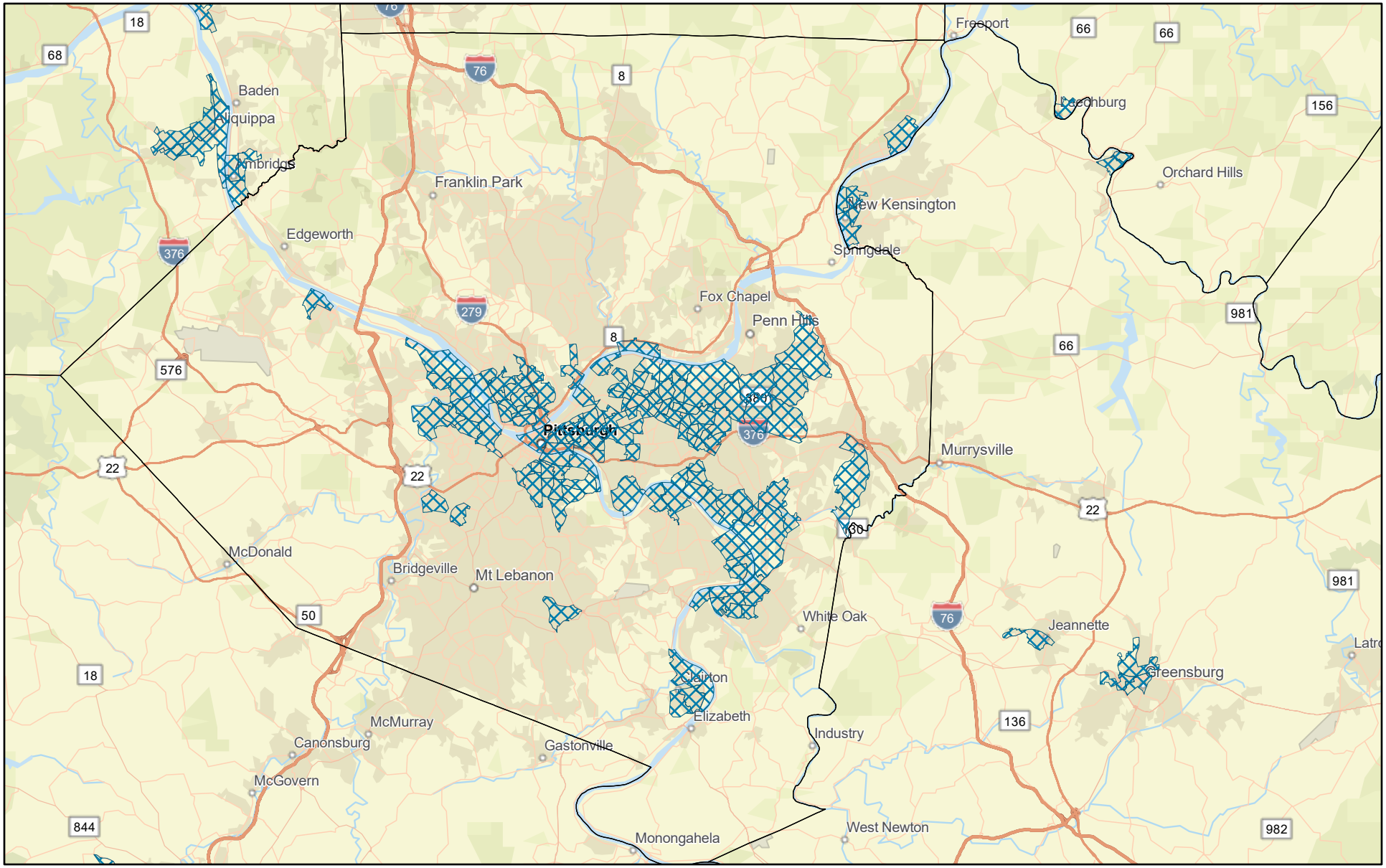
at 05:00 returned a NowCast AQI of 204 ("very unhealthy").[38] A traditional calculator based on the rolling 24-hour average retuned an AQI of 130 ("unhealthy for sensitive groups").[39] In keeping with the discussion above about the AQI needing to be a tool to protect public health, and keeping in mind the goal of communications generally needing to equip residents with the information necessary for them to make prudent decisions, and in consideration of the gulf between the values the ACHD dashboard showed versus the AirNow platform, ACHD should consider strictly promoting the AirNow platform during bouts of poor air quality. It feels as though that gulf between values could cause harm, which is not a tolerable outcome.

38 https://www3.epa.gov/airnow/aqicalctest/nowcast.htm.

39 https://www.airnow.gov/aqi/aqi-calculator/.

Exhibit "A"

PA DEP 2015 EJ Areas



11/30/2023

County Boundaries

EJ Areas 2015

1:455,914

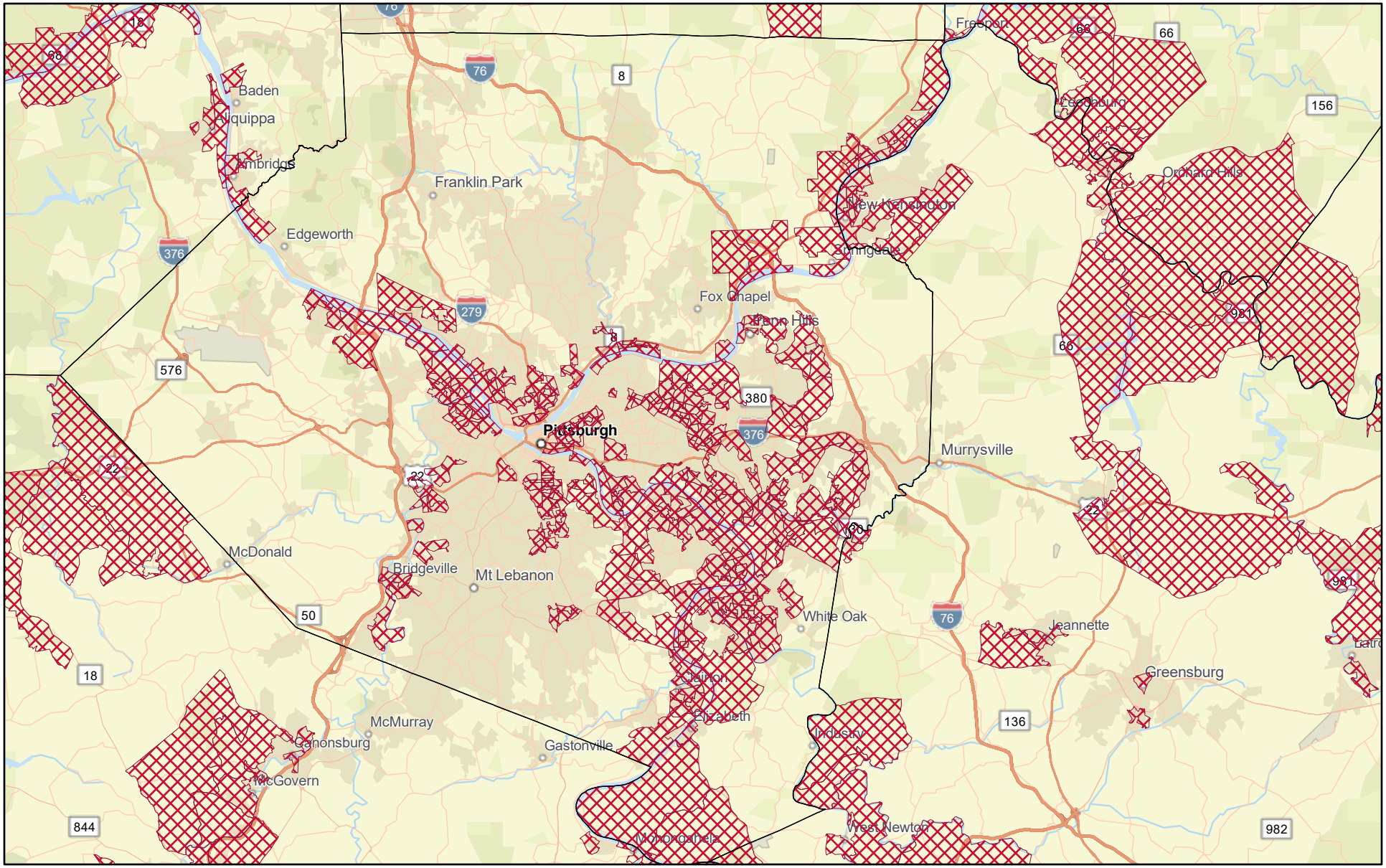
0 3 6 12 mi

0 4.75 9.5 19 km

data.pa.gov, Esri, HERE, Garmin, SafeGraph, FAO, METI/NASA, USGS, EPA, NPS

Exhibit "B"

PA DEP 2023 EJ Areas



11/30/2023

County Boundaries

EJ Areas 2023

1:455,914

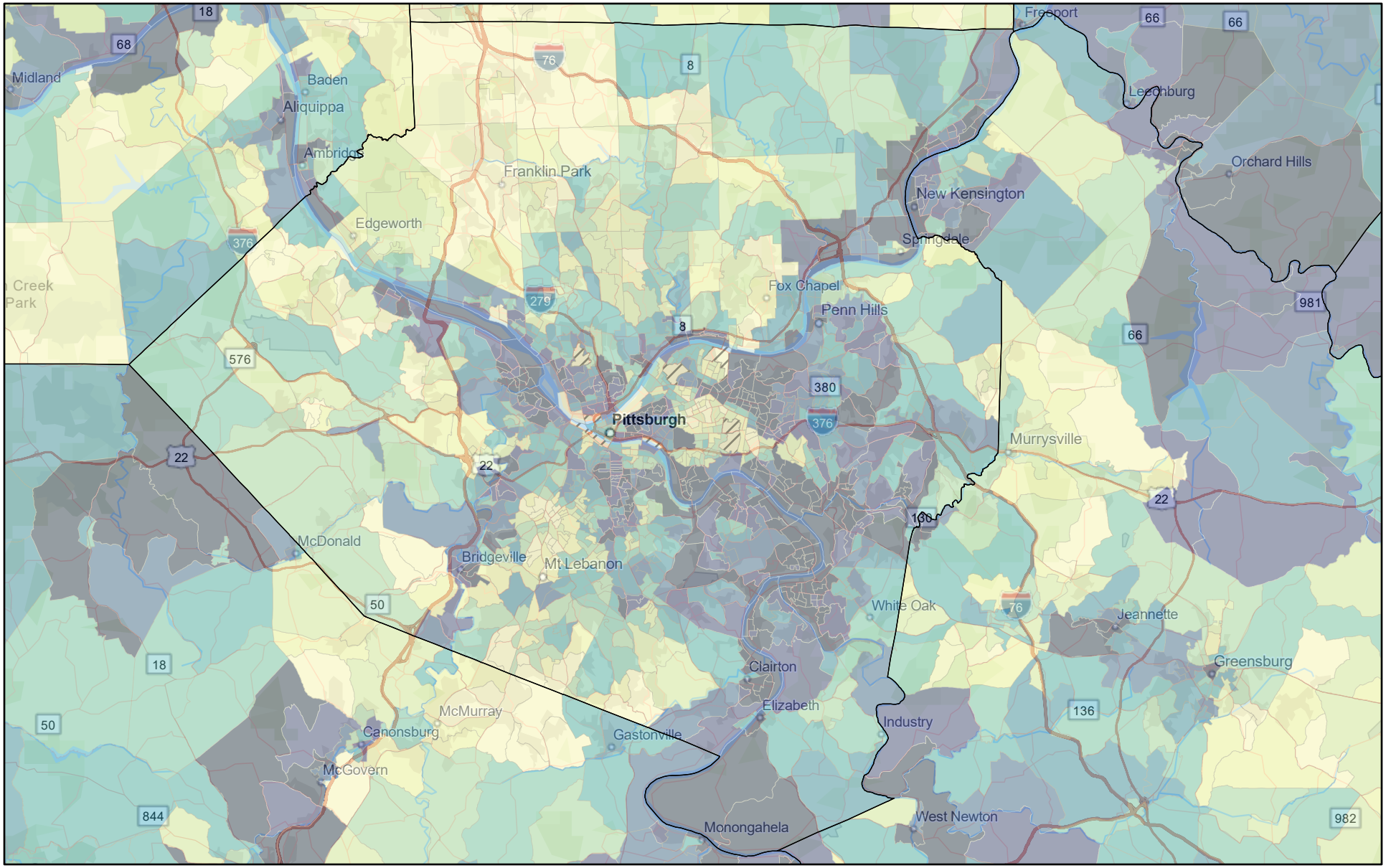
0 3 6 12 mi

0 4.75 9.5 19 km

data.pa.gov, Esri, HERE, Garmin, SafeGraph, FAO, METI/NASA, USGS, EPA, NPS

Exhibit "C"

PA DEP 2023 EnvScreen



12/1/2023

County Boundaries

PennEnviroScreen 2023

0

0 > - 10

11 - 20

21 - 30

31 - 40

41 - 50

51 - 60

61 - 70

71 - 80

81 - 90

91 - 100

no data

1:455,914

0 3 6 12 mi

0 4.75 9.5 19 km

data.pa.gov, Esri, HERE, Garmin, SafeGraph, FAO, METI/NASA, USGS, EPA, NPS

Exhibit "D"

PA DEP 2023 EnvScreen Toxics

12/1/2023

County Boundaries

Toxic Air Emissions

11 - 20

21 - 30

31 - 40

41 - 50

51 - 60

61 - 70

71 - 80

81 - 90

91 - 100

1:455,914

0 3 6 12 mi

0 4.75 9.5 19 km

data.pa.gov, Esri, HERE, Garmin, SafeGraph, FAO, METI/NASA, USGS, EPA, NPS

Exhibit "E"

From: Allegheny Alerts <noreply@everbridge.net>
Sent: Thursday, October 6, 2022 2:26 PM
To:
Subject: AIR QUALITY UPDATE: Hydrogen Sulfide (H2S) concentrations

This is a message from Allegheny Alerts.

