



Department of Public Health

Air Management Services

CITY OF PHILADELPHIA

2026 – 2027
Air Monitoring Network Plan

City of Philadelphia
Department of Public Health
Air Management Services

Draft Date 4/20//2026

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 Department of Public Health, Air Management Services.

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Executive Summary

The Philadelphia Department of Public Health – Air Management Services (AMS) operates an ambient air monitoring network. Federal Regulations (40 CFR 58.10) require AMS to submit an annual Air Monitoring Network Plan (AMNP) to EPA Region III to ensure that the network stations continue to meet the criteria established by federal regulations. AMS must document the process for obtaining public comment and include any comments received through the public notification process within the submitted plan. Public comments received on the air monitoring plan must be included in the version submitted to the EPA. All proposed additions, modifications, and discontinuations of State or Local Air Monitoring Station (SLAMS) monitors in AMS’s air monitoring network plan are subject to EPA approval.

AMS operates an ambient air monitoring network of ten air monitoring stations that house instruments measuring ambient levels of gaseous, solid, and liquid aerosol pollutants. This air monitoring network is part of a broader network operated by the states of Pennsylvania, New Jersey, Delaware, and Maryland that monitors the ambient air in the Philadelphia-Camden-Wilmington, PA-NJ-DE-MD Metropolitan Statistical Area (MSA).

Summary of air monitoring network changes since the last Plan:

- In 2025, AMS deployed 76 Clarity Node-S sensors for PM_{2.5} and NO₂ to enhance citywide spatial coverage and complement regulatory monitoring.
- In 2026, AMS launched the [Breathe Philly](#) dashboard, providing public access to real-time regulatory and non-regulatory air quality data in Philadelphia.
- In 2025, AMS advanced development of a Neighborhood Multipollutant Monitoring Site, formerly proposed as the HUN site and now designated the WIS site, located at 5200 Wissahickon Ave in North Philadelphia. The site is designed to monitor PM_{2.5}, NO₂, VOCs, and air toxics. Data collection is scheduled to begin in April 2026.
- In 2025, AMS resumed Black Carbon measurements at the MON monitor and is continuing work to reestablish Ultrafine PM monitoring following the 2024 cessation due to sensor issues.
- For the American Rescue Plan (ARP), AMS has the necessary PM_{2.5} instruments in place; however, the proposed real-time VOC analyzer is unavailable. AMS is currently evaluating alternative devices to support VOC measurements.
- AMS expanded the Community Scale Air Toxics Monitoring network with four additional monitoring sites in 2025; AMS has installed equipment at nine CSAT locations, and measurements are currently underway.
- In 2025, AMS added a PM_{2.5} FRM monitor to the TOR site to strengthen PM_{2.5} monitoring reliability.

Summary of proposed additions to the air monitoring network:

- Acquire and deploy five Clarity FEM-capable ozone monitors. These sensors will operate as regulatory monitors.
- Acquire and deploy up to 76 Clarity multi-gas (O₃, NO₂, NO_x, NO, CO) sensors to pair with previously acquired Clarity Node-S sensors. These sensors are not regulatory monitors.

Air monitoring provides essential information about air quality in Philadelphia. One of the main objectives of the network is to measure pollutant levels in areas with many emission sources and significant population exposure. Additionally, monitoring helps identify differences in pollutant levels in various parts of the city, track long-term trends, support facility compliance, enable real-time monitoring, and provide the public with air quality information.

Air monitoring data is submitted to the EPA each quarter. EPA's Air Data website (<https://www.epa.gov/outdoor-air-quality-data>) provides access to air quality data collected at the monitors. On May 1 of each year, AMS certifies the previous year's data in accordance with the annual data certification process outlined in 40 CFR Part 58.15.

Public Participation

The Code of Federal Regulations (CFR) Title 40: Protection of Environment, Part 58: Ambient Air Quality Surveillance requires state and local air pollution control agencies to adopt and submit an annual Air Monitoring Network Plan (AMNP, or the Plan) to the Environmental Protection Agency (EPA) Regional Administrator by July 1 of each year. The AMNP provides for the establishment and maintenance of an air quality surveillance system comprising a network of monitoring stations. A proposed AMNP must be made available for public inspection and comment for at least 30 days prior to submission to EPA.

In addition to regulatory monitoring, AMS operates supplemental monitoring sites and equipment based on available funding, technical priorities, community input, and public health considerations, as described in this Plan. Recently, AMS has made significant improvements to community monitoring and will continue to prioritize this work. AMS remains committed to strengthening air monitoring coverage across Philadelphia neighborhoods, particularly in communities disproportionately impacted by air pollution.

The public can find copies of the draft AMNP at <https://www.phila.gov/departments/air-pollution-control-board/air-management- notices/> and at the office of Air Management Services, 7801 Essington Ave, Philadelphia, PA 19153, during normal business hours. Please contact AMS at 215-685-9429 to schedule an appointment. For further information, contact Rahel Gebrekidan, Program Services Unit, AMS at dphams_ps@phila.gov.

Written comments on the proposed AMNP should be sent by mail to Rahel Gebrekidan, Program Services Manager / 2026 AMNP, Air Management Services, 7801 Essington Ave, Philadelphia, PA 19153; or via Email at dphams_ps@phila.gov, with “2026 Air Monitoring Network Plan” included in the subject line.

Only written comments by mail/email will be accepted. Comments received by facsimile or voice messages will not be accepted. People wishing to file comments on the proposed AMNP must submit comments by April 27, 2026 (within 30 days of the publication of the public notice in the local newspaper, Daily News).

Definitions and Design Methodology

Sampling Methodology

Pollutants and Parameters

Air Management Services monitors for a wide range of air pollutants and parameters:

- **Criteria Pollutants** are measured to assess if and how well we are meeting the National Ambient Air Quality Standards (NAAQS) that have been set for each of these pollutants. These standards are set to protect the public's health and welfare.
 - **Ozone (O₃)**
 - **Sulfur Dioxide (SO₂)**
 - **Carbon Monoxide (CO)**
 - **Nitrogen Dioxide (NO₂)**
 - NO means nitric oxide.
 - NO_x means oxides of nitrogen and is defined as the sum of the concentrations of Nitrogen Dioxide (NO₂) and Nitric Oxide (NO).
 - NO_y means the sum of all total *reactive* nitrogen oxides, including NO, NO₂, and other nitrogen oxides referred to as NO_z.
 - **Particulates**
 - PM_{2.5} means particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers.
 - PM₁₀ means particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers.
 - PM Coarse means particulate matter with an aerodynamic diameter greater than 2.5 micrometers and less than 10 micrometers.
 - Ultrafine Particulate Matter means particulate matter with an aerodynamic diameter less than 0.1 micrometers.
 - **Lead (Pb)**
 - EPA has waived monitoring lead since 2017 because the 2014-2016 design value in Philadelphia was 0.04 µg/m³, well below the National Ambient Air Quality Standards for lead of 0.15 µg/m³.
- **MET** – Meteorology parameters that may include temperature, relative humidity, barometric pressure, wind speed, wind direction, mixing height, precipitation, solar and UV radiation.
- **Speciated PM_{2.5}** – PM_{2.5} particles are analyzed to identify their makeup (60 components, including elements, radicals, elemental carbon, and organic carbon) and help assess the level of health risk and identify sources that are contributing to the levels of PM_{2.5} being measured.
- **Toxics** – Approximately 50 VOC compounds, 7 carbonyls, and 7 metal elements are measured as air toxics to assess the risk of cancer and non-cancer hazards caused by these pollutants. The VOC compounds are analyzed by GC/MS (EPA Compendium Method TO-15); carbonyls are analyzed by uHPLC (ultra-High-Performance Liquid Chromatography), and metals by ICP-MS(URG) (to be analyzed by an outside lab).

- **PAMS Volatile Organic Compounds (VOC)** – Approximately 57 of these compounds are monitored to assist in understanding the formation of ozone and how to control this pollutant. These compounds are analyzed by Auto GC-FID.

Measurement Methods

The following definitions summarize EPA measurement method designations referenced throughout this Plan:

- **Federal Equivalent Method (FEM)** – A method for measuring the concentration of an air pollutant in the ambient air that has been designated as an equivalent method in accordance with 40 CFR Part 53; it does not include a method for which an equivalent method designation has been canceled in accordance with 40 CFR Part 53.11 or 40 CFR Part 53.16.
- **Federal Reference Method (FRM)** – A method of sampling and analyzing the ambient air for an air pollutant that is specified as a reference method in an appendix to 40 CFR Part 50, or a method that has been designated as a reference method in accordance with this part; it does not include a method for which a reference method designation has been canceled in accordance with 40 CFR Part 53.11 or 40 CFR Part 53.16.

Collection Methods

Particulate Samples

- **Broadband Spectroscopy PM Mass Monitor** – This instrument provides continuous PM_{2.5} real-time mass measurements using broadband spectroscopy, which combines advanced LED technology with light scattering theory. Certain PM Mass Monitor Models provide simultaneous, continuous real-time PM₁₀ and PM_{2.5} mass measurements.

The following instruments provide 24-hour concentration values for particulate matter. Laboratory analysis is required before the concentration of particulate matter can be determined.

- **Hi-Vol** – High-Volume Air Samplers (HVAS) are used to determine the concentration of particulate matter in the air. All collected material is defined as total suspended (in the air) particulates (TSP), including lead (Pb) and other metals. A Hi-Volume sampler consists of two basic components: a motor like those used in vacuum cleaners and an air flow control system.
- **Filter-based PM_{2.5}** – Filter-based PM_{2.5} monitors with air samples drawn through a Teflon filter for 24 hours.
- **Met One SASS** – Filters used to collect PM measurement of total mass by gravimetry, elements by x-ray fluorescence.
- **URG** – Filters used to collect PM measurement of organic and elemental carbon.

Gaseous / Criteria Pollutants

- **Instrumental** – Data from these instruments is telemetered to a central computer system and values are available in near “real time”. An analyzer used to measure pollutants such as carbon monoxide, sulfur dioxide, nitrogen oxides, and ozone.

Toxic and Organic (VOC) Pollutants

- **SS Canister Pressurized** – Ambient air is collected in stainless-steel canisters, cryogenically concentrated using liquid nitrogen, and analyzed for target VOCs and other organic components by GC-FID and GC-MS.
- **Canister Sub Ambient Pressure** – Collection of ambient air into an evacuated canister with a final canister pressure below atmospheric pressure.
- **DNPH-Coated Cartridges** – Cartridges are coated with 2,4-dinitrophenylhydrazine (DNPH). This is used for the determination of carbonyls in ambient air. Ultra-High Performance Liquid Chromatography (uHPLC) is used to measure carbonyls.

Analysis Methods

Particulate Matter Concentration

- **Gravimetric** – The determination of the quantities of the constituents of a compound describes a set of methods for the quantitative determination of an analyte based on the weight of a solid. Laboratory analysis is needed.
- **Broadband Spectroscopy** – Broadband spectroscopy combines advanced LED technology with light scattering theory. Certain PM Mass Monitor Models provide simultaneous, continuous, real-time PM₁₀ and PM_{2.5} mass measurements.

Speciation / Composition / Make-up of Particulates

- **Energy Dispersive XRF** – Energy dispersive X-Ray Fluorescence Spectrometer for the determination of species in ambient particulate matter.
- **Ion Chromatography** – Ion-exchange chromatography (or ion chromatography) is a chromatography process that separates ions and polar molecules based on their affinity to the ion exchange for the determination of species in ambient particulate matter.
- **IMPROVE** – Thermal Optical Reflectance (TOR) analysis using the Interagency Monitoring of Protected Visual Environments (IMPROVE)_A protocol.

Gaseous Criteria Pollutants

- **Nitrogen Oxides – Chemiluminescence** – Emission of light as a result of a chemical reaction at environmental temperatures. This analysis is used for NO, NO_x, and NO_y. NO₂ is calculated by subtracting NO from NO_x. True NO₂ monitoring technology provides a direct NO₂ measurement. The instrument utilizes a Cavity Attenuated Phase Shift (CAPS) technique.
- **Carbon Monoxide – Gas Filter Correlation** – Measures low ranges of carbon monoxide by comparing infrared energy absorbed by a sample to that absorbed by a reference gas

according to the Beer-Lambert law. Using a Gas Filter Correlation Wheel, a high-energy IR light source is alternately passed through a CO-filled chamber and a chamber without CO. The light path then travels through the sample cell, which has a folded path of 14 meters. The energy loss through the sample cell is compared with the span reference signal provided by the filter wheel to produce a signal proportional to concentration.

- **Sulfur Dioxide – UV Fluorescent** – UV Fluorescence Sulfur Dioxide Analyzer is a microprocessor-controlled analyzer that determines the concentration of sulfur dioxide (SO₂) in a sample gas drawn through the instrument's sample chamber, where it is exposed to ultraviolet light, which causes any SO₂ present to fluoresce. The instrument measures fluorescence to determine the amount of SO₂ in the sample gas.
- **Ozone – Ultraviolet** - Ozone is analyzed with UV because ozone absorbs UV at a specific wavelength. The amount of UV light absorbed by the sample is used to determine the ozone concentration.

Toxic and volatile organic pollutants

- **GC-MS** – Gas Chromatograph/Mass Spectrometer. Analysis of organics or VOCs are conducted using a gas chromatograph (GC) with a mass spectrometer (MS) as the detector. Cryogenic preconcentration with liquid nitrogen (LN₂) is also used to trap and concentrate sample components.
- **Auto GC-FID** – Automated Gas Chromatograph. Continuous hourly analysis of VOC using airmoVOC C2-C6 (light volatile hydrocarbons) and airmoVOC C6-C12 (heavy volatile hydrocarbons) analyzers with Flame Ionization Detection.
- **Ultra-High Performance Liquid Chromatography (uHPLC)** – The analytical method used to analyze carbonyl compounds such as acetaldehyde and formaldehyde. Compared with traditional HPLC, uHPLC enables faster analysis and higher-resolution chromatograms.

Network Design Methodology

Monitoring Objectives

The ambient air monitoring networks must be designed to meet three basic monitoring objectives:

- Provide air pollution data to the public in a timely manner.
- Support compliance with ambient air quality standards and emissions strategy development.
- Assist in the evaluation of regional air quality models used in developing emission strategies, and track trends in air pollution abatement control measures' impact on improving air quality.

To support air quality management work outlined in the three basic air monitoring objectives, a network must be designed with a variety of monitoring sites. Monitoring sites must be able to inform managers of multiple parameters, including peak air pollution levels, typical pollution levels in populated areas, air pollution transported into and out of a city or region, and air pollution levels near specific sources.

Air Monitoring Programs

EPA has established various air monitoring programs to measure pollutants. Some of these are briefly described below. Later in this AMNP, air monitoring sites and monitoring equipment are specifically identified relative to these air monitoring programs:

- **CSN** – The Chemical Speciation Network is a PM_{2.5} sampling network with sites located principally in urban areas.
- **NATTS** – National Air Toxics Trends Stations are part of a network that provides ambient levels of hazardous air pollutants. These sites are established with the goal of operating over extended periods, providing both current and historical data on air quality trends related to toxic air pollutants
- **NCore** – National Core multi-pollutant monitoring stations are required to measure particles (PM_{2.5}, speciated PM_{2.5}, PM_{10-2.5}), O₃, SO₂, CO, nitrogen oxides (NO/NO₂/NO_y), and basic meteorology. They principally support research in air pollution control.
- **SLAMS** – State or Local Air Monitoring Stations make up the ambient air quality monitoring sites that are primarily needed for NAAQS comparisons but may serve other data purposes. SLAMS exclude special-purpose monitor (SPM) stations and include NCore, PAMS, Near-road NO₂/CO, and all other State or locally operated stations that have not been designated as SPM stations.
- **PAMS** – Photochemical Assessment Monitoring Stations are used for enhanced monitoring of ozone, oxides of nitrogen (NO_x), and volatile organic compounds (VOC) to obtain more comprehensive and representative data on ozone air pollution.
- **SPM** – Special Purpose Monitors are placed for purposes of interest to the city of Philadelphia. Often, this monitoring is conducted over a limited period. Data is reported to the federal Air Quality System (AQS) and is not counted when showing compliance with

the minimum requirements of the air monitoring regulations for the number and siting of monitors of various types.

- **Urban Air Toxics** – Urban Air Toxics (UAT) monitoring addresses toxic air pollutant emissions in urban areas. UAT air monitoring for volatile organic compounds (VOCs) is regularly conducted.

Spatial Scales

The physical siting of the air monitoring station must be consistent with the objectives, site type, and the monitor's physical location.

The goal in locating monitors is to correctly match the spatial scale of the monitored air sample with the spatial scale most appropriate for the monitoring site type, the measured air pollutant, and the monitoring objective.

The spatial scale results from the site's physical location relative to the pollutant sources and categories. It estimates the area surrounding the monitoring site that experiences uniform pollutant concentrations. The categories of spatial scale are:

- **Microscale** – Defines concentrations in air volumes associated with area dimensions ranging from several meters up to about 100 meters.
- **Middle scale** – Defines concentration typical of areas up to several city blocks in size with dimensions ranging from about 100 meters to 0.5 kilometers.
- **Neighborhood scale** – Defines concentrations within some extended area of the city that has relatively uniform land use with dimensions in the 0.5 to 4.0 kilometers range. The neighborhood and urban scales listed below may overlap in applications involving secondarily formed or homogeneously distributed air pollutants.
- **Urban scale** – Defines concentrations within an area of city-like dimensions, on the order of 4 to 50 kilometers. Within a city, the geographic distribution of sources may mean that no single site can be said to represent urban air quality.
- **Regional scale** – Typically defines a rural area of reasonably homogeneous geography without large sources and extends from tens to hundreds of kilometers.
- **National and global scales** – These measurement scales represent concentrations characterizing the nation and the globe.

Air Monitoring Area

- **Core-Based Statistical Area (CBSA)** – Defined by the U.S. Office of Management and Budget as a statistical geographic entity consisting of the county or counties associated with at least one urbanized area/urban cluster of at least a population of 10,000 people, plus adjacent counties having a high degree of social and economic integration.
 - **Metropolitan Statistical Area (MSA)** – A CBSA associated with at least one urbanized area of a population of 50,000 people or more. The central county, plus adjacent counties with a high degree of integration, comprise the area.

Changes Since Last Air Monitoring Network Plan

Changes in the monitoring network have occurred after the 2025 – 2026 AMNP was submitted to the EPA. These changes are summarized below.

Deployment of Clarity Node-S Sensors

In 2025, AMS deployed 76 Clarity Node-S sensors across Philadelphia to measure PM_{2.5} and NO₂. These sensors enhance spatial coverage at the neighborhood level and complement regulatory monitoring by providing high-density, near-real-time air quality data for public awareness and analysis.

Launch of the “Breathe Philly” Air Quality Dashboard

On February 18, 2026, AMS launched the Breathe Philly dashboard, a publicly accessible platform that integrates data from regulatory monitors and the new Clarity sensor network. The dashboard provides real-time air quality measurements, real-time health recommendations, historical trends, information about air pollutants, and downloadable datasets to improve transparency and public access to air quality data in Philadelphia.

