



pennsylvania
DEPARTMENT OF ENVIRONMENTAL
PROTECTION

***Commonwealth of Pennsylvania
Department of Environmental Protection
2020 Annual Ambient Air Monitoring
Network Plan***

July 1, 2020

**Tom Wolf, Governor
Commonwealth of Pennsylvania**

**Patrick McDonnell, Secretary
Department of Environmental Protection**

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List of Acronyms

ACHD	Allegheny County Health Department
AMS	Air Management Services
APCA	Air Pollution Control Act
AQS	Air Quality System
ASOS	Automated Surface Observing System
ATSDR	Agency for Toxic Substances and Disease Registry
CAA	Clean Air Act
CASTNET	Clean Air Status and Trends Network
CBSA	Core-Based Statistical Area
CFR	Code of Federal Regulations
CO	Carbon monoxide
CSA	Combined Statistical Area
DEP	Pennsylvania Department of Environmental Protection
DRR	Data Requirements Rule
FEM	Federal Equivalent Method
FR	Federal Register
FRM	Federal Reference Method
H ₂ S	Hydrogen sulfide
HAP	Hazardous Air Pollutant
KJST	John Murtha Johnstown-Cambria County Airport
MSA	Metropolitan Statistical Area
NAAQS	National Ambient Air Quality Standard
NASA	National Aeronautics and Space Administration
NCore	National Core multipollutant monitoring station
NO	Nitrogen oxide
NO ₂	Nitrogen dioxide
NO _x	Oxides of Nitrogen
O ₃	Ozone
OMB	Office of Management and Budget
PAMS	Photochemical Assessment Monitoring Station
Pb	Lead
Pb-TSP	Lead collected in Total Suspended Particulate
PM	Particulate Matter
PM ₁₀	Particulate Matter <= 10 microns in diameter
PM _{2.5}	Particulate Matter <= 2.5 microns in diameter
PQAO	Primary Quality Assurance Organization
PWEI	Population-Weighted Emission Index
QA	Quality Assurance
QAPP	Quality Assurance Project Plan
SIP	State Implementation Plan
SLAMS	State and Local Air Monitoring Station
SO ₂	Sulfur dioxide
SPM	Special Purpose Monitor
TAD	Technical Assistance Document
tpy	tons per year
TSP	Total Suspended Particulate
EPA	Environmental Protection Agency
VOC	Volatile Organic Compound

Introduction

The Federal Air Pollution Control Act of 1955 was the first federal legislation enacted by Congress to provide research and technical assistance to state and local governments responsible for controlling air pollution. This Act appropriated \$5 million each fiscal year from July 1955 to June 30, 1960, for the U.S. Department of Health, Education and Welfare to carry out the functions of the Act. The Clean Air Act of 1963 was the first federal legislation establishing a federal air pollution control program within the U.S. Public Health Service and authorized research into techniques for monitoring and controlling air pollution. In 1967, the Air Quality Act was enacted in order to expand federal government activities. In accordance with this law, enforcement proceedings were initiated in areas subject to interstate air pollution transport. As part of these proceedings, the federal government for the first time conducted extensive ambient monitoring studies and stationary source inspections.¹

In 1970, Congress enacted the Clean Air Act (CAA) authorizing the U.S. Environmental Protection Agency (U.S. EPA) to establish National Ambient Air Quality Standards (NAAQS) for pollutants shown to threaten human health and welfare. Primary NAAQS were promulgated by EPA according to criteria designed to protect public health, including an adequate margin of safety to protect sensitive populations including children, asthmatics and the elderly. The secondary NAAQS were promulgated by EPA according to criteria designed to protect public welfare (decreased visibility, damage to crops, vegetation, and buildings, etc.). EPA has promulgated NAAQS for the following pollutants: ozone (O₃), carbon monoxide (CO), sulfur dioxide (SO₂), nitrogen dioxide (NO₂), particulate matter less than 10 microns (PM₁₀), particulate matter less than 2.5 microns (PM_{2.5}), and lead (Pb). These pollutants are commonly called the “criteria” pollutants. Table 1 on the following page lists all of the NAAQS for the criteria pollutants and is available at <https://www.epa.gov/criteria-air-pollutants/naaqs-table>.

In accordance with Section 107 of the CAA, 42 U.S.C. section 7407, after EPA establishes or revises a primary and/or secondary NAAQS, EPA designates areas as “attainment,” “nonattainment,” or “unclassifiable” areas upon review of certified and quality assured ambient air monitoring data collected by state, local and tribal governments. For areas with nonattainment designations, the state and local agencies must develop and submit to EPA revisions to State Implementation Plans (SIPs) outlining how areas will attain and maintain the standards by reducing air pollutant emissions.

¹ http://www.epa.gov/air/caa/caa_history.html

Table 1. National Ambient Air Quality Standards (NAAQS)

Pollutant [Final Rule Cite]	Primary/ Secondary	Averaging Time	Level	Form	
Carbon Monoxide [76 FR 54294, Aug 31, 2011]	primary	8 hours	9 ppm	Not to be exceeded more than once per year	
		1 hour	35 ppm		
Lead [73 FR 66964, Nov 12, 2008]	primary and secondary	Rolling 3-month period	0.15 µg/m ³⁽¹⁾	Not to be exceeded	
Nitrogen Dioxide [75 FR 6474, Feb 9, 2010] [61 FR 52852, Oct 8, 1996]	primary	1 hour	100 ppb	98 th percentile of 1-hour daily maximum concentrations, averaged over 3 years	
	primary and secondary	1 year	53 ppb ⁽²⁾	Annual Mean	
Ozone [80 FR 65292, Oct 26, 2015]	primary and secondary	8 hours	0.070 ppm ⁽³⁾	Annual fourth-highest daily maximum 8-hour concentration, averaged over 3 years	
Particle Pollution Dec 14, 2012 [78 FR 3086, Jan 15, 2013]	PM _{2.5}	primary	1 year	12.0 µg/m ³	Annual mean, averaged over 3 years
		secondary	1 year	15.0 µg/m ³	Annual mean, averaged over 3 years
		primary and secondary	24 hours	35 µg/m ³	98 th percentile, averaged over 3 years
	PM ₁₀	primary and secondary	24 hours	150 µg/m ³	Not to be exceeded more than once per year on average over 3 years
Sulfur Dioxide [75 FR 35520, Jun 22, 2010] [38 FR 25678, Sep 14, 1973]	primary	1 hour	75 ppb ⁽⁴⁾	99 th percentile of 1-hour daily maximum concentrations, averaged over 3 years	
	secondary	3 hours	0.5 ppm	Not to be exceeded more than once per year	

(1) In areas designated nonattainment for the Pb standards prior to the promulgation of the current (2008) standards, and for which implementation plans to attain or maintain the current (2008) standards have not been submitted and approved, the previous standards (1.5 µg/m³ as a calendar quarter average) also remain in effect.

(2) The level of the annual NO₂ standard is 0.053 ppm. It is shown here in terms of ppb for the purposes of clearer comparison to the 1-hour standard level.

(3) Final rule signed October 1, 2015, and effective December 28, 2015. The previous (2008) O₃ standards additionally remain in effect in some areas. Revocation of the previous (2008) O₃ standards and transitioning to the current (2015) standards will be addressed in the implementation rule for the current standards.

(4) The previous SO₂ standards (0.14 ppm 24-hour and 0.03 ppm annual) will additionally remain in effect in certain areas: (1) any area for which it is not yet 1 year since the effective date of designation under the current (2010) standards, and (2) any area for which implementation plans providing for attainment of the current (2010) standard have not been submitted and approved and which is designated nonattainment under the previous SO₂ standards or is not meeting the requirements of a SIP call under the previous SO₂ standards (40 CFR 50.4(3)). A SIP call is an EPA action requiring a state to resubmit all or part of its State Implementation Plan to demonstrate attainment of the require NAAQS.

The Pennsylvania Air Pollution Control Act (APCA), enacted originally on January 8, 1960, 35 P.S. Section 4001 et seq., established the framework for the Commonwealth’s Air Pollution Control Program. The Declaration of Policy set forth in Section 2 of the APCA, 35 P.S. Section 4002, provides as set forth below:

It is hereby declared to be the policy of the Commonwealth of Pennsylvania to protect the air resources of the Commonwealth to the degree necessary for the (i) protection of public health, safety and well being of its citizens; (ii) prevention of injury to plant and animal life and to property; (iii) protection of the comfort and convenience of the public and the protection of the recreational resources of the Commonwealth; (iv) development, attraction and expansion of industry, commerce and agriculture; and (v) implementation of the provisions of the Clean Air Act in the Commonwealth.

Section 4 of the APCA empowers the Pennsylvania Department of Environmental Protection (formerly the Department of Environmental Resources and hereafter referred to as "DEP") to implement the provisions of the Clean Air Act in the Commonwealth. 35 P.S. Section 4004(1).

Since its establishment in 1971, DEP has implemented air pollution control programs to protect the air resources of the Commonwealth that, with a great deal of success, have addressed major public health and welfare air quality concerns. Significant changes have occurred over the years with the program, notably with the passage of the Clean Air Act Amendments in 1990 as well as the adoption and implementation of PM_{2.5} NAAQS requirements in 1997. Currently, DEP has an extensive air quality monitoring program that monitors not only for criteria pollutants but also for air toxics and volatile organic compounds (VOCs). A general description of air pollutants is provided in Appendix A of this document.

Ambient Air Monitoring Network Plan Requirements

On March 28, 2016, the United States Environmental Protection Agency (U.S. EPA) promulgated a final rule titled “Revisions to Ambient Monitoring Quality Assurance and Other Requirements” for criteria pollutants. In the preamble, EPA stated that the purpose for the revisions was “to provide clarifications to existing requirements and to reduce the compliance burden of monitoring agencies operating ambient monitoring networks.” These revisions focused on the network design and quality assurance requirements set forth in 40 CFR Part 58, “Ambient Air Quality Surveillance,” and its associated appendices. Changes to the network design requirements included revisions to required PM_{2.5} sampling frequencies, as well as revisions to requirements for annual network plan, annual data certification and data submission to EPA. Changes to quality assurance requirements included a reformatting of the quality assurance requirements appendix (40 CFR Part 58, Appendix A), revisions to precision check and performance audit concentration levels, revisions to the comparison threshold for collocated lead monitors, as well as revisions to the requirements for the submission of quality assurance data to EPA.

As revised in March 2016, pursuant to 40 CFR Sections 58.10(a) and 58.10(b), network plans must include the following for existing and proposed monitoring sites:

- A statement of whether the operation of each monitor meets the requirements of 40 CFR Part 58, Appendices A, B, C, D, and E, where applicable;
- The Air Quality System (AQS) site identification number;
- The location, including street address and geographical coordinates;
- The sampling and analysis method(s) for each measured parameter;
- The operating schedules for each monitor;
- Any proposals to remove or move a monitoring station within a period of 18 months following plan submittal;
- The monitoring objective and spatial scale of representativeness for each monitor;
- 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 40 CFR § 58.30;
- The Metropolitan Statistical Area (MSA), Core Based Statistical Area (CBSA), Combined Statistical Area (CSA), or other area represented by the monitor;
- The designation of lead monitors as source-oriented or non-source-oriented;
- Any lead monitor for which a waiver has been requested or granted by EPA to use Pb-PM₁₀ monitoring in lieu of Pb-TSP monitoring; and
- The identification of NO₂ monitors as near-road, area-wide or vulnerable or susceptible population monitors in accordance with 40 CFR Appendix D, § 4.3 “Nitrogen Dioxide (NO₂) Design Criteria.”

The “Commonwealth of Pennsylvania Department of Environmental Protection 2020 Annual Ambient Air Monitoring Network Plan” has been developed to meet these requirements. The body of this document describes the DEP Ambient Air Network and includes network modifications. Appendix C of this document outlines the fulfillment of network design and quality assurance requirements set forth in the appendices of 40 CFR Part 58. Appendix D of this document provides site and monitor details for all monitoring sites in the DEP Ambient Air Monitoring Network.

Description of DEP's Ambient Air Monitoring Network

Ambient air quality monitoring in Pennsylvania is performed by DEP and local air pollution control agencies in Philadelphia and Allegheny Counties. DEP is primarily responsible for air monitoring in the Commonwealth of Pennsylvania. DEP has approved local monitoring agencies to perform monitoring independently in the two most populous counties in the Commonwealth. The Allegheny County Health Department (ACHD) performs ambient air monitoring in Allegheny County, while the City of Philadelphia Health Department's Air Management Services (AMS) performs ambient air monitoring in Philadelphia County. In addition to monitoring performed in the Commonwealth by DEP, ACHD and AMS, EPA's Clean Air Markets Division operates ozone monitors at five locations in Pennsylvania, as part of the Clean Air Status and Trends Network (CASTNET) program. Contact information for all three ambient air monitoring agencies in Pennsylvania, as well as the CASTNET program, is listed in Table 2.

Table 2. Ambient Air Monitoring Agencies in Pennsylvania

Organization	Address and Phone	Internet
Commonwealth of Pennsylvania Department of Environmental Protection Bureau of Air Quality Division of Air Quality Monitoring	Rachel Carson State Office Building 12th Floor 400 Market Street P.O. Box 8468 Harrisburg, PA 17105-8468 (717) 787-6548	http://www.dep.pa.gov/Business/Air/BAQ/Pages/default.aspx
Allegheny County Health Department	39th Street and Penn Ave. Pittsburgh, PA 15201 (412) 578-8104	http://www.achd.net/air/index.html
City of Philadelphia Department of Public Health Air Management Services	321 University Avenue Philadelphia, PA 19104 (215) 685-7584	http://www.phila.gov/health/airmanagement/ https://www.phila.gov/documents/air-management-reports-and-documents/
CASTNET	US EPA Clean Air Markets Division 1200 Pennsylvania Avenue, NW Mail Code 6204M Washington, DC 20460 (202) 343-9790	http://epa.gov/castnet/javaweb/index.html

This document does not provide detailed descriptions of the monitoring networks operated and maintained by the DEP-approved local air pollution control programs in Philadelphia and Allegheny Counties or EPA networks operated within the state. Detailed descriptions of local networks and plans are submitted to EPA by the local agencies, and may be obtained directly from the agencies, using the contact information listed in Table 2 of this document.