The Liberty monitor has been reading high Hydrogen Sulfide (H2S) concentrations. A strong inversion started last night and broke at approximately 10:30 a.m. Weather conditions are expected to improve as the day continues. There is a chance of another inversion tonight. The Air Quality Program has been and will continue to monitor the situation and provide updates, as needed.

For up-to-date air monitoring information, please visit our online dashboard: www.alleghenycounty.us/airquality

From: Allegheny Alerts <noreply@everbridge.net>
Sent: Friday, October 7, 2022 11:31 AM
To:
Subject: Hydrogen Sulfide (H2S) Air Quality Update

This is a message from Allegheny Alerts.

Our Liberty air monitor is continuing to register elevated levels of Hydrogen Sulfide (H2S). H2S levels declined during the day yesterday, but rose again overnight, surpassing the state nuisance limit. We expect levels to continue to decrease throughout the day with this afternoon's projected forecast for rain. The Air Quality Program will continue to monitor the situation and provide updates as needed.

For up-to-date air monitoring information, please visit our online dashboard: www.alleghenycounty.us/airquality

Exhibit "F"

From: Allegheny Alerts <noreply@everbridge.net>
Sent: Wednesday, June 28, 2023 6:19 AM
To:
Subject: Mon Valley Air Pollution Warning Issued

This is a message from Allegheny Alerts.

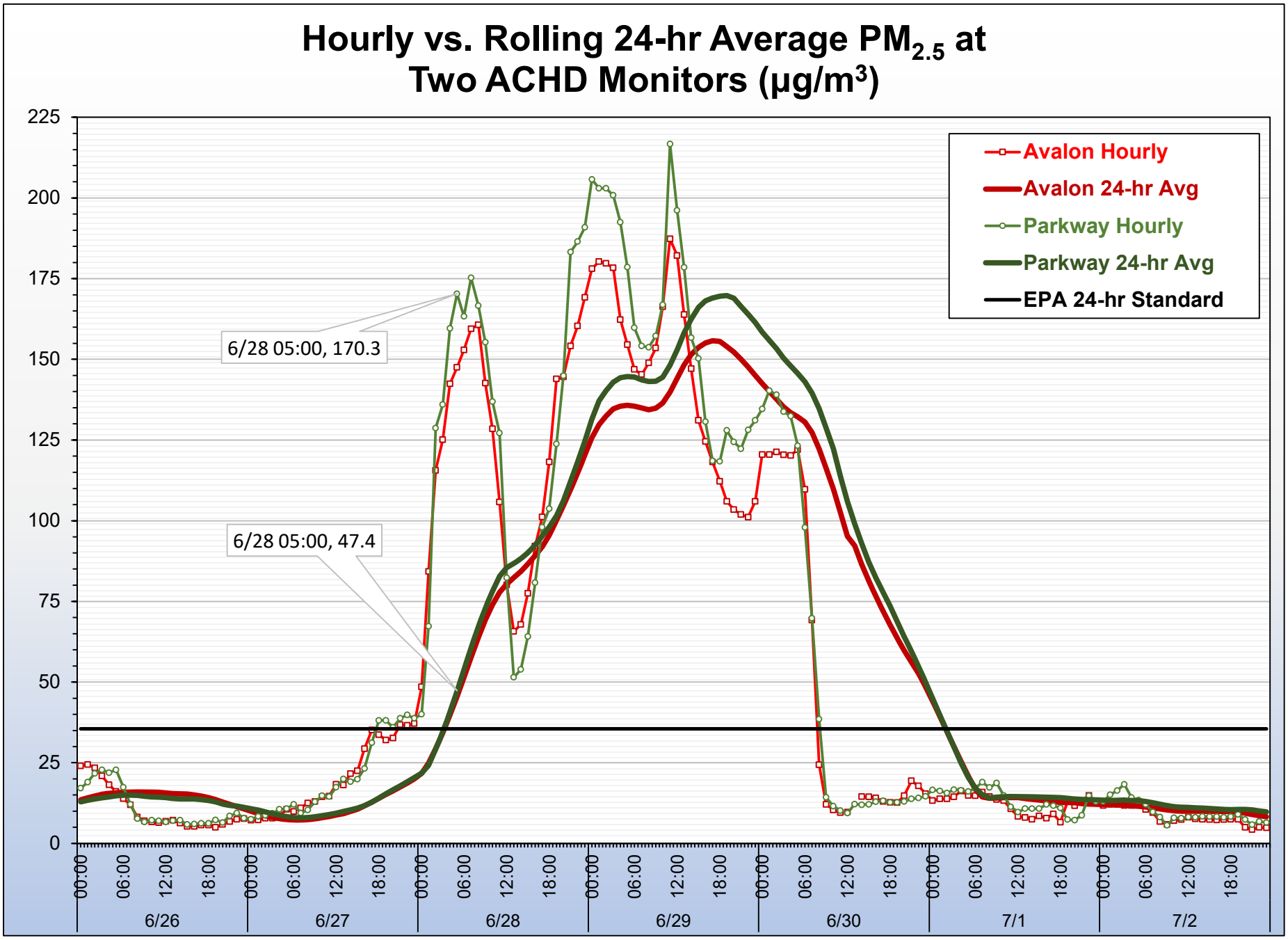
An Air Pollution Warning has been issued for the Mon Valley for the remainder of today and all of tomorrow. The 24-hour PM2.5 standard for the Mon Valley has been exceeded at an official monitoring station in the Mon Valley and is likely to continue.

Young children, the elderly, and those with respiratory problems, such as asthma, emphysema, and bronchitis, are especially vulnerable to the effects of air pollution and should limit outdoor activities during this time.

Companies most significantly contributing to particulate pollution in the Mon Valley region are required to temporarily reduce particulate emissions.

More information about fine particulate matter (PM2.5), as well as the current monitored amounts can be found at: https://www.alleghenycounty.us/Health-Department/Programs/Air-Quality/AirQuality.aspx.

Exhibit "G"


Hourly vs. Rolling 24-hr Average PM2.5 at Two ACHD Monitors (µg/m3)
Avalon Hourly
Avalon 24-hr Avg
Parkway Hourly
Parkway 24-hr Avg
EPA 24-hr Standard
6/28 05:00, 170.3
6/28 05:00, 47.4
225
200
175
150
125
100
75
50
25
0
00:00
06:00
12:00
18:00
6/26
6/27
6/28
6/29
6/30
7/1
7/2

December 1, 2023

VIA ELECTRONIC MAIL

Allegheny County Health Department
301 39th Street
Pittsburgh, Pennsylvania 15201
David.Good@alleghenycounty.us

Re: Comments on Draft Air Monitoring Network Plan for Year 2024

To Whom it May Concern:

Clean Air Council ("the Council") and the Community Robotics, Education and Technology Empowerment Lab ("CREATE Lab") at Carnegie Mellon University ("CREATE Lab"), (collectively "Commenters") submit these comments regarding the Allegheny County Health Department's ("ACHD") proposed Air Monitoring Network Plan for Calendar Year 2024, dated October 27, 2023 ("AMNP" or "2024 AMNP").[1]

Clean Air Council is a nonprofit environmental health organization with offices in Philadelphia and Pittsburgh, Pennsylvania. The Council has been working to protect everyone's right to a clean and healthy environment for over 50 years. The Council has members throughout Pennsylvania and the Mid-Atlantic region who support its mission, including many in Allegheny County.

The Community Robotics, Education and Technology Empowerment Lab (CREATE Lab) at Carnegie Mellon University explores socially meaningful innovation and deployment of robotic technologies. The CREATE Lab aims to empower the public and scientists with affordable environmental sensing and documentation instruments, building on the combined power of crowd-sourced reporting, continuous sensor measurements, time-lapse imagery and visualizations to promote evidence-based decision making, public discourse and action.

Allegheny County Clean Air Now, ACCAN, was originally formed to try to get better regulation of the Shenango Coke Works on Neville Island. After the coke works closed in 2016,

---

[1] ACHD, *Air Monitor Network Plan for Calendar Year 2024* (Oct. 27, 2023 Draft), (https://www.alleghenycounty.us/uploadedFiles/Allegheny_Home/Health_Department/Programs/Air_Quality/2024%20ANP%20draft%202023.10.27.pdf [hereinafter Draft AMNP].

ACCAN continues to give a voice to those living downwind from industries in the Neville Island area.

In these comments, Commenters present several ways to strengthen the 2024 AMNP to improve the accuracy of ambient air pollution data, which would lead to better protecting public health. Issues raised include the: (1) relocation of the Lawrenceville monitor to Chateau not providing an adequate measurement of downtown traffic impacts; (2) necessity for monitoring for benzene and benzene soluble organics around USS Mon Valley facilities; (3) need for lead monitoring around USS Edgar Thomson; and (4) need for VOC monitoring around Neville Island. ACHD's 2024 network plan is also months overdue and the comment period has been plagued by public participation issues and confusion. Commenters commend ACHD for the improvements in the Draft AMNP, including the concept of "working spares" that is proposed.

Comments

1. **Relocating the Lawrenceville monitoring station to the Chateau Neighborhood would result in the monitoring station no longer capturing the downwind effects of downtown Pittsburgh vehicular traffic emissions.**

The Lawrenceville monitor is an NCore, PAMS, NATTS, IMPROVE, ASCENT, and CSN monitoring station.[2] Commenters acknowledge that EPA already approved the relocation to the proposed new location in the Chateau Neighborhood area as fulfilling the minimum requirements of each of these programs when it was proposed in the 2023 AMNP.[3] However, Commenters urge ACHD to instead select a site that would better capture the downwind effects of heavy vehicular traffic in the downtown Pittsburgh area that would no longer be captured sufficiently by the monitoring network. The prevailing winds across Pittsburgh are west to east.[4] This means that this monitoring station would be relocating from almost directly downwind to almost directly upwind downtown. Downtown areas generally represent a strong concentration of stop-and-go vehicular traffic which is associated with large quantities of PM and NOx emissions. As such, the Department should consider placing a PM2.5 and NOx monitor somewhere in the vicinity of the old Lawrenceville station so that traffic-generated emissions are not missed by the network and then not taken into account when evaluating the pollution burden on multiple communities.

As a minor note, because the Lawrenceville monitoring site is a candidate for relocation, please highlight it in red in Table 4 on page 20 as indicated by the table's legend.

---

[2] Draft AMNP, at 14, § 3.4.1.
[3] *Id.*
[4] Iowa State University, *Wind Roses* (Wind rose for Pittsburgh, PA), https://mesonet.agron.iastate.edu/sites/windrose.phtml?network=PA_ASOS&station=PIT (last visited Dec. 1, 2023).

2. **As a necessary step in protecting public health from dangerous carcinogens, the Department should improve benzene monitoring and add monitoring for benzene soluble organics around the USS Clairton and Irvin facilities.**

Recent monitoring by the Environmental Integrity Project (EIP), CREATE Lab, and the Department has shown a significantly higher benzene exposure near USS Clairton and Irvin than would be anticipated from the USS-reported benzene emissions.[5] The Department is aware that the USS Mon Valley Works, particularly USS Clairton, is the largest benzene emitter in the county. As the Department knows, benzene is a known human carcinogen and benzene can cause blood disorders and damage reproductive systems.[6] There are also potentially dangerous levels of unmonitored benzene soluble particle emissions, which are far more carcinogenic than benzene. By requiring fenceline monitoring of benzene concentrations around USS Clairton and all other coke oven batteries, EPA highlighted the need for additional benzene data in Mon Valley and demonstrated that risks to the community are likely being underestimated.[7] Commenter will first demonstrate that the elevated benzene concentrations around Clairton are caused by the Clairton facility and pose a threat to public health, then discuss the health injuries correlated with exposure to benzene and benzene soluble organics generated by coke works, and lastly explain the need for additional monitoring of these chemicals to be added to the AMNP.

---

[5] BTEX sampling results from ACHD received in response to a Pennsylvania Right-to-Know Law request submitted in June by Group Against Smog & Pollution; Data from an 18-month community benzene monitoring project in Mon Valley, PA through a collaboration between The Environmental Integrity Project (EIP), the Breathe Project and Carnegie Mellon University (CMU) CREATE Lab, Funded by EIP Center for Applied Environmental Sciences, available at: https://www.documentcloud.org/documents/23562239-2022_12_14_final_letter-to-epa-re-mon-valley-benzene-emissions_release, pages 5–10.

[6] EPA, *Benzene* (last updated April 2012), *available at* https://www.epa.gov/sites/default/files/2016-09/documents/benzene.pdf.

[7] EPA, *National Emission Standards for Hazardous Air Pollutants for Coke Ovens: Pushing, Quenching, and Battery Stacks, and Coke Oven Batteries; Residual Risk and Technology Review, and Periodic Technology Review*, Proposed Rule, 88 Fed. Reg. 55858, (Aug. 16, 2023), *available at* https://www.govinfo.gov/content/pkg/FR-2023-08-16/pdf/2023-16620.pdf [hereinafter Proposed Coke Oven NESHAPs]at 55885 "Fenceline Monitoring" ("The requirements and decisions that we are proposing in this action are informed by the fenceline monitoring results reported by facilities in response to the 2022 Coke Ovens CAA section 114 request, consideration of dispersion modeling results, and consideration of the uncertainty with estimating emissions from fugitive emission sources. Based on the monitoring results and the other considerations, we determined that it is appropriate under CAA section 112(d)(6) to require coke oven facilities to monitor, and if necessary, take corrective action to minimize fugitive emissions, to ensure that facilities appropriately limit emissions of HAP from fugitive sources.").

a. Recent benzene monitoring data and air dispersion modeling indicates that benzene levels around Clairton Coke Works pose a significant public health risk and that the facility's benzene emissions are the source of the elevated ambient benzene concentrations.