Resumption of Black Carbon Monitoring and Ultrafine PM Monitoring

In 2025, AMS resumed Black Carbon measurements at the MON monitor following the discontinuation of monitoring activities in 2024 due to persistent technical and reliability issues. During the development of the 2025 AMNP, AMS initially considered discontinuing Black Carbon monitoring due to limited data recovery in previous years. However, based on improved instrument performance and minimal downtime observed during 2025 monitoring, AMS decided to continue operating the Black Carbon monitor. In addition, AMS is actively working to reestablish Ultrafine Particulate Matter (PM) monitoring at the MON site. Efforts are ongoing to address prior sensor-related issues and ensure the Ultrafine PM monitor operates stably and reliably.

IRA Neighborhood Multipollutant Monitoring Site (WIS)

AMS continues implementation of the Inflation Reduction Act (IRA) Neighborhood Multipollutant Monitoring Site, formerly proposed as the HUN site and now designated as the Wissahickon (WIS) site, named for its location at 5200 Wissahickon Ave in North Philadelphia. The WIS site remains part of the air monitoring network shown in Figure 1 and is located in North Philadelphia, an area including communities disproportionately burdened by air pollution.

The WIS site is designed to monitor PM_{2.5}, NO₂, VOCs, and air toxics using FEM instrumentation. Equipment procurement and site preparation have been completed, and AMS continues efforts to advance the site toward operational status. Data collection at the WIS site begins in April 2025, enhancing regulatory monitoring coverage and supporting evaluation of pollutant concentrations in impacted communities.

ARP Enhanced Air Monitoring Project Update

AMS continues implementation of the American Rescue Plan (ARP) Enhanced Air Monitoring

in Communities project, awarded by the EPA in 2022. As of 2025, PM_{2.5} monitoring instruments have been procured and are in place; however, full operation has not yet begun at all sites. Monitoring locations for the ARP project have been established, including the existing RIT site and a new WIS site. At the WIS location, the shelter and instruments have been installed but monitoring operations have not yet started. In addition, AMS will utilize the Mobile Monitoring System (MMS) as a third mobile site to support ARP activities.

The originally proposed real-time VOC analyzer remains unavailable, and AMS is currently evaluating alternative instrumentation to support VOC measurements and maintain project objectives. Other project components, including passive sampling activities, will proceed in accordance with the project goals as feasible.

CSAT Network Expansion

AMS continues implementation of the Community Scale Air Toxics (CSAT) Monitoring Network under the ARP Enhanced Air Monitoring in Communities project awarded by EPA in 2022. Procurement of monitoring equipment has been completed, and the network was expanded in 2025 to increase spatial coverage. As of 2025, AMS operates nine CSAT monitoring sites. The initial five sites were installed on April 6, 2022, and four additional sites were installed on May 8, 2025. The locations of these sites are shown in Figure 31.

Measurements are ongoing at all sites to support community-scale air toxics monitoring.

Addition of PM_{2.5} FRM Monitoring at TOR Site

AMS enhanced the PM_{2.5} monitoring network by installing an FRM monitor at the TOR site. This addition is intended to strengthen PM_{2.5} monitoring and support data quality and regulatory requirements. The location of the TOR site is shown in Figure 1. Installation of the FRM monitor was completed in 2025, and the instrument started operating on January 1, 2026.

Proposed changes to the Network

Below are changes that are anticipated or possible to occur over the next 18 ~ 22 months (April 2026 – March 2028) to the existing air monitoring network:

Evaluation of Clarity FEM Ozone and Multi-Gas Modules

AMS is currently in discussions with Clarity to evaluate the potential procurement of additional sensor technology to enhance multipollutant monitoring coverage across the City of Philadelphia. This evaluation includes consideration of FEM-grade ozone modules, as well as the Clarity Multi-Gas Module, which integrates with the Node-S platform and can measure O₃, CO, NO₂, nitric oxide (NO), and nitrogen oxides (NO_x) in real time.

If implemented, these sensors would supplement the existing regulatory monitoring network by improving the spatial resolution of ozone and combustion-related pollutants, particularly in areas influenced by traffic and industrial emissions. All deployments would be supplemental, non-regulatory monitoring, and would support enhanced public access to multipollutant air quality information.

DRAFT

Ongoing Evaluation and Future Areas of Focus

AMS conducts ongoing evaluation of the City of Philadelphia's air monitoring to assess system performance, identify data gaps, and guide future enhancements. As part of this continuous review process, AMS considers regulatory requirements, community input, pollutant trends, technological advancements, and available funding when determining future modifications to the monitoring program.

Ongoing Data Analysis and Network Evaluation

The agency will continue to analyze monitoring data from the existing Philadelphia Air Monitoring Network and other monitoring projects to evaluate air pollutant concentrations throughout the city. Trend analysis, comparisons with NAAQS, and a review of spatial distribution will guide network assessments. Based on these results, regulatory requirements, and available funding, the agency may propose updates to FRM/FEM and air toxics monitoring locations, as needed.

Real-Time Monitoring and Public Data Access

Air Management Services (AMS) continues to enhance its real-time air monitoring network and associated data management systems to support timely reporting, quality assurance, and public access to air quality information. The agency operates a citywide network of real-time PM_{2.5} and NO₃ sensors, which are fully installed and provide continuous data. AMS is also evaluating the addition of ozone (O₃) monitoring through potential FEM ozone modules and multi-gas sensor platforms capable of measuring O₃, NO, NO₂, NO_x, and CO.

Real-time monitoring data are routinely reviewed to support performance evaluation, data quality assessment, and targeted investigations. These systems are designed to complement, but not replace, regulatory FRM and FEM monitoring networks.

To improve public accessibility and transparency, AMS maintains and continues to develop the Breathe Philly dashboard, which provides interactive map-based visualization, real-time air quality updates, and access to historical data. These tools support understanding of local air quality conditions by residents, researchers, and policymakers.

AMS will continue to expand data accessibility through additional mapping tools, web-based applications, data download capabilities, and outreach initiatives to ensure air quality information is transparent, usable, and actionable across communities.

Monitoring Network Overview

The City of Philadelphia is currently served by a network of ten regulatory air monitoring sites located throughout the city. Eight of these sites measure the criteria pollutants (except lead): ozone (O₃), carbon monoxide (CO), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), and particulate matter (PM₁₀ and PM_{2.5}).

Four of the regulatory sites also measure air toxics, such as benzene, acetaldehyde, and formaldehyde. Figure 1 and Table 1 below show the locations of the air monitors and the pollutants measured at each location.

AMS is also planning the WIS (formerly proposed as HUN) multipollutant monitoring site in North Philadelphia. The monitor was installed in January 2026, and continuous monitoring commenced on April 1, 2026.

DRAFT

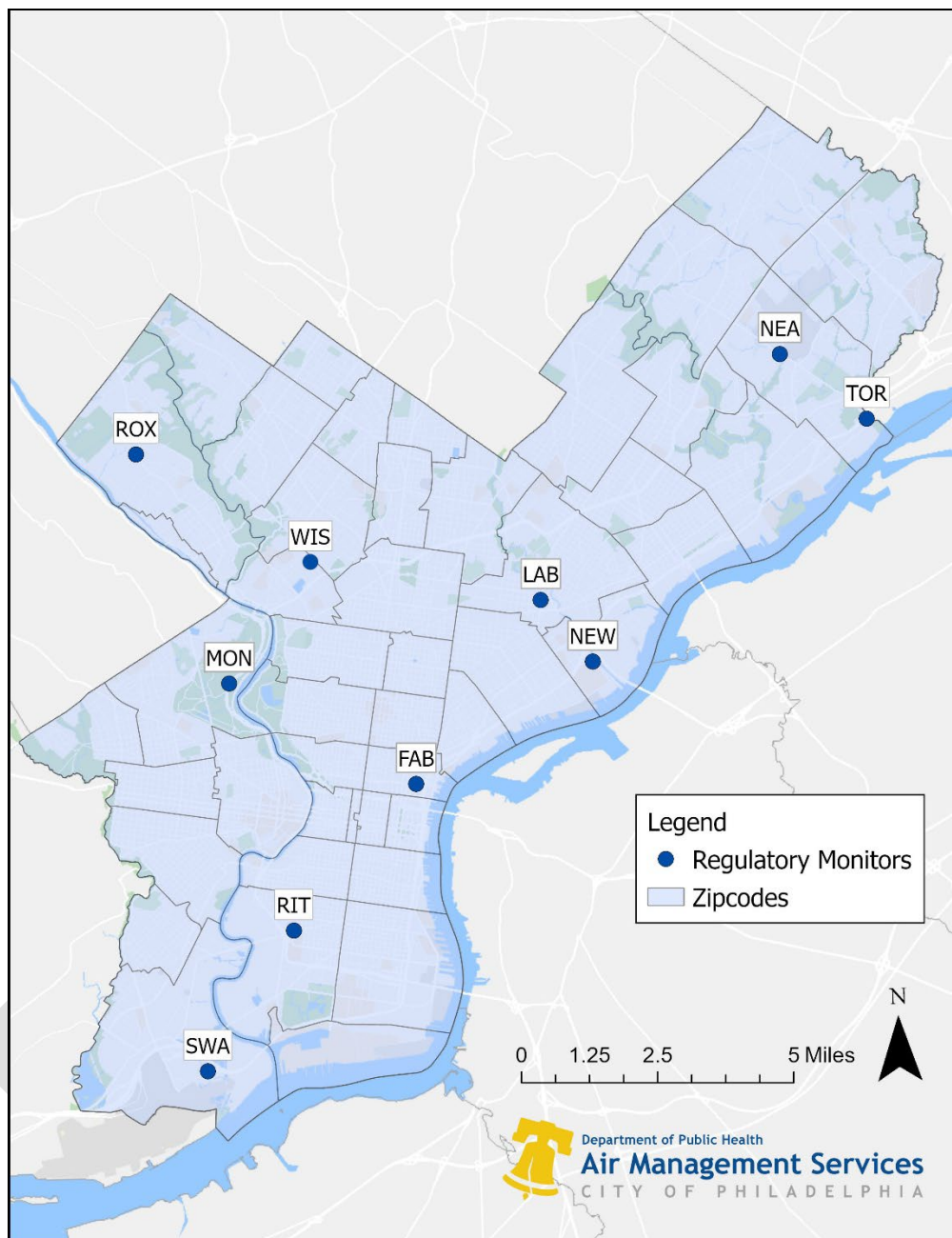


Figure 1 - 2025 Philadelphia Air Monitoring Network as of May 1, 2026

Table 1 - Current Regulatory Monitoring Sites in the City of Philadelphia, Including Pollutants Measured

AQS Site Code	AMS Site	Address	Parameter													AMS Site				
			CO	SO ₂	Ozone	NO ₂ , NO _x , NO	NO _y /NO	PM ₁₀	PM _{2.5}	Speciated PM _{2.5}	PM Coarse	Black Carbon / Ultrafine PM	Carbonyls	PAMS VOC	TSP Metals (Be, Cr, Mn, Ni, As, Cd, Pb)		Toxics TO15	MET		
421010004	LAB	1501 E. Lycoming St			X					X									LAB	
421010014	ROX	Eva & Dearnley Sts												X				X	ROX	
421010024	NEA	Grant Ave & Ashton Rd			X														NEA	
421010048	NEW	2861 Lewis St	X	X	X	X	X	X	X	X	X			X	X			X	X	NEW
421010055	RIT	24th & Ritner Sts		X						X	X			X		X	X		RIT	
421010057	FAB	3rd & Spring Garden Sts								X									FAB	
421010063	SWA	8200 Enterprise Ave												X				X	SWA	
421010075	TOR	4901 Grant Ave & James St	X			X				X								X	TOR	
421010076	MON	I-76 & Montgomery Drive	X			X				X			X			X		X	MON	
421010068	WIS	5200 Wissahickon Ave				X				X				X				X	WIS	

Summary of Current Sites

All of the 10 regulatory monitoring sites are located in Philadelphia, PA:

State: Pennsylvania

City: Philadelphia

County: Philadelphia

Metropolitan Statistical Area (MSA): Philadelphia-Camden-Wilmington, PA-NJ-DE-MD, consisting of 11 counties in the four states

MSA number: 37980

MSA population: 6,245,051 (2020 census data)¹

EPA Region: III (regional office located in Philadelphia)

Class I Area: Brigantine Natural Wildlife Preserve near Atlantic City, NJ

Philadelphia County population: 1,573,916 (July 1, 2024, estimate)²

Time zone: EST

UTM zone: 18

The air monitoring requirements and protocols set forth in 40 CFR Part 58 are mostly based on MSA and/or CBSA, rather than an individual county or city.

Air monitors in this Plan are designed and located to fulfill the air monitoring requirements for the Philadelphia MSA, along with other air monitoring sites in the MSA operated by the states of Pennsylvania, New Jersey, Delaware, and Maryland. Table 2 summarizes the monitoring sites.

¹ Census data from <https://www.census.gov/library/visualizations/interactive/2020-population-and-housing-state-data.html>

² 2024 Census Bureau estimates from <https://www.census.gov/quickfacts/fact/table/philadelphiacountypennsylvania,philadelphiacitypennsylvania,PA/PST045223#PST045223>

Table 2 - Monitoring Sites Summary Table

AQS Site Code	AMS Site	Address	Statement of Purpose
421010004	LAB	1501 E. Lycoming St.	Built in 1964, is a good site to test new or complex monitoring methods as laboratory staff are readily available.
421010014	ROX	Eva & Dearnley St.	Periphery site.
421010024	NEA	Grant Ave & Ashton Rd.	Periphery site. High Ozone
421010048	NEW	2861 Lewis St.	NEW (Northeast Waste) originally sited to measure the impact of Franklin Smelting and Refining (now closed), MDC (now closed), and the waste water treatment plant. In 2013, the NCore site was re-located here and in 2017 is a designated PAMS site.
421010055	RIT	24 th & Ritner St.	This site was selected to help assess the impact of the petroleum refinery on the local community. The area was identified by air quality modeling.
421010057	FAB	3 rd & Spring Garden St.	This site was established to represent the highest levels of PM _{2.5} in the City based on EPA Region III's air quality modeling of air toxics in Philadelphia. It shows high levels of PM _{2.5} is created by vehicle traffic.
421010063	SWA	8200 Enterprise Ave.	This site was established to measure air toxics, carbonyls, and metals. EPA Region III modeling analysis showed that areas near the airport had high levels of aldehydes.
421010075	TOR	4901 Grant Ave & James St.	This site was established as the 1 st near-road NO ₂ monitor in the Philadelphia-Camden-Wilmington, PA-NJ-DE-MD Metropolitan Statistical Area.
421010076	MON	I-76 & Montgomery Drive	This site was established as the 2 nd near-road NO ₂ monitor in the Philadelphia-Camden-Wilmington, PA-NJ-DE-MD Metropolitan Statistical Area.
421010068	WIS (formerly HUN)	5200 Wissahickon Ave	This site was selected in 2024 to enhance neighborhood-scale air monitoring, as no monitor was present in the neighborhood.

NCore and PAMS Monitoring Network

The NCore air monitoring network at the Northeast Waste (NEW) site operates under the requirements of 40 CFR § 58.10(a)(3) and 40 CFR Part 58, Appendix D, Section 3, as a tier1 multipollutant station. Fully equipped to measure PM_{2.5} (including speciated and coarse PM_{10-2.5}), O₃, SO₂, CO, NO, NO₂, NO_y, and basic meteorology (wind speed/direction, temperature, relative humidity), the NEW NCore site provides essential, high quality data for EPA reporting systems, AirNow visualization, air quality modeling, emissions control evaluation, compliance with the NAAQS, and long term health and ecosystem research.

The NCore station officially commenced operation on January 1, 2011, and the NEW site has been operating continuously since then, maintaining full adherence to Appendix D's design criteria for instrumentation and data integrity.

Additionally, under 40 CFR Part 58, Appendix D, Section 5(a), sites situated within CBSAs with populations of 1,000,000 or more are required to incorporate PAMS. The schedule set by 40 CFR Part 58.13(h) mandated that all PAMS at such NCore sites be operational by June 1, 2021. In response, AMS implemented full PAMS capabilities at the NEW site in June 2021, as scheduled.

The PAMS network enhances the NCore platform by delivering detailed precursor measurements critical to understanding ozone formation and photochemical processes. Specifically, it captures hourly speciated VOCs, carbonyl samples (including three 8-hour composites per day or hourly formaldehyde), NO, NO₂, NO_y, O₃, and an expanded suite of meteorological metrics, including wind parameters, pressure, precipitation, mixing height, solar radiation, and UV radiation.

By integrating both NCore's broad-spectrum monitoring capabilities and PAMS's targeted precursor tracking, the NEW site not only meets rigorous federal regulatory requirements but also supports Philadelphia's role in air quality management, regional photochemical modeling, and ongoing scientific research.

Pb (Lead) Monitoring Network

The requirements for the Pb air monitoring network are codified in 40 CFR Part 58.10(a)(4) and 40 CFR Part 58 Appendix D section 4.5.

Philadelphia County does not currently have any source-oriented Pb monitoring because there are no sources emitting 0.50 tons or more per year. Additionally, EPA has waived lead monitoring since 2017 because the 2014-2016 design value in Philadelphia was $0.04 \mu\text{g}/\text{m}^3$, well below the NAAQS for lead of $0.15 \mu\text{g}/\text{m}^3$. However, Pb is still monitored as part of the air toxics monitoring program for heavy metals at MON and RIT.

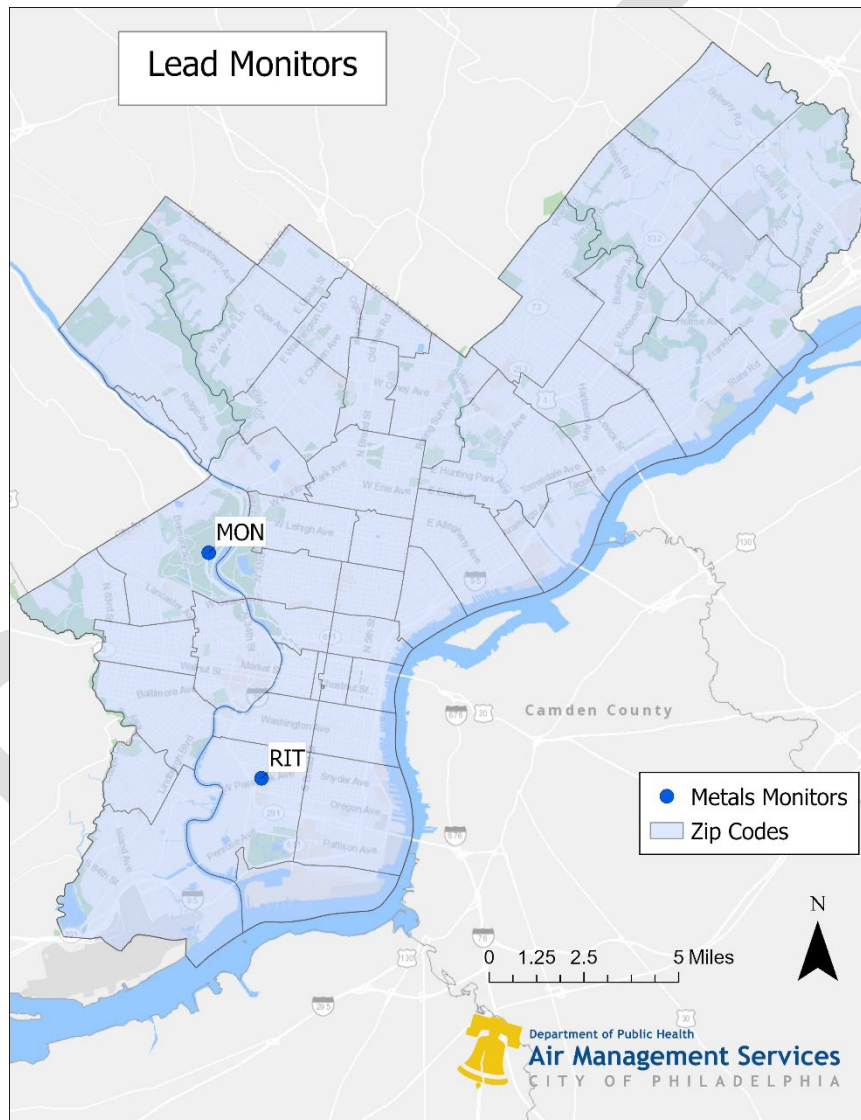


Figure 2: Map of TSP metals monitors that measure lead in Philadelphia.