DEP's monitoring strategy generally requires the installation of monitors in areas under DEP's jurisdiction having high population density and/or high levels of contaminants, based on EPA guidance. The Code of Federal Regulations (CFR) sets forth minimum monitoring requirements based, at least in part, on core based statistical area (CBSA) population statistics for ozone, sulfur dioxide, nitrogen dioxide and particulate matter (PM) monitoring networks. As required by the CFR, DEP uses

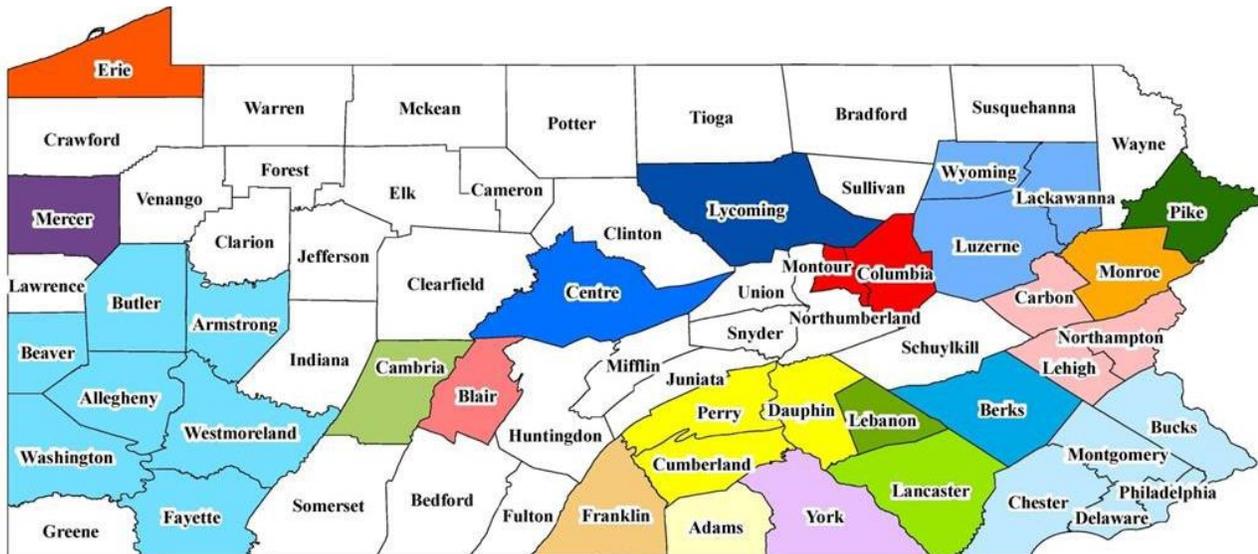
population statistics available from the U.S. Office of Management and Budget (OMB) to identify areas of concentrated populations.

The OMB delineates urbanized areas of concentrated populations into Metropolitan Statistical Areas (MSA) and micropolitan statistical areas. In general, areas with concentrated urban centers of 50,000 or greater are delineated as Metropolitan Statistical Areas (MSA), while areas with concentrated urban centers of 10,000 or greater, but less than 50,000 are delineated as micropolitan statistical areas. Information regarding CBSA delineations can be found on the U.S. Census Bureau's website at <https://www.census.gov/programs-surveys/metro-micro/about.html>. Population estimates are calculated by OMB and are publicly available from the U.S. Census Bureau at <https://data.census.gov>.

The Commonwealth of Pennsylvania encompasses thirty-seven defined CBSA, including twenty MSA and seventeen micropolitan statistical areas. DEP conducts air monitoring surveillance in both MSA, micropolitan and non-CBSA regions. CBSA in Pennsylvania are displayed in Figures 1 and 2 on the following pages. In addition, Appendix B of this document contains a list of Pennsylvania counties in each MSA, micropolitan and non-CBSA region, as well as maps of DEP monitoring site locations, for each defined area. Note that several MSAs include populations outside the Commonwealth, as indicated by the inclusion of one or more state abbreviations in the MSA name.

Figure 1 displays the geographical boundaries of MSAs and population estimates for 2018.

Figure 1. Map of Metropolitan Statistical Areas (MSA) in Pennsylvania

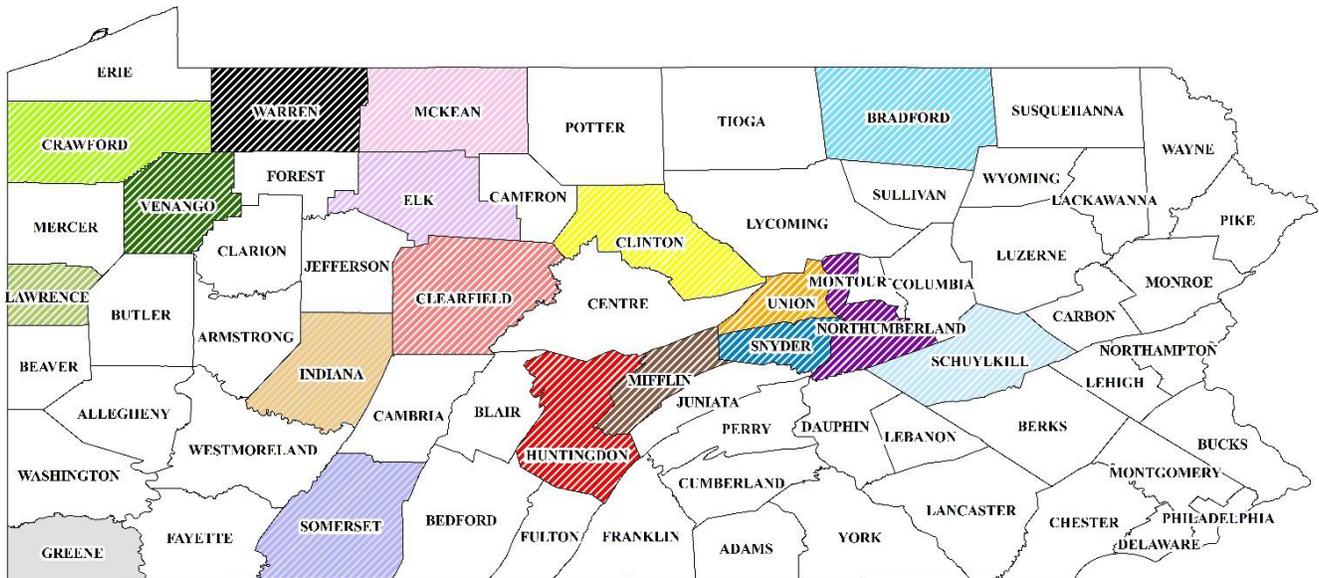


Legend:

MSA	Population	MSA	Population
Allentown-Bethlehem-Easton, PA-NJ	842,913	New York-Newark-Jersey City, NY-NJ-PA	19,979,477
Altoona, PA	122,492	Philadelphia-Camden-Wilmington, PA-NJ-DE-MD	6,096,372
Bloomsburg-Berwick, PA	83,696	Pittsburgh, PA	2,324,743
Chambersburg-Waynesboro, PA	154,835	Reading, PA	420,152
East Stroudsburg, PA	169,507	Scranton-Wilkes-Barre-Hazleton, PA	555,485
Erie, PA	272,061	State College, PA	162,805
Gettysburg, PA	102,811	Williamsport, PA	113,664
Harrisburg-Carlisle, PA	574,659	York-Hanover, PA	448,273
Johnstown, PA	131,730	Youngstown-Warren-Boardman, OH-PA	538,952
Lancaster, PA	543,557	Non-MSA Regions	
Lebanon, PA	141,314		

Figure 2 displays the geographical boundaries of micropolitan statistical areas with 2018 population estimates.

Figure 2. Map of Micropolitan Statistical Areas in Pennsylvania



Legend:

MSA	Population	MSA	Population
Bradford, PA	41,330	Oil City, PA	51,762
DuBois, PA	79,685	Pottsville, PA	142,569
Huntingdon, PA	45,491	Sayre, PA	60,853
Indiana, PA	84,953	Selinsgrove, PA	40,801
Lewisburg, PA	44,595	Somerset, PA	74,501
Lewistown, PA	46,388	St Mary's, PA	30,197
Lock Haven, PA	38,998	Sunbury, PA	92,029
Meadville, PA	86,159	Warren, PA	39,659
New Castle, PA	87,069		

Commonwealth of Pennsylvania's Air Monitoring Network – Sites and Pollutants

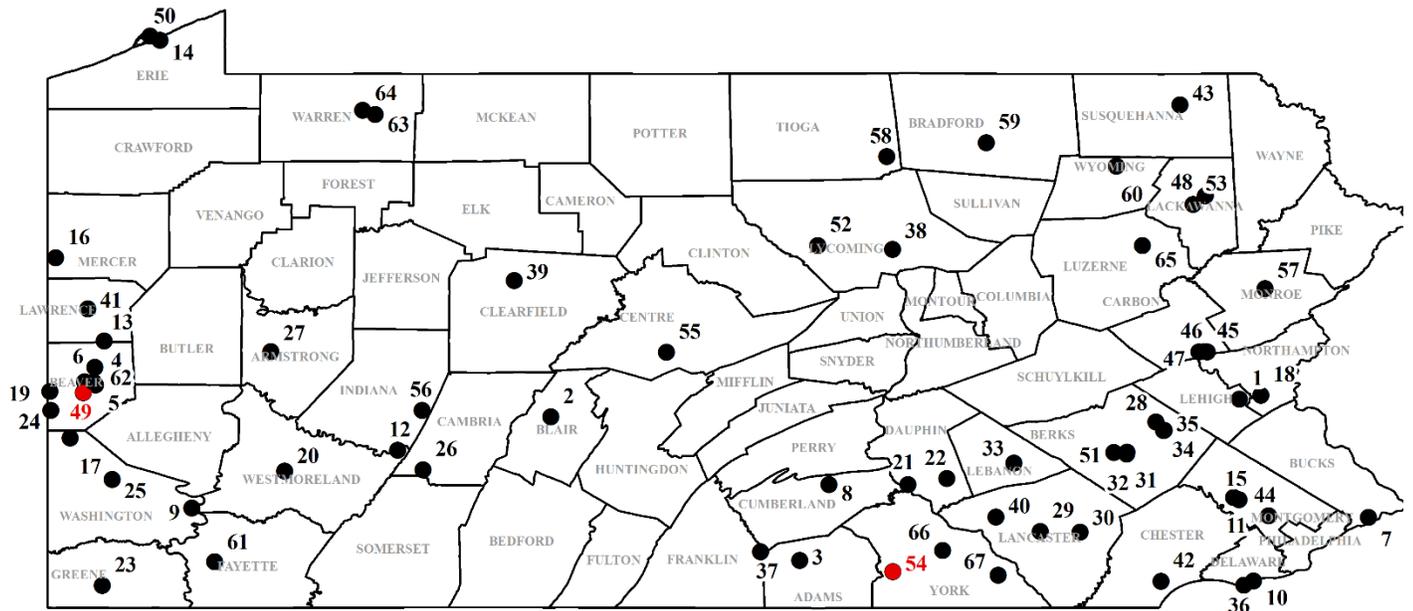
The planned 2020-2021 DEP Air Monitoring Network consists of 65 air monitoring stations, located in 38 of the 67 counties in Pennsylvania, and includes ambient air monitoring sites for criteria pollutants and air toxics, including VOCs. Descriptions of air pollutants are provided in Appendix A of this document. The DEP Air Monitoring Network utilizes both continuous and discrete methods of pollutant sampling.

The continuous portion of the DEP Air Monitoring Network utilizes a totally automatic, microprocessor-controlled system of remote stations throughout the Commonwealth. Continuous methods employ specialized instruments designed to continuously sample and analyze ambient air *in situ*. The output of these devices is hourly pollutant concentrations. These concentrations are the raw data used to calculate design values needed for NAAQS comparisons. The Bureau of Air Quality collects the raw data on an hourly basis, enabling near real-time monitoring. DEP utilizes continuous methods for the criteria pollutants ozone, sulfur dioxide, nitrogen dioxide, oxides of nitrogen, carbon monoxide, PM_{2.5}, and PM₁₀. Various meteorological data from many of the monitoring stations are measured using continuous methods as well, including ambient temperature, relative humidity, barometric pressure, wind speed, wind direction, precipitation, and solar radiation.

The non-continuous portion of the DEP Air Monitoring Network utilizes discrete sampling methods for criteria and air toxic pollutants, with analysis of the sample performed at the DEP Bureau of Laboratories. A discrete method is generally defined as a “manual” method of sampling for a defined or “discrete” period of time. Discrete sampling includes both filter-based, sorbent tube and canister-based sampling. For filter-based sampling, air is actively pumped through a filter substrate, onto which air pollutants are trapped. Canister sampling utilizes vacuum pressure to fill a sampling canister over time. DEP utilizes discrete methods for the criteria pollutants PM_{2.5} and lead, as well as air toxics, including heavy metals and VOCs. In addition, DEP conducts filter-based PM_{2.5} speciation monitoring at selected sites. Speciation analysis provides a breakdown of PM_{2.5} constituent compounds. Speciation analysis is performed by approved EPA contractors as part of the Chemical Speciation Network (CSN) program.

The map shown in Figure 3 displays the site locations of all ambient air monitoring stations in the DEP Air Monitoring Network. Table 3 provides a listing of the parameters monitored at each location.