EPA defines chronic Reference Concentration (RfC) as the concentration that a person may continuously inhale that is "likely to be without an appreciable risk of deleterious effects during a lifetime." EPA sets the RfC for benzene at 3 μg/m³,[8] and the California chronic inhalation Reference Exposure Level for benzene (REL) is also 3 μg/m³.[9] Calculated averages for a 16–18 month period have shown exceedances of the RfC at multiple locations along the Clairton fenceline, as shown in the table below. In fact, one monitoring site showed an average concentration over that period of 4.8 μg/m³, which is 160% of the RfC, and thus potentially exposing people to significant risk.

Monitor Name (approx. distance from USS Clairton, miles)	Lat	Long	Period average ± s.d, in μg/m^3
#01A EIP * (1.5)	40.32457	-79.8809	4.2±3.1
#2 EIP * (2.5)	40.3335	-79.8886	3.2±2.6
#9 ACHD/EPA ** (2)	40.32601	-79.88172	1.6±1.1
#11 ACHD/EPA ** (2)	40.32779	-79.89301	4.1±1.9
#14 ACHD/EPA ** (1)	40.3106	-79.89889	4.8±2.9

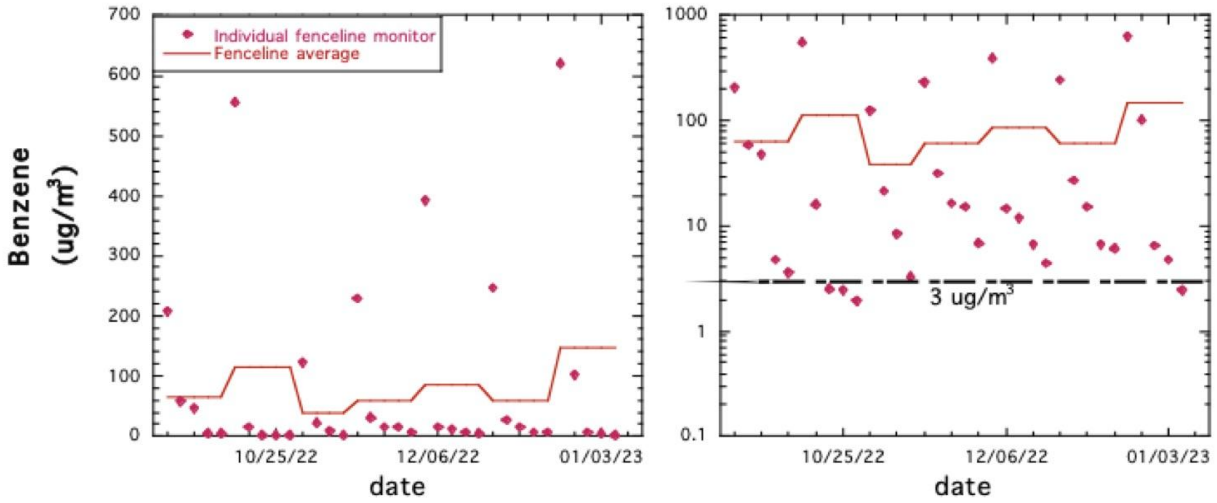
* average for the period of 1/3/2022-5/9/2023

** average for the period of 7/7/21-1/5/23

[8] EPA, *Chemical-Specific Reference Values for Benzene (CASRN 71-43-2)* at 6 (Aug. 2012), *available at* https://nepis.epa.gov/Exe/ZyNET.exe/P100KJIX.txt?ZyActionD=ZyDocument&Client=EPA&Index=2011%20Thru%202015&Docs=&Query=&Time=&EndTime=&SearchMethod=1&TocRestrict=n&Toc=&TocEntry=&QField=&QFieldYear=&QFieldMonth=&QFieldDay=&UseQField=&IntQFieldOp=0&ExtQFieldOp=0&XmlQuery=&File=D%3A%5CZYFILES%5CINDEX%20DATA%5C11THRU15%5CTXT%5C00000012%5CP100KJIX.txt&User=ANONYMOUS&Password=anonymous&SortMethod=h%7C-&MaximumDocuments=1&FuzzyDegree=0&ImageQuality=r75g8/r75g8/x150y150g16/i425&Display=hpfr&DefSeekPage=x&SearchBack=ZyActionL&Back=ZyActionS&BackDesc=Results%20page&MaximumPages=1&ZyEntry=1 [hereinafter EPA Benzene Reference Values].

[9] OEHHA, *Benzene*, https://oehha.ca.gov/air/chemicals/benzene (last visited Dec. 1, 2023).

Notably, EPA collected fenceline benzene data from several coke oven facilities as part of the coke oven NESHAPs review.[10] Samples from USS Clairton show benzene levels well above the proposed 3µg/m^3 limit for practically all fenceline monitors from different locations around the facility.[11] The average concentration was also well above the proposed value.[12] In the charts below, the diamonds represent the benzene concentrations measured in the individual fenceline monitors on the given date. The red lines represent the average of all fenceline monitors on each date.



Only 4 of over 30 samples are below the 3µg/m^3 RfC, and all fenceline averages are well above it. The average benzene concentration for the period of 10/11/22 to 1/3/23 is 83 µg/m^3. The average values apply to approximately four months, not the rolling annual period proposed by EPA; however, even if the average benzene concentration for the other eight months is zero, the rolling annual average would be 28 µg/m^3, nearly ten times the proposed action level.

More significantly, many measurements found extremely high concentrations for acute exposure. The Center for Disease Control's ("CDC") Agency for Toxic Substances and Disease Registry ("ATSDR") establishes Minimum Risk Levels ("MRLs") for toxins, including benzene. ATSDR explains that an MRL "is an estimate of the amount of a chemical a person can eat, drink, or breathe each day without a detectable risk to health," and that "MRLs can be made for 3 different time periods [the length of time people are exposed to the chemical: acute (about 1 to

[10] Proposed Coke Oven NESHAPs at 55865.
[11] *See* Proposed Coke Oven NESHAPs at 55887.
[12] Fenceline TO15 monitor data for benzene from supplemental materials to Docket #: EPA-HQ-OAR-2003-0051-0668: *Residual Risk Assessment for the Coke Ovens: Pushing, Quenching, and Battery Stacks Source Category in Support of the 2023 Risk and Technology Review,* Proposed Rule (May 2023), https://www.regulations.gov/document/EPA-HQ-OAR-2003-0051-0668.

14 days), intermediate (from 15-364 days), and chronic (exposure for more than 364 days)].”[13] ATSDR set the acute MRL for benzene as 29 µg/m^3.[14] Many fenceline measurements around the Clairton facility are at least three times the MRL, and some are ten times the MRL. Such values pose a substantial acute inhalation hazard to both workers inside the fenceline and to those living along it, risks that are particularly great for members of vulnerable populations and those with underlying health conditions.

The high USS Clairton Coke Works fenceline benzene concentrations strongly indicate that the facility is responsible for benzene pollution in the region near the facility. This conclusion is supported by emissions reports from the Pennsylvania Department of Environmental Protection that show annual benzene emissions from USS Clairton consist of 50% to 80% of the total benzene emissions in Allegheny County:

	2015 *			2020 *#			2023**
	USS Clairton (tons)	County total (tons)	Clairton % of county	USS Clairton (tons)	County total (tons)	Clairton % of county	USS Clairton (tons)
Benzene	16.6	32.55	51%	11.6	14.7	79%	15.21

* http://cedatareporting.pa.gov/reports/

Note that 2020 coke production was lower than in typical years due to COVID19; see for example and 2023 emissions numbers.[15]

**https://achd-public.govonlinesaas.com/pub/pub-rcd/submittals/review/7/2840;tab=sub

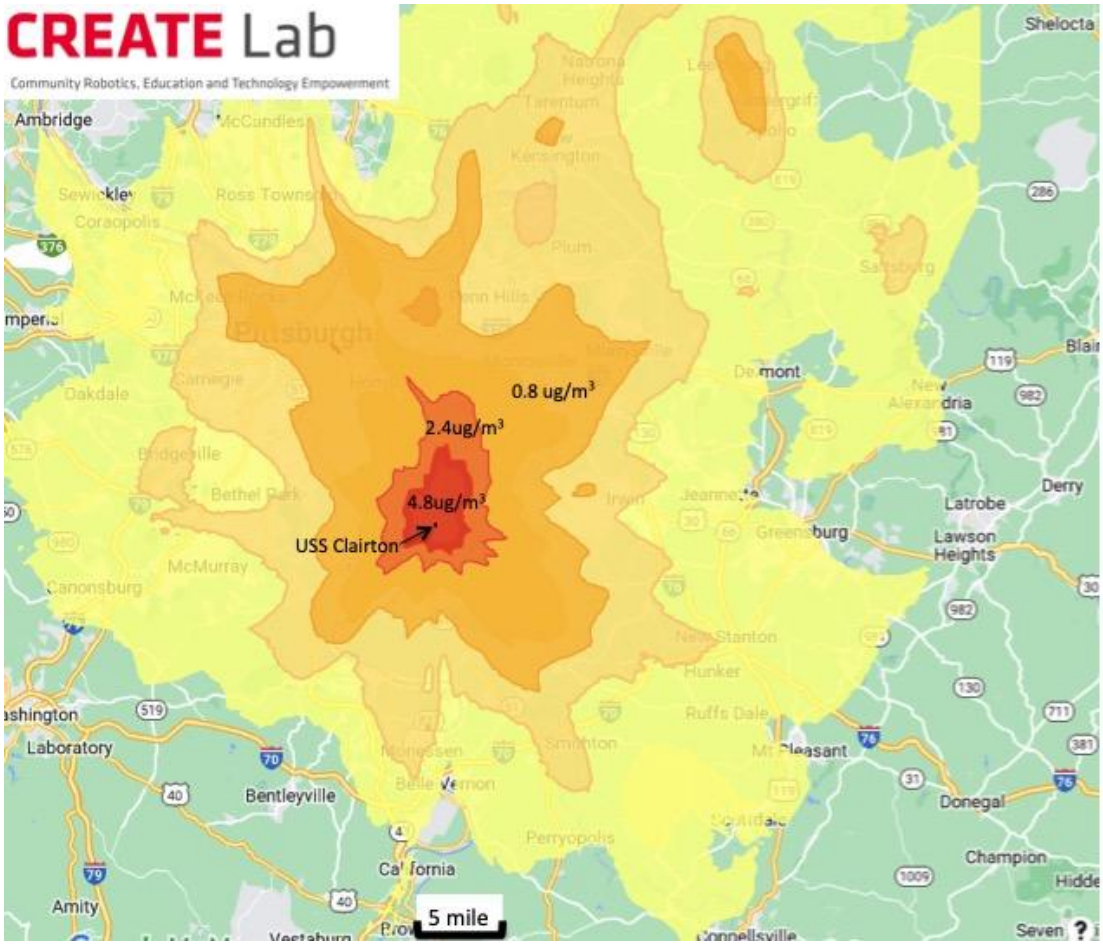
These benzene emissions and associated hazardous air pollutants (“HAPs”) disperse throughout the county. To examine the link between USS Clairton and the benzene air pollution

[13] ATSDR, *Minimal Risk Levels – General Public*, https://www.atsdr.cdc.gov/minimalrisklevels/index.html (June 4, 2018).

[14] EPA, *Chemical-Specific Reference Values for Benzene (CASRN 71-43-2)* at 6 (Aug. 2012), *available at* https://nepis.epa.gov/Exe/ZyNET.exe/P100KJIX.txt?ZyActionD=ZyDocument&Client=EPA&Index=2011%20Thru%202015&Docs=&Query=&Time=&EndTime=&SearchMethod=1&TocRestrict=n&Toc=&TocEntry=&QField=&QFieldYear=&QFieldMonth=&QFieldDay=&UseQField=&IntQFieldOp=0&ExtQFieldOp=0&XmlQuery=&File=D%3A%5CZYFILES%5CINDEX%20DATA%5C11THRU15%5CTXT%5C00000012%5CP100KJIX.txt&User=ANONYMOUS&Password=anonymous&SortMethod=h%7C-&MaximumDocuments=1&FuzzyDegree=0&ImageQuality=r75g8/r75g8/x150y150g16/i425&Display=hpfr&DefSeekPage=x&SearchBack=ZyActionL&Back=ZyActionS&BackDesc=Results%20page&MaximumPages=1&ZyEntry=1

[15] Carissa L. Lange, et al., *Pittsburgh Air Pollution Changes During the COVID-19 Lockdown*, ENVIRON. ADV. (Apr. 7 2022), *available at:* https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8638247/; U.S. Steel, *2022 Annual Report*, page 113, *available at:* https://www.annualreports.com/HostedData/AnnualReports/PDF/NYSE_X_2022.pdf.

in the region, Commenters ran the NOAA HYSPLIT dispersion model.[16] HYSPLIT is a broadly utilized tool to assess air pollution dispersion over space and time. The HYSPLIT map presented below shows the simulation-modeled average concentration of benzene from USS Clairton for the period of 2/1/2020–1/31/2021. The model assumes a constant emission rate, and is scaled to match the annual average value recorded at ACHD/EPA monitor #14 sampling results from ACHD's Mon Valley Air Toxics and Odors Study (which is within the core, red level concentration at 40.3106 , -79.89889) to assign values to the different regions.



The high ambient levels of benzene in areas near USS Clairton shown in the HYSPLIT model can be linked directly to benzene emissions from the facility.