NO₂ Monitoring Network

The requirements for the NO₂ air monitoring network are codified in 40 CFR Part 58.10(a)(5) and 40 CFR Part 58 Appendix D section 4.3.

AMS currently operates an NO₂ monitor that meets the area-wide monitoring requirements at the NEW site. The first near-road NO₂ monitor was established at TOR and started operation on January 1, 2014. The second near-road NO₂ monitor, located at MON, began operation on July 20, 2015. The proposed WIS (formerly HUN) site will also monitor NO₂.

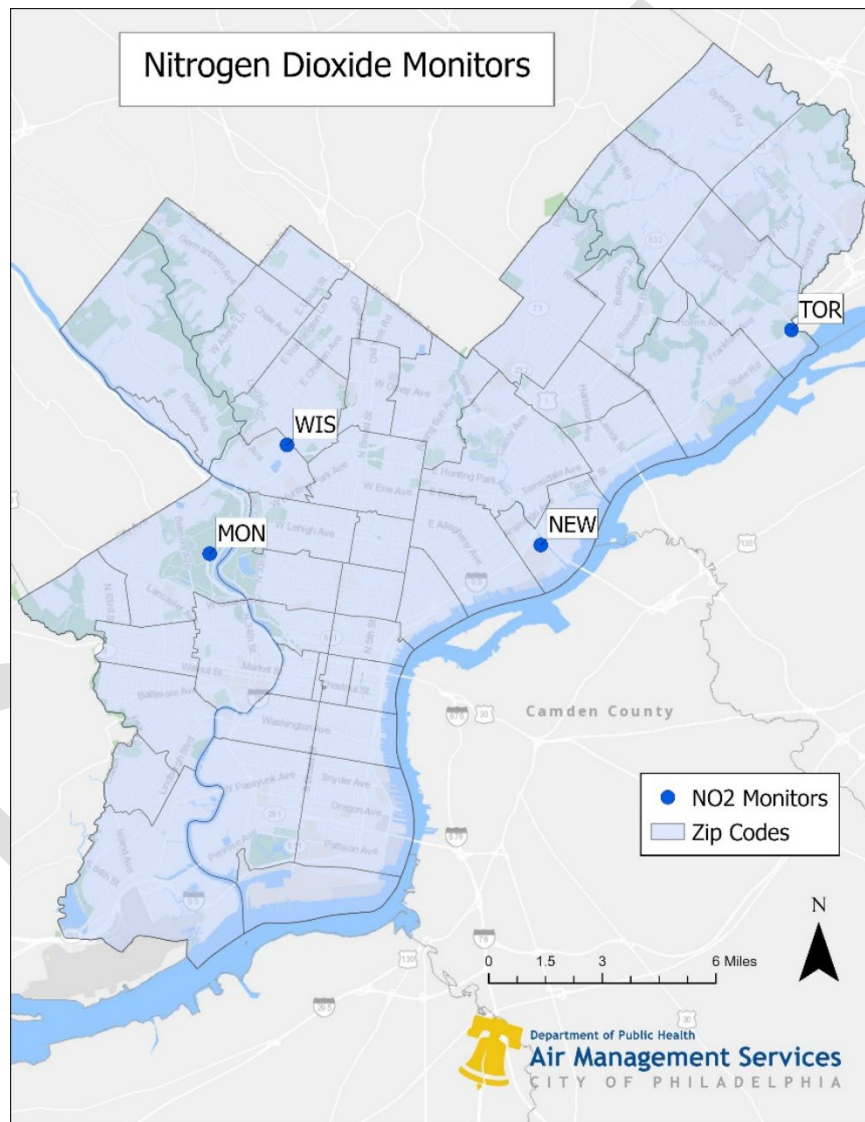


Figure 3: Map of regulatory Nitrogen Dioxide monitors in Philadelphia.

SO₂ Monitoring Network

The requirements for the SO₂ air monitoring network are codified in 40 CFR Part 58.10(a)(6) and 40 CFR Part 58 Appendix D section 4.4.

AMS currently monitors SO₂ at NEW and RIT in this Plan.

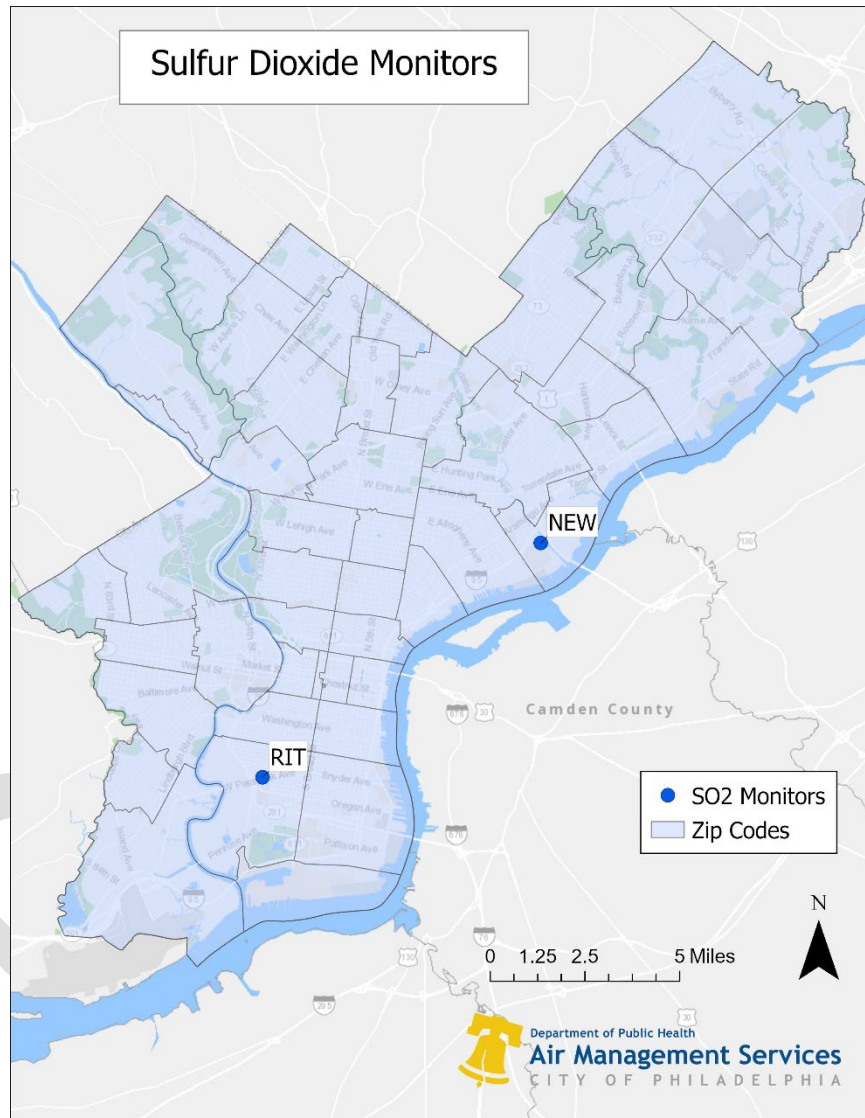


Figure 4: Map of sulfur dioxide monitors in Philadelphia.

CO Monitoring Network

The requirements for the CO air monitoring network are codified in 40 CFR Part 58.10(a)(7) and 40 CFR Part 58 Appendix D section 4.2.

The Philadelphia-Camden-Wilmington, PA-NJ-DE-MD CBSA has a CO monitor collocated with the near-road NO₂ monitors TOR and MON. AMS also monitors CO at the NEW monitor.

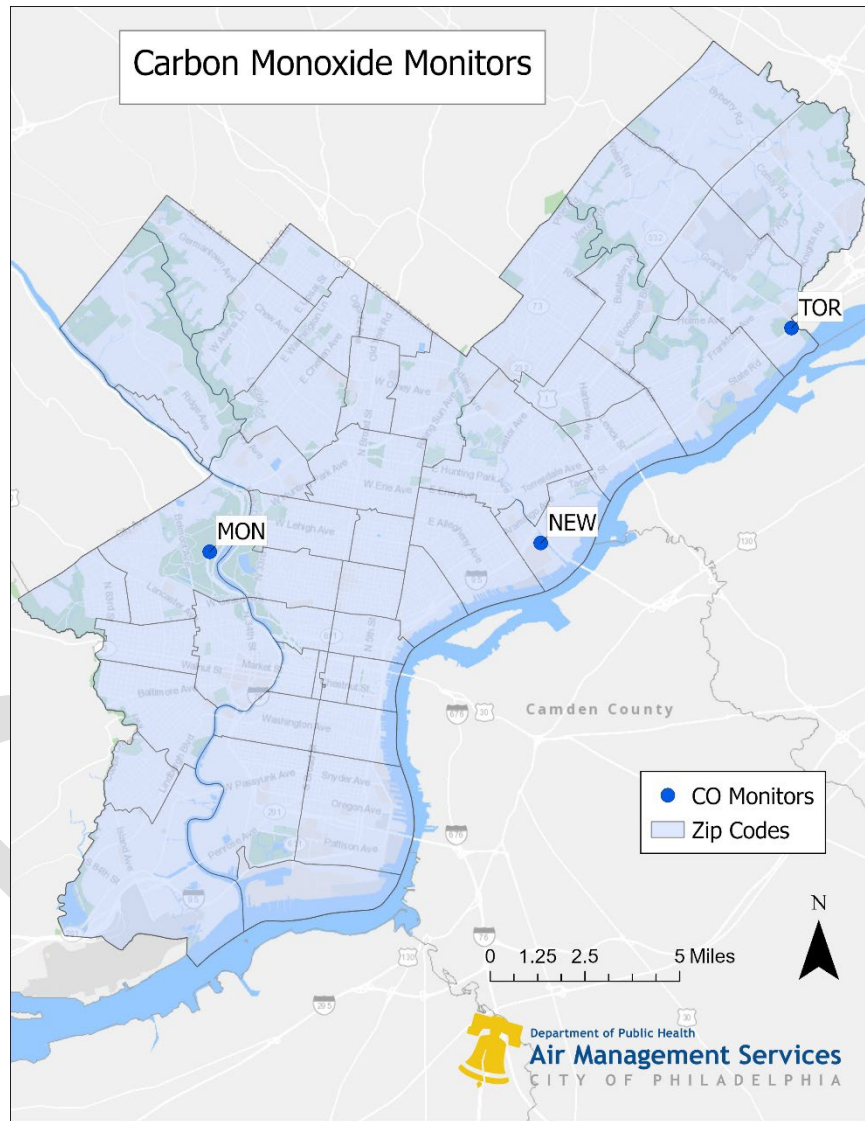


Figure 5: Map of carbon monoxide monitors in Philadelphia

PM_{2.5} Monitoring Network

The requirements for the PM_{2.5} air monitoring network are codified in 40 CFR Part 58.10(a)(8) and 40 CFR Part 58 Appendix D section 4.7. The requirement for at least one PM_{2.5} monitor to be collocated at a near-road NO₂ station for CBSAs with a population of 1,000,000 or more people is met at the TOR monitoring site.

AMS also monitors PM_{2.5} at LAB, NEW, RIT, FAB, MON, TOR, and WIS. AMS currently operates PM_{2.5} monitors beyond the minimum requirements. The WIS site began monitoring PM_{2.5} in 2026.

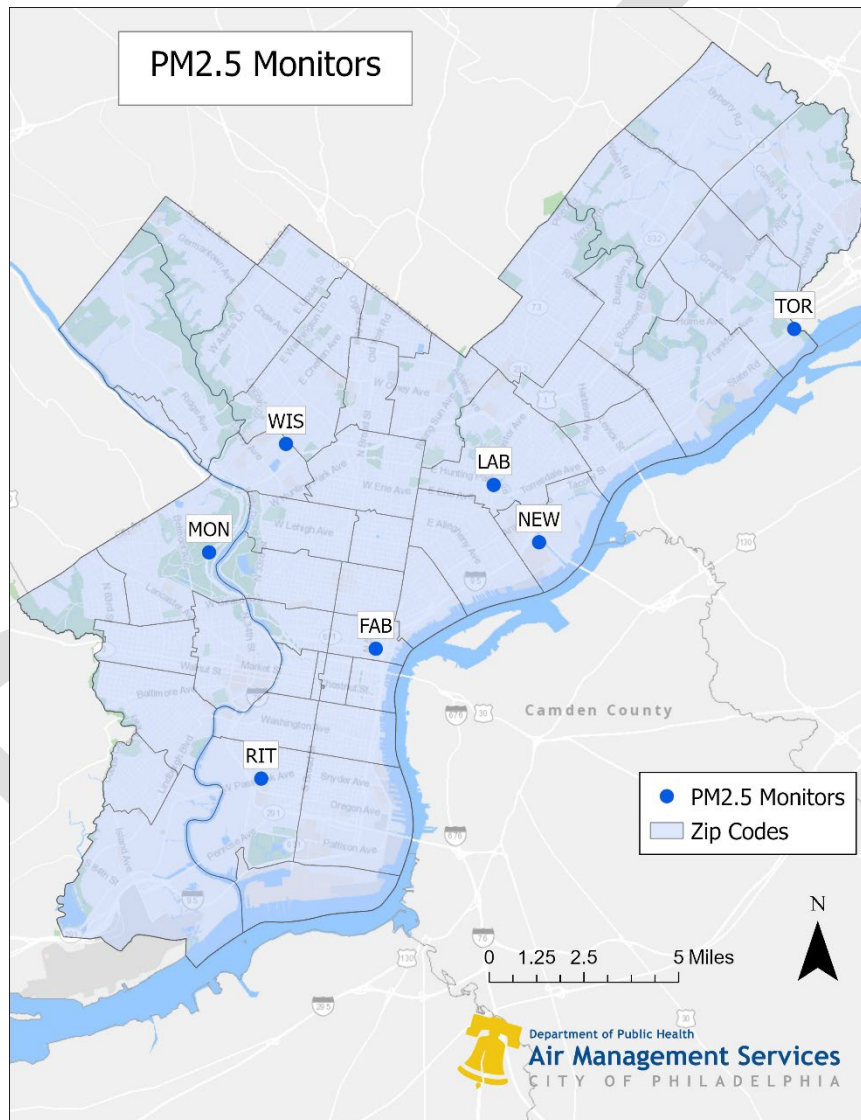


Figure 6: Map of PM_{2.5} monitors in Philadelphia.

O₃ Monitoring Network

The requirements for the O₃ air monitoring network are codified in 40 CFR Part 58.10(a)(9) (12) and 40 CFR Part 58 Appendix D section 4.1.

AMS currently operates three regulatory O₃ monitors in this Plan.

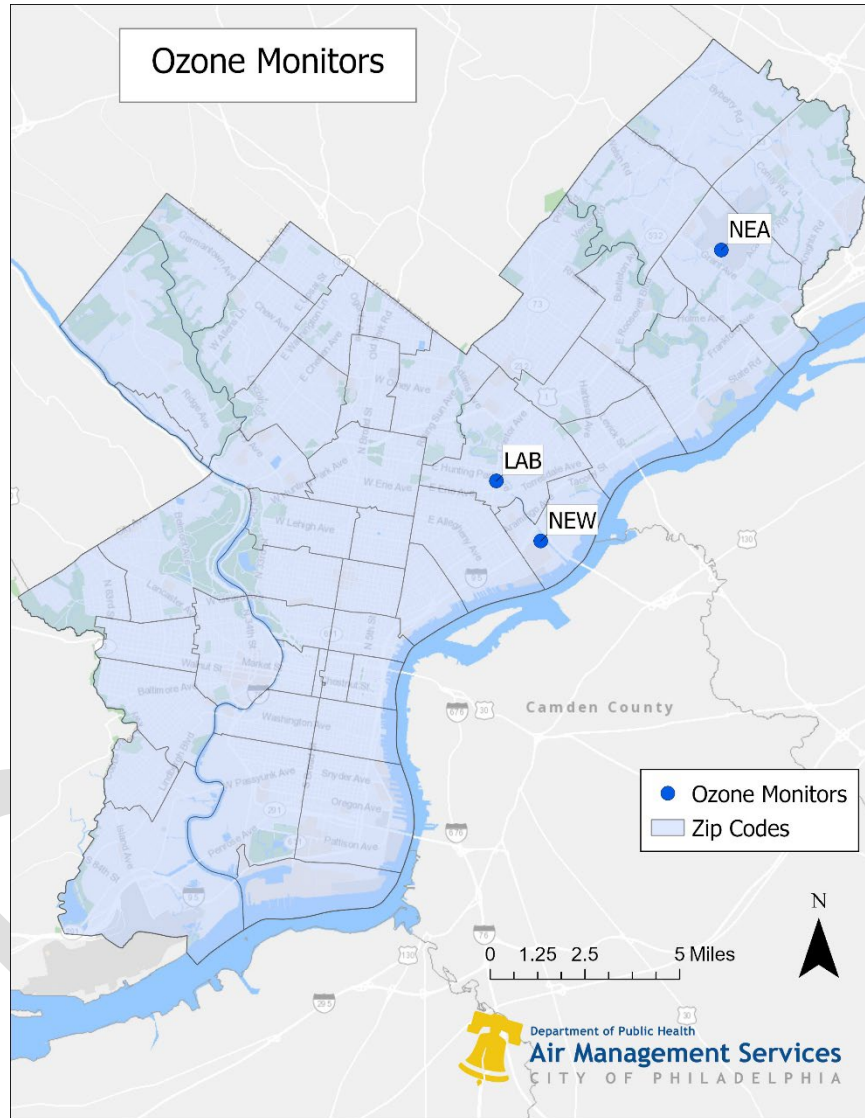


Figure 7: Map of ozone monitors in Philadelphia

Enhanced Monitoring Plan

40 CFR Part 58 Appendix D. 5(h) requires: “States with Moderate and above 8-hour O₃ nonattainment areas and states in the Ozone Transport Region as defined in 40 CFR 51.900 shall develop and implement an Enhanced Monitoring Plan (EMP) detailing enhanced O₃ and O₃ precursor monitoring activities to be performed. The EMP shall be submitted to the EPA Regional Administrator no later than October 1, 2019 or two years following the effective date of a designation to a classification of Moderate or above O₃

nonattainment, whichever is later. At a minimum, the EMP shall be reassessed and approved as part of the 5-year network assessments required under 40 CFR 58.10(d). The EMP will include monitoring activities deemed important to understanding the O₃ problems in the state. Such activities may include, but are not limited to, the following:

- (1) Additional O₃ monitors beyond the minimally required under paragraph 4.1 of this appendix,*
- (2) Additional NO_x or NO_y monitors beyond those required under 4.3 of this appendix,*
- (3) Additional speciated VOC measurements including data gathered during different periods other than required under paragraph 5(g) of this appendix, or locations other than those required under paragraph 5(a) of this appendix, and*
- (4) Enhanced upper air measurements of meteorology or pollution concentrations.”*

Please note that only States, not local counties, are required to submit an EMP to the EPA. AMS works with the Pennsylvania Department of Environmental Protection (PA DEP) for enhanced O₃ and O₃ precursor monitoring.