Figure 3. Map of DEP Air Monitoring Network



Legend: **RED** – Site will be discontinued in 2020-2021; **BLUE** – Site will be added in 2020-2021

Map ID	Site Name	Map ID	Site Name	Map ID	Site Name	Map ID	Site Name
1	Allentown	21	Harrisburg	41	New Castle	61	Uniontown
2	Altoona	22	Hershey	42	New Garden	62	Vanport
3	Arendtsville	23	Holbrook	43	New Milford	63	Warren East
4	Beaver Falls	24	Hookstown	44	Norristown	64	Warren Overlook
5	Beaver Valley	25	Houston	45	Palmerton	65	Wilkes-Barre
6	Brighton Twp	26	Johnstown	46	Palmerton Electric	66	York
7	Bristol	27	Kittanning	47	Palmerton High School	67	York Downwind
8	Carlisle	28	Kutztown	48	Peckville		
9	Charleroi	29	Lancaster	49	Potter Township (Disc)		
10	Chester	30	Lancaster Downwind	50	Presque Isle		
11	Collegeville	31	Laureldale North	51	Reading Airport		
12	Conemaugh	32	Laureldale South	52	Salladasburg		
13	Ellwood City	33	Lebanon	53	Scranton		
14	Erie	34	Lyons Boro	54	Spring Grove (Disc)		
15	Evansburg United Methodist	35	Lyons Park	55	State College		
16	Farrell	36	Marcus Hook	56	Strongstown		
17	Florence	37	Methodist Hill	57	Swiftwater		
18	Freemansburg	38	Montoursville	58	Tioga County		
19	Glasgow	39	Moshannon	59	Towanda		
20	Greensburg	40	Mt Joy	60	Tunkhannock		

DEP'S 2020 ANNUAL AMBIENT AIR MONITORING NETWORK PLAN

Table 3. DEP Air Monitoring Network Sites and Parameters Monitored, 2019-2020

Site Name	Criteria Pollutants								Air Toxics			Meteorological Conditions
	Ozone	Sulfur Dioxide	Nitrogen Dioxide	Carbon Monoxide	PM _{2.5}	PM _{2.5} Speciation	PM ₁₀	Lead	VOC	Carbonyls	Metals	Met Tower (exist. or planned)
Allentown	X				X		X					X
Altoona	X	X			X							X
Arendtsville	X	X	X	X	X	X			X	X		X
Beaver Falls	X		X		X		X					X
Beaver Valley								X	X		X	X
Brighton Twp	X	X										X
Bristol	X											X
Carlisle					X							X
Charleroi	X	X	X		X				X			X
Chester	X		X		X	X		X	X		X	X
Collegeville									X			X
Conemaugh								X				
Ellwood City								X			X	
Erie	X		X	X	X		X		X			X
Evansburg United Methodist									X			
Farrell	X				X							X
Florence	X	X			X	X						X
Freemansburg	X	X	X		X							X
Glasgow											X	X
Greensburg	X				X	X			X			X
Harrisburg	X				X							X
Hershey	X						X					X
Holbrook	X				X							X
Hookstown	X	X										X
Houston	X		X		X				X	X		X
Johnstown	X	X	X	X	X	X	X					X
Kittanning	X				X							X
Kutztown	X											X
Lancaster	X				X	X	X		X	X	X	X
Lancaster Downwind	X				X	X						X
Laureldale North								X				
Laureldale South								X				

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Site Name	Criteria Pollutants							Air Toxics			Meteorological Conditions	
	Ozone	Sulfur Dioxide	Nitrogen Dioxide	Carbon Monoxide	PM _{2.5}	PM _{2.5} Speciation	PM ₁₀	Lead	VOC	Carbonyls	Metals	Met Tower (exist. or planned)
Lebanon	X				X	X						X
Lyons Boro								X				
Lyons Park								X				
Marcus Hook					X				X			
Methodist Hill	X											X
Montoursville	X											X
Moshannon	X											X
Mt Joy								X				
New Castle	X											X
New Garden	X				X	X						X
New Milford					X				X	X		X
Norristown	X				X							X
Palmerton								X				
Palmerton Electric											X	X
Palmerton High School								X			X	X
Peckville	X											X
Potter Township (disc)*								(disc)				
Presque Isle									X		X	
Reading Airport	X	X			X				X		X	X
Salladasburg					X							X
Scranton	X		X	X	X							X
Spring Grove (disc)		(disc)										
State College	X	X	X		X							X
Strongstown	X	X			X							X
Swiftwater	X											X
Tioga County	X		X		X							X
Towanda	X		X		X							X
Tunkhannock					X				X	X		X
Uniontown	X		X		X				X	X		X
Vanport								X				
Warren East		X										X
Warren Overlook		X										X
Wilkes-Barre	X	X					X					X

DEP'S 2020 ANNUAL AMBIENT AIR MONITORING NETWORK PLAN

Site Name	Criteria Pollutants								Air Toxics			Meteorological Conditions
	Ozone	Sulfur Dioxide	Nitrogen Dioxide	Carbon Monoxide	PM _{2.5}	PM _{2.5} Speciation	PM ₁₀	Lead	VOC	Carbonyls	Metals	Met Tower (exist. or planned)
York	X	X	X		X				X			X
York Downwind	X											X
Totals	42	15	14	4	34	9	7	12	17	6	9	55
(disc) = Site/Monitor will be discontinued in 2020-2021; (add) = Site/Monitor will be added in 2020-2021												

* DEP plans to discontinue the Potter Township site, as described in the “Modifications to Criteria Pollutant Networks” section of its 2019 Annual Network Plan.

Changes to Monitoring Sites and Monitors in 2019-2020

DEP completed several modifications to its air monitoring network during 2019-2020. The changes are summarized in Table 4.

Table 4. Summary of Changes to the DEP Air Monitoring Network, 2019-2020

Establishment of New Monitoring Sites
<ol style="list-style-type: none"> 1) Established Salladsburg (Lycoming County) and Tunkhannock (Wyoming County) SLAMS monitoring sites 2) Establishment of the Palmerton High School (Carbon County) special purpose monitoring (SPM) site
Modifications to Criteria Pollutant Monitoring Networks
<ol style="list-style-type: none"> 1) Discontinued H₂S monitoring at the Warren East (Warren County) monitoring site 2) Discontinued PM_{2.5} Speciation monitoring at the Marcus Hook (Delaware County) monitoring site 3) Relocation of the Lebanon Monitoring Site and Addition of PM_{2.5} Speciation Monitoring 4) Relocation of the Houston (Washington County) monitoring site 5) Relocation of the Strongstown (Indiana County) monitoring site
Modifications to Air Toxics Networks
<ol style="list-style-type: none"> 1) Discontinued the Lewisburg (Union County) monitoring site 2) Relocation of the Presque Isle (Erie County) monitoring site

The sections below discuss the items listed in Table 4 above. None of the changes contained in this section negatively impact DEP's fulfillment of network design criteria. DEP continues to meet its regulatory requirement, such as minimum monitoring based on population, for monitoring ambient air in various portions of the Commonwealth. Additional information on DEP meeting these requirements is outlined in Appendix C: Network Design and Quality Assurance Criteria of this document.

Establishment of New Monitoring Sites

Establishment of Salladasburg and Tunkhannock SLAMS Monitoring Sites

As detailed in the 2019 Ambient Air Monitoring Network Plan, DEP continues to expand its monitoring network in areas of Marcellus Shale gas extraction and transport operations. The Salladasburg (western Lycoming County) monitoring station was installed in July 2019 at the Salladasburg Elementary School and contains PM_{2.5} monitoring equipment. The Tunkhannock (Wyoming County) monitoring station was installed in December 2019 and contains PM_{2.5}, carbonyls and VOCs monitoring equipment. In addition, meteorological monitoring is performed at both locations, including ambient temperature, relative humidity, barometric pressure, wind speed, wind direction, precipitation, and solar radiation.

Establishment of Palmerton High School Special Purpose Monitoring (SPM) Site

DEP is establishing an SPM monitoring site on the property of Palmerton Area Junior/Senior High School (Carbon County). DEP will perform lead and heavy metals monitoring at this site to evaluate air quality-related impacts from the nearby American Zinc Recycling facility on the local population.

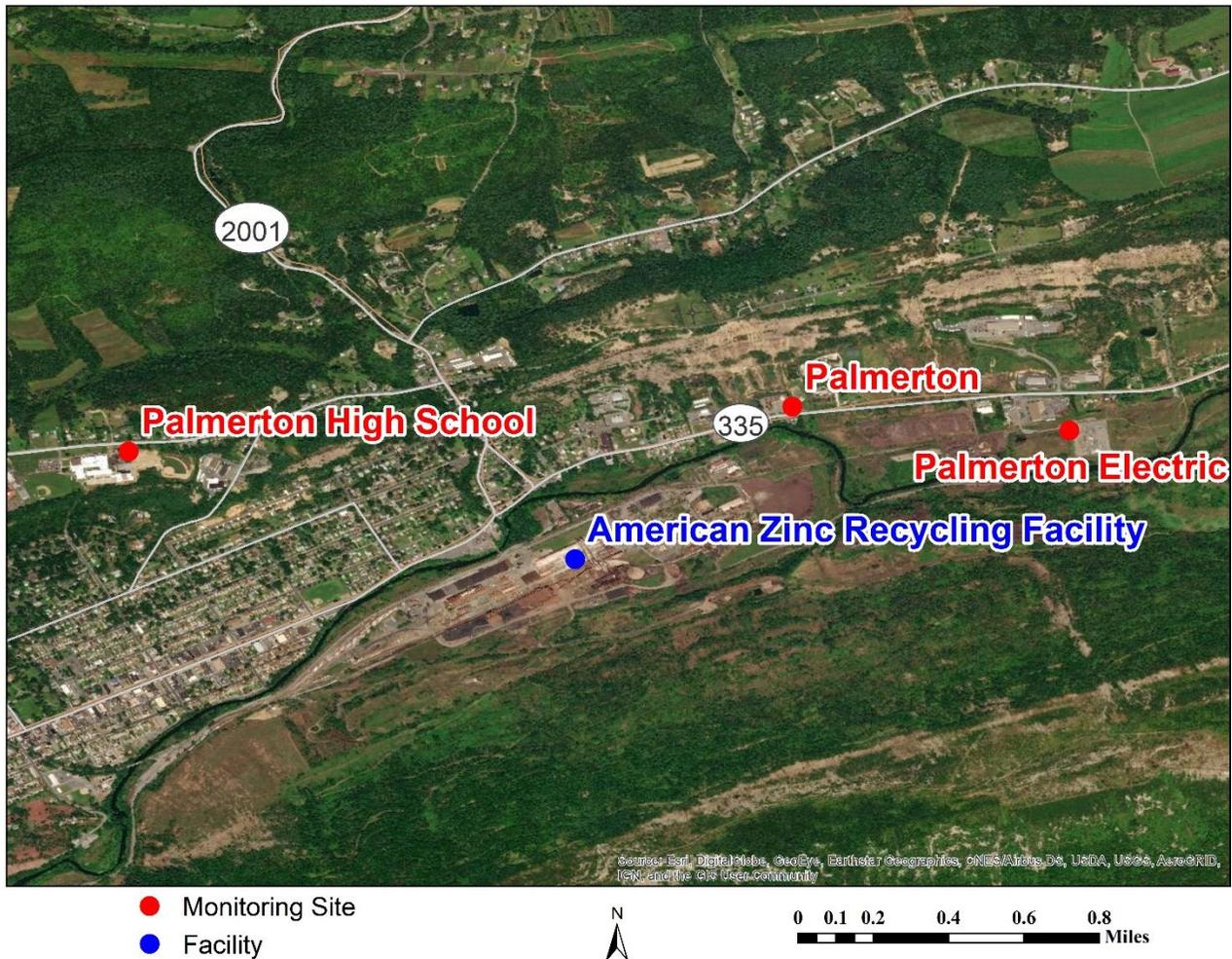
In September 2018, the Pennsylvania Department of Health (DOH) released a health advisory notice outlining the potential for an increased risk of a public health hazard due to lead exposure for persons within three miles of the American Zinc Recycling facility in Palmerton, Pa.² DOH issued the health advisory based on a public health consultation released by the federal Agency for Toxic Substances and Disease Registry (ATSDR) in July 2018.³ In the health consultation letter, ATSDR referenced modeling performed by EPA in consultation with ATSDR, which indicated that maximum ambient lead concentrations may be occurring in areas outside of DEP's current EPA-approved lead monitoring site in Palmerton, Pa. EPA modeling suggested that maximum concentrations occur west/northwest of the American Zinc Recycling facility, and may occur near the Palmerton High Junior/Senior High School in Palmerton, which is of particular concern due to the susceptibility of younger children to lead exposure.

Figure 4 displays the location of the American Zinc Recycling facility, the current DEP Palmerton monitoring locations and the Palmerton Area Jr/Sr High School, in Carbon County, PA. The current DEP monitors are located northeast of the American Zinc Recycling facility. The Palmerton Area Jr/Sr High School is located approximately 0.9 miles northwest of the facility.

² <https://www.health.pa.gov/topics/Documents/HAN/2019-PAHAN-435-02-08-ADV-Palmerton%20Lead%20Update.pdf>

³ https://www.atsdr.cdc.gov/HAC/pha/AmericanZincRecycling/American_Zinc_Recycling_LCH_508.pdf

Figure 4. Palmerton High School Special Study Map



DEP will conduct ambient criteria lead sampling utilizing the same collection and analysis methodology as used for its NAAQS-comparable lead monitoring sites. DEP will conduct metals sampling utilizing the same collection and analysis methodology as used for its air toxics metals monitoring sites. Target compounds for metals monitoring include antimony, arsenic, beryllium, cadmium, cobalt, chromium, lead,⁴ manganese, nickel, selenium and zinc. Onsite meteorological data will be collected using a Met-One AIO 2 monitor to record wind speed, wind direction, ambient temperature, relative humidity and barometric pressure.

The sampling project has a targeted start date of June 1, 2020, and will continue for 1 year from the commencement of sampling. The project will terminate when a minimum of 75% data completeness has been reached or until 62 valid samples have been collected. If lead concentrations exceed 80% of the NAAQS lead standard of $0.15 \mu\text{g}/\text{m}^3$ ($0.12 \mu\text{g}/\text{m}^3$), or if the metals pose a risk to human health as determined by risk analysis, the site will be evaluated for retention and inclusion as part of the DEP Air Quality monitoring network. Sampling will take place over a 1-year period, following the EPA standard 1-in-6-day sampling schedule, with at least 75% data completeness or until 62 valid samples are collected. If sampling results exceed certain action levels (see Table 5 below) on 3 sampling days

⁴ Lead monitoring performed using the air toxic methodology is not NAAQS-comparable

in a rolling quarter, DEP will increase the sampling to 1-in-3-day schedule and investigate the source. DEP's Northeast Regional Office Community Relations Coordinator will notify the community and the school of any changes to the sampling schedule.

Table 5. Comparison Levels for Palmerton High School Air Monitoring

CAS Number	Target Metal Compound	PADEP Action Level (µg/m³)	Screening Level (µg/m³)	Cancer-based Comparison Level, ^a (µg/m³)	Noncancer-based Comparison Level (µg/m³)
7439-92-1	Pb - Lead	0.12 (rolling 3-month average)	0.150 (RfC) (rolling 3-month average)		0.150 (NAAQS)
7440-38-2	As - Arsenic	0.0023	0.00023 (URE)	.00023 (IUR)	0.015 (REL)
7440-41-7	Be - Beryllium	0.0042	0.00042 (URE)	.00042	0.020 (RfC)
7440-43-9	Cd - Cadmium	0.0056	0.00056 (URE)	.00056	0.010 (MRL)
7440-47-3	Co - Cobalt	1.0	0.100 (RfC)		0.100 (MRL)
7440-48-4	Cr - Chromium	N/A	N/A		
7439-96-5	Mn - Manganese	3.0	0.300 (Rfc)		0.300 (MRL)
7440-02-0	Ni - Nickel	0.021	0.0021 (URE)	0.0021 ^c (IUR)	0.090 (MRL)
7440-36-0	Sb - Antimony	2.0	0.200 (RfC)		0.200 ^b (RfC)
7782-49-2	Se - Selenium	200	20 (RfC)		20 (RfC)
7440-66-6	Zn - Zinc	N/A			

^a Cancer-based comparison level reflects an increased risk level of 1 in a million.