EPA proposes that benzene be used as a surrogate for the levels of other HAPs.[17] Commenters' analysis supports the linear correlation between benzene and other HAPs, including, for example, polycyclic aromatic hydrocarbons (PAHs). Therefore, these extremely

[16] NOAA, *HYSPLiT Air Resources Lab*, https://www.ready.noaa.gov/HYSPLIT.php (last visited Dec. 1, 2023).
[17] Jasno M. DeWees, *Refinery Fenceline Monitoring & Method 325A/B*, EPA (Oct. 28, 2015), https://www3.epa.gov/ttn/amtic/files/ambient/airtox/2015workshop/Petroleum%20Refinery.pdf.

high levels of benzene recorded at the USS Clairton fenceline likely indicate high levels of other toxic air pollutants that also disperse throughout Allegheny County.

The PADEP annual reports show that USS Clairton is also the largest contributor of other hazardous air pollutants in Allegheny County, as seen in the table below:

Compound	2015 *			2020 *#			2023**
	USS Clairton (tons)	County total (tons)	Clairton % of county	USS Clairton (tons)	County total (tons)	Clairton % of county	USS Clairton (tons)
Cyanide compounds	17.1	19.65	87%	15.9	15.9	100%	16.14
Coke oven emissions	87	97.6	89%	39.1	39.1	100%	57.11
HCl and HF	101.2	141.7	71%	71	110.2	64%	101.0
Naphthalene	4.5	11.1	40%	3.1	4.3	72%	3.851
PAH	0.68	0.68	100%	0.5	0.5	100%	0.5410
PM2.5	343	846	40.5%	286	577.5	50%	451.4

* CE Data Reporting, http://cedatareporting.pa.gov/reports/ (search by pollutant and facility inside the Air Quality Permit Report)
# Note that 2020 production was lower than typical years due to COVID19.[18]
** https://achd-public.govonlinesaas.com/pub/pub-rcd/submittals/review/7/2840;tab=sub

The data presented here demonstrates that USS Clairton Coke Works is responsible for high levels of air pollution in Allegheny County, especially in the vicinity of the facility. As discussed below, these pollutants are directly correlated with elevated disease rates.

b. Benzene and benzene soluble organics exposure around coke facilities is linked to significant health injuries, including increased levels of cancer, and may exacerbate the cardiac and respiratory harms caused by other air pollutants emitted by such facilities.

The benzene and benzene-soluble organics ("BSOs") emitted from Clairton pose significant health risks, and yet the AMNP does not include BSO monitoring. The closure of the

[18] *See, e.g.*, Carissa L. Lange, et al., *Pittsburgh Air Pollution Changes During the COVID-19 Lockdown*, ENVIRON. ADV. (Apr. 7 2022), *available at:* https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8638247/; U.S. Steel, *2022 Annual Report*, page 113, *available at:* https://www.annualreports.com/HostedData/AnnualReports/PDF/NYSE_X_2022.pdf.

Shenango Coke Works in Allegheny County, PA at Neville Island in January 2016[19] provided a natural experiment and opportunity to observe changes in pollution metrics as well as public health before and after the shutdown, enabling a direct test of the link between public health and coke oven facility emissions. The Shenango Coke Works on Neville Island was located about 1.5 miles from the Pittsburgh city limits. Shenango produced 350,000 tons of coke annually during its operation.[20] When reviewing the data from Shenango, please keep in mind that USS Clairton Coke Works produces 4.7 million tons of coke annually, 13 times more than did Shenango.[21] Even though there are differences in the production processes, Commenters expect that the health effects from Clairton's emissions are spread over a much larger geographic area, as supported by the HYSPLIT map above. The impact for the closest residents to Clairton is likely to be correspondingly higher, as well.

Cancer

Benzene is a well-established human carcinogen, and BSOs emitted from coke ovens are approximately 280 times as carcinogenic as benzene from inhalation.[22] Residents of municipalities exposed to air pollution from the USS Clairton Coke Works and, historically, from the Shenango Coke Works, have an elevated cancer mortality rate of 34%, or 860 excess cancer deaths per 1,000,000 annually. This figure is derived from Allegheny County's study of all-cause mortality 2006–2010, corrected for age.[23] Specifically, chronic exposure to benzene is known to cause leukemia, a cancer of blood-forming organs.[24] While the existing available data is not sufficient to establish a causal link between exposures to benzene and county-level leukemia

[19] Aaron Aupperlee, *Shenango Inc. Begins Shutdown of Neville Island Coke Plant* (Jan. 6, 2016), https://archive.triblive.com/local/pittsburgh-allegheny/shenango-inc-begins-shutdown-of-neville-island-coke-plant/ (link leads to a website landing page, and the article can be accessed by clicking to enter the site and then searching for "Shutdown of Neville Island Coke Plant").
[20] Jeffrey Fraser, *Is Better Good Enough?*, PITTSBURGH QUARTERLY (Fall 2014), https://pittsburghquarterly.com/articles/is-better-good-enough/.
[21] EPA, *Hazardous Waste Cleanup: U.S. Steel Corporation MVW Clairton Plant in Clairton, Pennsylvania*, https://www.epa.gov/hwcorrectiveactioncleanups/hazardous-waste-cleanup-us-steel-corporation-mvw-clairton-plant-clairton (last updated May 2, 2023).
[22] Computed from unit risks described in subsequent paragraphs.
[23] ACHD, *Allegheny County Community Profiles*, https://www.alleghenycounty.us/Health-Department/Resources/Data-and-Reporting/Chronic-Disease-Epidemiology/Community-Profiles.aspx.
[24] CDC, *Facts about Benzene*, https://emergency.cdc.gov/agent/benzene/basics/facts.asp (last reviewed Apr. 4, 2018).

rates, these rates are still a reason for concern. Between 2011 and 2015, Allegheny County had an age-adjusted leukemia incidence rate of 15.6 out of 100,000 people—significantly higher than the Pennsylvania age-adjusted leukemia incidence rate of 14.1 out of 100,000 people.[25] Many Allegheny County residents currently express deep concern and grief around the elevated cancer levels that they observe, which they largely attribute to Clairton Coke Works.

EPA's Carcinogen Assessment of coke oven emissions presents strong epidemiological evidence of large and statistically significant excess cancer mortality of coke oven workers. EPA has estimated that a lifetime of continuous exposure to coke oven emissions quantified by a concentration of 1 µg/m³ of the benzene-soluble organic portion of particulates from a coke oven could result in a 6.17 x 10^-4 lifetime risk of cancer *mortality* due to that exposure (95% upper-bound estimate), or 617 cancer *deaths* out of 1,000,000 people (95% upper-bound estimate).[26] That risk is significantly greater than for benzene exposure alone. For benzene, a 1 µg/m^3 lifetime exposure is estimated to cause a 2.2 x 10^-6 lifetime risk of cancer *incidence*, or 2 cancer *cases* in 1,000,000.[27]

The cancer danger of coke oven emissions, as quantified by the BSO fraction, underscores the need for systematic monitoring and control of these emissions. Much of the benzene-soluble fraction of coke oven emissions is composed of PAHs, and so Commenters estimate concentrations of the benzene-soluble fraction at USS Clairton Coke Works from the fenceline monitoring data by using the samples collected by EPA around the facility in 2022–2023 which measure PAH concentrations.[28] The estimates make two assumptions: (1) that

---

[25] ACHD, *Allegheny County Cancer Incidence Report 2011-2015*, https://www.alleghenycounty.us/uploadedFiles/Allegheny_Home/Health_Department/Resources/Data_and_Reporting/Chronic_Disease_Epidemiology/2011-2015-Cancer-Incidence-Report.pdf.

[26] EPA IRIS, *Coke Oven Emissions IRIS Summary*, *available at:* https://iris.epa.gov/static/pdfs/0395_summary.pdf (last visited Dec. 1, 2023); J. Graham and D. Holtgrave, *Coke Oven Emissions: A Case Study of Technology-Based Regulation, RISK: Issues in Health & Safety*, (June 1990), *available at:* https://scholars.unh.edu/cgi/viewcontent.cgi?referer=&httpsredir=1&article=1023&context=risk; EPA, *Carcinogen Assessment of Coke Oven Emissions Final Report*, (Feb. 1984), *available at:* https://cfpub.epa.gov/ncea/risk/recordisplay.cfm?deid=47897.

[27] EPA, IRIS, *Benzene*, *available at:* https://cfpub.epa.gov/ncea/iris2/chemicallanding.cfm?substance_nmbr=276 (last visited Dec. 1, 2023).

[28] Fenceline data for five facilities 2022–2023, from *Coke Ovens: Pushing, Quenching, and Battery Stacks: National Emission Standards for Hazardous Air Pollutants*, *available at:* https://www.epa.gov/stationary-sources-air-pollution/coke-ovens-pushing-quenching-and-battery

the PAHs reaching the method TO-13A fenceline samplers came directly from fugitive or other emissions from the coke ovens (potentially overestimating coke oven emissions), and (b) that the TO-13A sampler quantified in total all the benzene-soluble organics that reached it (potentially significantly underestimating the BSO levels given the limited number of compounds detected by Method TO-13A).

The resulting estimates are deeply disturbing. Multiplying by EPA's unit risk estimate above of 6.17 x 10^{-4} per μg/m^3, a lifetime exposure to the concentration in sample ID PAH04_230103_S, 10.5 μg/m^3, is estimated at an alarming 56,564 cancer deaths per 1,000,000, or increasing the chance of cancer by 5.6%.

The table below, generated from Clairton Coke Works' fenceline data, shows PAH concentrations calculated by summing detected concentrations of all individually reported PAHs and the estimated associated cancer mortality from a lifetime of exposure to each estimated associated BSO concentrations.[29] However, because EPA's Carcinogen Assessment was conducted in 1984 and cancer treatments have since improved, the mortality data is best considered a proxy for cancer prevalence.

Clairton Coke Works Sample ID	Sample Date	PAH Concentration	Lifetime exposure estimated cancer mortality per 1,000,000 (assuming PAH concentration represents benzene-soluble fraction of oven emission)
PAH01_221011_S	2022-10-11	0.52 μg/m^3	262 deaths per 1,000,000
PAH01_221025_S	2022-10-25	0.53 μg/m^3	266 deaths per 1,000,000
PAH01_221108_S	2022-11-08	1.18 μg/m^3	588 deaths per 1,000,000
PAH01_221122_S	2022-11-22	0.38 μg/m^3	188 deaths per 1,000,000

-stacks-national-emission, with datafile downloaded from https://www.epa.gov/system/files/other-files/2023-06/Fenceline%20data%20for%20five%20facilities%202022-2023.zip.

[29] The PAHs detected by the USS Clairton TO-13A samplers are: Acenaphthene, Acenaphthylene, Anthracene, Benz(a)anthracene, Benzo(a)pyrene, Benzo(b)fluoranthene, Benzo(g,h,i)perylene, Benzo(k)fluoranthene, Chrysene, Fluoranthene, Fluorene, Indeno(1,2,3-cd)pyrene, Naphthalene (naphthene), Phenanthrene, and Pyrene.

PAH01_221206_S	2022-12-06	1.27 µg/m^3	634 deaths per 1,000,000
PAH01_221219_S	2022-12-19	0.13 µg/m^3	64 deaths per 1,000,000
PAH02_221011_S	2022-10-11	16.65 µg/m^3	8,326 deaths per 1,000,000
PAH02_221025_S	2022-10-25	2.87 µg/m^3	1,435 deaths per 1,000,000
PAH02_221108_S	2022-11-08	32.43 µg/m^3	16,213 deaths per 1,000,000
PAH02_221122_S	2022-11-22	7.21 µg/m^3	3,603 deaths per 1,000,000
PAH02_221206_S	2022-12-06	7.61 µg/m^3	3,805 deaths per 1,000,000
PAH02_221219_S	2022-12-19	1.92 µg/m^3	958 deaths per 1,000,000
PAH02_230103_S	2023-01-03	10.5 µg/m^3	5,248 deaths per 1,000,000
PAH03_221011_S	2022-10-11	11.7 µg/m^3	5,849 deaths per 1,000,000
PAH03_221025_S	2022-10-25	12.45 µg/m^3	6,224 deaths per 1,000,000
PAH03_221108_S	2022-11-08	3.68 µg/m^3	1,838 deaths per 1,000,000
PAH03_221122_S	2022-11-22	3.03 µg/m^3	1,517 deaths per 1,000,000
PAH03_221206_S	2022-12-06	2.55 µg/m^3	1,277 deaths per 1,000,000
PAH03_221219_S	2022-12-19	0.93 µg/m^3	467 deaths per 1,000,000
PAH03_230103_S	2023-01-03	7.09 µg/m^3	3,546 deaths per 1,000,000
PAH04_221011_S	2022-10-11	87.27 µg/m^3	43,634 deaths per 1,000,000
PAH04_221025_S	2022-10-25	99.62 µg/m^3	49,812 deaths per 1,000,000
PAH04_221108_S	2022-11-08	42.38 µg/m^3	21,191 deaths per 1,000,000
PAH04_221122_S	2022-11-22	47.78 µg/m^3	23,889 deaths per 1,000,000
PAH04_221206_S	2022-12-06	54.76 µg/m^3	27,382 deaths per 1,000,000
PAH04_221219_S	2022-12-19	66.87 µg/m^3	33,437 deaths per 1,000,000
PAH04_230103_S	2023-01-03	113.13 µg/m^3	56,564 deaths per 1,000,000

The table clearly shows a problematic increase in cancer rates associated with BSO, which underscores the importance of associated monitoring.

Cardiovascular Health

Cardiovascular injury from air pollutants such as particulate matter is well documented.[30] A recent study by Igor N. Zelenko, et al., "suggest[s] that benzene exacerbates heart failure by

[30] EPA, *Air Pollution and Cardiovascular Disease Basics*, https://www.epa.gov/air-research/air-pollution-and-cardiovascular-disease-basics#:~:text=Fine%20particulate%20matter%20(particulate%20matter,related%20heart%20attacks%20and%20death. (last updated Nov. 2, 2023).

promoting endothelial activation and neutrophil recruitment."[31] Thus benzene is likely a contributing factor to the increased cardiovascular mortality and injury associated with living near coke works.