Currently, AMS monitors the following beyond the minimum requirements:

- (1) Year-round ozone monitoring at four sites: NEA, LAB, NEW, and VGR (non-regulatory).

Pending funding for EMPs, AMS cannot guarantee that year-round monitoring will continue.

Detailed Information on Each Site

The tables that follow provide detailed information for each of the 10 monitoring stations in Philadelphia County. As per 40 CFR Part 58.10(a)(1), the siting and operation of each monitor in the 2026 - 2027 AMNP meet the requirements of 40 CFR Part 58 and Appendices A, B, C, D, and E of this part where applicable.

The Major Emission Sources shown in Figures 8, 10, 12, 14, 16, 18, 20, 22, 24, and 26 are those within 3000 meters from a monitoring site. These are facilities included in the EPA 2024 stationary point source emission inventories.

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LAB Monitor

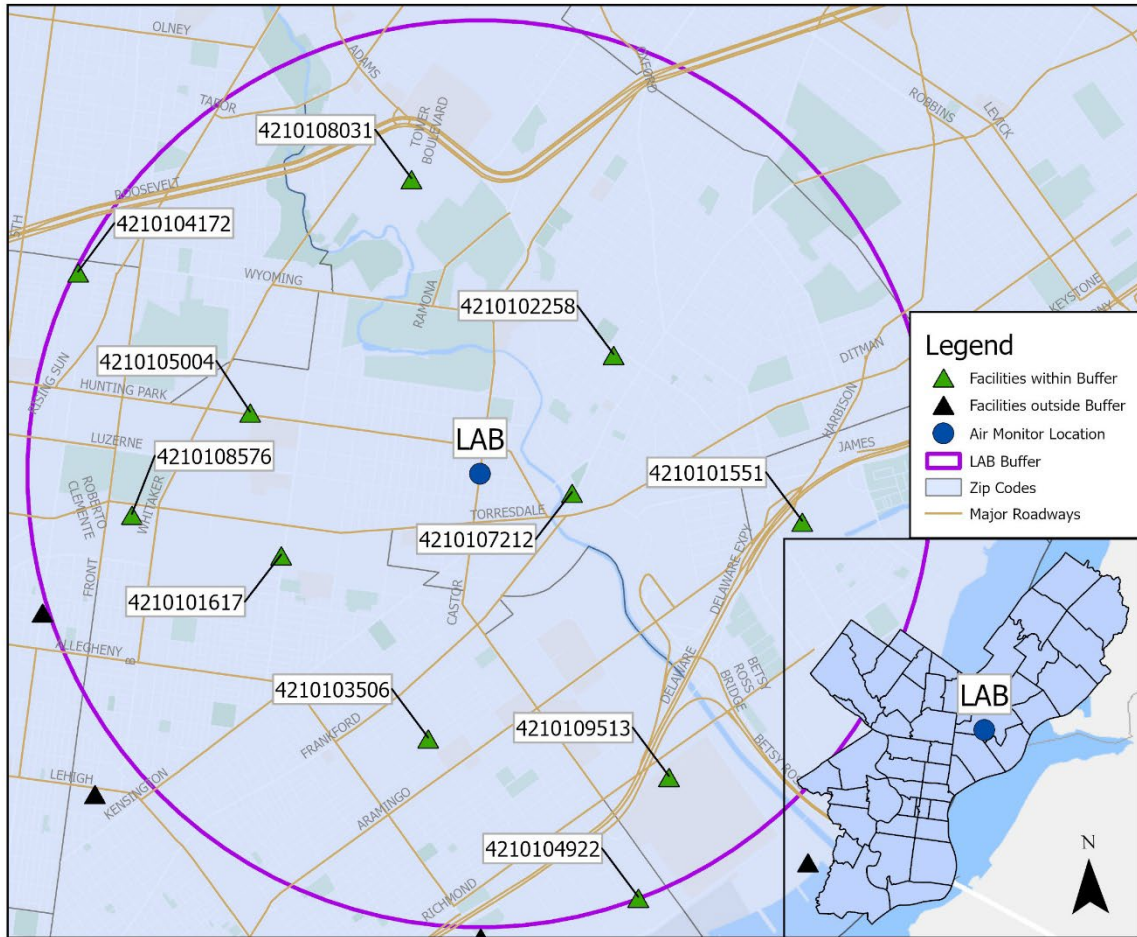
Table 3 - Detailed LAB Information with Monitoring Station Picture

AMS Site ID: LAB
AQS Site ID: 421010004
Street Address: 1501 E. Lycoming Street
Geographical Coordinates: Latitude: 40.008889, Longitude: -75.09778



Parameter	Monitoring Type	Monitor Network Affiliation	Operating Schedule	Collection Method	Analysis Method	Comments	Parameter Code	POC	AQS Method	Spatial Scale	Monitoring Objective	Probe Height (m)	Begin Date
Ozone	SLAMS		Continuous	Instrumental	Ultraviolet Absorption	Year-round operation	44201	2	087	Urban Scale	Population Exposure	7	1/1/2018
PM2.5 Continuous	SLAMS		Continuous	Teledyne T640 at 5.0 LPM	Broadband Spectroscopy		88101	4	636	Neighborhood	Highest Concentration	8	10/1/2021

**AMS LABORATORY - 1501 E. LYCOMING ST.
EPA AIRS CODE: 421010004**



LAB - Number of facilities within 3000 m radius: 11			2024 Emissions (tons)						
Facility ID	Name	Address	CO	Pb	NOx	PM10	PM2.5	SOx	VOC
4210101551	ADVANSIX INC	4700 BERMUDA ST	59.500	0	259.370	41.910	33.040	28.140	98.830
4210101617	PUROLITE INC/MFG CHEM	3620 G St	2.340	0	2.740	1.330	1.330	0.020	4.420
4210102258	MUTUAL PPHARM CO INC/FRONTIDA BIOPHARM	1100 ORTHODOX ST	1.260	0	1.510	0.120	0.120	0.010	2.290
4210103506	PTR BALER AND COMPACTOR/PHILA	2207 E ONTARIO ST	0.410	0	0.490	0.040	0.040	0.000	7.140
4210104172	SEPTA BERRIDGE/COURTLAND MAINT SHOP	200 W WYOMING AVE	1.230	0	3.200	1.150	1.150	0.010	3.660
4210104922	PHILA GAS WORKS/RICHMOND PLT	3100 E VENANGO ST	3.590	0	3.660	0.160	0.160	0.010	0.180
4210105004	MIPC LLC/ PHILA	4210 G ST	0.000	0	0.000	0.000	0.000	0.000	23.790
4210107212	DOMESTIC LINEN SUPPLY CO INC/PHILADELPHIA	4100 FRANKFORD AVE	0.570	0	0.610	0.520	0.520	0.010	1.890
4210108031	FRIENDS HOSP/PHILA	4641 ROOSEVELT BLVD	0.500	0	0.420	0.020	0.020	0.010	0.040
4210108576	ST CHRISTOPHERS HOSP FOR CHILDREN/PHILA	ERIE AVE & FRONT ST	2.890	0	3.920	0.290	0.290	0.060	0.210
4210109513	NORTHEAST WPCP/PHILA	3899 RICHMOND ST	19.720	0	7.110	4.230	4.230	0.590	12.220

Figure 8 - LAB Monitoring Site Map with Major Streets and Major Emission Sources



Figure 9 - LAB North Aerial View

ROX Monitor

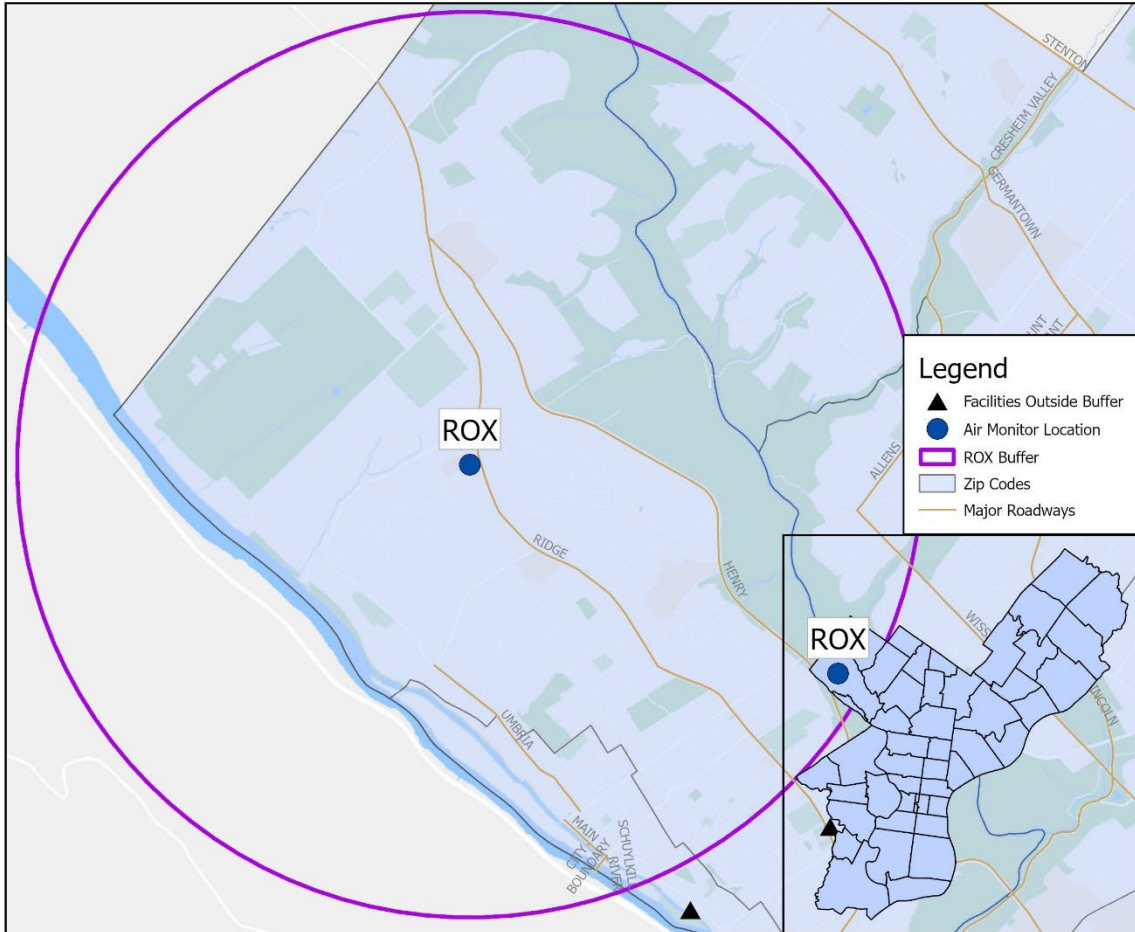
Table 4 - Detailed ROX Information with Monitoring Station Picture

AMS Site ID: ROX
AQS Site ID: 421010014
Street Address: Eva & Dearnley Streets
Geographical Coordinates: Latitude: 40.049604, Longitude: -75.241209



Parameter	Monitoring Type	Monitor Network Affiliation	Operating Schedule	Collection Method	Analysis Method	Comments	Parameter Code	POC	AQS Method	Spatial Scale	Monitoring Objective	Probe Height (m)	Begin Date
Carbonyls	Other	Urban Air Toxics	1/6 days	DNPH-Coated Cartridges	uHPLC		Vary	2	102	Neighborhood	Population Exposure	4	5/7/2003
Toxics	Other	Urban Air Toxics	1/6 days	Canister Subambient Pressure	Multi-Detector GC		Vary	4,5	150	Neighborhood	Population Exposure	4	1/1/2004

**ROXBOROUGH - EVA & DEARNLEY STS.
EPA AIRS CODE: 421010014**



ROX - Number of facilities within 3000 m radius: 0				2024 Emissions (tons)						
Facility ID	Name	Address	CO	Pb	NOx	PM10	PM2.5	SOx	VOC	

Figure 10 - ROX Monitoring Site Map with Major Streets and Major Emission Sources



Figure 11 - ROX North Aerial View

NEA Monitor

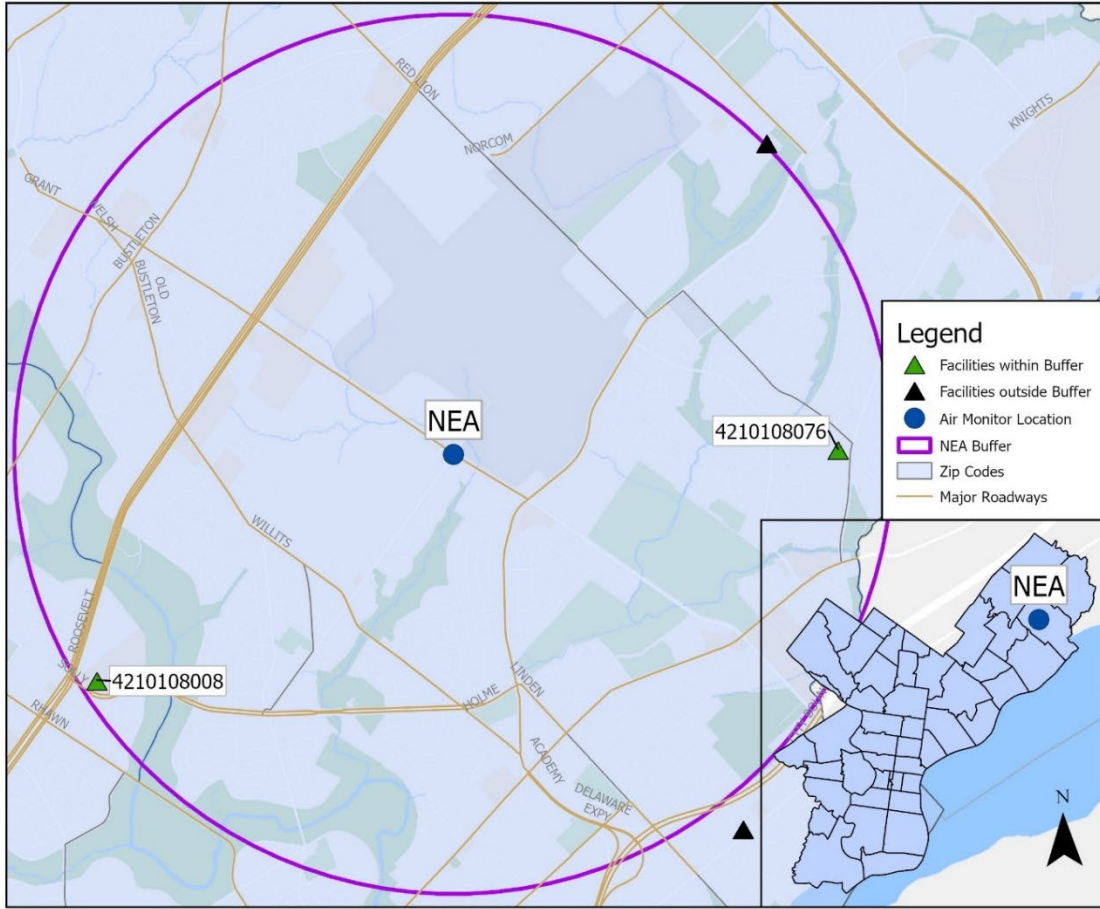
Table 5 - Detailed NEA Information with Monitoring Station Picture

AMS Site ID: NEA
AQS Site ID: 421010024
Street Address: Grant Ave & Ashton Rd
Geographical Coordinates: Latitude: 40.076389, Longitude: -75.011944



Parameter	Monitoring Type	Monitor Network Affiliation	Operating Schedule	Collection Method	Analysis Method	Comments	Parameter Code	POC	AQS Method	Spatial Scale	Monitoring Objective	Probe Height (m)	Begin Date
Ozone	SLAMS		Continuous	Instrumental	Ultraviolet Absorption	Year-round operation	44201	1	087	Urban	Highest concentration	6	1/1/1974

**NORTHEAST AIRPORT - GRANT AVE. & ASHTON RD.
EPA AIRS CODE: 421010024**



NEA - Number of facilities within 3000 m radius: 2			2023 Emissions (tons)						
Facility ID	Name	Address	CO	Pb	NOx	PM10	PM2.5	SOx	VOC
4210108008	NAZARETH HOSP/PHILA	2601 HOLME AVE	1.750		2.480	0.100	0.090	0.060	0.150
4210108076	JEFFERSON HEALTH NORTHEAST/TORRESDALE HOSPITAL	RED LION & KNIGHTS RD	3.280		4.660	0.230		0.020	0.300

Figure 12 - NEA Monitoring Site Map with Major Streets and Major Emission Sources