^b The comparison level for antimony is the RfC for antimony trioxide.

^c The comparison level for nickel is based on the IUR for nickel subsulfide.

Impacts to the general public will be determined by risk analysis of the sampling results. The risk analysis will be prepared by risk assessors at DEP and corroborated by toxicologists at ATSDR and Pennsylvania Department of Health. Following completion of the study, DEP will prepare a final report, including a health risk assessment, which will be made available to the school and the community. The final report will include historical and sample-day meteorological wind roses, pollution roses for each pollutant and comparison of the concentrations for each pollutant to the NAAQS and nearby monitors.

Modifications to Criteria Pollutant Networks

Discontinued H₂S at the Warren East Site

As discussed in its 2019 Annual Ambient Air Network Plan, DEP discontinued H₂S monitoring at its Warren East monitoring site at the end of December 2019. This monitor was installed at the request of the DEP's North West Regional Office to assist with a series of odor complaints. In consultation with the NWRO this monitor is no longer necessary to support their compliance efforts. Additionally, there are no federal requirements to monitor for this pollutant, and it is not required as part of a nonattainment or maintenance SIP.

Discontinued PM_{2.5} Speciation Monitoring at Marcus Hook Site

As discussed in its 2018 Annual Ambient Air Network Plan, DEP proposed to discontinue PM_{2.5} speciation monitoring at its Chester site, while retaining PM_{2.5} speciation monitoring at its Marcus

Hook site, also in Delaware County. The analysis presented in the 2018 Plan illustrated that the PM_{2.5} sampler at Chester was being influenced by a local source. Since then, DEP has reassessed the purposes of its speciation monitors in Delaware County and determined it was better to keep the monitor at Chester, which has been in operation since 1974, than at Marcus Hook, owing to its longer historical data record. Over the next couple of years, however, DEP plans to consolidate its Marcus Hook and Chester PM_{2.5} locations to a new location in Delaware County that is not directly influenced by local stationary sources.

Relocation of the Lebanon Monitoring Site and Addition of PM_{2.5} Speciation Monitoring

On March 27, 2019, a building on the property where DEP's Lebanon monitoring station was located was extensively damaged by a fire. In December 2019, the property owner notified DEP that they would not be rebuilding and that electrical power to the property (and therefore to DEP's monitoring site) would be discontinued. As a result, DEP is relocating its Lebanon monitoring station to the Quittapahilla Educational Wetland Preserve, which is within 0.6 miles west of the current monitoring site. To ensure continuous PM_{2.5} data collection from the site, DEP temporarily relocated the PM_{2.5} FRM monitor on January 24, 2020, to the Preserve location. Following EPA approval on February 26, 2020, DEP is in the process of relocating the entire suite of monitors to the new site. The suite of monitors that will be relocated includes the recent addition of PM_{2.5} speciation monitoring at the Lebanon site.

As discussed in its 2019 Annual Network Plan, DEP planned to install a PM_{2.5} speciation monitor at the Lebanon monitoring site to help determine if the Lancaster Downwind PM_{2.5} monitor is being influenced by local source(s) of emissions. PM_{2.5} speciation monitoring at the Lebanon site should allow DEP to better assess the impacts of ammonia emissions on PM_{2.5} formation specifically in Lebanon County, and also assist in any State Implementation Plan revisions that may be required by a future tightening of the PM_{2.5} NAAQS. DEP installed a PM_{2.5} speciation monitor at the Lebanon monitoring site January 1, 2020, and will reinstall the monitor, along with the remaining suite of monitors, at the new permanent Lebanon site.

The new permanent Lebanon site is expected to be operational by June 1, 2020. EPA has informed DEP that the AQS identification code for the site will not need to be changed due to this relocation. DEP will update the geographic coordinates for the Lebanon monitoring site and add the appropriate comments to the site information in EPA's AQS system, once the relocation is complete.

Relocation of the Houston Monitoring Site

In June 2019, the site operator for the Houston monitoring site informed DEP that new buildings being built by the property owner were encroaching on the monitoring station. To mitigate any possible siting concerns, DEP is relocating the station 370 feet up the hill to the east of the current location on same property. The move is anticipated to take place by June of 2020. DEP will update the geographic coordinates for the Houston monitoring site and add the appropriate comments to the site information in EPA's AQS system, once the relocation is complete.

Relocation of the Strongstown Monitoring Site

In January 2019, the site operator for the Strongstown monitoring site informed DEP that the Pennsylvania Department of Transportation was piling asphalt millings near the monitoring station. To mitigate any possible siting concerns, DEP relocated the Strongstown monitoring station 100 feet to

the northeast of the former location on the same property on June 7, 2019. The site was operational by June 10, 2019.

Modifications to Air Toxics Networks

Discontinued the Lewisburg Monitoring Site

As discussed in its 2019 Annual Network Plan, DEP discontinued air toxics monitoring at its Lewisburg (Union County) monitoring site at the conclusion of its contract with Bucknell University in June 2019. Historical measurement data from the site indicates that air quality in the Lewisburg area (based on the parameters measured) does not pose a health concern.

Relocation of the Presque Isle Monitoring Site

In May 2019, Gannon University informed DEP that due to high water levels on Lake Erie, the area leading to DEP's sampling equipment set-up at Presque Isle State Park is under water. This poses a safety risk to the person attempting to traverse the high waters to service the monitors. Gannon University expressed concerns to DEP regarding the safety of students who collect samples and service the monitoring equipment at this location, and asked DEP if any accommodations could be made to address the safety issues, as water levels are predicted to remain high for many years. To mitigate safety concerns, DEP is working with Presque Isle State Park staff to relocate the monitoring equipment to the north end of Horseshoe Pond, approximately 1.8 miles east of the current monitoring site. The move is anticipated to take place by June of 2020. EPA has informed DEP that the AQS identification code for the site will not need to be changed due to this relocation. DEP will update the geographic coordinates for the Presque Isle monitoring site and add the appropriate comments to the site information in EPA's AQS system, once the relocation is complete.

Site and Monitoring Activity Anticipated within the Next 18 Months

DEP is planning to make changes to its air monitoring network over the next eighteen months. These changes are summarized below in Table 5.

Table 6. Summary of Planned Changes to the DEP Air Monitoring Network, 2020-2021

Changes Relating to Natural Gas Extraction and Processing Activities in Shale Gas Regions
1) Install a PM _{2.5} monitor at the Strongstown (Indiana County) monitoring site
Changes Relating to the Annual Assessment of the Ambient Air Quality Monitoring Network
Modifications to the Criteria Pollutant Networks
1) Discontinue the Spring Grove (York County) monitoring site

Modifications to Air Monitoring Network: Shale Gas Development

The extraction and processing of natural gas from shale gas involves many stages and provides many opportunities for the release of air pollutants during the process. The major stages and infrastructure involved in natural gas extraction and processing include the following: pad, impoundment and road construction; drilling; fracturing; flaring; condensate tanks; compressor stations; and gas processing facilities. In recent years, the number of shale gas wells drilled in Pennsylvania has rapidly increased.

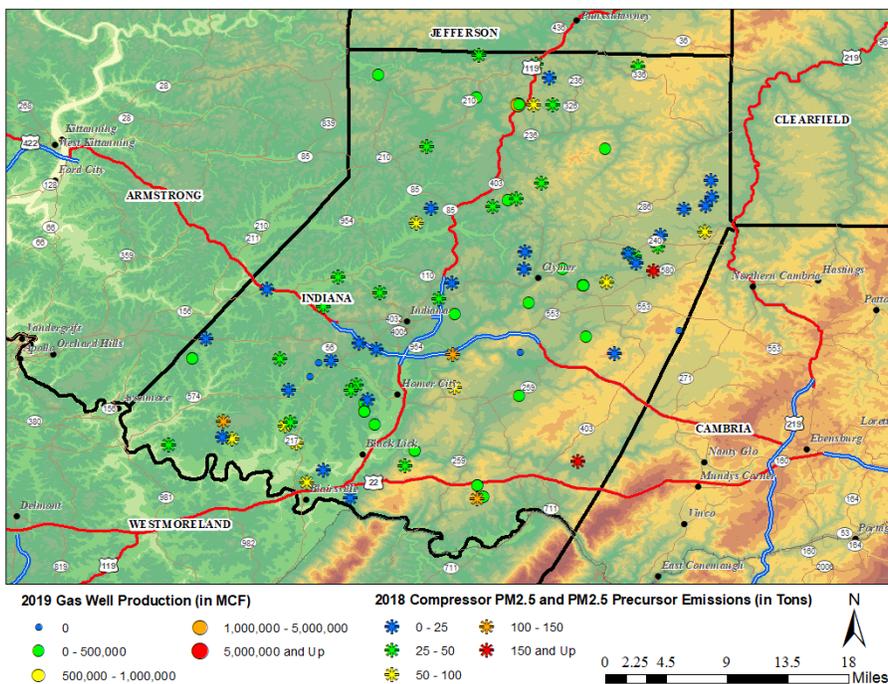
Over the past several years, DEP has received multiple public comments on its annual air monitoring network plans, expressing concern over short-term exposure to pollutants in relation to shale gas activities and the effect on susceptible populations including children, or those with respiratory difficulties. In addition, there has been an increase in the number of complaints to DEP's regional offices concerning shale gas operations.

As outlined in previous annual network plans, DEP has continued to establish new monitoring sites in shale gas producing counties across the Commonwealth. In 2019, DEP established two new monitoring sites, Salladasburg in Lycoming County and Tunkhannock in Wyoming County. DEP installed continuous PM_{2.5} monitors at both locations. At the Tunkhannock site, DEP also installed air toxics monitoring for carbonyls using EPA Method 8315A and VOC using EPA Method TO 15. DEP's plans for additional PM_{2.5} monitoring activities in Indiana County is outlined in the following subsection.

Addition of PM_{2.5} Monitoring to Existing Strongstown Site in Indiana County

DEP plans to establish PM_{2.5} monitoring in Indiana County in 2020. Indiana County has 57 compressor stations and 32 gas wells that reported production in 2018 and 2019, respectively. Figure 5 highlights the locations of the compressor station and gas well production with respect to topography within Indiana County.

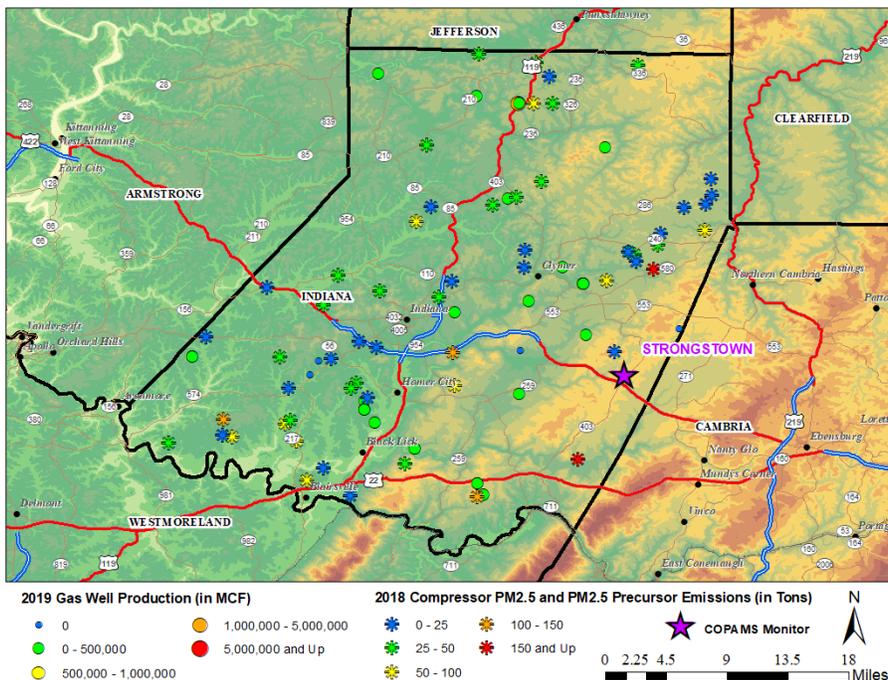
Figure 5. Indiana County Compressor Stations and Gas Well Production



During 2019-2020, DEP visited Indiana County to identify feasible locations for a new monitoring site, ideally situated to capture PM_{2.5} impacts associated with shale gas activities. Similar to the site availability issue previously encountered in McKean County (as outlined in DEP’s 2018 Ambient Air Monitoring Plan), DEP found that the compressor station and gas well locations in Indiana County are in remote areas of the county, with limited or no locations immediately downwind suitable to site an air monitoring station. In light of this issue, DEP has assessed the suitability of its existing Strongstown monitoring site location to capture PM_{2.5} impacts from shale gas activities in Indiana County.