In a recent publication, NYU's George Thurston and Wuyue Yu compared the area near Shenango to two control groups, looking for health changes pre- to post-shutdown, and found a:

- 42% immediate drop (95% CI: 33%, 51%) in local cardiovascular emergency department ("ED") visits from the pre-closure mean;
- Long-term continual decline in the rate of overall ED visits following the shutdown, with 460 fewer ED visits each year when compared to each previous year; and
- Long-term continual decline in the rate of cardiovascular hospitalizations following the shutdown, with 28 fewer hospitalizations each year when compared to each previous year.[32]

This data further underscores the importance of accurately monitoring and controlling benzene emissions.

Asthma and other respiratory health impacts

Although not well researched, there are studies linking benzene to respiratory injury, particularly in children.[33] Thus, benzene pollution likely contributed to the respiratory injuries from coke oven emissions that were demonstrated by the drop in respiratory health conditions in local communities after Shenango closed. ACHD and Dr. Deborah Gentile have shown Shenango's

---

[31] Igor N. Zelko, et al., *Chronic Benzene Exposure Aggravates Pressure Overload-Induced Cardiac Dysfunction*, TOXICOL. SCI. (Dec. 28, 2021), *available at:* https://pubmed.ncbi.nlm.nih.gov/34718823/.

[32] Wuyue Yu and George D Thurston, *An Interrupted Time Series Analysis of the Cardiovascular Health Benefits of a Coal Coking Operation Closure*, , Environ. Res.: Health, Vol. 1:4 (July 31, 2023), https://iopscience.iop.org/article/10.1088/2752-5309/ace4ea#:~:text=Overall%2C%20our%20research%20provides%20compelling,health%20of%20the%20nearby%20community.

[33] *See, e.g.*, Mark A. D'Andrea & G. Kesava Reddy, *Health Risks Associated with Benzene Exposure in Children: A Systematic Review*, GLOBAL PEDIATRIC HEALTH (2018), https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6100118/.

shutdown to be associated with very significant reductions in respiratory disease, especially pediatric asthma, including a:

- 3.3-fold decrease in all asthma ED visits;[34]
- 5-fold decrease in pediatric asthma ED visits;[34]
- 37.9% decrease in other respiratory ED visits;[34]
- 24.5% reduction in doctor-diagnosable pediatric asthma with same ages year over year. *Many fewer children were developing asthma*;[35] and
- 41.6% reduction in children with uncontrolled asthma..[35]

Children in the city of Clairton adjacent to the Clairton facility have much higher asthma rates than the rest of Allegheny County, or the state of Pennsylvania as a whole.[36] The impact of Clairton is likely more far-reaching and severe than the impact of the smaller Shenango facility. The probable contribution of benzene emissions to that harm is another reason for more comprehensive benzene monitoring in the 2024 AMNP.

In sum, benzene and BSOs emitted from USS facilities in Mon Valley are likely under-reported or, in the case of BSOs, entirely unmonitored. Yet these chemicals are highly carcinogenic and likely contribute to a host of other health injuries.

---

[34] LuAnn Lynn Brink, et al., *Changes In Emergency Department Visits For Respiratory And Cardiovascular Disease After Closure Of A Coking Operation Near Pittsburgh, PA*, J. AIR POLLUTION & HEALTH (Autumn 2019), https://publish.kne-publishing.com/index.php/JAPH/article/view/2195.
[35] Dr. Deborah Gentile, *Shenango Closure: A Living Laboratory*, Research Presentation (2021).
[36] Deborah A. Gentile, MD; Tricia Morphew, MS; Jennifer Elliott, Pharm D; Albert A. Presto, PhD; & David P. Skoner, MD, *Asthma Prevalence and Control Among Schoolchildren Residing Near Outdoor Air Pollution Sites*, J. Asthma, Volume 59:1 (2022).

c. The 2024 AMNP should include BSO monitoring and increased benzene monitoring which would make it possible to (1) better protect the public from significant health harms and to (2) make possible necessary public health studies to determine the actual health burden these emissions inflict on local communities.

As described above, benzene emissions from coke ovens are likely largely underreported, and ambient levels around polluting facilities are inadequately monitored. Additionally, the uncounted benzene emissions found in the fenceline monitoring recently conducted around Clairton Coke Works likely directly correlates to levels of other fugitive coke oven emissions, including BSOs. The BSOs known to be emitted by coke ovens are a Group A known human carcinogen as categorized by EPA. In addition to being extremely carcinogenic, chronic exposure to BSOs can result in severe dermatitis and lesions of the respiratory and digestive systems.[37] Yet BSO monitoring is absent from the AMNP.

Despite being highly carcinogenic, BSO emissions are currently unmonitored. If unaccounted benzene emissions are indicative of fugitive emissions directly from coke ovens, then benzene could be only a small part of the cancer risk posed by these emissions, with most of the cancer risk coming from the benzene-soluble organic portion of PM from the coke ovens. Although BSOs emissions might vary directly with benzene emissions, the BSOs from coke ovens are so carcinogenic that they should be monitored directly to ensure accurate data regarding public exposure. BSOs were monitored during EPA fenceline measurements at Clairton and EPA Method TO13A sampling is the commonly used way of estimating BSO concentrations at coke ovens.[38]

To ensure public health is protected, HAP emissions from coke oven facilities, especially USS Clairton, must be reduced. In order to be reduced, the Department must ensure that benzene and BSOs are monitored accurately and consistently within the air monitoring network. These data can then be used to conduct further cancer and public-health-focused studies. Past studies have led to institutional change at Clairton, including original research into cancer for Clairton coke workers, together with a survey of previous studies, leading to the carcinogenicity estimate

[37] EPA, *Coke Oven Emissions*, https://www.epa.gov/sites/default/files/2016-09/documents/coke-oven-emissions.pdf (last visited Dec. 1, 2023).
[38] EPA, *Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air: Compendium Method TO-13A: Determination of Polycyclic Aromatic Hydrocarbons (PAHs) in Ambient Air Using Gas Chromatography/Mass Spectrometry*, *(GC/MS)*, 2nd Ed., https://www.epa.gov/sites/default/files/2019-11/documents/to-13arr.pdf.

for coke oven BSO, and eventually leading to workers exposed to the batteries wearing helmet respirators.[39]

There is a clear need for updated BSO and benzene monitoring in order to more accurately understand the cancer impact of the coking activities, and to determine what efforts are needed to reduce fugitive emissions of these toxins. Additionally, accurate monitoring is necessary to allow proper studies to understand the impact of these chemicals on the local communities. ACHD's Community Profiles reports from 2000–2010 show elevated cancer mortality in municipalities exposed to the Clairton and Shenango coke works, although the only age adjustment available in the report is for all-cause deaths.[40] Commenters suggest that ACHD first develop an AMNP that would support future public health research, and then undertake necessary studies.

One such study should be a cancer-focused analysis to better elucidate cancer mortality and incidence as correlated to coke oven exposure revealed by dispersion analysis. ACHD should also analyze the prevalence of different forms of cancer, including those associated with certain chemical exposures. For example, benzene exposure is associated with some forms of leukemia. However, without adequate monitoring, neither these studies nor enforcing emissions reductions necessary to protect public health are possible.

3. **The Department should add a site-specific airborne lead monitor in the vicinity of the Edgar Thomson Steel Works because data from similar facilities indicates that the unmeasured fugitive and intermittent particulate ("UFIP") lead emissions are likely well above the required monitoring threshold.**

In 2010, EPA revised the ambient monitoring requirements for lead expressly to "better assess compliance with the revised National Ambient Air Quality Standards" ("NAAQS").[41] Since then, monitoring agencies must monitor ambient lead concentrations in air near industrial facilities emitting 0.5 tons per year ("tpy") or more of lead.[42] Evidence from EPA's study of similar facilities indicates that Edgar Thomson is likely emitting lead far in excess of that threshold.

In its recent review of the National Emissions Standards for Hazardous Air Pollutants for the Integrated Iron and Steel ("II&S") Industry, the EPA estimated that unmeasured fugitive or

[39] Carcinogen Assessment of Coke Oven Emissions Final Report, February 1984, downloaded from https://cfpub.epa.gov/ncea/risk/recordisplay.cfm?deid=47897
[40] https://www.alleghenycounty.us/uploadedFiles/Allegheny_Home/Health_Department/Resources/Data_and_Reporting/Chronic_Disease_Epidemiology/AlleghenyCounty.pdf.
[41] EPA, *Fact Sheet: Revisions to Lead Ambient Air Monitoring Requirements*, https://www.epa.gov/sites/default/files/2016-03/documents/leadmonitoring_finalrule_factsheet.pdf (last visited Dec. 1, 2023).
[42] *Id.*; 40 CFR Appendix D of Part 58 4.5.

intermittent particulate matter ("UFIP") emissions were nearly 1,600 tons per year from an example facility. This can be seen in EPA's table copied below.

Table 3. Estimated PM Emissions for Seven UFIP Sources at the Example II&S Facility

UFIP Source	PM Emissions[a] (TPY)		
	Per Unit[b]	Total Facility[c]	
		Point+UFIP Sources[d]	UFIP Sources Only[d]
BOPF Shop Fugitives	--	1,214	1,146
Blast Furnace Casthouse Fugitives	--	256	230
Blast Furnace Bell Leaks	--	16	No change
Slag Handling & Storage	--	172	No change
Beaching of Iron (4 units)	0.067	0.27	No change
Blast Furnace Unplanned Openings (4 units)	4.9	20	No change
Blast Furnace Planned Openings (4 units)	3.2	13	No change
Total		**1,690**	**1,596**

[a] Emissions are calculated by multiplying the emission factor by the activity factor and converting the emissions in pounds to tons (2000 lb/ton) where needed.
[b] These emissions were calculated per unit and multiplied by the number of units to produce the facility total.
[c] Entries are rounded.
[d] Data from "All Emission Sources," were estimated from the UFIP emission factors, which included PM emissions from point source control devices as well as UFIP sources. Therefore, to eliminate double counting in the risk modeling of the Example Facility for PM-related HAP emissions from control devices at the BOPF Shop and Blast Furnace Casthouse, the total PM estimated from emission factors was reduced by the PM emissions measured at point source control devices during source testing for the RTR, at 26 and 68 TPY, respectively.

[43]

As shown below, of this nearly 1,600 tons of UFIP, approximately 13 tons were lead and 24 tons were manganese. The total quantity UFIP HAPs was estimated to be 50 tons per year. Again, the threshold of lead emissions to require a site specific monitor is 0.5 tons per year.[44]

[43] Memorandum, Donna Lee Jones, U.S. Environmental Protection Agency, *Development of Emissions Estimates for Fugitive or Intermittent HAP Emission Sources for an Example II&S Facility for input to the RTR Risk Assessment*, page 6 (May 1, 2020), https://www.regulations.gov/document/EPA-HQ-OAR-2002-0083-0956 (orange highlighting added for emphasis).
[44] 40 CFR Appendix D of Part 58 4.5.

Table 9. Estimated HAP Emissions for Seven UFIP Sources at the Example II&S Facility

HAP	HAP Emissions (TPY)							
	BOPF Shop	BF Casthouse	BF Beaching	BF Leaks	BF Unplanned Openings	BF Planned Openings	Slag Pits	Total HAP
Antimony	0.25	0.16	0.00019	0.0086	0.014	0.0092	0.0017	0.45
Arsenic	0.094	4.0	0.0047	0.21	0.35	0.22	0.041	5.0
Beryllium	0.0080	0.0059	0.0000068	0.00031	0.00051	0.00033	0.000060	0.015
Cadmium	1.1	0.048	0.000056	0.0025	0.0042	0.0027	0.00049	1.2
Chromium	1.2	2.2	0.0025	0.11	0.19	0.12	0.0069	3.8
Chromium VI	*0.40*	*0.017*	*0.000019*	*0.00087*	*0.0014*	*0.00093*	*0.000053*	*0.42*
Cobalt	0.10	0.039	0.000045	0.0020	0.0033	0.0022	0.00039	0.15
Lead	13	0.20	0.00023	0.010	0.017	0.011	0.0028	13
Manganese	21	1.2	0.0014	0.065	0.11	0.069	0.41	23
Mercury	1.4	0.050	0.000078	0.0026	0.0043	0.0028	0.00051	1.5
Nickel	0.86	0.59	0.00068	0.031	0.050	0.033	0.11	1.7
Selenium	0.052	0.012	0.000014	0.00064	0.0010	0.00068	0.00012	0.067
Total HAP	**39**	**8.6**	**0.0099**	**0.45**	**0.74**	**0.48**	**0.58**	**50**

Note: *Chromium VI* values are displayed on a separate row for information purposes only and are included in the Chromium (Total) row values also. Total HAP includes only Chromium (Total), therefore summing data in the columns will not equal the totals.

45

EPA estimated the bulk of these emissions to come from the basic oxygen process furnace ("BOPF") shop at the example II&S facility. Although Commenters do not have direct quantification of Edgar Thomson's UFIP lead and manganese emissions, it is reasonable to assume that it has similar characteristics to the example facility because BOPFs are a settled technology that has changed relatively little in the seven decades since it was invented.[46] One can anticipate a high degree of consistency between the emissions profiles of BOPF shops.

At a minimum, the Department should undertake a study similar to that performed by EPA to determine the actual quantity of HAPs emitted as fugitive particulate matter from the three US Steel facilities, with a particular focus on Edgar Thomson. Should it turn out that emissions are lower than predicted by EPA's data, and in particular if they are below the 0.5tpy monitoring threshold, then the community would be greatly relieved to learn that their lead exposure is not as high as many believe it to be. However, if it is the case that the emissions are in line with EPA's estimates, the Department would be required to implement additional monitoring through this plan and may also need to add additional monitoring and regulatory requirements to the facility's permits. Moreover, the Centers for Disease Control instructs that there is absolutely no safe exposure level for lead, especially in children.[47] Consequently, the best practice would be for ACHD to meticulously monitor all lead emissions, even if below the threshold that triggers the regulatory requirement.