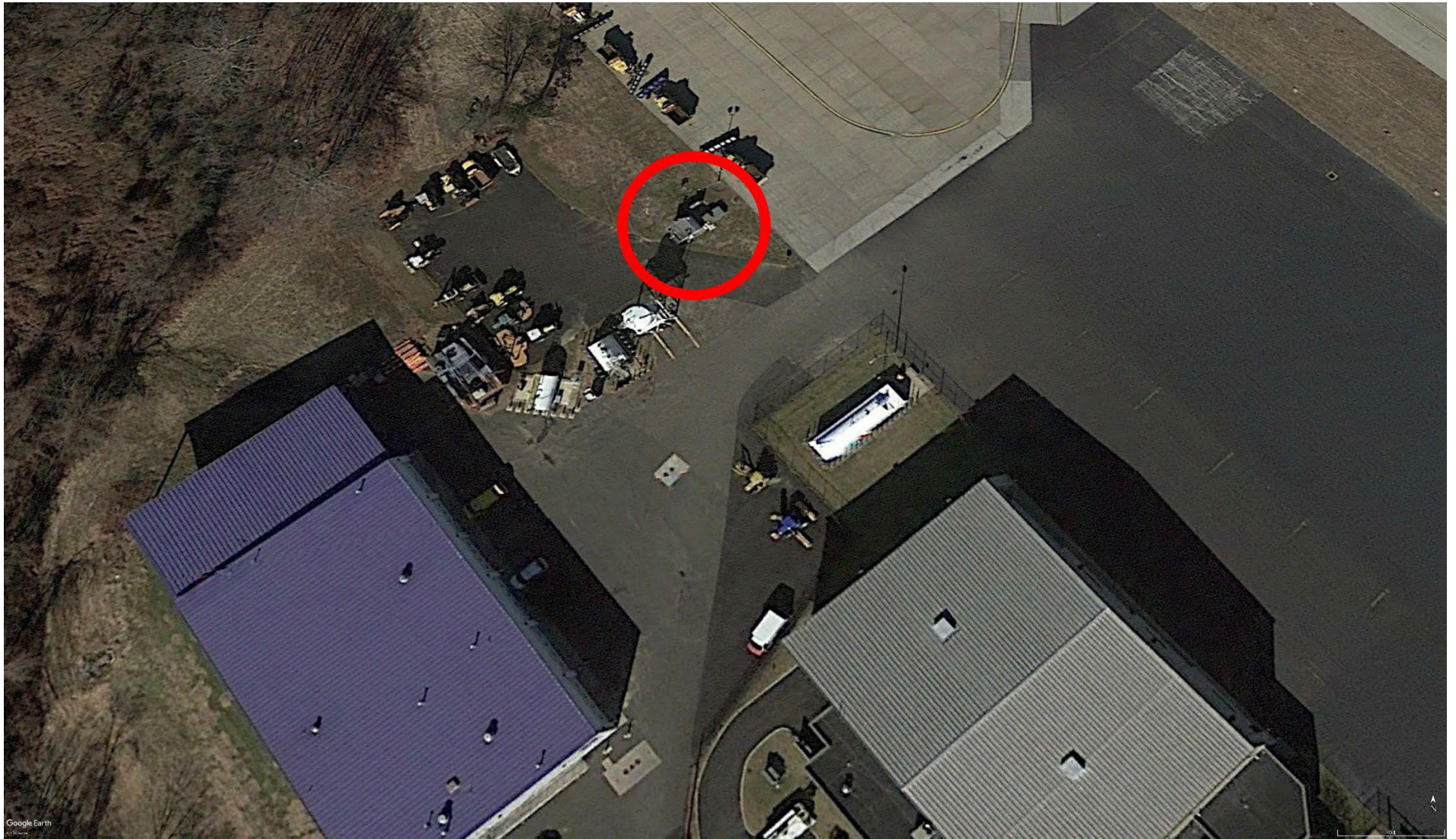


Figure 13 - NEA North Aerial View

NEW Monitor

Table 6 - Detailed NEW information with Monitoring Station Picture

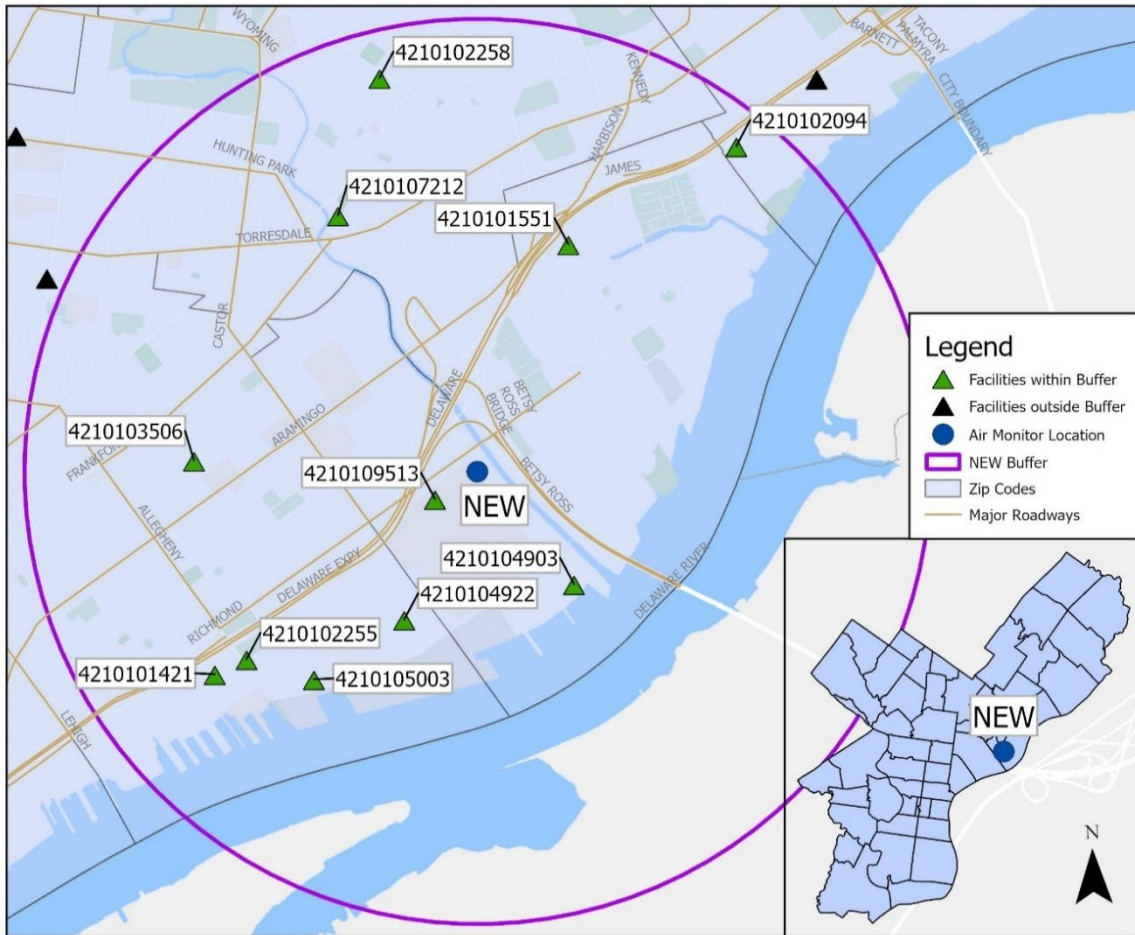
AMS Site ID: NEW
AQS Site ID: 4210110048
Street Address: 2861 Lewis Street
Geographical Coordinates: Latitude: 39.991389, Longitude: -75.080833



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Parameter	Monitoring Type	Monitor Network Affiliation	Operating Schedule	Collection Method	Analysis Method	Comments	Parameter Code	POC	AQS Method	Spatial Scale	Monitoring Objective	Probe Height (m)	Begin Date
CO (trace)	SLAMS	NCORE	Continuous	Instrumental	Gas Filter Correlation CO Analyzer	High sensitivity	42101	1	093	Neighborhood	Population Exposure	2	10/2/2013
SO2 (trace)	SLAMS	NCORE	Continuous	Instrumental	Ultraviolet Fluorescence	High sensitivity	42401	2	100	Neighborhood	Population Exposure	2	10/2/2013
Ozone	SLAMS	NCORE	Continuous	Instrumental	Ultraviolet Absorption	Year-round operation	44201	1	087	Urban Scales	Population Exposure	2	10/2/2013
NO	SLAMS	NCORE	Continuous	Instrumental	Chemiluminescence Teledyne	High sensitivity external converter mounted at 10m	42601	1	099	Neighborhood	Population Exposure	10	10/2/2013
NOy	SLAMS	NCORE	Continuous	Instrumental	Chemiluminescence Teledyne	High sensitivity external converter mounted at 10m	42600	1	699	Neighborhood	Population Exposure	10	10/2/2013
PM10 Continuous	SLAMS	NCORE	Continuous	Teledyne API T640X at 16.67 LPM	Broadband Spectroscopy		81102	2	639	Neighborhood	Population Exposure	2	1/1/2019
PM2.5 Continuous	SLAMS	NCORE	Continuous	Teledyne API T640 at 5.00 LPM	Broadband Spectroscopy		88101	5	636	Neighborhood	Population Exposure	2	8/19/2020
PM2.5 Continuous	SLAMS	NCORE	Continuous	Teledyne API T640X at 16.67 LPM	Broadband Spectroscopy		88101	4	638	Neighborhood	Population Exposure	2	1/1/2020
PM2.5 Speciated	SLAMS	NCORE, CSN	1/3 days	Met One SASS (Nylon and Teflon) and URG	Energy Dispersive XRF, Ion Chromatography and IMPROVE	Analysis by EPA	Vary	5	Vary	Neighborhood	Population Exposure	2	10/2/2013
PM2.5 FRM	SLAMS	NCORE	1/3 days	R&P PM2.5	Gravimetric	NEW-D	88101	1	145	Neighborhood	Population Exposure	2	10/2/2013
PM10-2.5 (PM Coarse)	SLAMS	NCORE	Continuous	Teledyne API T640X at 16.67 LPM	Broadband Spectroscopy		86101	4	640	Neighborhood	Population Exposure	2	1/1/2019
Meteorological	SLAMS	NCORE	Continuous		Air quality measurements approved instrumentation for wind speed, wind direction, humidity, barometric pressure, rainfall and solar radiation		Vary	1	Vary	Neighborhood	Population Exposure	10	6/1/1993
Carbonyls	Other	Urban Air Toxics	1/6 days	DNPH-Coated Cartridges	uHPLC	In addition to the 1-in-6 days UAT sampling, also sampling for three of 8-hour periods every 3rd day during PAMS season (June 1 - Aug 31)	Vary	1,4	102	Neighborhood	Population Exposure	7	10/14/2016
Toxics	Other	Urban Air Toxics	1/6 days	Canister Subambient Pressure	Multi-Detector GC		Vary	1,2	150	Neighborhood	Population Exposure	7	10/14/2016
PAMS VOC	SLAMS	PAMS	Continuous	CAS Auto GC		Year-round operation	Vary			Neighborhood	Population Exposure	5	6/1/2021
Ceilometer	SLAMS	PAMS	Continuous	Vaisala									1/1/2018
Solar radiation	SLAMS	PAMS	Continuous	MetOne									1/7/2022
UV radiation	SLAMS	PAMS	Continuous	Eppley									1/7/2022
Precipitation	SLAMS	PAMS	Continuous	MetOne									
True NO2	SLAMS	PAMS	Continuous	Teledyne Model T500U	Cavity Attenuated Phase Shift Spectroscopy		42602	1	212	Neighborhood	Population Exposure	4	4/1/2019

**NORTHEAST WASTE - 2861 LEWIS ST.
EPA AIRS CODE: 421010048**



NEW - Number of facilities within 3000 m radius: 11			2023 Emissions (tons)						
Facility ID	Name	Address	CO	Pb	NOx	PM10	PM2.5	SOx	VOC
4210101421	RIVERSIDE MATERIALS INC/ASPHALT PLT	2870 E ALLEGHENY AVE	3.340	0.0001	3.840	0.620	0.380	0.700	1.190
4210101551	ADVANSIX INC	4700 BERMUDA ST	61.220		271.880	44.380	34.840	52.900	102.940
4210102094	DIETZ & WATSON INC/PHILA	5701 TACONY ST	5.650		4.880	0.540	0.510	0.180	0.390
4210102255	SMITH EDWARDS DUNLAP CO/ALLEGHENY AVE	2867 E ALLEGHENY AVE	0.080		0.100	0.010	0.010	0.050	1.090
4210102258	MUTUAL PHARM CO INC/FRONTIDA BIOPHARM	1100 ORTHODOX ST	1.190		1.430	0.100	0.100	0.000	1.330
4210103506	PTR BALER AND COMPACTOR/PHILA	2207 E ONTARIO ST	0.330		0.400	0.030	0.030	0.000	8.130
4210104903	EXELON GENERATING CO/RICHMOND	3901 N DELAWARE AVE	0.020		3.050	0.050	0.020	0.030	0.000
4210104922	PHILA GAS WORKS/RICHMOND PLT	3100 E VENANGO ST	2.040		3.900	0.170	0.170	0.010	0.170
4210105003	KINDER MORGAN LIQUIDS TERM/PHILA	3300 N DELAWARE AVE	4.800		5.290	0.380	0.300	0.040	27.400
4210107212	DOMESTIC LINEN SUPPLY CO INC/PHILADELPH	4100 FRANKFORD AVE	0.600		0.650	0.530	0.530	0.010	1.930
4210109513	NORTHEAST WPCP/PHILA	3899 RICHMOND ST	7.910		8.260	3.710	3.640	0.610	11.710

Figure 14 - NEW Monitoring Site Map with Major Streets and Major Emission Sources



Figure 15 - NEW North Aerial View

RIT Monitor

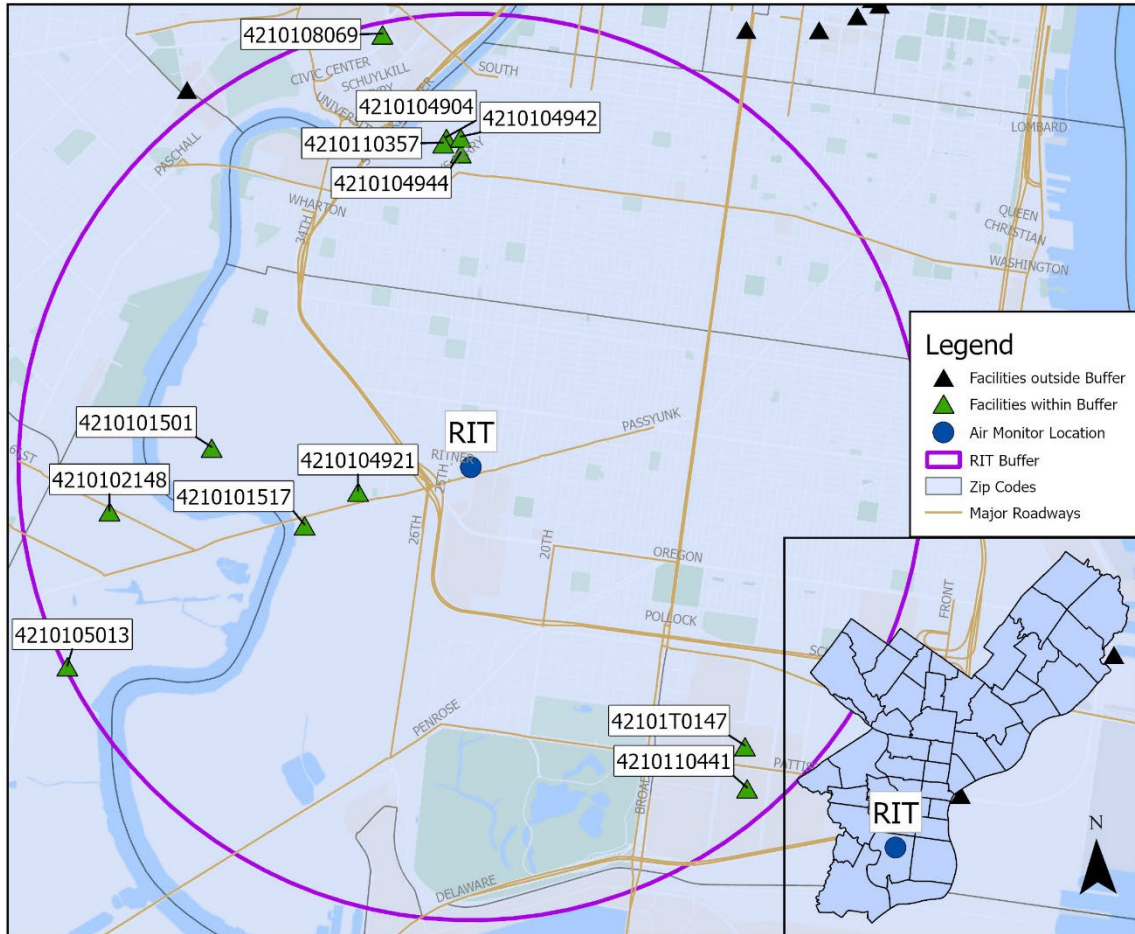
Table 7 - Detailed RIT Information with Monitoring Station Picture

AMS Site ID: RIT
AQS Site ID: 421010055
Street Address: 24th & Ritner Streets
Geographical Coordinates: Latitude: 39.922867, Longitude: -75.186921



Parameter	Monitoring Type	Monitor Network Affiliation	Operating Schedule	Collection Method	Analysis Method	Comments	Parameter Code	POC	AQS Method	Spatial Scale	Monitoring Objective	Probe Height (m)	Begin Date
SO2	SLAMS		Continuous	Instrumental	Ultraviolet Fluorescence		42401	1	100	Neighborhood	Population Exposure	4	11/9/2004
PM2.5 Speciated	SLAMS	CSN	1/3 days	Met One SASS (Nylon and Teflon) and URG	Energy Dispersive XRF, Ion Chromatography and IMPROVE	Analysis by EPA	Vary	5	Vary	Neighborhood	Population Exposure	2	9/1/2005
Metals	Other		1/6 days	Hi-Vol	ICP-MS	Analysis by ERG	Vary	1	089	Neighborhood	Population Exposure	4	8/31/2004
Carbonyls	Other	Urban Air Toxics	1/6 days	DNPH-Coated Cartridges	uHPLC		Vary	2	102	Neighborhood	Population Exposure	4	Vary
Toxics	Other	Urban Air Toxics	1/6 days	Canister Subambient Pressure	Multi-Detector GC		Vary	4,5	150	Neighborhood	Population Exposure	4	11/1/2004
PM2.5 Continuous	SLAMS		Continuous	Teledyne T640 at 5.0 LPM	Broadband Spectroscopy		88101	2	636	Neighborhood	Population Exposure	4	4/1/2020

RITNER - 24TH & RITNER STS. EPA AIRS CODE: 421010055



RIT - Number of facilities within 3000 m radius: 12			2024 Emissions (tons)						
Facility ID	Name	Address	CO	Pb	NOx	PM10	PM2.5	SOx	VOC
4210101501	PHILA ENERGY SOL REF/ PES	3144 W PASSYUNK AVE	5.300	0	5.910	0.390	0.390	0.010	2.090
4210102148	CLEAN EARTH OF PHILA LLC/PHILA	3201 S 61ST ST	0.000	0	0.000	0.020	0.000	0.000	3.020
4210104904	EXELON GENERATION CO/SCHUYLKILL STA	2800 CHRISTIAN ST	0.090	0	0.550	0.020	0.010	0.000	0.000
4210104921	PHILA GAS WORKS/PASSYUNK PLT	3100 W PASSYUNK AVE	3.590	0	3.970	0.320	0.310	0.040	0.480
4210104942	VICINITY ENERGY PHILA INC/SCHUYLKILL STATION	2600 CHRISTIAN ST	67.860	0.0002	32.800	0.670	0.670	0.170	0.780
4210104944	GRAYS FERRY COGEN PARTNERSHIP/PHILA	2600 CHRISTIAN ST	25.480	0.0008	219.000	5.320	5.320	4.000	9.220
4210105013	PLAINS PROD TERM LLC/PBF LOGISTICS TERM 67TH S	6850 ESSINGTON AVE	1.490	0	1.770	0.130	0.130	0.010	61.470
4210108069	CHILDRENS HOSP OF PHILA/ PHILA	34TH & CIVIC CENTER BLVD	11.860	0.0002	8.000	1.230	1.230	0.410	1.520
4210110357	VICINITY ENERGY PHILA INC/EFFICIENCY	2600 CHRISTIAN ST	0.010	0	1.400	0.060	0.060	0.010	0.570
4210110441	PHILA EAGLES/LINCOLN FINANCIAL FIELD	1 LINCOLN FINANCIAL FIELD WAY	1.130	0	1.880	0.110	0.110	0.010	0.100
4210110147	CITIZENS BANK PARK/PHILA	1001 PATTISON AVE	2.250	0	2.590	0.200	0.200	0.020	0.170
4210101517	PES/SCHUYLKILL TANK FARM - 749289	3144 PASSYUNK AVE	0.000	0	0.000	0.000	0.000	0.000	0.920

Figure 16 - RIT Monitoring Site Map with Major Streets and Major Emission Sources



Figure 17 - RIT North Aerial View

FAB Monitor

Table 8 - Detailed FAB Information with Monitoring Station Picture

AMS Site ID: FAB
AQS Site ID: 421010057
Street Address: 3rd and Spring Garden Sts
Geographical Coordinates: Latitude: 39.960048, Longitude: -75.142614