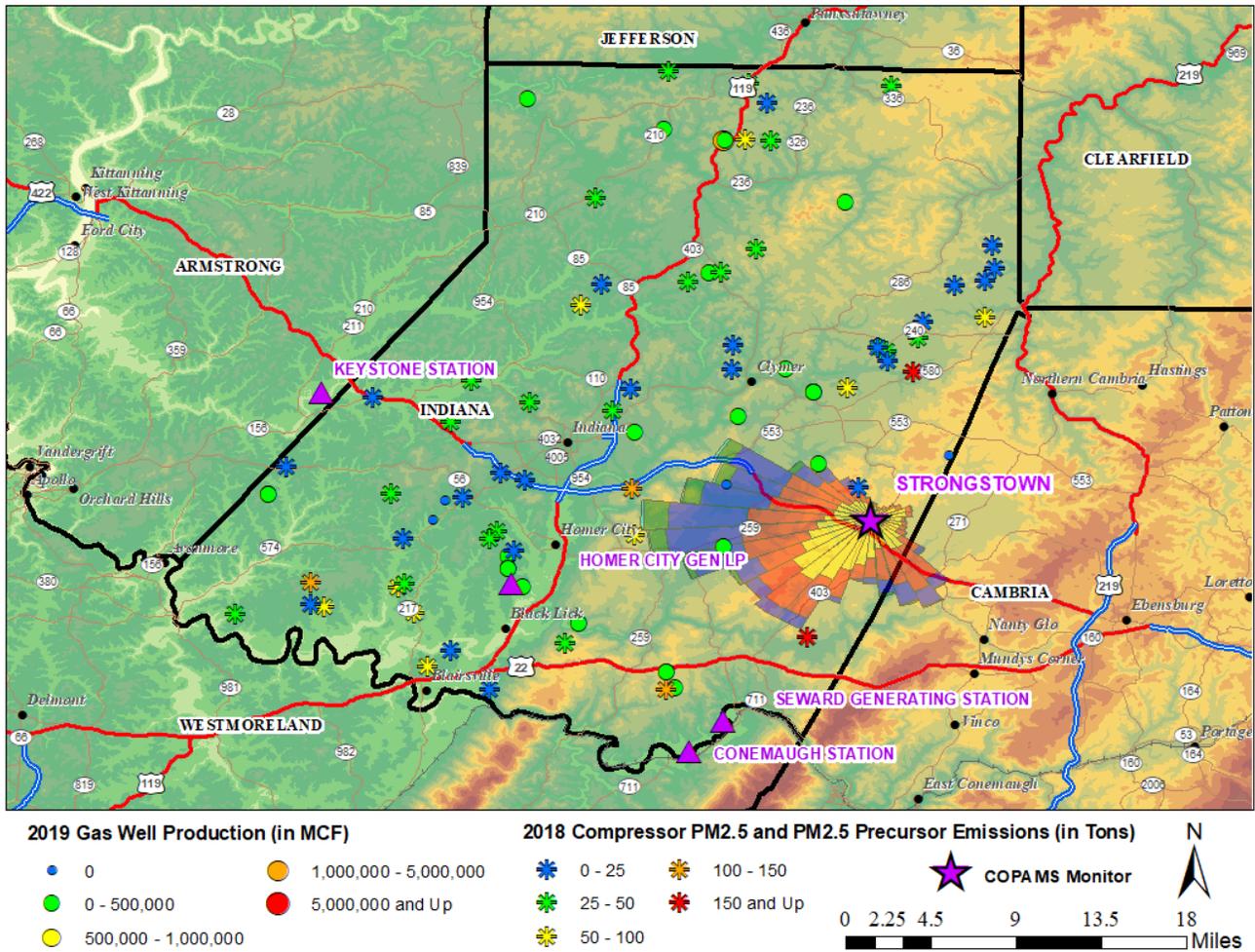
DEP’s Strongstown monitoring site (AQS ID 42-063-0004), is located near Strongstown, PA, in far eastern Indiana County. The monitoring site is located just north of Route 422, in some of the highest topography within the county.

Figure 6. Indiana County Compressor Stations and Gas Well Production, with DEP’s Strongstown Monitoring Site



In order to understand the general wind flow across the county, DEP analyzed Automated Surface Observing System (ASOS) meteorological data from the John Murtha Johnstown - Cambria County Airport (KJST). KJST was chosen because it was the same dataset that was used for DEP’s State Implementation Plan (SIP) revision for the Indiana, PA nonattainment area for the 2010 1-Hour SO₂ NAAQS. Within the SIP revision, DEP outlined why KJST was representative for much of the flow across Indiana County. In this case, KJST can be used to demonstrate the flow approaching the Strongstown site, since it is situated on elevated terrain in eastern Indiana County. Even though KJST resides in Cambria County, the wind rose for KJST in Figure 7 was overlaid on the Strongstown monitor location to illustrate prevailing wind flow as it approaches Strongstown.

Figure 7. Indiana County Compressor Stations and Gas Well Production, with DEP's Strongstown Monitoring Site and Representative Windrose



The KJST wind rose demonstrates that air pollution measurements recorded at the Strongstown site may represent source emission impacts from a broad expanse of upwind geography and meteorological conditions, including a large portion of gas-related activities in Indiana County. Importantly, the Strongstown monitoring location is predominantly downwind of many of the larger emitting compressor stations. In addition, the Strongstown monitor is downwind of the four major power plants in the Indiana County 1-hour SO₂ nonattainment area, identified by the triangles in the figure (in the atmosphere, SO₂ forms ammonium sulfate, which is a major precursor for secondary PM_{2.5} formation across Pennsylvania).

Based on the distribution of the PM_{2.5} primary and secondary source emission locations downwind of DEP's Strongstown monitoring site, DEP has determined that its existing Strongstown location is favorably sited to capture PM_{2.5} impacts from major emitting compressor stations within Indiana County, as well as from four major power plants in the region. Even though the Strongstown site is not immediately downwind of any one compressor station, it is likely that PM_{2.5} concentrations measured at the Strongstown monitoring site are conservative in terms of correlating PM_{2.5} concentrations at the monitor and a PM_{2.5} monitor directly downwind of just compressor stations.

DEP will establish PM_{2.5} monitoring at its Strongstown site during the second half of 2020.

Modifications to Criteria Pollutant Networks

Discontinue the Spring Grove Monitoring Site

DEP intends to discontinue its Spring Grove SO₂ monitoring site, which was installed to satisfy the requirements of the SO₂ Data Requirements Rule (DRR). As set forth in 40 CFR Part 51.1203(c)(3), a monitor established for this purpose may be discontinued if it meets the following conditions:

“(3) Any SO₂ monitor identified by an air agency in its approved Annual Monitoring Network Plan as having the purpose of meeting the requirements of this paragraph (c) that: Is not located in an area designated as nonattainment as the 2010 SO₂ NAAQS is not also being used to satisfy other ambient SO₂ minimum monitoring requirements listed in 40 CFR part 58, appendix D, section 4.4; and is not otherwise required as part of a SIP, permit, attainment plan or maintenance plan, may be eligible for shut down upon EPA approval if it produces a design value no greater than 50 percent of the 2010 SO₂ NAAQS from data collected in either its first or second 3-year period of operation. The air agency must receive EPA Regional Administrator approval of a request to cease operation of the monitor as part of the EPA’s action on the Annual Monitoring Network Plan under 40 CFR 58.10 prior to shutting down any qualifying monitor under this paragraph (c).”

The Spring Grove monitoring site was installed to characterize SO₂ impacts on air quality from two SO₂ emission sources in York County, Magnesita Refractories Co. and Pixelle Specialty Solutions (formerly PH Glatfelter). The monitoring site was installed in Jackson Township, in an area determined to provide for maximum air quality impacts based on modeling. As detailed in DEP’s 2019 Annual Network Plan, modeling for siting purposes was performed using guidance outlined within the SO₂ DRR Source-Oriented Monitoring Technical Assistance Document, (TAD).⁵ SO₂ monitoring began at the site January 1, 2017. EPA Region III approved of the location of the monitor prior to operation of the site.

The Spring Grove monitor is not located in an SO₂ non-attainment area, and is not required by a SIP, permit, attainment plan or maintenance plan. York County, PA is part of the York-Hanover, PA MSA. As described in the “Sulfur Dioxide (SO₂) Network Design Requirements” section in Appendix C of this document, minimum monitoring requirements require one SO₂ monitor to be maintained in the York-Hanover MSA. DEP operates an SO₂ monitor at its York monitoring site, meeting this requirement.

Table 6 displays the maximum daily 1-hour SO₂ averages measured during 2017-2019, as well as the annual 99th percentile values and calculated 3-year design value. As shown, the Spring Grove monitor measured no hourly concentration greater than ½ the 75 ppb SO₂ 1-hour NAAQS (37.5 ppb), with the 3-year design value of 6 ppb, or approximately 1/12th the level of the 1-hour NAAQS.

⁵ <https://www.epa.gov/sites/production/files/2016-06/documents/so2monitoringtad.pdf>

Table 7. Summary of SO₂ Concentrations at the Spring Grove Monitoring Site

Summary of Daily Maximum 1-Hour SO ₂ Concentration Averages, in ppb			
	2017	2018	2019
Ranked Maximum			
1	36.3	16	24.1
2	8.2	9.3	14.1
3	7.2	6.7	7.4
4	6.2	5.6	6.5
5	5.9	5.2	5.7
6	5.8	4.9	5.6
7	5.8	4.8	5.6
8	5.2	4.6	5.4
9	4.7	4.5	3.9
10	4.4	4.1	3.9
99th Percentile	6.2	5.6	6.5
Design Value			6

On March 6, 2020, DEP submitted and certified all SO₂ measurement data and quality assurance results to EPA through its Air Quality System (AQS) database application. Overall, the low SO₂ concentrations monitored at the Spring Grove site coincide with the general decline in SO₂ emissions from the two SO₂ facilities in York County. Table 7 below illustrates the change in emissions from the time DEP completed in its initial assessment of SO₂ DRR facilities in 2014 and the latest available quality assured three-year period (2016-2018) of emissions. Jointly, these SO₂ facilities saw approximately a 44% reduction in SO₂ emissions from 2014 and the average of the last three years.

Table 8. Trend in SO₂ Emissions from SO₂ DRR Monitoring Pathway Facilities and Respective SO₂ Emissions from 2014 and 2016 to 2018, in tons per year

County	PA Primary Facility ID	Facility	2014	2016	2017	2018	2016-18 Average
York	256841	PIXELLE SPEC SOLUTIONS LLC/SPRING GROVE	6675.6	4554.8	795.9	389.7	1913.4
York	238561	MAGNESITA REFRACTORIES/YORK	1460.7	1134.4	1376.3	1140.9	1217.2

As presented above, the Spring Grove SO₂ monitoring site meets the requirements set forth in 40 CFR Part 51.1203(c)(3) for discontinuation. Considering both the monitoring and facility emission trend, following EPA approval, DEP will discontinue this monitoring site.

Enhanced Monitoring Plan for Ozone

Based on a review of recent air quality data, DEP has determined it would be beneficial to expand the monitoring activities within the Philadelphia ozone nonattainment area. The maximum 2018 8-hour ozone design value within the Pennsylvania portion of the Philadelphia ozone nonattainment area was measured at DEP's Bristol monitoring site, at 0.081 parts per million. Because this value exceeds the 2015 ozone NAAQS of 0.070 parts per million, the Philadelphia nonattainment area is at risk of failing to meet the NAAQS within a three-year time frame promulgated in EPA's 2018 SIP requirements for ozone nonattainment areas (83 FR 62998).⁶ Therefore, to supplement the Photochemical Assessment Monitoring Station (PAMS) monitoring being completed by the Philadelphia Air Management Services, DEP will be adding the following monitoring at its Bristol monitoring site, to better evaluate ozone formation and transport across the Philadelphia area:

- 1) VOC canister – the VOC canister will be in operation year-round. The VOC sampler will then be analyzed for PAMS compounds at least during the required ozone monitoring season (June 1 to August 31)
- 2) True NO₂ monitor – A true NO₂ monitor is necessary to measure the direct NO₂ within the atmosphere at the Bristol site
- 3) Ceilometer – A ceilometer is necessary to measure the continuous boundary layer height at the Bristol site
- 4) Pandora – In partnership with NASA/EPA, DEP will deploy a Pandora spectrometer. The Pandora will be able to measure the total atmospheric column of ozone, NO₂ and formaldehyde over the Bristol site. More information can be found at the following website:
<https://pandora.gsfc.nasa.gov//index.html>.

As of January 1, 2020, DEP has been analyzing its VOC canisters for the PAMS compounds. Later this year, DEP is planning on purchasing its true NO₂ monitor and ceilometer for deployment to its Bristol monitoring site. Also, an additional true NO₂ monitor will be sited at DEP's Arendtsville monitoring site in Adams County. Finally, DEP continues to coordinate with NASA/EPA regarding the deployment timing of the PANDORA spectrometer at the Bristol monitoring site.

⁶ <https://www.federalregister.gov/documents/2018/12/06/2018-25424/implementation-of-the-2015-national-ambient-air-quality-standards-for-ozone-nonattainment-area-state>.

Appendix A - General Descriptions of Air Pollutants

Ozone (O₃)

Ground-level ozone, or photochemical smog, is a secondary pollutant. Ozone is generally not emitted directly into the atmosphere as ozone, but rather is formed by chemical reactions between other air pollutants. The primary pollutants involved in these reactions – volatile organic compounds (VOCs) and oxides of nitrogen (NO_x) – form ozone in the presence of sunlight and warm temperatures. Thus, sources that emit these ozone precursors are sources of ozone. Nitrogen oxides result from fossil fuel combustion and sources commonly include power plants, industrial boilers, and motor vehicles. VOCs are emitted from a variety of sources, including motor vehicles, chemical plants, refineries, and even natural (biogenic) sources. Ozone and the precursor pollutants that cause ozone also can be transported into an area from pollution sources located hundreds of miles away. Because the formation of ozone is boosted by increasing sunlight and temperatures, changing weather patterns contribute to yearly differences in ozone concentrations, with peak concentrations occurring during the summer months.

Ground-level ozone is a strong irritant to the eyes and upper respiratory system and can hamper breathing. It also damages vegetation, including forest and agricultural crops, and man-made materials such as monuments and statues.

Ozone is measured by ultraviolet absorption photometry. Air is drawn through a sample cell where ultraviolet light (254 nm wavelength) passes through it. Any light that is not absorbed by the ozone is then converted into an electrical signal proportional to the ozone concentration.

Sulfur Dioxide (SO₂)

Sulfur dioxide is a gaseous pollutant that is emitted primarily by industrial furnaces or power plants burning sulfur-containing coal or oil. The major health effects associated with high exposures to sulfur dioxide include effects on breathing and respiratory illness symptoms. The population most sensitive to sulfur dioxide includes asthmatics and individuals with chronic lung disease or cardiovascular disease. Sulfur dioxide damages vegetation, including forests and agricultural crops, and acts as a precursor to acid rain. Finally, sulfur dioxide can accelerate the corrosion of natural and man-made materials that are used in buildings and monuments, as well as paper, iron-containing metals, zinc, and other protective coatings.

Sulfur dioxide is measured with an ultraviolet fluorescence analyzer. Air is drawn through a sample cell where it is then subjected to high intensity ultraviolet light. This causes the sulfur dioxide molecules in the air to fluoresce and release light. The fluorescence is detected with a photomultiplier tube and converted to an electrical signal proportional to the SO₂ concentration.

Nitrogen Dioxide (NO₂)

Nitrogen dioxide is a highly toxic, reddish brown gas that is created primarily from fuel combustion in industrial sources and vehicles. It creates an odorous brown haze that causes eye and sinus irritation, blocks natural sunlight and reduces visibility. It can severely irritate the respiratory system and has been associated with acute effects in individuals diagnosed with respiratory disease. Nitrogen dioxide contributes to the creation of acid rain and plays a key role in nitrogen loading, adversely impacting forests and other ecosystems.