---

[45] *Id.,* at 14.

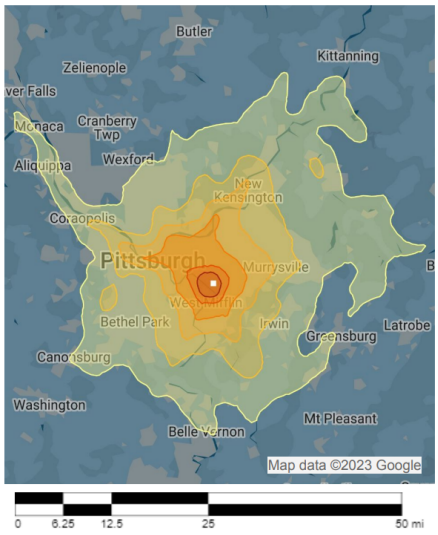
[46] Britannica, *Basic Oxygen Process*, https://www.britannica.com/technology/Basic-oxygen-process (last visited Dec. 1, 2023).

[47] CDC, *Health Effects of Lead Exposure*, https://www.cdc.gov/nceh/lead/prevention/health-effects.htm (last visited Dec. 1, 2023).

As stated, the similarity between II&S facilities is significant enough to support the conclusion that Edgar Thomson is emitting far more fugitive HAPs than are accounted for through current monitoring practices. According to dispersion modeling performed by CREATE Lab, the likely best location for an airborne lead monitor to more accurately capture actual lead emissions would be the existing North Braddock monitoring station.[48]

Modeled Relative Average Airborne Primary Pollutant Levels from Edgar Thomson Steel Works

CREATE Lab
Community Robotics, Education and Technology Empowerment



1-Year Average Concentration
% of Highest Receptor

- ≥10%
- ≥5%
- ≥2%
- ≥1%
- ≥0.5%
- ≥0.2%

This map shows the modeled average concentration of primary air pollutants from the Edgar Thomson Steel Works in Braddock, PA.

The meteorological data used covered 1/1/2022-1/1/2023

Modeling was conducted assuming constant emissions uniformly distributed across 0-25m above ground level at 40.392967,-79.855709.

This map provides an understanding of the geographical distribution of primary pollutants on a relative scale. It does not provide specific levels of pollutants expected at any location. Secondary pollution formation has not been modeled.

Data Source: NOAA High-Resolution Rapid Refresh Atmospheric Model
Modeling Conducted by the CREATE Lab using NOAA HYSPLIT
Contact Amy Gottsegen at amy@createlab.org

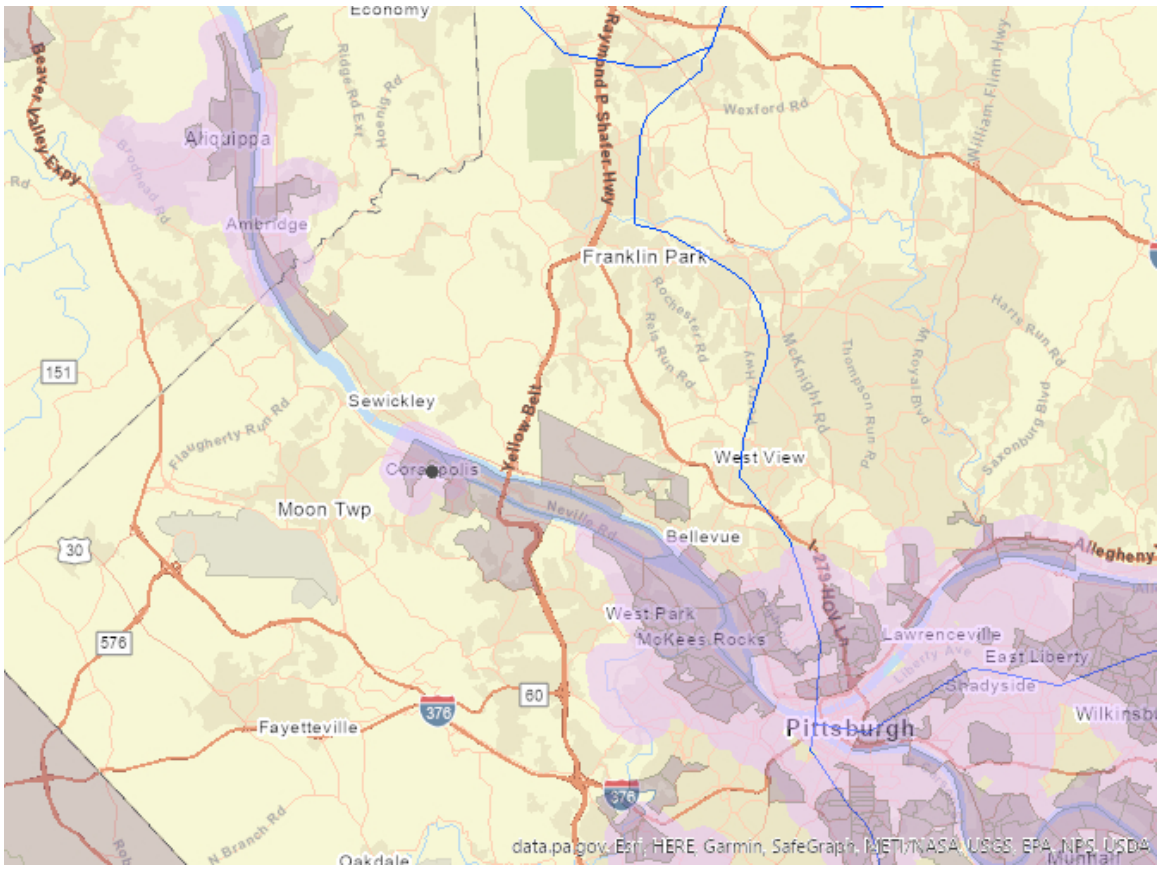
Commenters urge the Department to place a source-specific airborne lead monitor at North Braddock to satisfy the requirements of 40 CFR Appendix D of Part 58 4.5. Furthermore, the Commenters request the Department to perform broad airborne heavy metals sampling at North Braddock given the estimated fugitive emissions of manganese and other heavy metals from II&S facilities. Such data might reveal the need for additional monitoring in the future and better inform public health efforts.

[48] Attachment 1

4. **The Department should place a VOC monitor at the Avalon site, or another site in the vicinity of Neville Island, due to the concentration of large VOC sources on and near the island.**

With the Department having discontinued monitoring for sulfur dioxide and hydrogen sulfide at the Avalon monitoring site in response to the closure of the Shenango Coke Works, the only remaining sensor there is for fine particulates. There are a number of good reasons for the Department to undertake monitoring for volatile organic compounds on or near Neville Island.

Neville Island is a densely populated area with a population of about 1,044.[49] There are a number of environmental justice areas to the southwest in Coraopolis and to the southeast:



[50]

The only remaining monitor serving these areas is the monitor for fine particulates at the Avalon Site.

---

[49] U.S. Census Bureau, *Annual Estimates of the Resident Population for Minor Civil Divisions, by County: April 1, 2010 to July 1, 2019*, https://www.census.gov/data/datasets/time-series/demo/popest/2010s-total-cities-and-towns.html (estimating population of 1,044 in 2019, in spreadsheet for Pennsylvania).

[50] DEP, *PA Environmental Justice Viewer*, https://padep-1.maps.arcgis.com/apps/webappviewer/index.html?id=f31a188de122467691cae93c3339469c (image downloaded Dec. 1, 2023).

There are a number of sources of volatile organic compounds on Neville Island even after the closure of the Shenango coke facility. According to the Department's Public Submittal Records webpage, reported actual annual emissions of volatile organic compounds exceeded 133 tons on the island, using the most recent inventory summaries available for each facility:

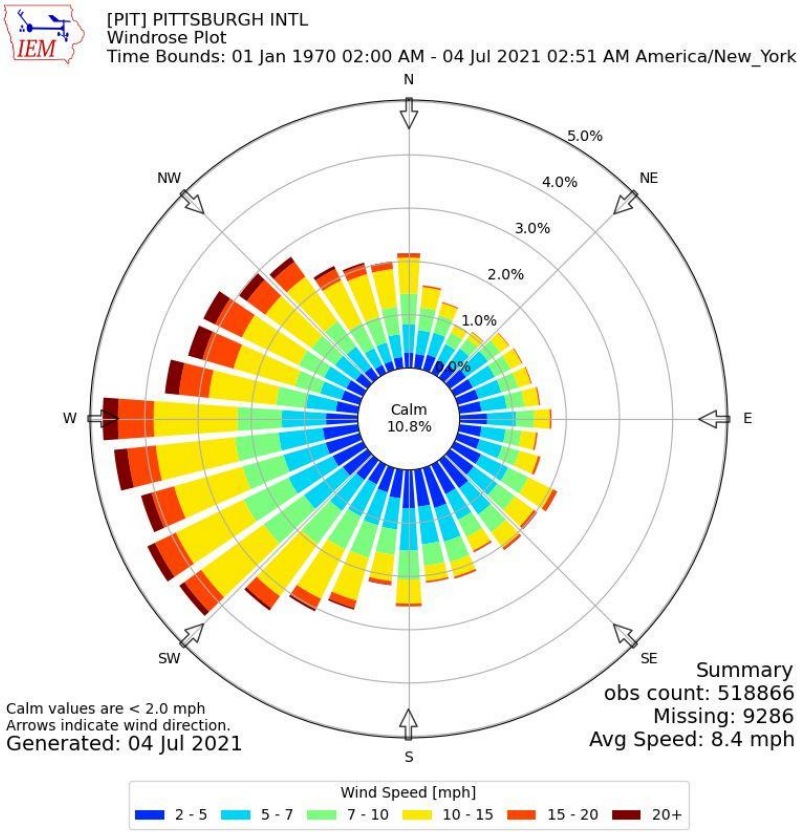
Facility	**Reported Annual VOC Emissions (tpy)**
Lindy Paving	13.2[51]
Neville Chemicals	67.8[52]
Gottlieb, Inc	9.6[53]
Metalico Neville Island	8.93[54]
LHT Neville Island Terminal	34.2[55]

In addition, there are significant sources of volatile organic compounds in Coraopolis, which lies to the west of Neville Island. According to records on the Department's Public Submittal Records webpage, reported actual annual emissions of volatile organic compounds from these sources exceeded 57 tons in 2022:

[51] ACHD, *Air Emission Inventory Summary Report: Source Summary Report - Source Identifier 0311*, page 2 (2021) (most recently available reporting year), https://achd-public.govonlinesaas.com/pub/pub-rcd/submittals/review/7/52;tab=sub.
[52] ACHD, *Air Emission Inventory Summary Report: Source Summary Report - Source Identifier 0060*, page 3 (2021) (most recently available reporting year), https://achd-public.govonlinesaas.com/pub/pub-rcd/submittals/review/7/29;tab=sub.
[53]ACHD, *Air Emission Inventory Summary Report: Source Summary Report - Source Identifier 0318*, page 2 (2022) (most recently available reporting year), https://achd-public.govonlinesaas.com/pub/pub-rcd/submittals/review/7/2869;tab=sub.
[54] ACHD, *Air Emission Inventory Summary Report: Source Summary Report - Source Identifier 0692*, page 2 (2022) (most recently available reporting year), https://achd-public.govonlinesaas.com/pub/pub-rcd/submittals/review/7/53;tab=sub.
[55] ACHD, *Air Emission Inventory Summary Report: Source Summary Report - Source Identifier 0012*, page 3 (2022) (most recently available reporting year), https://achd-public.govonlinesaas.com/pub/pub-rcd/submittals/review/7/2840;tab=sub.

Facility	**2022 Reported Annual VOC Emissions (tpy)**
LHT Coraopolis Terminals	38.1[56]
Pittsburgh International Airport	19.73[57]

The wind rose for Pittsburgh International Airport demonstrates a propensity of prevailing winds to blow from Coraopolis to Neville Island:



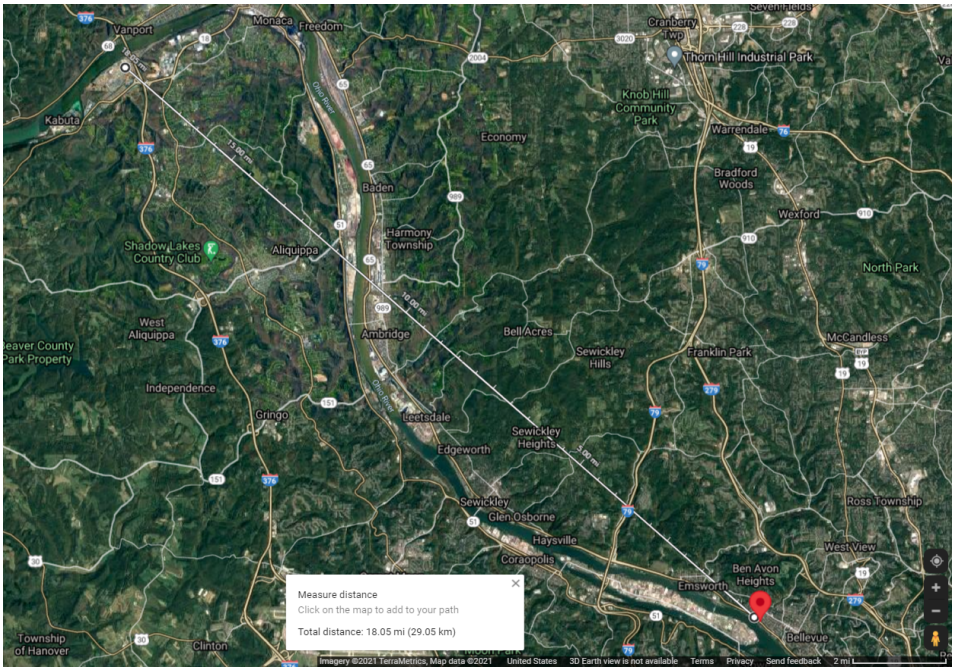
[58]

[56] ACHD, *Air Emission Inventory Summary Report: Source Summary Report - Source Identifier 0041*, page 3 (2022) (most recently available reporting year), https://achd-public.govonlinesaas.com/pub/pub-rcd/submittals/review/7/2893;tab=sub.