Parameter	Monitoring Type	Monitor Network Affiliation	Operating Schedule	Collection Method	Analysis Method	Comments	Parameter Code	POC	AQS Method	Spatial Scale	Monitoring Objective	Probe Height (m)	Begin Date
PM2.5 Continuous	SLAMS		Continuous	Teledyne T640 at 5.0 LPM	Broadband Spectroscopy		88101	2	636	Neighborhood	Highest Concentration	2	1/1/2020



Figure 19 - FAB North Aerial View

SWA Monitor

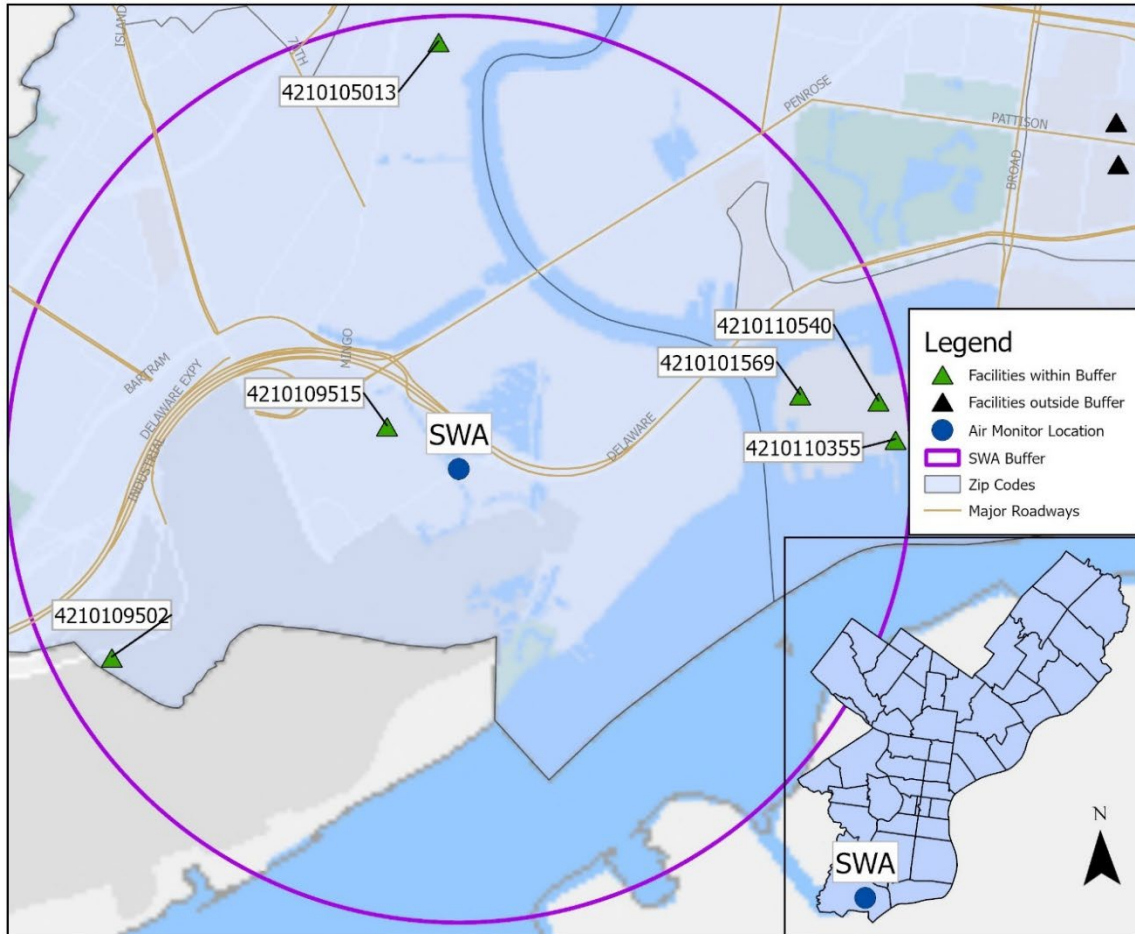
Table 9 - Detailed SWA Information with Monitoring Station Picture

AMS Site ID: SWA
AQS Site ID: 421010063
Street Address: 8200 Enterprise Avenue, 19153
Geographical Coordinates: Latitude: 39.88294, Longitude: -75.21965



Parameter	Monitoring Type	Monitor Network Affiliation	Operating Schedule	Collection Method	Analysis Method	Comments	Parameter Code	POC	AQS Method	Spatial Scale	Monitoring Objective	Probe Height (m)	Begin Date
Carbonyls	Other	Urban Air Toxics	1/6 days	DNPH-Coated Cartridges	uHPLC		Vary	2	102	Neighborhood	Source-Oriented	4	9/10/2009
Toxics	Other	Urban Air Toxics	1/6 days	Canister Subambient Pressure	Multi-Detector GC		Vary	3,5	150	Neighborhood	Source-Oriented	4	9/10/2009

**PHILADELPHIA AIRPORT - 8200 ENTERPRISE AVE.
EPA AIRS CODE: 421010063**



SWA - Number of facilities within 3000 m radius: 6				2023 Emissions (tons)					
Facility ID	Name	Address	CO	Pb	NOx	PM10	PM2.5	SOx	VOC
4210101569	PHILLY SHIPYARD INC / PHILA	PHILA NAVAL BUS CTR	1.970		1.720	8.890	3.450	0.010	17.810
4210105013	PLAINS PROD TERM LLC/PBF LOGISTICS TERM 67	6850 ESSINGTON AVE	0.610		1.830	0.140	0.140	0.010	59.440
4210109502	PHILA INTL AIRPORT/PHILA	INDUSTRIAL HWY	5.580	0.0001	12.160	1.120	1.120	0.090	0.780
4210109515	PHILA WATER DEPT/STP SW	8200 ENTERPRISE AV	7.520		3.900	0.810	0.810	0.620	6.780
4210110355	PHILA SHIP REPAIR/PHILA	5195 S 19TH ST	3.790		15.140	1.770	1.010	0.000	10.220
4210110540	PHILA CITY IND DEC AUTH/NAVY YARD PEAKER ST	1901 KITTY HAWK AVE	2.340		1.290	0.160	0.160	0.000	0.930

Figure 20 - SWA Monitoring Site Map with Major Streets and Major Emission Sources



Figure 21 - SWA North Aerial View

TOR Monitor

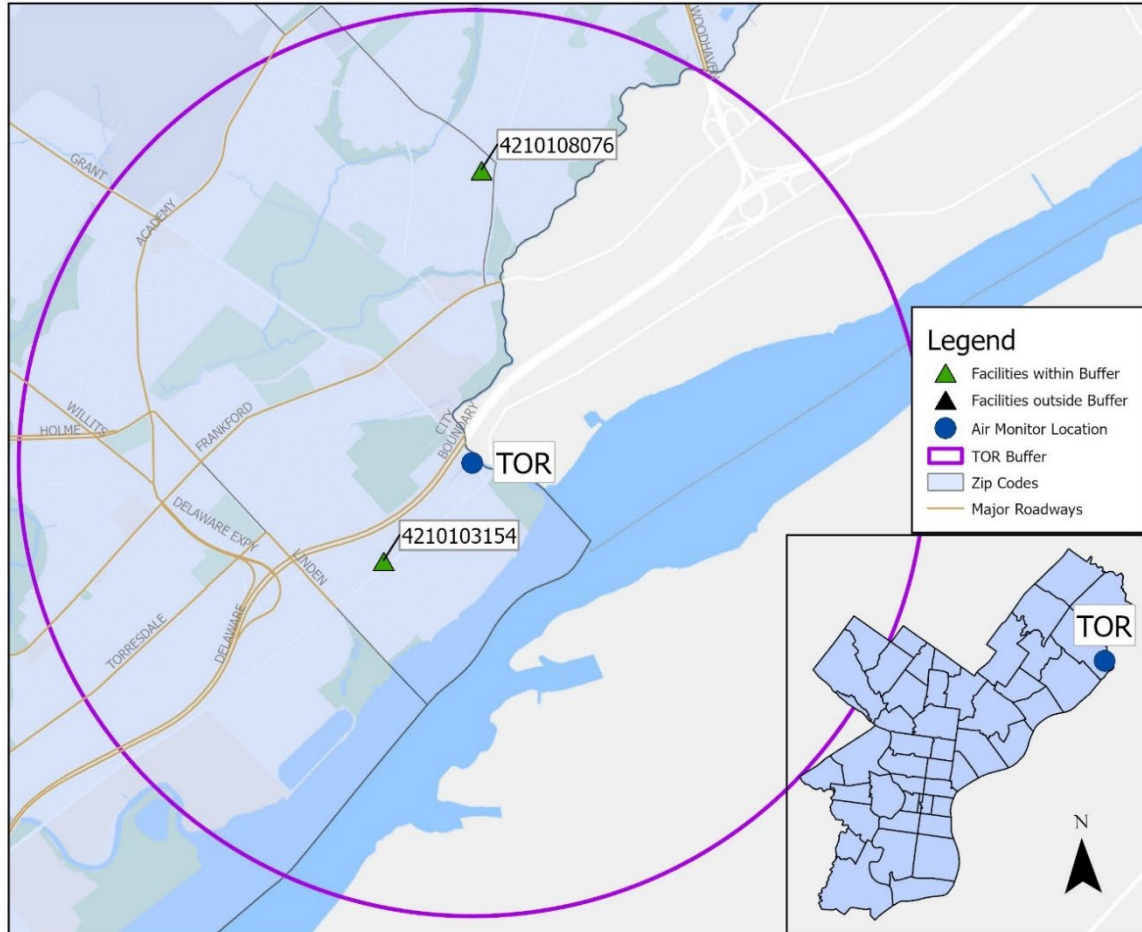
Table 10 - Detailed TOR Information with Monitoring Station Picture

AMS Site ID: TOR
AQS Site ID: 42101007
Street Address: 4901 Grant Ave. & James St., 19114
Geographical Coordinates: Latitude: 40.054171, Longitude: -74.985166



Parameter	Monitoring Type	Monitor Network Affiliation	Operating Schedule	Collection Method	Analysis Method	Comments	Parameter Code	POC	AQS Method	Spatial Scale	Monitoring Objective	Probe Height (m)	Begin Date
CO	SLAMS	Near Road	Continuous	Instrumental	Gas Filter Correlation CO Analyzer		42101	1	093	Microscale	Highest Concentration, Source Oriented	5	1/1/2014
NO2	SLAMS	Near Road	Continuous	Instrumental	Gas Phase Chemiluminescence		42602	1	099	Microscale	Highest Concentration, Source Oriented	5	1/1/2014
NO	SLAMS	Near Road	Continuous	Instrumental	Gas Phase Chemiluminescence		42601	1	099	Microscale	Highest Concentration, Source Oriented	5	1/1/2014
NOx	SLAMS	Near Road	Continuous	Instrumental	Gas Phase Chemiluminescence		42603	1	099	Microscale	Highest Concentration, Source Oriented	5	1/1/2014
PM2.5 Continuous	SLAMS	Near Road	Continuous	Teledyne T640 at 5.0 LPM	Broadband Spectroscopy		88101	2	636	Microscale	Highest Concentration, Source Oriented	5	4/1/2020
Black Carbon	SLAMS	Near Road	Continuous	Instrumental	Teledyne Model 633		88317	1	894	Microscale	Highest Concentration, Source Oriented	4	7/1/2015
Meteorological	SLAMS	Near Road	Continuous		Vaisala 435C RH/AT Sensor		Vary	1	Vary	Microscale	Highest Concentration, Source Oriented	5	1/1/2014

**TORRESDALE - 4901 GRANT AVE. & JAMES ST.
EPA AIRS CODE: 421010075**



TOR - Number of facilities within 3000 m radius: 2			2023 Emissions (tons)						
Facility ID	Name	Address	CO	Pb	NOx	PM10	PM2.5	SOx	VOC
4210103154	JOWITT AND RODGERS CO/STATE RD FAC	9400 STATE RD	0.040		0.160	0.020	0.010	0.000	8.100
4210108076	JEFFERSON HEALTH NORTHEAST/TORRESDALE HOSP	RED LION & KNIGHTS RD	3.280		4.660	0.230		0.020	0.300

Figure 22 - TOR Monitoring Site Map with Major Streets and Major Emission Sources

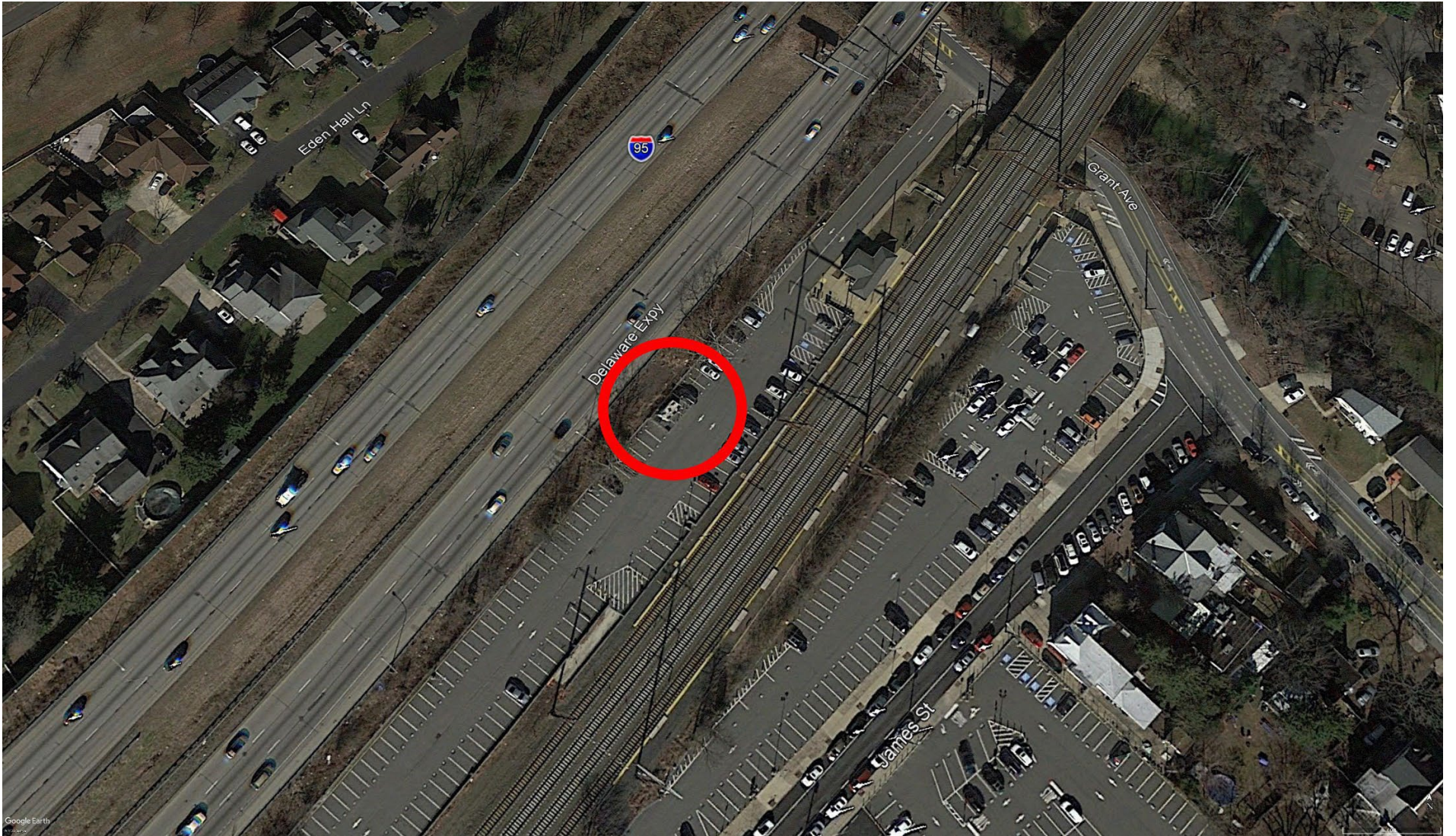


Figure 23 - TOR North Aerial View

MON Monitor

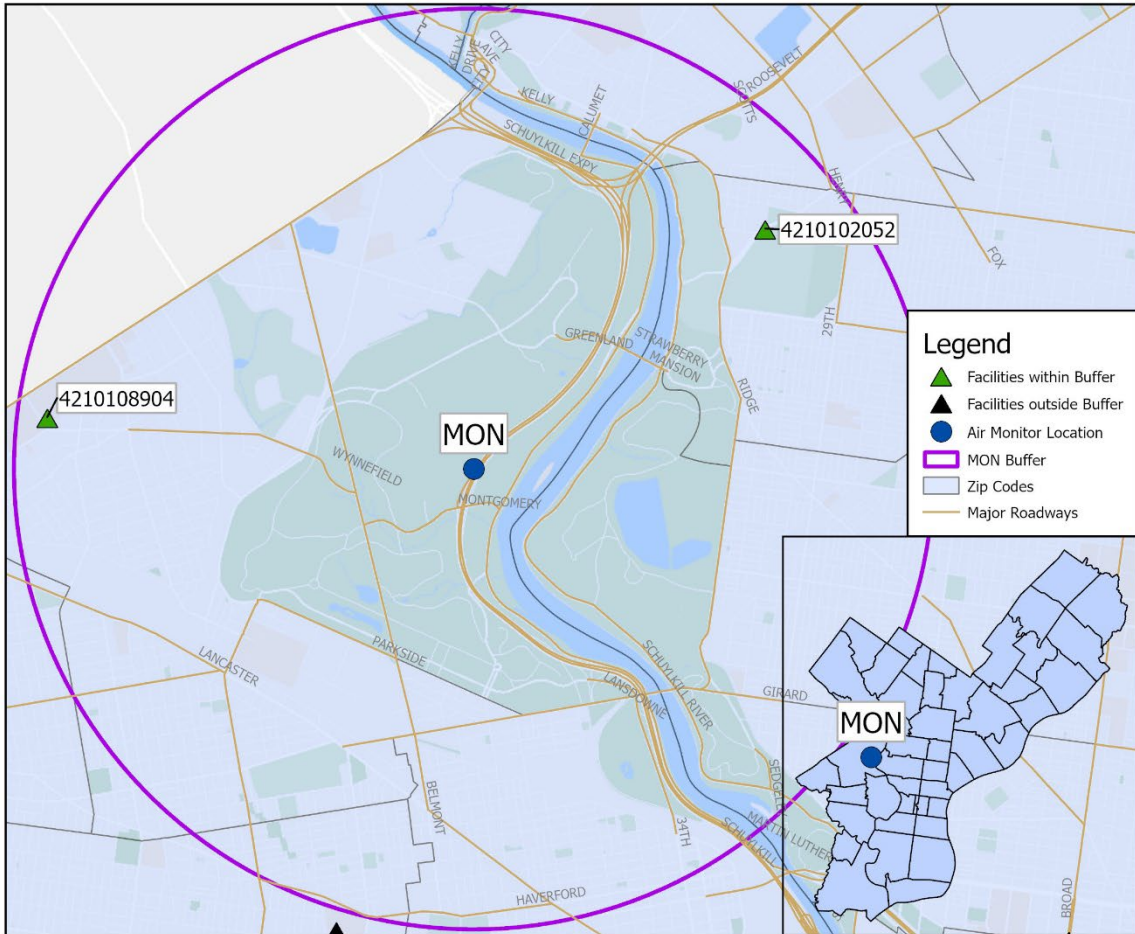
Table 11 - Detailed MON Information with Monitoring Station Picture