Nitrogen oxides (NO_x) are measured using the chemiluminescence reaction of nitric oxide (NO) with ozone (O₃). Air is drawn into a reaction chamber where it is mixed with a high concentration of ozone from an internal ozone generator. Any nitric oxide mixes with ozone to produce NO₂. Light from this reaction is detected with a photomultiplier tube and converted to an electrical signal proportional to the nitric oxide concentration. Total nitrogen oxides are measured by passing the air through a converter where any NO₂ in the air is reduced to nitric oxide before the air is passed to the reaction chamber. By alternately passing the air directly to the reaction chamber and through the converter before the reaction chamber, the analyzer alternately measures nitric oxide and NO_x. Nitrogen dioxide (NO₂) is measured indirectly by a subtraction of the NO from the NO_x concentrations.

Carbon Monoxide (CO)

Carbon monoxide is a byproduct of the incomplete burning of fuels. Industrial processes contribute to carbon monoxide pollution levels, but the largest man-made source of carbon monoxide is motor vehicle emissions. This pollutant is a health concern in areas of high traffic density or near industrial sources. Peak carbon monoxide concentrations typically occur during the colder months of the year when automotive emissions are greater and nighttime inversion (a weather-related phenomenon) conditions are more frequent.

Carbon monoxide is a colorless, odorless, poisonous gas that has an affinity for hemoglobin, 210 times that of oxygen. By combining with the hemoglobin in the blood, it inhibits the delivery of oxygen to the body's tissue, thereby causing or shortness of breath, asphyxia, and eventually death. The health threat from carbon monoxide is most serious for those who suffer from cardiovascular disease. At much higher levels of exposure, healthy individuals are also affected.

Carbon monoxide is measured by infrared absorption photometry. A continuous flow of air is drawn through a sample cell where infrared light passes through it. The carbon monoxide molecules absorb a portion of the infrared light. This reduces the amount of light getting to the sensor. The light is then converted into an electrical signal related to the concentration of carbon monoxide in the sample cell.

Fine Particulate Matter (PM_{2.5})

Fine particulate matter emissions result primarily from industrial processes and fuel combustion - including motor vehicles, residential wood burning, and forest or agricultural fires.

Fine particles can accumulate in the respiratory system and are associated with numerous adverse health effects, including decreased lung function and increased respiratory symptoms and disease. Sensitive groups that appear to be at greatest risk include the elderly, individuals with cardiopulmonary disease such as asthma, and children. PM_{2.5} is the major cause of reduced visibility in parts of the United States. Other environmental impacts occur when particles deposit onto soil, plants, water, or man-made materials such as monuments or statues.

For the manual Federal Reference Method (FRM) sampler, PM_{2.5} is sampled by drawing air through a specially designed inlet that excludes particles larger than 2.5 microns in diameter. The particles are collected on a Teflon™ Microfiber filter that is removed and subsequently weighed by the Bureau of Laboratories to determine the particulate mass. The normal sampling schedule is for a 24-hour sample to be taken daily. For the continuous methods, DEP utilizes both the Teledyne Model 602 BetaPLUS and Teledyne Model T640 monitors. The Teledyne 602 BetaPLUS monitor collects PM_{2.5} on an internal filter. It then uses a radioactive isotope to emit low energy levels of beta radiation through the

filter. As the radiation passes through matter, its intensity is diminished, or attenuated (beta attenuation). The mass of PM_{2.5} is calculated by measuring the beta radiation intensity before and after sampling on the filter. The Teledyne T640 collects particulate matter into an optical particle sensor where scattered light intensity from a polychromatic light source is measured to determine particle size diameter.

Particulate Matter (PM₁₀)

PM₁₀ appears to represent essentially all of the particulate emissions from transportation sources and most of the emissions in the other traditional categories (coal-burning power plants, steel mills, mining operations, etc.).

Sources of PM₁₀ particles may include dust-producing process, such as crushing or grinding operations, as well as dust stirred up by vehicles traveling on roads. While they are not as much of a health concern as are fine particles, they can aggravate respiratory conditions and irritate the linings of the eyes, nose, throat and lungs. In the environment, PM₁₀ contributes to reduced visibility and degradation of man-made materials.

PM₁₀ is sampled continuously using a tapered element oscillating microbalance (TEOM). Air is drawn through a specially designed inlet that excludes particles larger than 10 microns in diameter. Particle accumulation causes changes in the microbalance oscillation that are recorded by the instrument.

Lead (Pb)

Lead is emitted to the atmosphere primarily from certain industrial processes, such as battery manufacturers and lead smelters. A portion of the private aviation sector is an additional source of lead emissions. As a result of the reduction in lead in gasoline, metal processing is now the major source of lead emissions.

Lead is a highly toxic metal when ingested or inhaled. It is a suspected carcinogen of the lungs and kidneys and has adverse effects on the cardiovascular, nervous, and renal systems.

The amount of lead in ambient air is measured by laboratory analysis of TSP filters using Inductively Coupled Plasma - Mass Spectrometry.

Air Toxics

Hazardous air pollutants (HAPs), commonly referred to as air toxics, are pollutants known to cause or are suspected of causing cancer or other serious human health effects or ecosystem damage. Some air toxics are released from natural sources such as volcanic eruptions and forest fires. Most air toxics originate from mobile sources (cars, trucks, buses) and stationary sources (factories, refineries, power plants). Examples of some of the 187 toxic air pollutants include heavy metals such as mercury and chromium; benzene, found in gasoline; perchloroethylene, emitted from some dry cleaning facilities; and methylene chloride, used as a solvent and paint stripper by a number of industries.

Appendix B – Sites by CBSA and Non-CBSA Region

Appendix B of this document displays maps of monitoring network sites organized by Core-Based Statistical Area (CBSA) regions, as described in the “Description of DEP’s Ambient Air Monitoring Network” section of this document. CBSA are listed in alphabetical order, by type. Metropolitan Statistical Areas (MSAs) are listed first, followed by Micropolitan statistical Areas (Micro Areas) and non-CBSA regions. Table B-1. Core-Based Statistical Areas and Pennsylvania Counties below lists the CBSAs and non-CBSA regions, in order of presentation, along with their component Pennsylvania counties. Note that areas listed in Table B-1. Core-Based Statistical Areas and Pennsylvania Counties, but not included in the following maps, do not contain monitoring sites operated by DEP. On the individual CBSA maps, proposed additional sites are highlighted in blue. Proposed discontinued sites are highlighted in red.

Table B-1. Core-Based Statistical Areas and Pennsylvania Counties

CBSA Name	County (Pennsylvania Portion)
Metropolitan Statistical Areas (MSA)	
Allentown-Bethlehem-Easton MSA	Carbon, Lehigh, Northampton
Altoona, PA-NJ MSA	Blair
Bloomsburg-Berwick, PA MSA	Columbia, Montour
Chambersburg-Waynesboro, PA MSA	Franklin
East Stroudsburg, PA MSA	Monroe
Erie, PA MSA	Erie
Gettysburg, PA MSA	Adams
Harrisburg-Carlisle, PA MSA	Cumberland, Dauphin, Perry
Johnstown, PA MSA	Cambria
Lancaster, PA MSA	Lancaster
Lebanon, PA MSA	Lebanon
New York-Newark-Jersey City MSA	Pike
Philadelphia-Camden-Wilmington, PA-NJ-DE-MD MSA	Bucks, Chester, Delaware, Montgomery, Philadelphia
Pittsburgh, PA MSA	Allegheny, Armstrong, Beaver, Butler, Fayette, Washington, Westmoreland
Reading, PA MSA	Berks
Scranton-Wilkes-Barre-Hazleton MSA	Lackawanna, Luzerne, Wyoming
State College, PA MSA	Centre
Williamsport, PA MSA	Lycoming
York-Hanover, PA MSA	York
Youngstown-Warren-Boardman, OH-PA MSA	Mercer
Micropolitan Statistical Areas	
Bradford, PA Micropolitan Area	McKean
DuBois, PA Micropolitan Area	Clearfield
Huntingdon, PA Micropolitan Area	Huntingdon

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CBSA Name	County (Pennsylvania Portion)
Indiana, PA Micropolitan Area	Indiana
Lewisburg, PA Micropolitan Area	Union
Lewistown, PA Micropolitan Area	Mifflin
Lock Haven, PA Micropolitan Area	Clinton
Meadville, PA Micropolitan Area	Crawford
New Castle, PA Micropolitan Area	Lawrence
Oil City, PA Micropolitan Area	Venango
Pottsville, PA Micropolitan Area	Schuylkill
Sayre, PA Micropolitan Area	Bradford
Selinsgrove, PA Micropolitan Area	Snyder
Somerset, PA Micropolitan Area	Somerset
St. Marys, PA Micropolitan Area	Elk
Sunbury, PA Micropolitan Area	Northumberland
Warren, PA Micropolitan Area	Warren
Non-CBSA Regions	
Northcentral Non-CBSA Region	Cameron, Potter, Sullivan, Tioga
Northeast Non-CBSA Region	Susquehanna, Wayne
Northwest Non-CBSA Region	Clarion, Forest, Jefferson
Southcentral Non-CBSA Region	Bedford, Fulton, Juniata
Southwest Non-CBSA Region	Greene

Figure B-1. Allentown-Bethlehem-Easton, PA-MJ MSA (Pennsylvania portion)

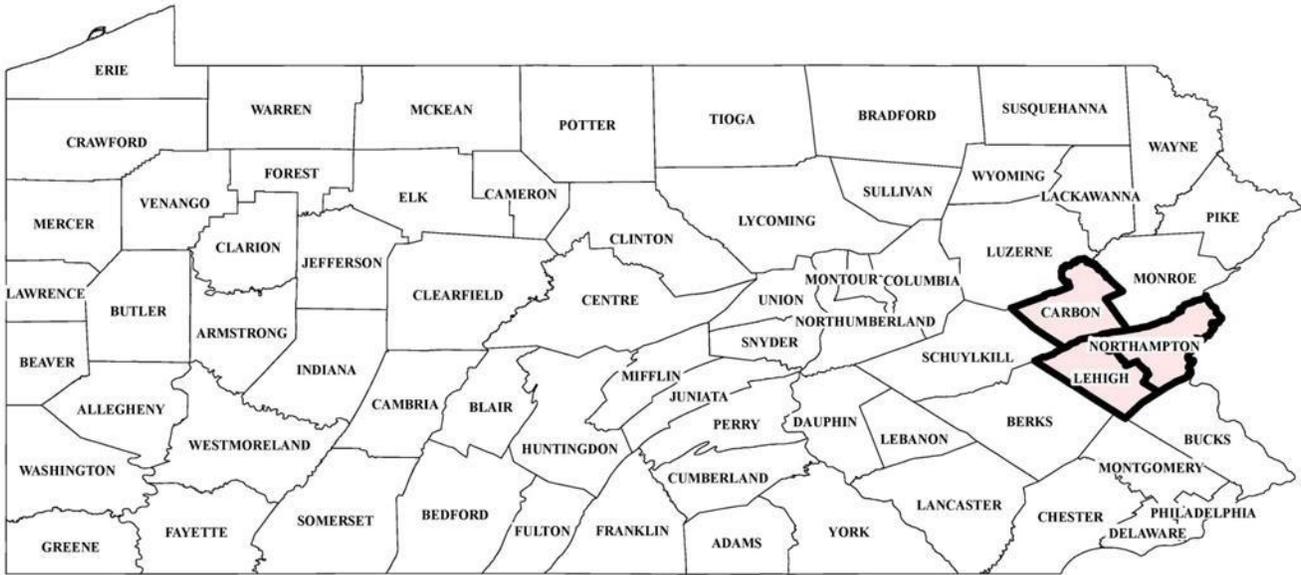


Figure B-2. Allentown-Bethlehem-Easton, PA-NJ MSA (Pennsylvania portion) Site Detail