[57] ACHD, *Air Emission Inventory Summary Report: Source Summary Report - Source Identifier 0019*, page 3 (2022) (most recently available reporting year), https://achd-public.govonlinesaas.com/pub/pub-rcd/submittals/review/7/2848;tab=sub.

[58] Iowa State University, *Wind Roses* (Wind rose for Pittsburgh, PA), https://mesonet.agron.iastate.edu/sites/windrose.phtml?network=PA_ASOS&station=PIT (last visited Dec. 1, 2023)..

While located a greater distance away (18 miles to the northwest, as shown below), the Shell ethane cracker has an emissions limitation for volatile organic compounds that far exceeds the emissions of all these other facilities:



[59]

That facility has an annual emissions limit of 522 tpy for VOC and 30.5 tpy for hazardous air pollutants.[60] Actual emissions for the most recent 12-month period available (through September 2023) are drastically higher: 1015 tons of VOCs and 58.3 tons of HAPs.[61]

Previously, the Department rejected the request by Allegheny County Clean Air Now (ACCAN) for the installation of monitors for volatile organic compounds.[62] The rationale was that the Department had already performed an air toxics study, and that the results were low:

> ***The Department acknowledges the quantity of VOC point source emissions on or around Neville Island. However, VOC monitoring at the Avalon site was discontinued in December***

---

[59] Google Maps image, https://www.google.com/maps/place/40%C2%B029'59.2%22N+80%C2%B004'16.8%22W/@40.5963721,-80.2881382,24697m/data=!3m1!1e3!4m5!3m4!1s0x0:0x0!8m2!3d40.499767!4d-80.071337 (image retrieved on August 2, 2021).

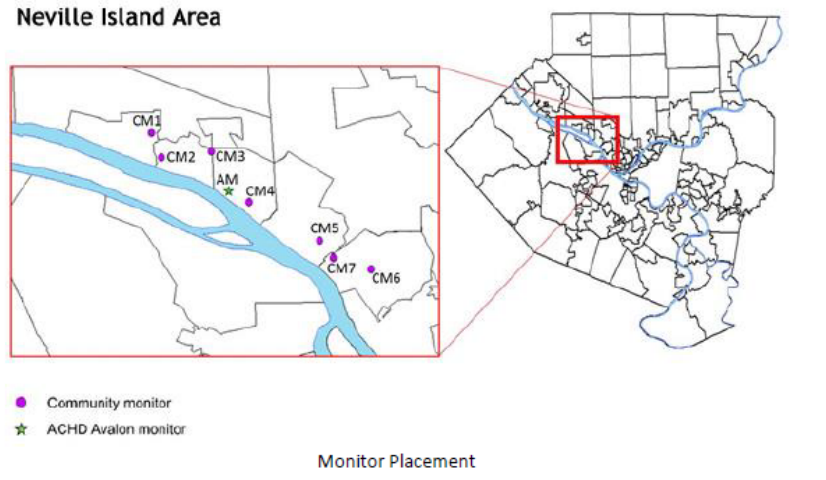
[60] Plan Approval Extension dated October 18, 2023, Condition #005, page 15, https://files.dep.state.pa.us/RegionalResources/SWRO/SWROPortalFiles/Shell/11-13-23/Shell_Chemical_Appalachia_September_2023_Emissions_20231018.pdf .

[61] 12-month Rolling Emissions Totals, received by PADEP from Shell, hosted on PADEP's Shell "Facility Information" page at https://files.dep.state.pa.us/RegionalResources/SWRO/SWROPortalFiles/Shell/11-13-23/Site_Level_Rolling_12_Month_Emissions_thru_2023_09_PADEP_Submission_20231017.xlsx.

[62] ACHD, *Air Monitoring Network Plan*, pages 85, 93 (2020).

> ***2018 due to low uniform results. The Department does not plan on resuming VOC monitoring at the Avalon site at this time***. A more extensive air toxics study that measured for VOC was performed around Neville Island between 2015 and 2017. The results of that study are posted on the website here: https://alleghenycounty.us/uploadedFiles/Allegheny_Home/Health_Department/Resources/Data_and_Reporting/Air_Quality_Reports/Neville-Area-Air-Toxics-Study.pdf.[63]

First of all, the Department never actually installed a monitor in Neville Island. Rather, the Department installed monitors in an array surrounding the location of the existing Avalon monitor on the north bank of the Ohio River:



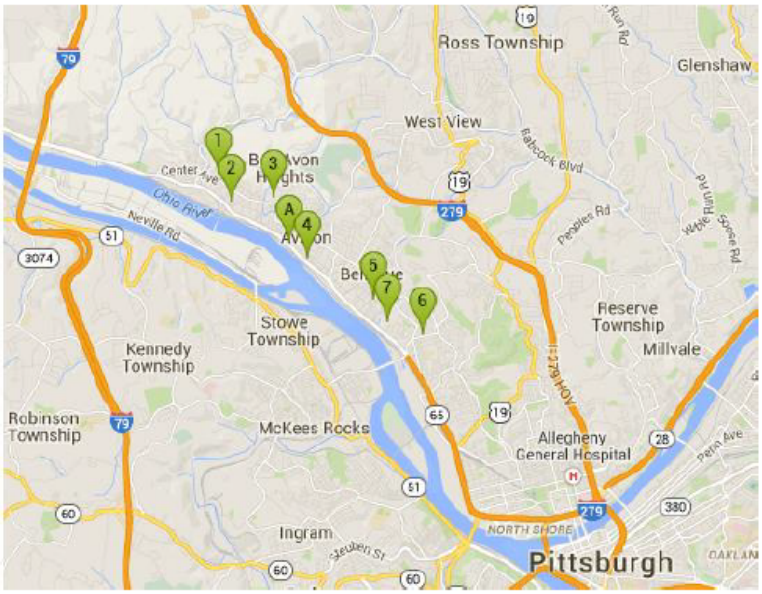
This may also be shown on another map in this report:

[63] *Id.,* page 85 (bold italics added for emphasis). However, as shown in these comments, additional monitoring is necessary.

[64] ACHD, *Neville Island Area Air Toxics Study Monitoring and Health Outcomes*, page 4 (April 2015), https://alleghenycounty.us/uploadedFiles/Allegheny_Home/Health_Department/Resources/Data_and_Reporting/Air_Quality_Reports/Neville-Area-Air-Toxics-Study.pdf.

Data / Lab Analysis Tables

Below is a map indicating the various monitoring stations. Values for each of the focus pollutants are listed by table on the following pages for each of the monitoring locations.



[65]

Second, the Department did not conduct monitoring for all volatile organic compounds. Rather, it limited its monitoring to seven hazardous air pollutants (benzene, toluene, ethylbenzene, xylenes, naphthalene, styrene, and n-hexane).[66] Presumably, the motivation for this study was the existence of the Shenango coke facility, which has now been closed for several years. But the context has now changed.

The Department should take a fresh look at monitoring for hydrocarbons on Neville Island, given the change in circumstances involving the closure of the Shenango facility and the permitting of the ethane cracker. It should consider volatile organic compounds broadly. Finally, it should not limit the geographical location of monitors to one limited area on the northern bank of the Ohio River.

Commenters urge the Department to take this information into consideration and at a minimum add a VOC monitor to the Avalon site, or a new site on Neville Island itself, so the Department and the local communities have data that accounts for the emissions from the large number of stationary VOC sources. Suitable monitors could include the inexpensive and easily available SPOD or any EPA Method T0-15 compliant monitoring system.[67]

---

[65] *id.,* page 9.
[66] *id.,* pages 4, 12–33 (data tables).
[67] SESIT Tech., *SENSIT SPOD*, https://gasleaksensors.com/products/sensit-spod/ (last visited Dec. 1, 2023); EPA, *Compendium of Methods for the Determination of Toxic Organic Compounds in Ambient Air: Compendium Method TO-15 Determination Of Volatile Organic Compounds (VOCs) In Air Collected In Specially-Prepared Canisters And*

5. **Air Monitoring Network Plans are due to the Environmental Protection Agency on the 1st of July of the prior year, and have a mandated 30-day public comment period preceding that date, yet the Department did not post the proposed 2024 AMNP for public comment until October 27, 2023 and chilled public participation by inaccurately posting a call for comments with a web link to the already-final 2023 AMNP for several months after which the proposed 2024 plan should have been available.**

Year to year, the submission date for air monitoring network plans has varied, but in large part remained relatively close to the July 1st date required by federal regulations.[68] The Commenters must ask what resulted in this plan being delayed by more than four months? While these plans are often very similar from year to year, they are the primary method through which the agency with authority can adjust the network. The adjustments are necessary to account for new large sources, shifts in weather patterns, developing scientific knowledge, or other network or site-scale events. The participation in this process by the public that is covered by the network is crucial.

This year's proposed plan being delayed by such a significant amount of time drastically reduces the time in which the Department can enact any adjustments proposed in the plan, thus delaying the actual improvements to the network. Notably, numerous changes proposed in this year's proposal are directly, word for word, the same as changes that were proposed in last year's plan.[69] Presumably the Department was unable to complete the modifications within the timeframe of the previous plan. Had these adjustments been made in a timely manner, this year's plan could have been dedicated to other updates, such as those discussed in these comments.

Additionally, for several months there was an erroneous call for comments on the proposed plan posted on the Department's public notice webpage. That linked to the already finalized 2023 AMNP. Time and again, community residents and advocacy groups came upon that notice and arranged their schedules to allow them time to review and comment on the plan. It was repeatedly raised by interested residents at community meetings. Commenters repeatedly had to point out the date of the posted proposal and inform vigilant members of the public that the posting was in error and that the actual proposal was not yet available. Doubtlessly, over the course of several months, there were interested parties who stopped regularly checking the posting to see whether it had been updated with a true call for comments. Additionally, both the

---

Analyzed By Gas Chromatography/Mass Spectrometry (GC/MS), *(GC/MS)*, 2nd Ed., https://www3.epa.gov/ttnamti1/files/ambient/airtox/to-15r.pdf (last visited Dec. 1, 2023).

[68] 40 CFR 58.10.

[69] ACHD, *Air Monitoring Network Plan for Calendar Year 2023*, pages 11–15, 3.0 (May 10, 2022), *available at:* https://www.alleghenycounty.us/uploadedFiles/Allegheny_Home/Health_Department/Resources/Data_and_Reporting/Air_Quality_Reports/2023-ANP-DRAFT.pdf.

delay in the 2024 AMNP and repeatedly gearing up to evaluate the proposal only to realize that the posting was still inaccurate caused distress to concerned members of communities impacted by air pollution that is not yet sufficiently monitored. During this period, Clean Air Council repeatedly reached out to the Department's staff asking for the erroneous public notice to be taken down and for an update on when the proposed 2024 AMNP would be posted. The Department responded each time that they would try to remove the posting and that the relevant proposed AMNP would be available soon. Yet neither happened for months.

Maintaining an accurate public notice page on the Department's website is critical to facilitating public participation, as well as to promoting public trust in the Department. Human error is unavoidable and understandable. However, when errors are brought to the Department's attention, timely corrections are important. Furthermore, Commenters strongly encourage the Department to hew closer to the annual July 1st deadline for submission of these network plans in the future.

6. **The Commenters support the implementation of a working spare system, and encourage the Department to expand it to utilize old monitors that may be in storage after discontinuation.**

Utilizing monitors as "working spares" is an excellent way of maximizing the utilization of the equipment purchased by the Department.[70] Commenters have for many years advocated for the Department to not simply shelve monitors for sites that it has discontinued. As it stands, these monitors represent a significant investment of taxpayer dollars and are a very powerful diagnostic tool for the air quality of the county. They should be utilized to their fullest potential and this is a good first step. Commenters thank the Department for taking this step and urge them to bolster this plan even further.

Sincerely,

Joseph Otis Minott, Esq.
Executive Director
Clean Air Council
135 South 19th Street, Suite 300
Philadelphia, PA 19103
(215) 567-4004
joe_minott@cleanair.org

[70]Draft 2024 AMNP, at 13, § 3.1.3.