AMS Site ID: MON
AQS Site ID: 421010076
Street Address: I-76 & Montgomery Drive, Car Barn OFM Shop 282
Geographical Coordinates: Latitude: 39.988842, Longitude: -75.207205



Parameter	Monitoring Type	Monitor Network Affiliation	Operating Schedule	Collection Method	Analysis Method	Comments	Parameter Code	POC	AQS Method	Spatial Scale	Monitoring Objective	Probe Height (m)	Begin Date
CO	SLAMS	Near Road	Continuous	Instrumental	Gas Filter Correlation CO Analyzer		42101	1	093	Microscale	Highest Concentration, Source Oriented	4	1/10/2017
NO2	SLAMS	Near Road	Continuous	Instrumental	Gas Phase Chemiluminescence		42602	1	099	Microscale	Highest Concentration, Source Oriented	4	7/1/2015
NO	SLAMS	Near Road	Continuous	Instrumental	Gas Phase Chemiluminescence		42601	1	099	Microscale	Highest Concentration, Source Oriented	4	7/1/2015
NOx	SLAMS	Near Road	Continuous	Instrumental	Gas Phase Chemiluminescence		42603	1	099	Microscale	Highest Concentration, Source Oriented	4	7/1/2015
PM2.5 Continuous	SLAMS	Near Road	Continuous	Teledyne T640 at 5.0 LPM	Broadband Spectroscopy		88101	2	636	Neighborhood	Highest Concentration, Source Oriented	4	6/1/2020
Black Carbon	SLAMS	Near Road	Continuous	Instrumental	Teledyne Model 633		88317	1	894	Microscale	Highest Concentration, Source Oriented	4	7/1/2015
Metals	Other	Near Road	1/6 days	Hi-Vol	ICP-MS	Analysis by ERG	Vary	1	089	Neighborhood	Population Exposure	4	7/1/2015
Meteorological	SLAMS	Near Road	Continuous		Air quality measurements approved instrumentation for wind speed, wind direction, humidity, barometric pressure, rainfall and solar radiation		Vary	1	Vary	Microscale	Highest Concentration, Source Oriented	4	7/1/2015

**MONTGOMERY - INTERSTATE 76 & MONTGOMERY DR.
EPA AIRS CODE: 421010076**



MON - Number of facilities within 3000 m radius: 2			2024 Emissions (tons)						
Facility ID	Name	Address	CO	Pb	NOx	PM10	PM2.5	SOx	VOC
4210102052	SUN CHEM CORP/HUNTING PARK PLT	3301 W HUNTING PARK AVE	0.280	0	0.340	0.090	0.090	0.000	10.060
4210108904	SAINT JOSEPHS UNIV/PHILA	54TH & CITY AVE	5.060	0	6.470	0.490	0.490	0.190	0.350

Figure 24 - MON Monitoring Site Map with Major Streets and Major Emission Sources

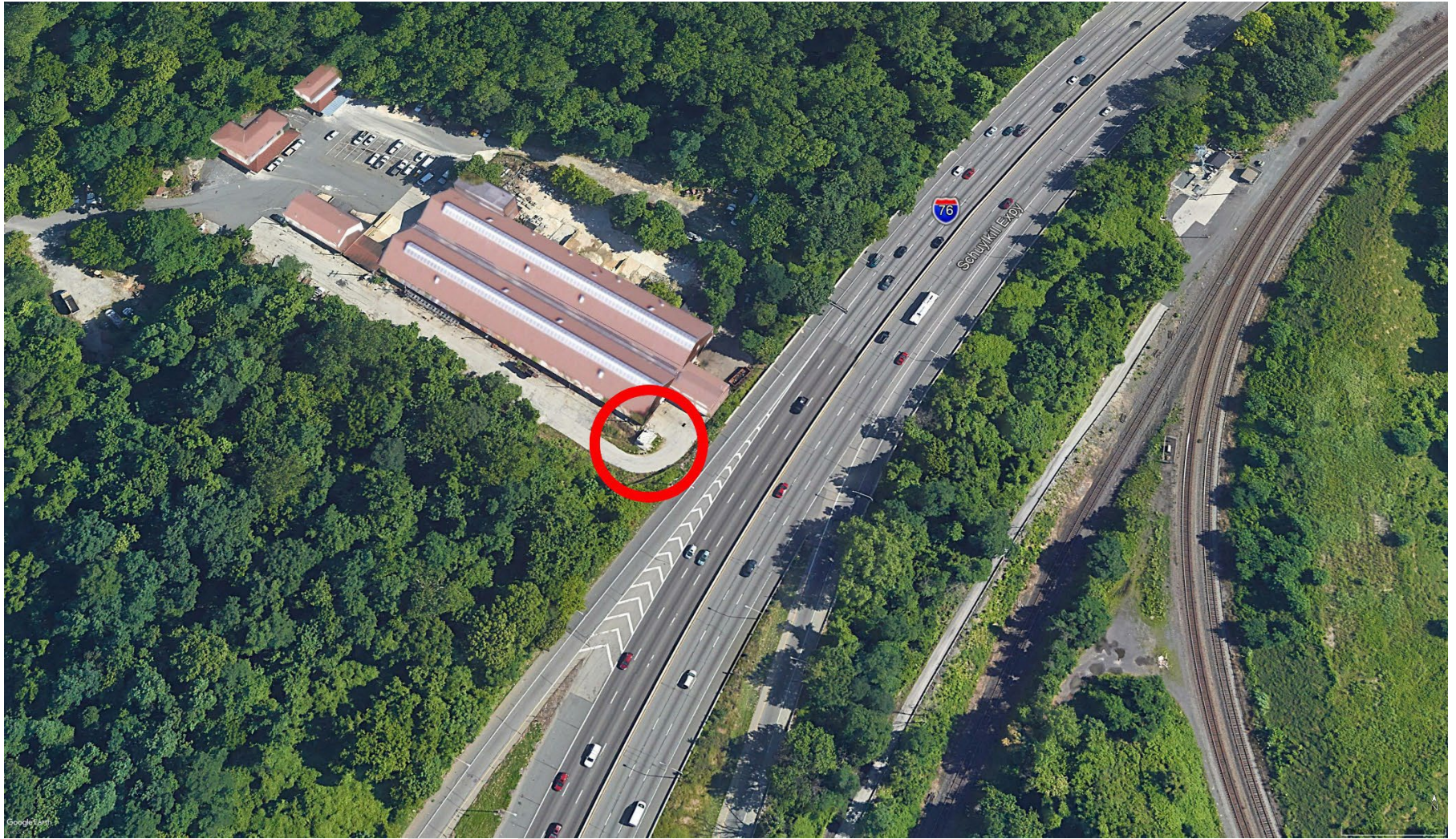


Figure 25 - MON North Aerial View

WIS Monitor

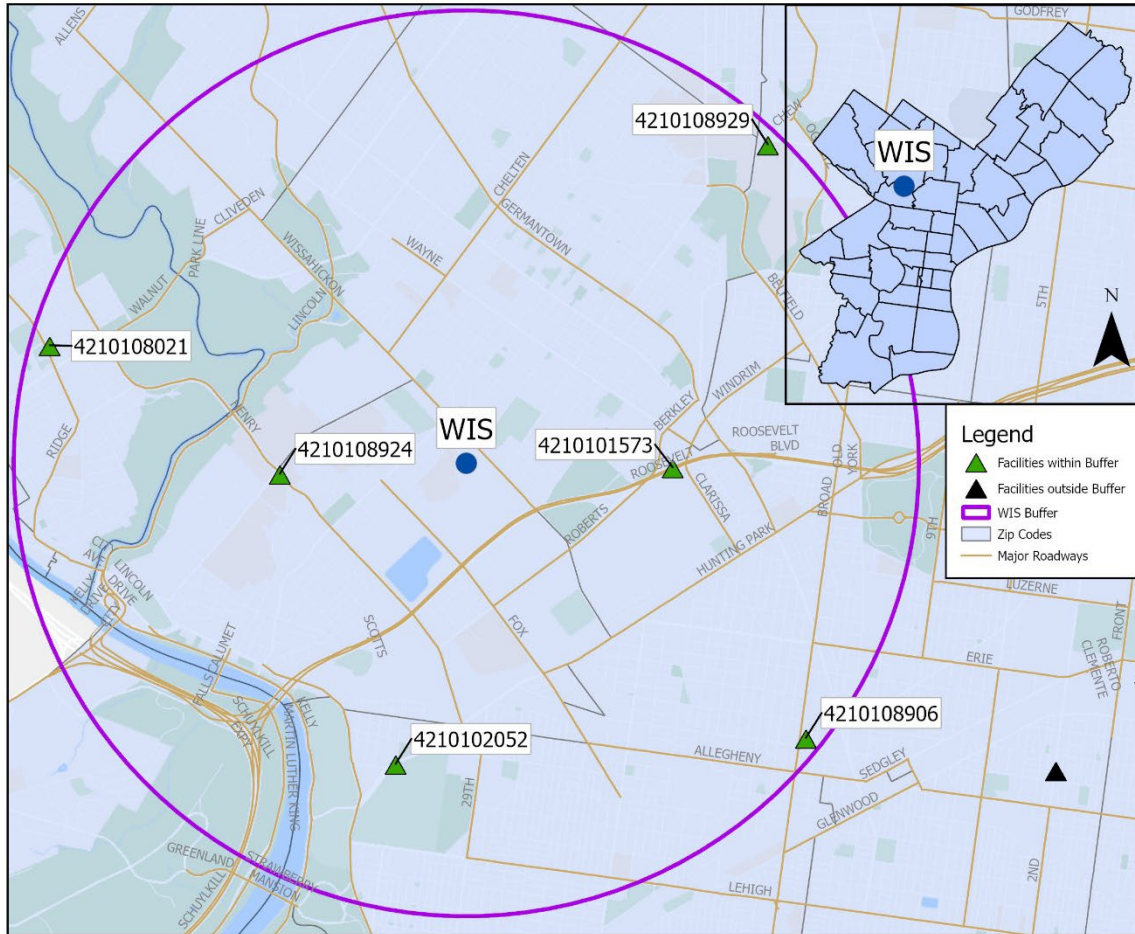
Table 12 - Detailed MON Information with Monitoring Station Picture

AMS Site ID: WIS
AQS Site ID: 421010068
Street Address: 5200 Wissahickon Ave, Philadelphia, PA 19144
Geographical Coordinates: Latitude: 40.020568, Longitude: -75.177729



Parameter	Monitoring Type	Monitor Network Affiliation	Operating Schedule	Collection Method	Analysis Method	Comments	Parameter Code	POC	AQS Method	Spatial Scale	Monitoring Objective	Probe Height (m)	Begin Date
NO ₂	SLAMS		Continuous	Instrumental	Gas Phase Chemiluminescence		42602	1	099	Neighborhood	Population Exposure	4	
NO	SLAMS		Continuous	Instrumental	Gas Phase Chemiluminescence		42601	1	099	Neighborhood	Population Exposure	4	
NO _x	SLAMS		Continuous	Instrumental	Gas Phase Chemiluminescence		42603	1	099	Neighborhood	Population Exposure	4	
PM _{2.5} Continuous	SLAMS		Continuous	Teledyne T640 at 5.0 LPM	Broadband Spectroscopy		88101	1	636	Neighborhood	Population Exposure	4	
Carbonyl	Other	Urban Air Toxics	1/6 days	DNPH-Coated Cartridges	uHPLC		Vary	1	102	Neighborhood	Population Exposure	4	
Toxics	Other	Urban Air Toxics	1/6 days	Canister Subambient Pressure	Multi-Detector GC		Vary	2	150	Neighborhood	Population Exposure	4	

**WIS SITE - 5200 WISSAHICKON AVE.
EPA AIRS CODE: 421010068**



WIS - Number of facilities within 3000 m radius: 6				2024 Emissions (tons)						
Facility ID	Name	Address	CO	Pb	NOx	PM10	PM2.5	SOx	VOC	
4210101573	SEPTA ROBERTS C	341-342 ROBERTS AVE	0.900	0.000	7.150	0.120	0.085	0.150	1.070	
4210102052	SUN CHEM CORP/HUNTING PARK PLT	3301 W HUNTING PARK AV	0.280	0	0.340	0.090	0.090	0.000	10.060	
4210108906	TEMPLE UNIV HEALTH SCIENCES CAMPUS/STE	3401 N BROAD ST	20.760	0	7.750	2.150	2.150	0.250	1.600	
4210108924	PHILA UNIV/COLL OF TEXTILE	HENRY AVE & SCHOOL LN	1.280	0	1.930	0.070	0.000	0.030	0.100	
4210108021	ROXBOROUGH MEM HOSP/PHILA	5800 RIDGE AVE	1.580	0	1.520	0.050	0.050	0.010	0.110	
4210108929	LASALLE UNIV/W OLNEY AVE	1900 W OLNEY AVE	2.620	0	3.210	0.240	0.240	0.030	0.180	

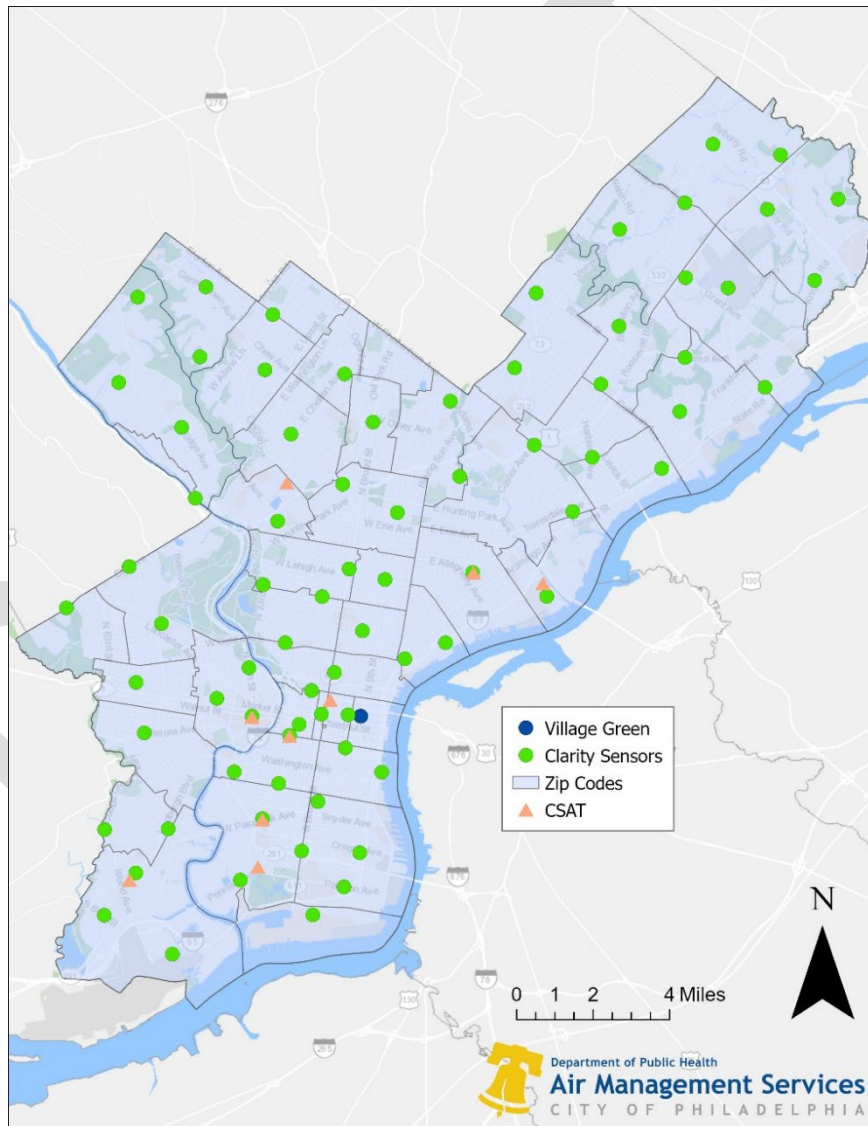
Figure 26 - WIS Monitoring Site Map with Major Streets and Major Emission Sources



Figure 27 - WIS Site North Aerial View

Non-Regulatory Monitoring Network Overview

In addition to the regulatory monitoring network described earlier, Philadelphia operates several non-regulatory monitoring programs that support and complement the regulatory network. These programs serve distinct purposes and provide additional spatial, temporal, and community-focused air quality information. The non-regulatory networks include the Village Green (VGR) monitor, the Clarity real-time sensor network (also called the Breathe Philly network), and the Community-Scale Air Toxics (CSAT) Ambient Monitoring network. Figure 28 presents a map of the non-regulatory monitoring network. Each of these networks is described in the following sections.



**Figure 28 - 2025 Philadelphia Non-Regulatory Monitoring Network
Air Monitoring Network as of April 1, 2026**

VGR Monitor

The Village Green monitoring station in Philadelphia is part of the EPA's Village Green Project, a community-based real-time air pollution monitoring initiative designed to increase public awareness of local environmental conditions. The station operates on solar power and a small wind turbine, allowing it to function as a fully self-contained, off-grid monitoring platform. Located in a public setting to maximize visibility and outreach, the Village Green station measures ozone, PM_{2.5}, and basic meteorological parameters. All parameters are displayed in real time to the community on the monitor. This installation enhances public engagement by providing accessible, highly localized air-quality information and serves as a supplemental education and outreach tool within Philadelphia's monitoring network. Detailed specifications and operating parameters for the Village Green station are provided in Table 13.

Table 13: Site information about VGR

AMS Site ID: VGR
Address: 6th & Arch Streets
Latitude: 39.952608
Longitude: -75.149704

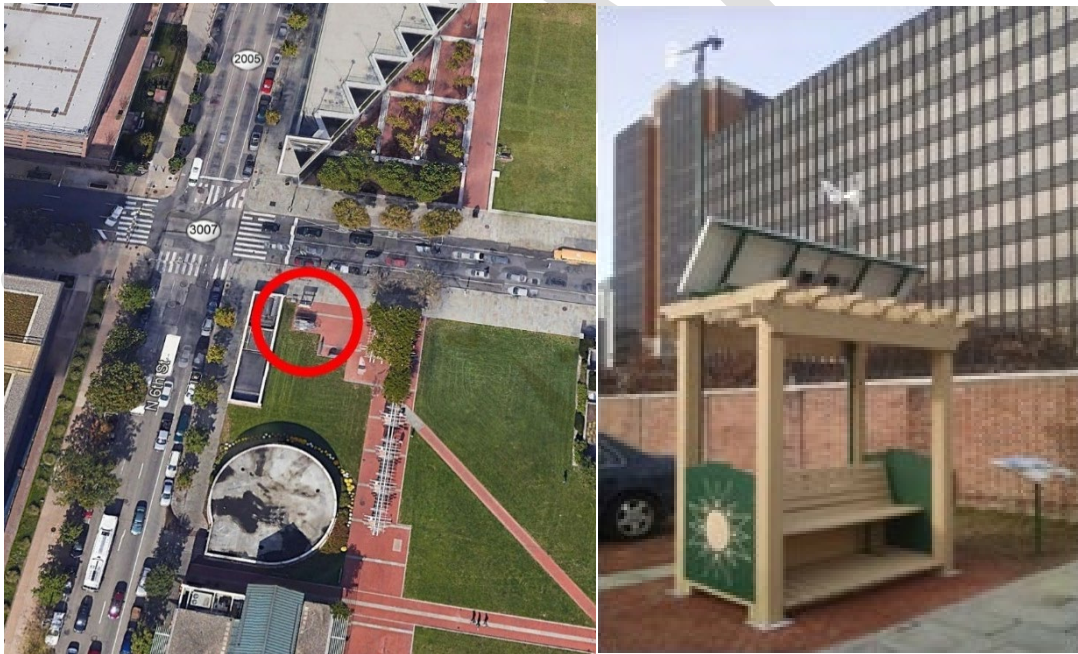


Figure 29: Aerial view and street view of the VGR non-regulatory monitoring station

Clarity Real-Time Sensor Network

Network Overview and Deployment Strategy

In 2025–2026, AMS established a citywide network of 76 Clarity Node-S real-time sensors as part of the Breathe Philly program. Breathe Philly is intended to complement the existing regulatory monitoring network and improve public transparency of data. This effort builds on the foundation of the Philadelphia Air Quality Survey (PAQS), which operated from 2018 through 2024 and provided high-resolution, filter-based measurements across the city.