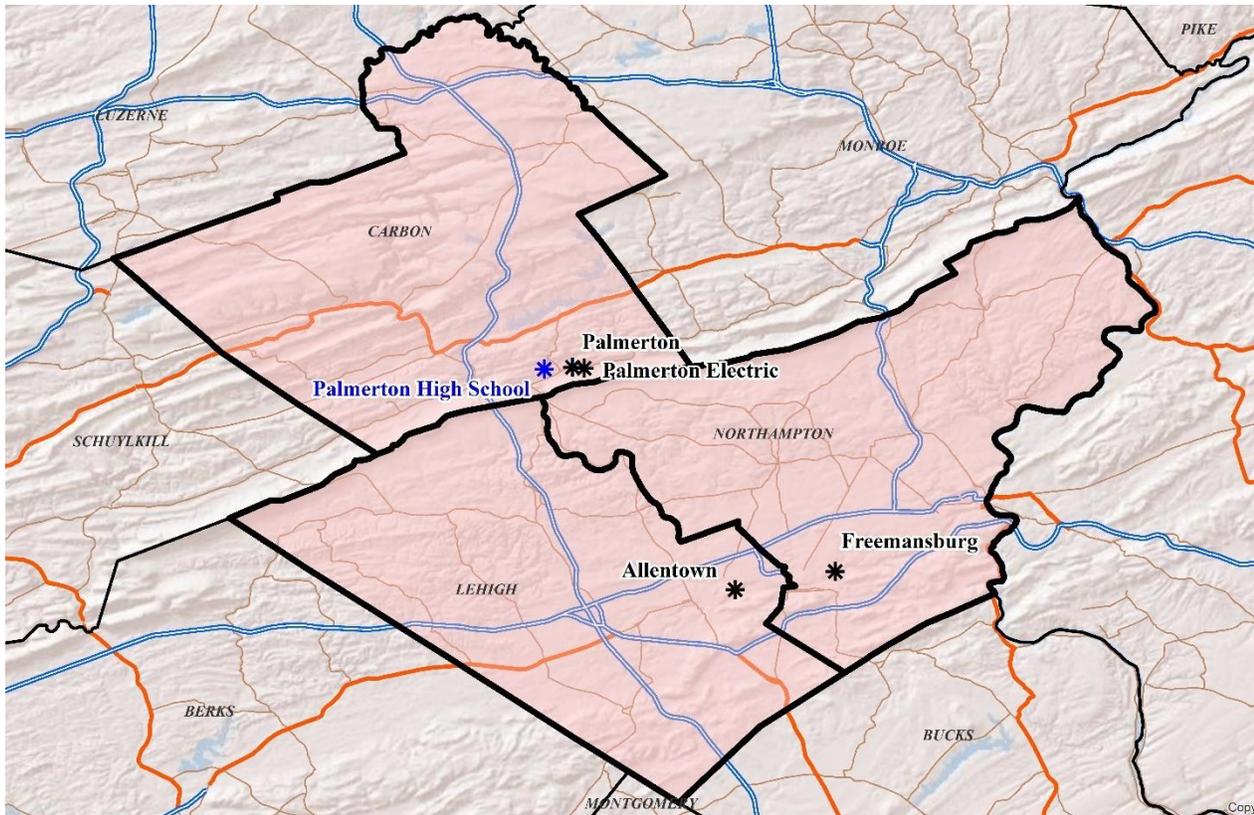


Figure B-3. Altoona, PA MSA

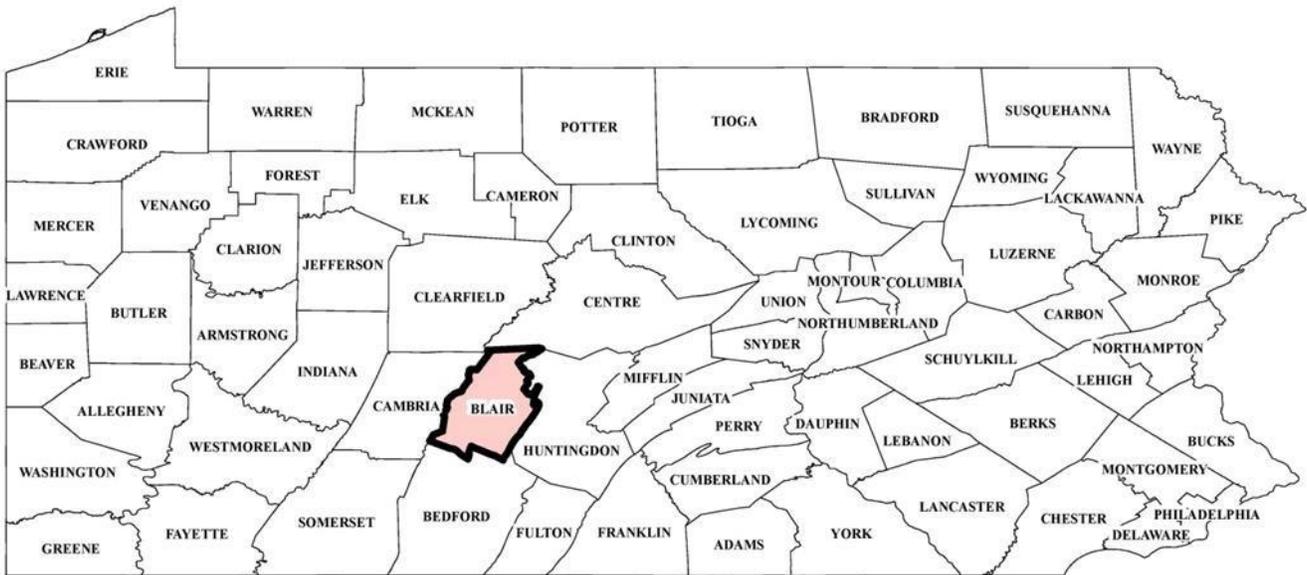


Figure B-4. Altoona, PA MSA Site Detail

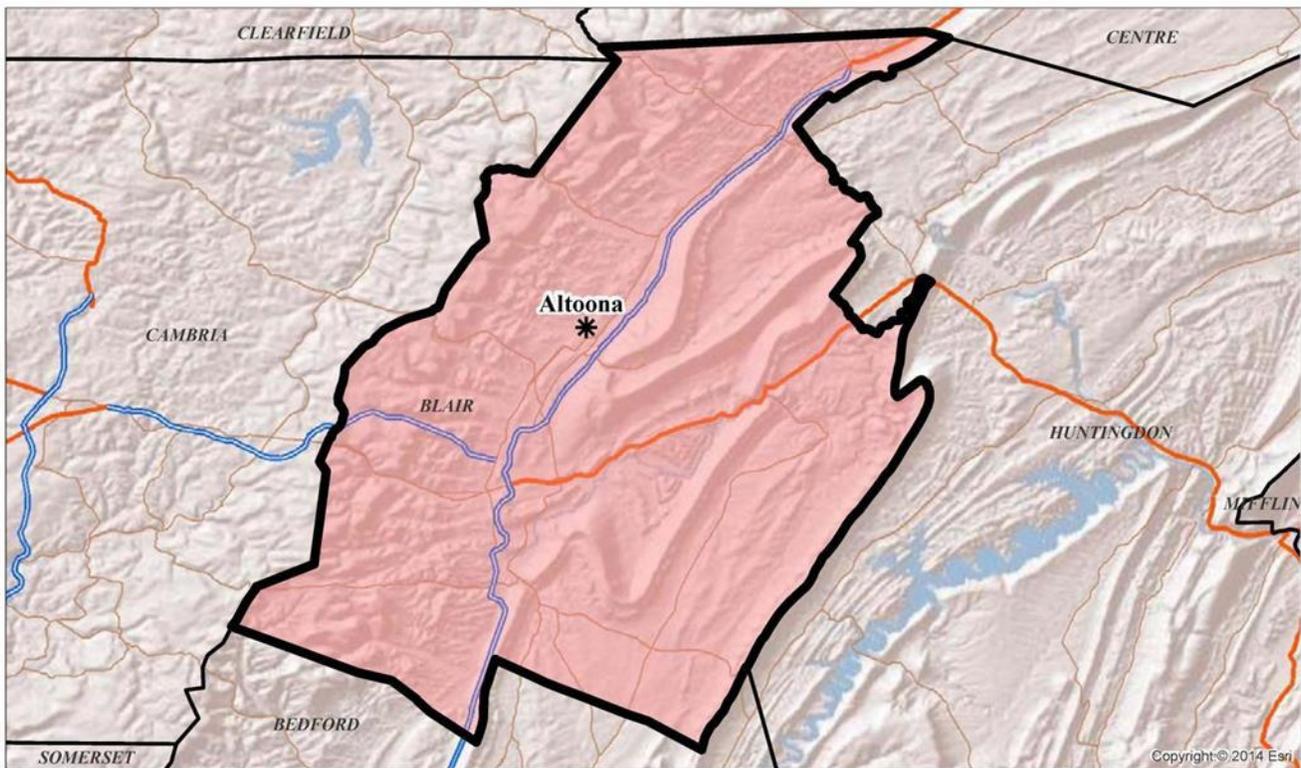


Figure B-5. Chambersburg-Waynesboro, PA MSA

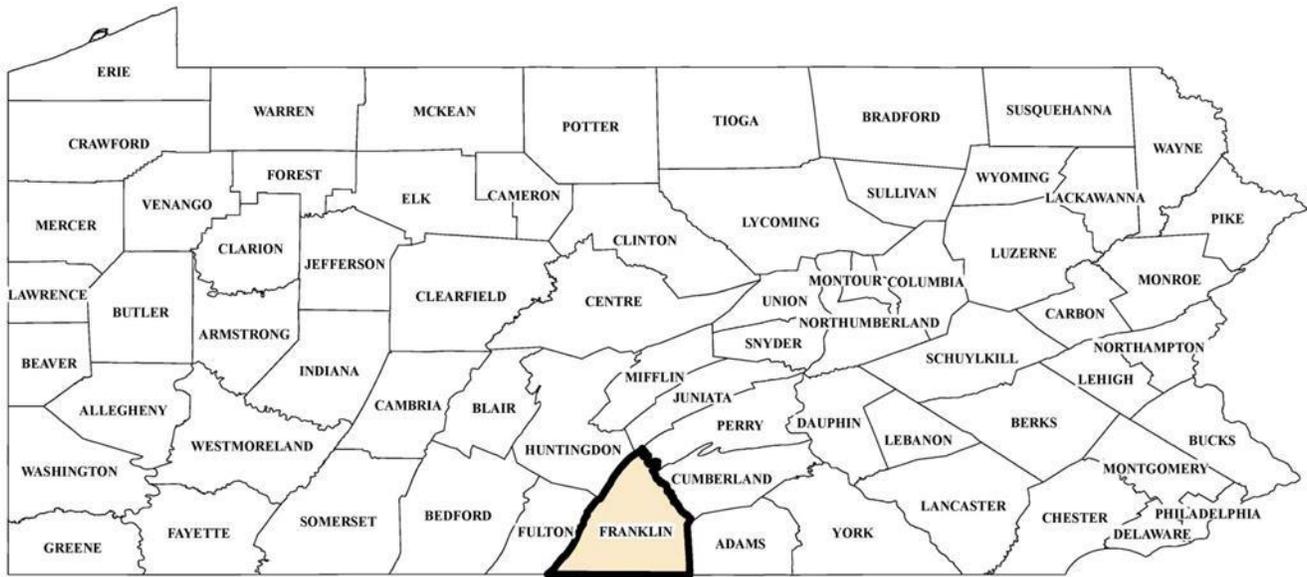


Figure B-6. Chambersburg-Waynesboro, PA MSA Site Detail

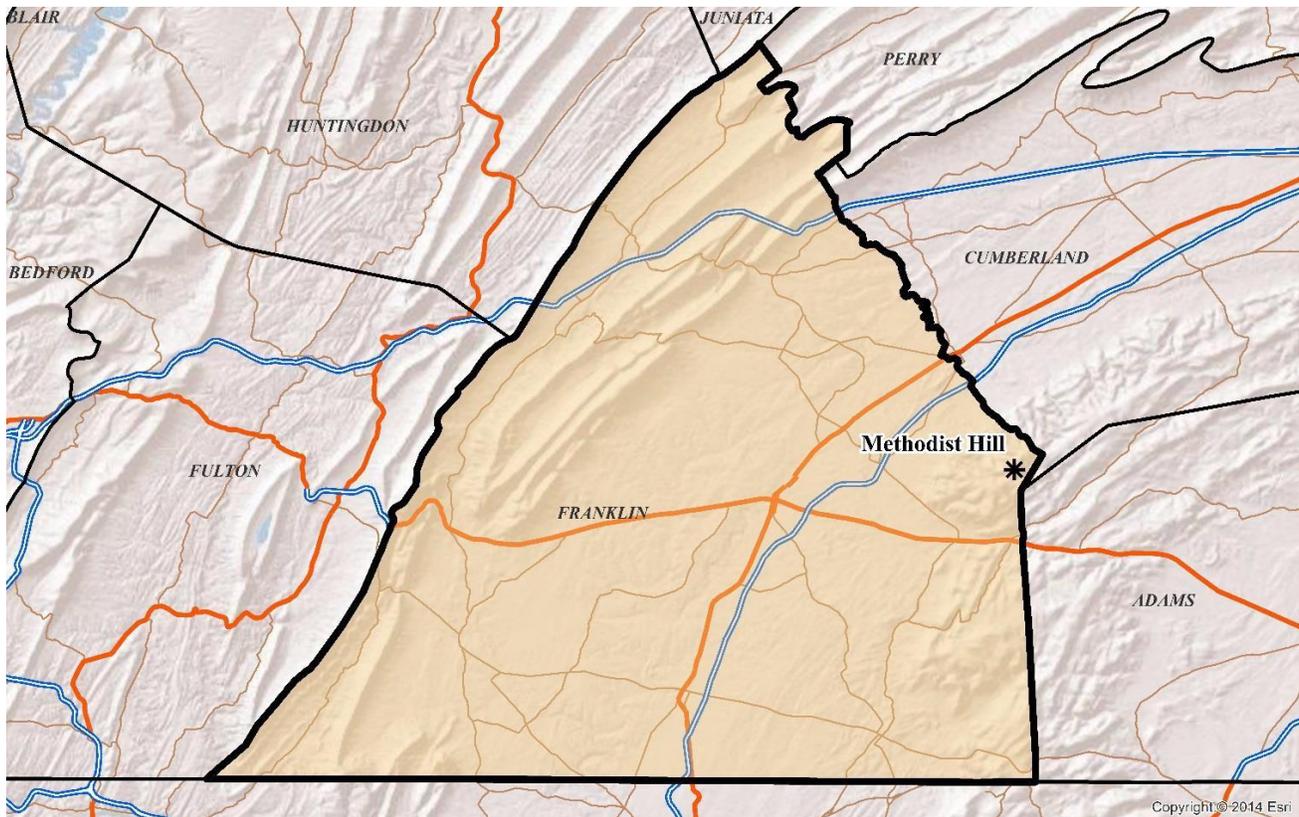


Figure B-7. East Stroudsburg, PA MSA

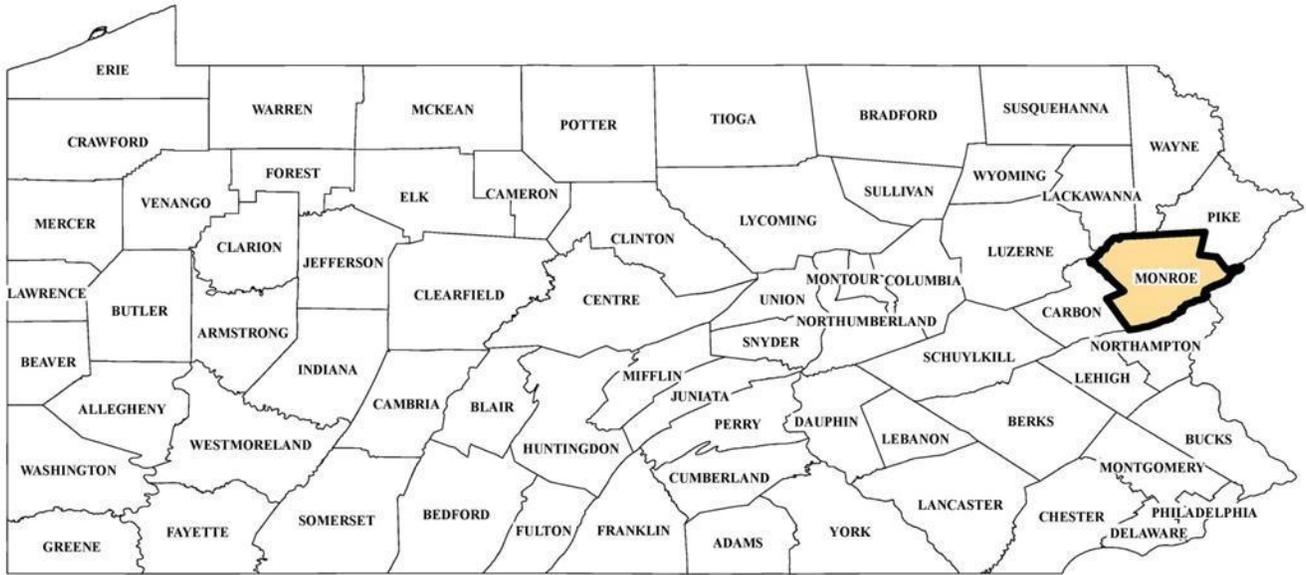