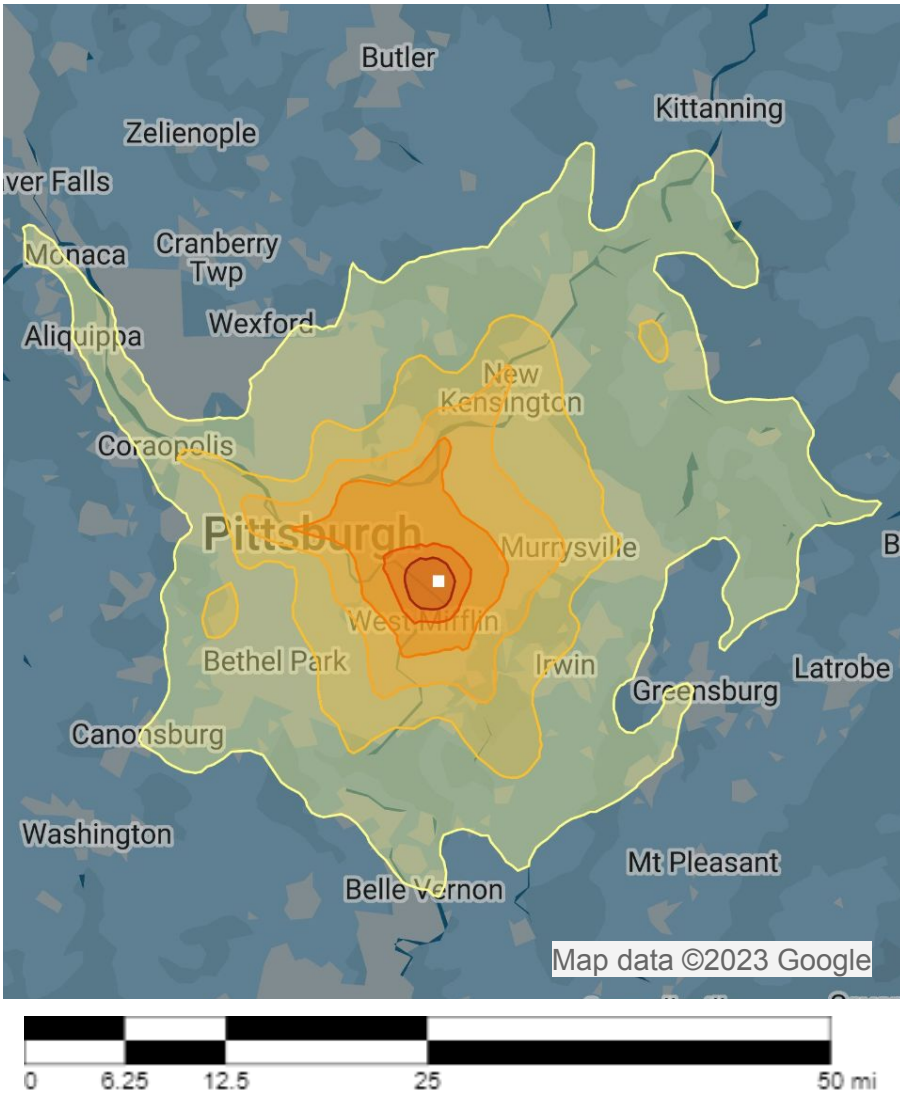
Ana Hoffman
Director of Air Quality Engagement
Randy Sargent
Director of Visualization
CREATE Lab
Carnegie Mellon University
(304) 231-7547
ana@createlab.org
4720 Forbes Ave.
Pittsburgh, PA 15213

Karen Grzywinski
President,
Allegheny County Clean Air Now
(ACCAN)
104 Windgap Road
Pittsburgh, PA 15237
k.a.b.grzy@gmail.com
1-412-443-3066

Angelo Taranto
Secretary/Treasurer
Allegheny County Clean Air Now
(ACCAN)
5000 Park Plaza Drive, Apt. 202
Pittsburgh, PA 15229
ataranto39@gmail.com
412-512-1250

Modeled Relative Average Airborne Primary Pollutant Levels from Edgar Thomson Steel Works

CREATE Lab
Community Robotics, Education and Technology Empowerment



1-Year Average Concentration

% of Highest Receptor

- ≥10%
- ≥5%
- ≥2%
- ≥1%
- ≥0.5%
- ≥0.2%

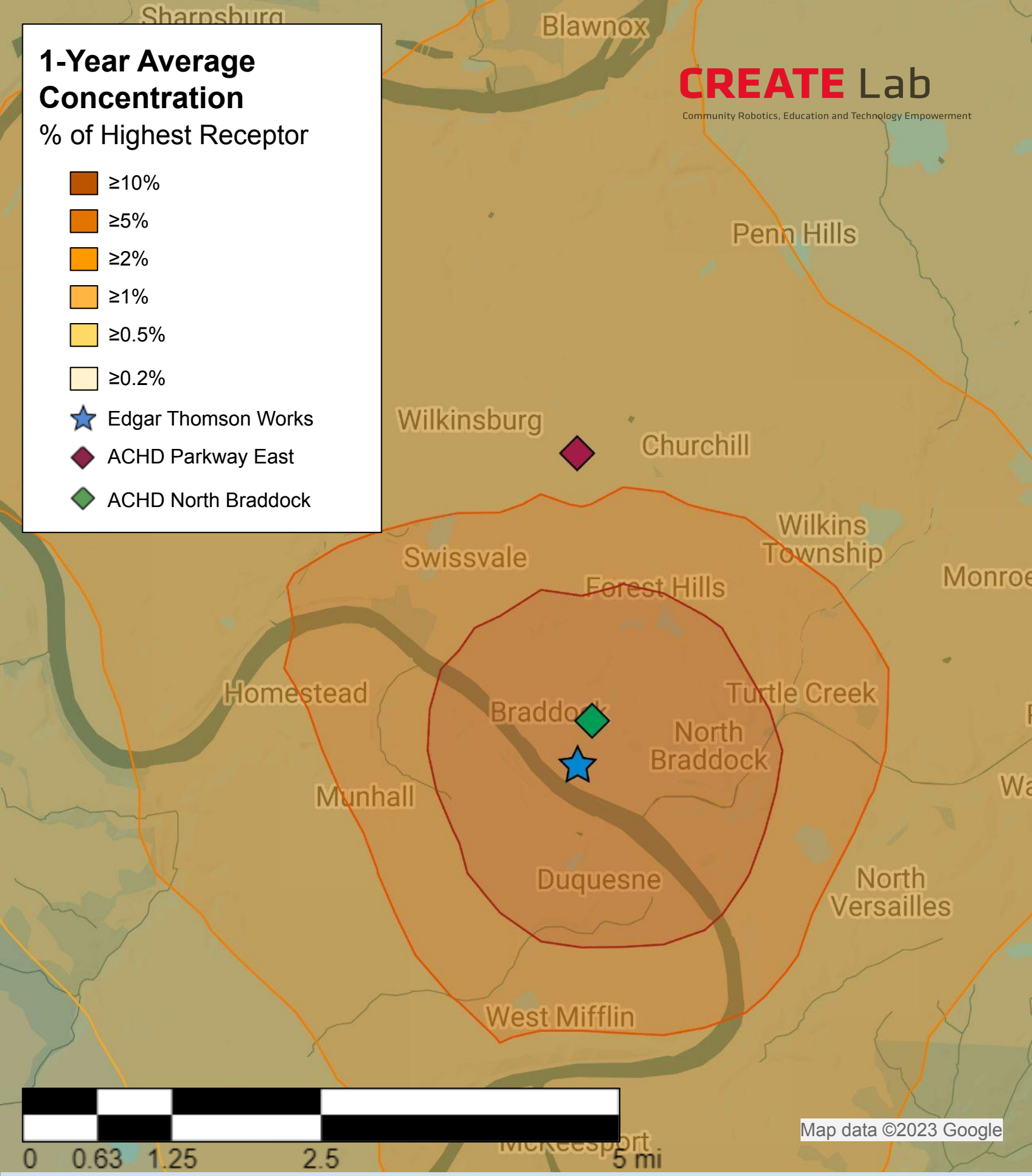
This map shows the modeled average concentration of primary air pollutants from the Edgar Thomson Steel Works in Braddock, PA.

The meteorological data used covered 1/1/2022-1/1/2023

Modeling was conducted assuming constant emissions uniformly distributed across 0-25m above ground level at 40.392967,-79.855709.

This map provides an understanding of the geographical distribution of primary pollutants on a relative scale. It does not provide specific levels of pollutants expected at any location. Secondary pollution formation has not been modeled.

Data Source: NOAA High-Resolution Rapid Refresh Atmospheric Model
Modeling Conducted by the CREATE Lab using NOAA HYSPLIT
Contact Amy Gottsegen at amy@createlab.org



Data Source: NOAA High-Resolution Rapid Refresh Atmospheric Model
Modeling Conducted by the CREATE Lab using NOAA HYSPLIT
Contact Amy Gottsegen at amy@createlab.org

December 1, 2023

Dear Allegheny County Health Department:

Please accept these comments in response to your Air Monitoring Network Plan for Calendar Year 2024 on behalf of the Birmingham Uptown Group and the signatories to this letter. We have considered our submission in the context of your Plan goals, which include to:

- Provide air pollution data to the general public in a timely manner;
- Support compliance with ambient air quality standards and emissions strategy development;
- Support for air pollution research studies.

We are requesting an air quality monitoring and weather monitoring station to be installed within or as close to the Lindy Paving Second Ave. hot mix asphalt plant and Birmingham Bridge location as possible within the City of Pittsburgh.

For many years, numerous residents have expressed concerns to the ACHD about the Second Ave. Lindy Paving hot mix asphalt plant. There have been observed (and smelled) emissions leaving the boundaries of the site in violation of their air quality permit and seeping into various surrounding neighborhoods and into public spaces on the riverfront as well as into vehicles driving by on adjacent roadways. Within a 2 mile radius reside over 80,000 people, including a large and vulnerable student population, senior housing and designated environmental justice communities and members.

Some events have been documented in the SmellPgh app, some on the ACHD complaint line, some photographically and by videography. The most recent photos and video capturing a pollution event on Nov. 8th at 2:40 pm (very detectable by the human olfactory system from the Jail Trail) and linked below illustrate one instance of concern.

https://youtu.be/j-ZHdeDlUWU

https://twitter.com/inversion_doc/status/1724481027513417846

These events have been ongoing for long enough that a group of concerned citizens and organizational representatives from Oakcliffe, Oakland, Uptown, Hill District, Lawrenceville, Shadyside, Squirrel Hill and South Side Flats have met repeatedly over the last years and at times put up Purple Air and other monitors to try and capture the signature of PM and VOC's. However, with little to no resources, this effort has been unsustained and data analysis time consuming, costly and incomplete.

Recently, the group (self described as the Birmingham Uptown group) took that summary of data collection, observation and concern and submitted it to the EPA as part of a grant proposal for help with acquisition of additional monitoring and air sampling resources under GASP's umbrella. The EPA found the information compelling enough that our concerns were met with a grant award and we will have access to Sensit SPods and Purple Air monitors for installation and use over three years in the near future.

A new ACHD monitor at or near this Second Ave. asphalt plant location as well as a weather station would further help bolster this investment by the EPA and further and more continuously monitor for pollution and mitigate potential health impact.

It is worth noting that two other facilities in this same area may also be contributing to pollution load in and around the area - from uncontained particulate matter via Heidelberg Materials adjacent and MetalTech. To a lesser extent, these facilities have been observed as having notable visible clouds of dust, and/or odors and emissions at various times.

This is a unique location, with complicated topography and one that is already far from any monitors. It is a densely populated area, especially one for any polluting industry to be in such close proximity. We believe it is being overlooked as a meaningful and preventable source of pollution contribution to the airshed simply because it is classified as a synthetic minor and because emissions are largely unregulated and unmonitored. Continuous monitoring coupled with weather sensors and measuring for the right pollutants (HAP's, VOC's, lead, formaldehyde, PM, CO, CO2, for example), could fill in a critical gap in the overall pollution picture in the County and for the Pittsburgh area in particular.

We implore you to look closely at all the comments and subsequent petitions submitted in 2023 for the public hearing on the 11th day of July. The hearing was held for comment on the draft permit of Lindy Paving's air quality and operations renewal. Please also consider the literature on pollution relative to asphalt plants. In your final monitoring plan, please include a monitoring station that will ensure the area near the Birmingham Bridge on Second Ave. is being closely monitored for compliance with all air quality standards and protective of nearby vulnerable population health. Please do not hesitate to reach out to us and to meet with the community members who have indicated their concerns so that additional information can be shared from our observations which might further help guide placement of both the monitor, monitor type and weather station placement.

https://www.publicsource.org/pittsburgh-allegheny-county-air-quality-lindy-paving-asphalt-permit-uptown/

Sincerely,

Christine Graziano
Resident of Squirrel Hill North

Jeanne and Dale McNutt
Residents of Uptown

Three Rivers Waterkeeper

Oakcliffe Community Organization

James Simon
Resident of Uptown

Diane DeNardo
Resident of Uptown

ACCAN

Mark Dixon, Resident of Squirrel Hill South

Helen Perilloux and John Fleenor
Residents of Uptown

Felipe Garcia-Huidobro
Resident of Uptown

From: Dominik Moritz
To: Good, David
Subject: Comments on Draft Air Monitoring Network Plan for Year 2024
Date: Friday, December 1, 2023 2:37:29 PM

Dear David Good,

The 2024 Draft Air Monitoring Network Plan presented by the Allegheny County Health Department (ACHD) would lead to numerous gaps in the air monitoring network. These gaps would come from failing to pick up on important pollution sources and key pollutants. First, by moving a monitor from Lawrenceville to Chateau, the county would lose out on tracking downwind air quality effects from downtown Pittsburgh traffic. Second, the network plan should also enhance benzene monitoring around both the US Steel (USS) Clairton and Irvin facilities because recent data demonstrates that local ambient benzene concentrations are dangerously high and indicate that USS may be underreporting emissions from these facilities. Third, benzene soluble organic compounds, which are over 250 times as carcinogenic as benzene and known to be emitted by Clairton Coke Works, need to be monitored. Fourth, ACHD should add lead monitoring near the USS Edgar Thomson Works due to measured exceedances. Fifth, ACHD should place a VOC monitor near Neville Island (potentially at Avalon monitoring site) to measure the demonstrated VOC exceedances in the area. Lastly, I would like to add that presenting this plan in October means that ACHD is extremely late for the Environmental Protection Agency's July 1st deadline, and I am concerned that ACHD may not have sufficient time to properly consider and implement necessary changes to the air monitoring network.

Thank you for your meaningful consideration of these comments.

Sincerely,
Dominik Moritz
1301 Malvern Ave
Pittsburgh, PA 15217
415-857-2848