More than half of the Clarity sensors were deployed at former PAQS locations. This approach leveraged the original site selection analysis, which considered emission sources, roadway density, and population distribution, and allowed for comparison between historical PAQS data and current real-time measurements.

The remaining sensors were strategically placed to improve geographic equity and spatial coverage. Priority was given to residential areas and neighborhoods with limited proximity to regulatory monitors. As a result, every residence in Philadelphia is located within 1.5 miles of either a regulatory monitoring station or a Clarity sensor. Figure 32 presents a map of the Clarity Real-Time Sensor Network.

The compact and modular design of the Node-S units allows AMS to adjust locations as needed to address data gaps, community concerns, or evolving monitoring priorities. AMS will continue evaluating sensor performance and siting effectiveness as part of the ongoing network assessment.

Real-Time Data Access

The Clarity sensor network is integrated with AMS regulatory monitors through the Breathe Philly public dashboard. This platform provides unified access to real-time and historical air quality information.

Real-Time Measurements

Real-time measurements are collected for most criteria pollutants and displayed as hourly averages on the Breathe Philly dashboard.

- For PM_{2.5}, the 76 Clarity sensors and the 7 regulatory monitors measure PM_{2.5} continuously and display hourly averages.
- For NO₂, the 76 Clarity sensors and 4 regulatory monitors measure NO₂ continuously and display hourly averages.
- For Ozone, CO, PM₁₀, and SO₂, the AMS regulatory monitors produce hourly averages that are shown on the Breathe Philly dashboard.

Data are presented as time-series charts showing both pollutant concentration and Air Quality Index (AQI) values. The dashboard also aggregates hourly data to illustrate short-term patterns, seasonal trends, and episodic events. Real-time sensor data are intended to enhance public awareness and situational understanding. Regulatory data remain the official record for compliance determinations and EPA reporting.

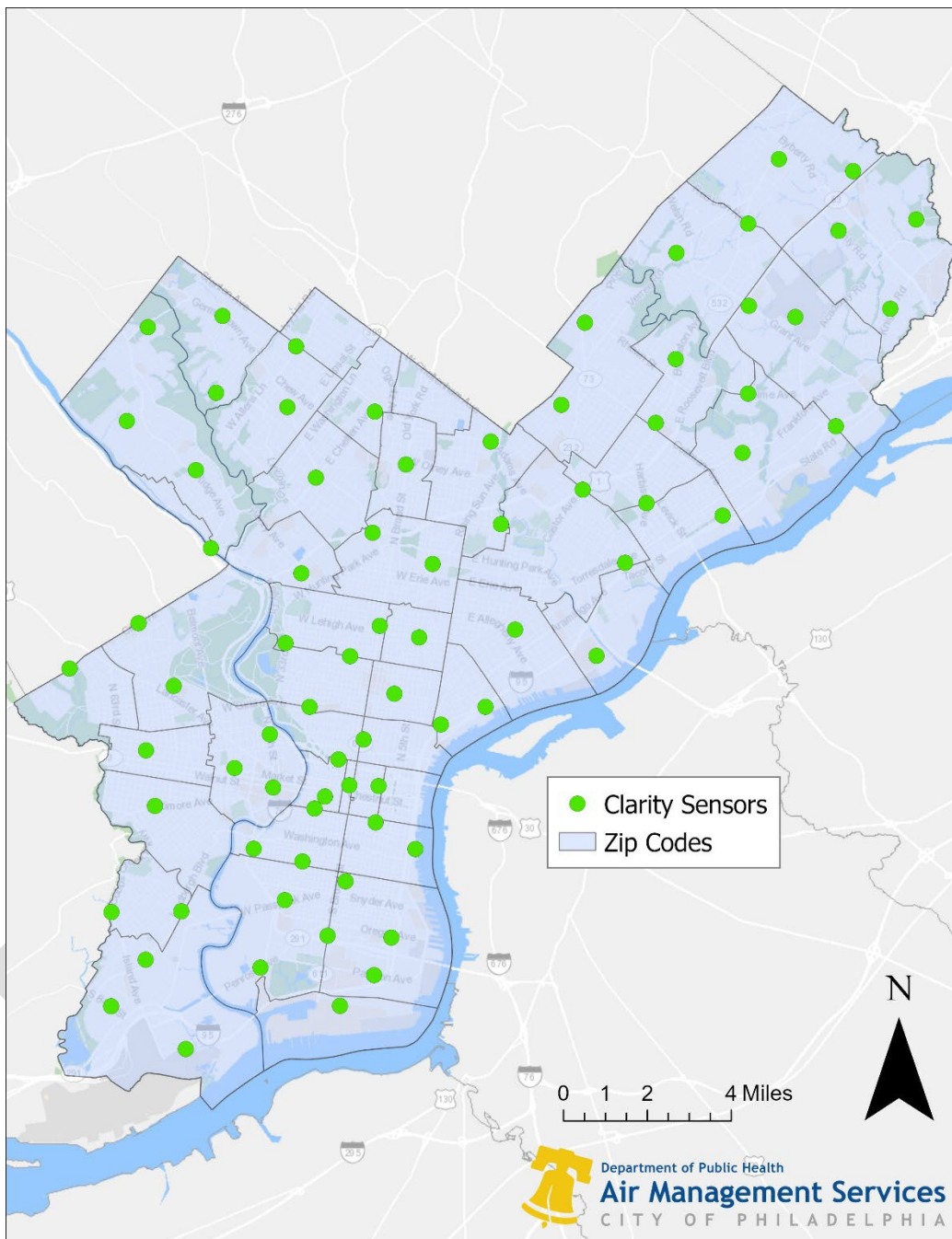


Figure 30 - Philadelphia Clarity Real-Time Sensor Network as of April, 2026.

2020 Community-Scale Air Toxics Ambient Monitoring Grant

Overview

In October 2020, AMS received an EPA grant award for Community-Scale Air Toxics Ambient Monitoring (RFP Number: EPA-OAR-OAQPS-20-05). The project was designed to evaluate concentrations of priority hazardous air pollutants in selected Philadelphia communities and to improve understanding of localized air toxics exposure.

The monitoring effort focused on six priority air toxics identified for this study: formaldehyde, benzene, carbon tetrachloride, naphthalene, acetaldehyde, and 1,3-butadiene. These pollutants were selected due to their health significance and relevance to urban emission sources.

The CSAT network has expanded significantly since its initial deployment. As of 2025, AMS operates nine CSAT monitoring sites. The initial five sites were installed on April 6, 2022, and four additional sites were installed on May 8, 2025, to increase spatial coverage. The site locations are shown in Figure 31 and Table 14.

This project provided site-specific air toxics data to support risk evaluation, community engagement, and future air quality planning efforts.

Table 14 - Community-Scale Air Toxics (CSAT) Monitoring Site Locations – 2025 Network

Site number	Site name	Address
Site 1	New 1	AMS NEW (2861 Lewis St)
Site 2	New 2	3315 Frankford Ave
Site 3	CC	Juniper St. (N. Juniper and Vine Sts)
Site 4	New 3	2100 Pine St
Site 5	West Philly	3312 Walnut St (in front of Drexel Univ. School of Engineering & Science)
Site 6	South 1	AMS RIT (24th and Ritner Sts)
Site 7	South 2	2401 Penrose Ave
Site 8	Eastwick	7501 Lindbergh Blvd., across the road from the main gate of the USPS Processing Center
Site 9	New 4	AMS WIS (5200 Wissahickon Ave)

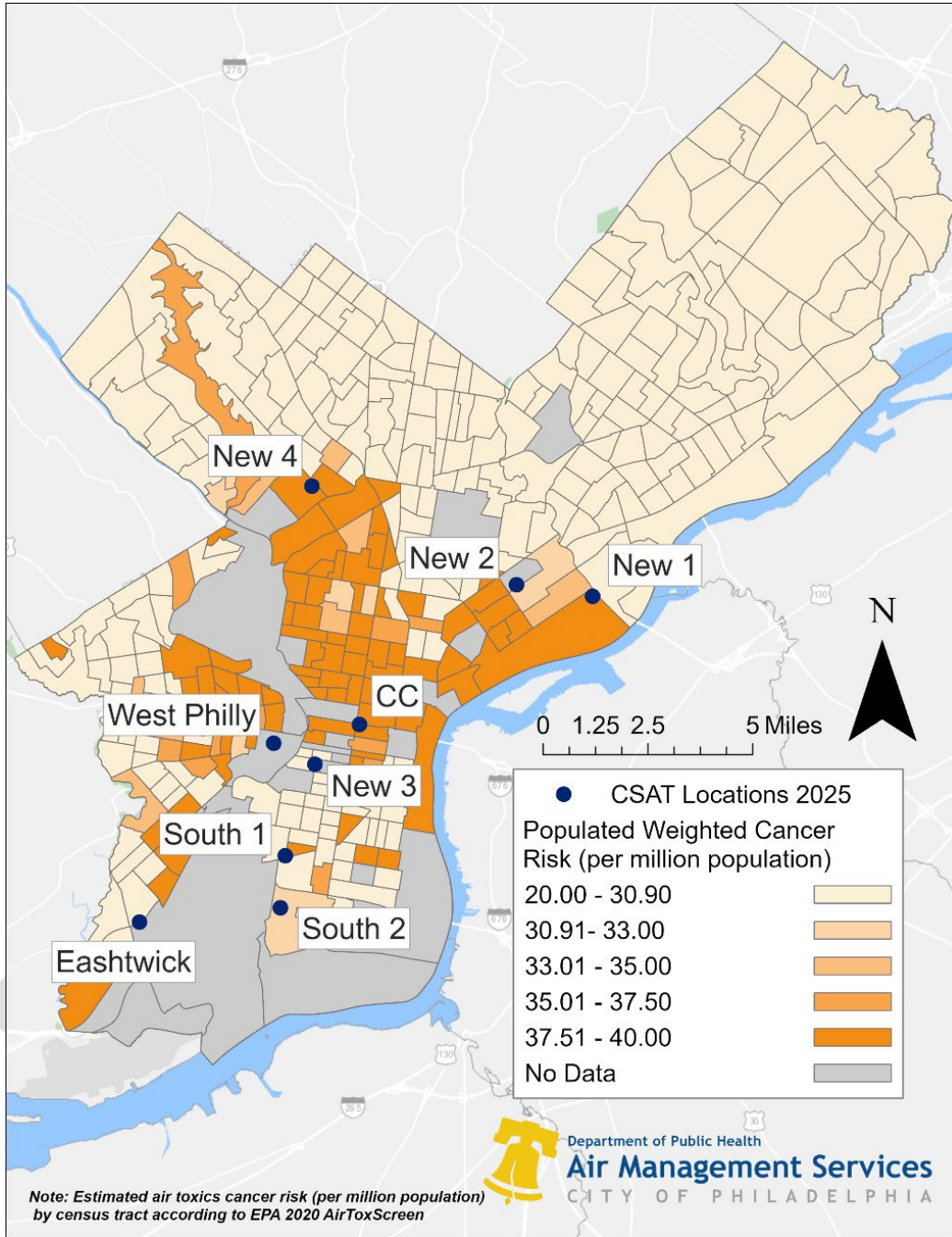


Figure 31 - Community-Scale Air Toxics Monitoring Sites (2020 EPA Grant), Philadelphia

Background and Site Selection Criteria

EPA's 2014 National Air Toxics Assessment (NATA) shows that the seven compounds listed above contributed most to air toxics cancer risks in Philadelphia. The community surrounding the oil refinery complex in South Philadelphia has long been concerned about the impact of exposure to air toxics. This neighborhood has high poverty rates, lower-than-average education levels, and a large at-risk population. The Eastwick neighborhood is about 1.5 miles north of Philadelphia International Airport and near a Superfund site. According to a study by the University of Pennsylvania, a percentage of residents in this neighborhood have complained about asthma and breathing problems. Also, parts of Center City are among the areas with the highest lifetime total cancer risks from air toxics in Philadelphia^{3,4}.

Monitoring Methods and Analytical Approach

Passive samplers were used to continuously measure the air toxics. The sampling period began in July 2023 and will continue beyond the project's end date. A weatherproof sampler housing was installed about 3 meters above ground at each site. EPA-designated analytical methods (GC/MS and uHPLC) were used for the sample analysis. Monitoring results at each location from July 2023 to April 2024 are shown in the tables below.

Table 15 - Average concentrations (ppb) of selected air toxics measured at five sites, July 2023–April 2024.

Location	Benzene (ppb)	1,3-Butadiene (ppb)	Carbon Tetrachloride (ppb)	Naphthalene (ppb)
South 1 (6)*	3.39	0.761	2.16	2.72
South 2 (7)	3.27	0.758	2.29	2.31
Eastwick (8)	2.81	0.696	2.07	2.05
CC (4)	2.85	0.7	2.31	2.01
West Philly (5)	2.81	0.747	2.27	2.19

*Note: Numbers in parentheses correspond to the site number in Table 14.

³ McKeon TP, Hwang WT, Ding Z, Tam V, Wileyto P, Glanz K, Penning TM. Environmental exposomics and lung cancer risk assessment in the Philadelphia metropolitan area using ZIP code-level hazard indices. *Environ Sci Pollut Res Int.* 2021 Jun;28(24):31758-31769. doi: 10.1007/s11356-021-12884-z. Epub 2021 Feb 21. PMID: 33611735; PMCID: PMC8238722.

⁴ Philadelphia Regional Center for Children's Environmental Health. Asthma in Philadelphia. <https://ceet.upenn.edu/community/target-communities/south-philadelphia/>

2022 American Rescue Plan Grant Project

Overview

In November 2022, AMS received an EPA grant award for Enhanced Air Monitoring for Communities (EPA-OAR-OAQPS-22-01) under the American Rescue Plan (ARP).

This project deploys continuous air monitors at three sites in Philadelphia, located near major emission sources, including the former Philadelphia refinery complex, the Philadelphia International Airport, Kinder Morgan storage tanks, a US Postal processing center, and major highways (I-95, I-76, Roosevelt Blvd.). The project will produce results to fill air monitoring gaps in these areas and help strategize pollution reduction strategies. The three sites will monitor criteria pollutants and VOCs/air toxics around three Zip Code areas: 19140, 19134, and 19145. The monitoring locations are shown in the map below.

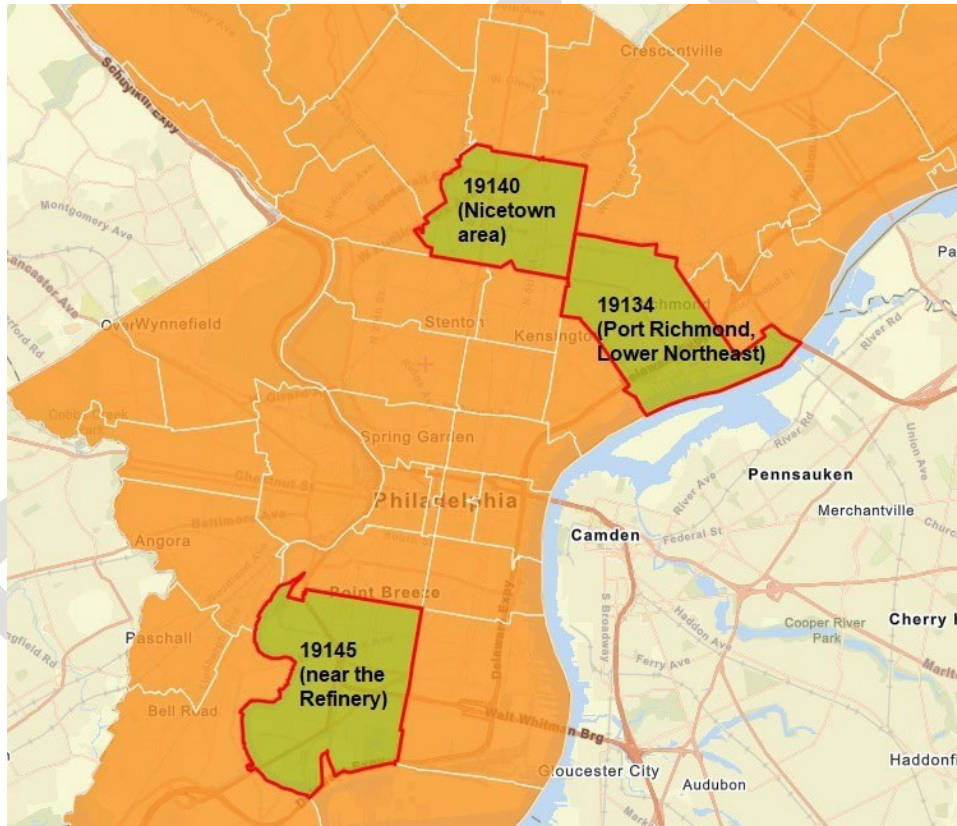


Figure 32 - ARP Enhanced Air Monitoring Project Sites in Philadelphia

Monitoring Strategy and Technical Approach

The overall approach to this project focused on providing continuous monitoring in communities near major emission sources. Medium-cost continuous monitors (such as the DustTrak™ 8540 Environmental Monitors) will be used to measure PM_{2.5}. VOCs will be monitored continuously using instruments such as the PID 112 Model VOC monitors. Canister samples of VOCs/air toxics (with EPA-designated methods) will be used for quality assurance. Passive samplers will be used to collect O₃ and NO₂ samples at each site.

Project Timeline and Implementation Status

Initially, the sampling operation was planned to start in mid-2023 and run for 12 months. The entire project, including equipment acquisition, site preparation, training, air sampling, and data processing & reporting, will take 2 years. Delays during the equipment procurement process have pushed the timeline back.

As of March 2026, monitoring locations for the ARP project have been finalized. Two fixed monitoring sites will be utilized: the existing RIT site and a new WIS site. At the WIS location, the monitoring shelter and all instruments have been installed. In addition to the two fixed sites, AMS will deploy its Mobile Monitoring System (MMS) as the third monitoring platform for the ARP project. The MMS provides flexible, relocatable monitoring capability to support community based sampling consistent with ARP objectives.

The originally proposed real-time VOC analyzer remains unavailable on the commercial market. AMS is currently evaluating alternative instrumentation options to ensure that VOC measurements can still be incorporated and that project objectives can be maintained. Additional ARP activities, including passive sampling and supporting measurements, will proceed as feasible within the overall project structure.

Proof of Public Notice Publication

DRAFT

Comment Response Document

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