Figure B-8. East Stroudsburg, PA MSA Site Detail

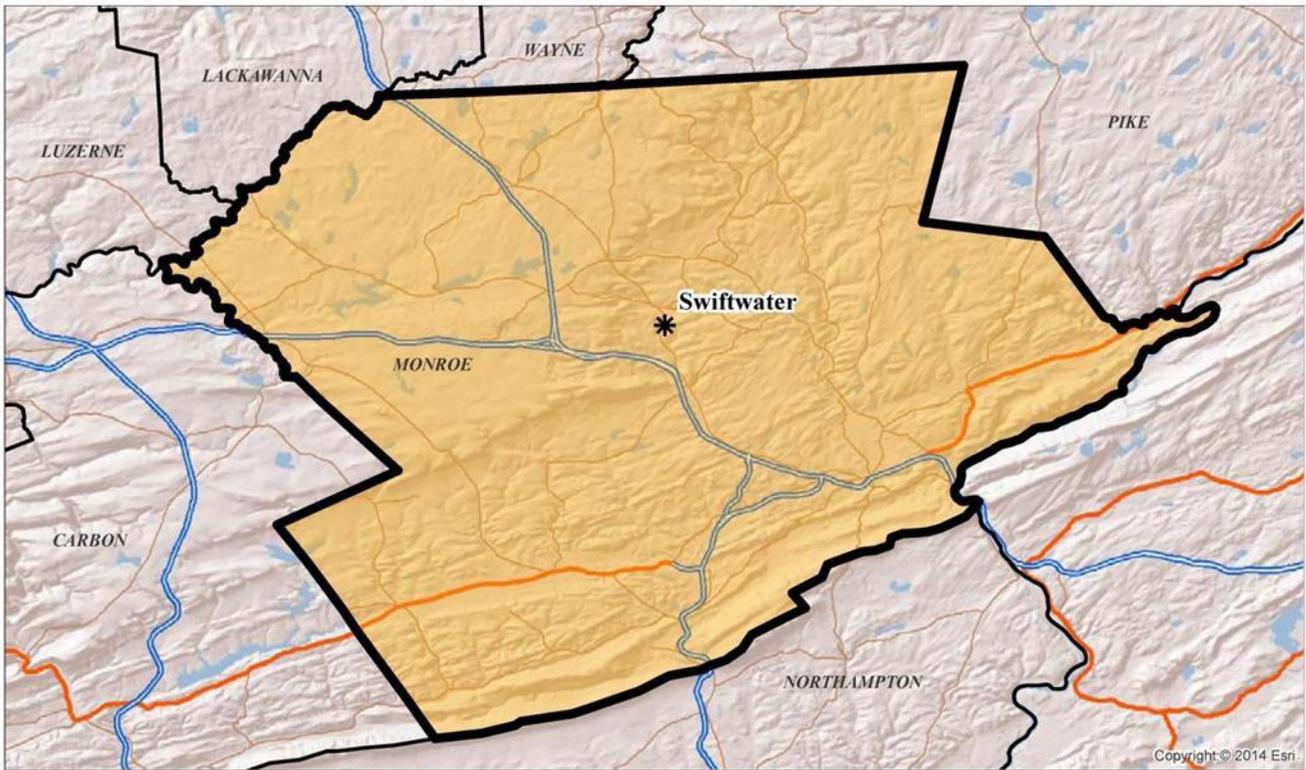


Figure B-9. Erie, PA MSA

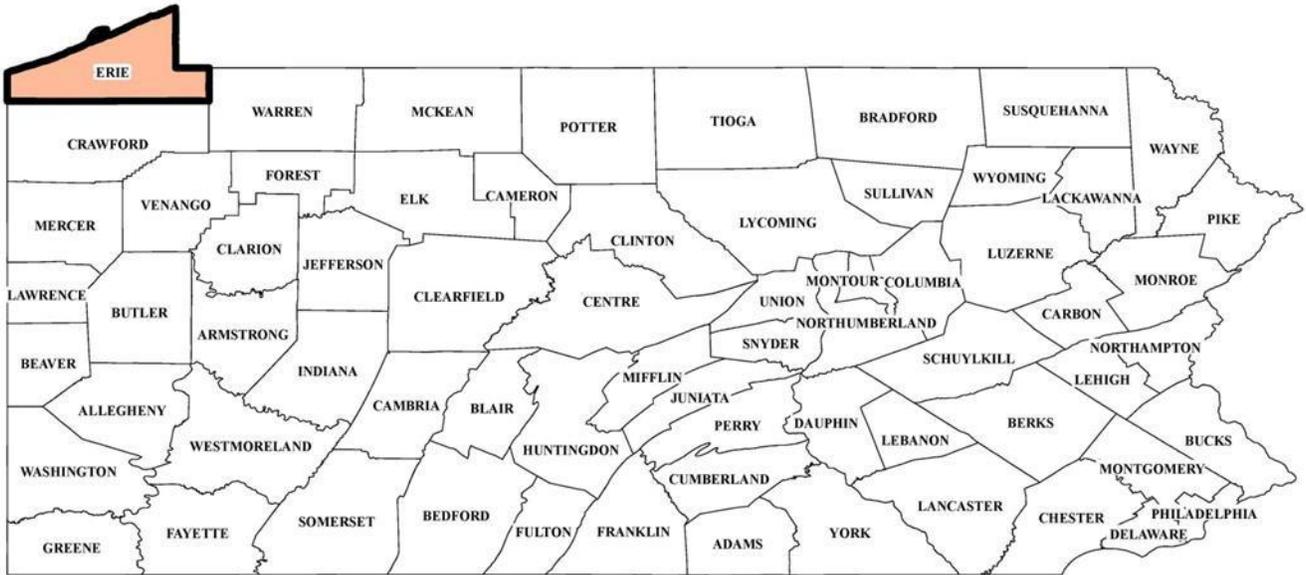


Figure B-10. Erie, PA MSA Site Detail

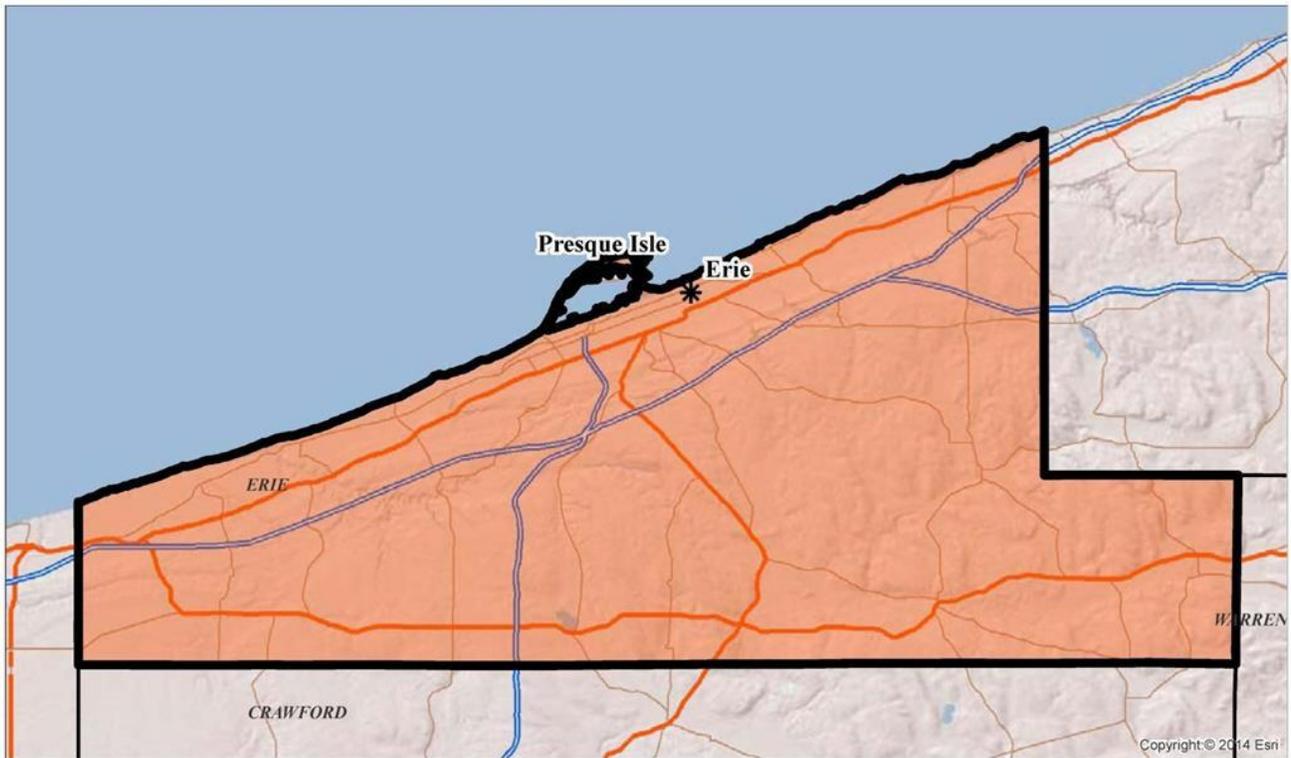


Figure B-11. Gettysburg, PA MSA

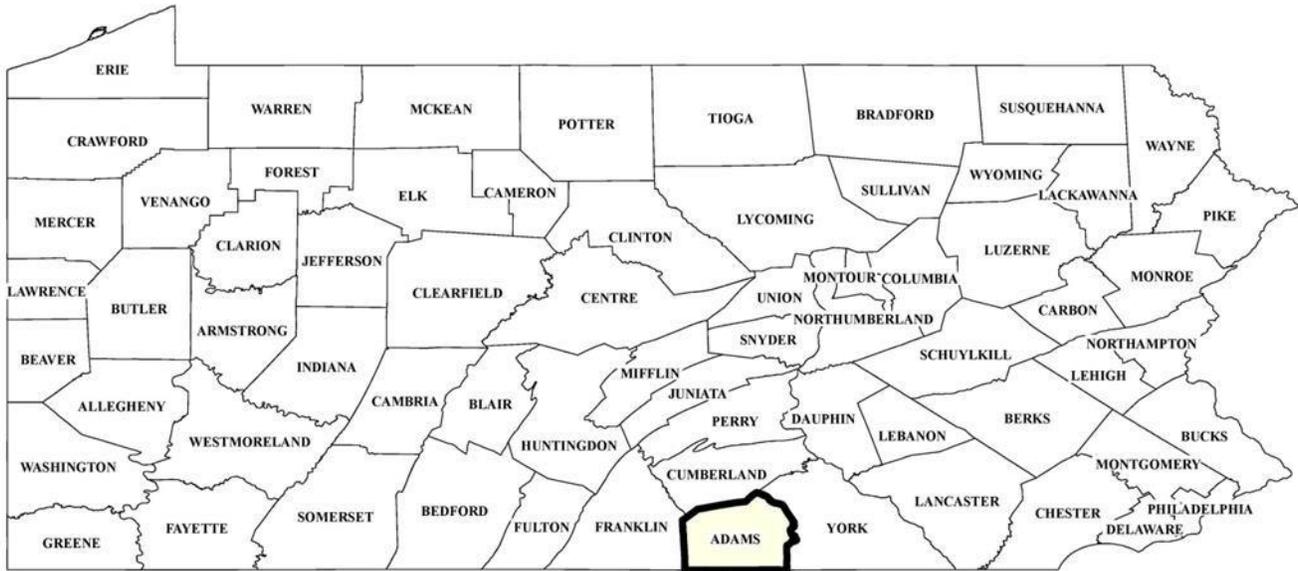


Figure B-12. Gettysburg, PA MSA Site Detail

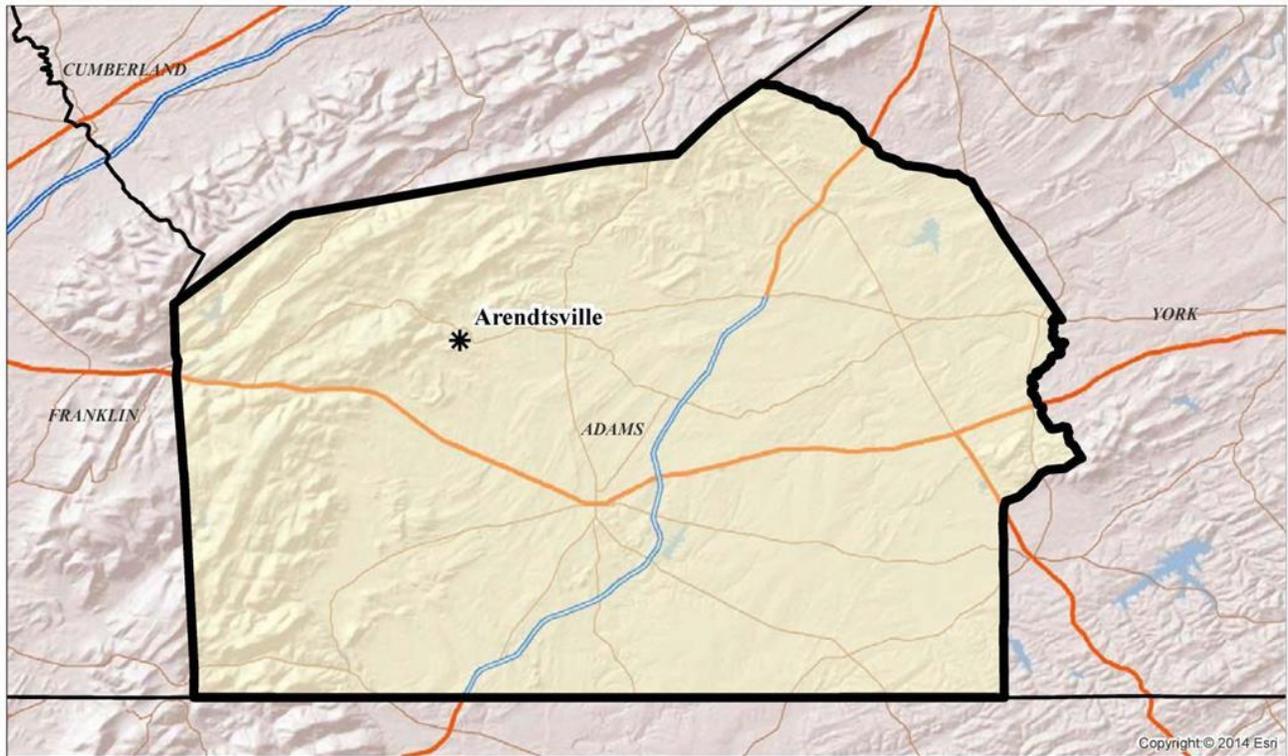


Figure B-13. Harrisburg-Carlisle, PA MSA

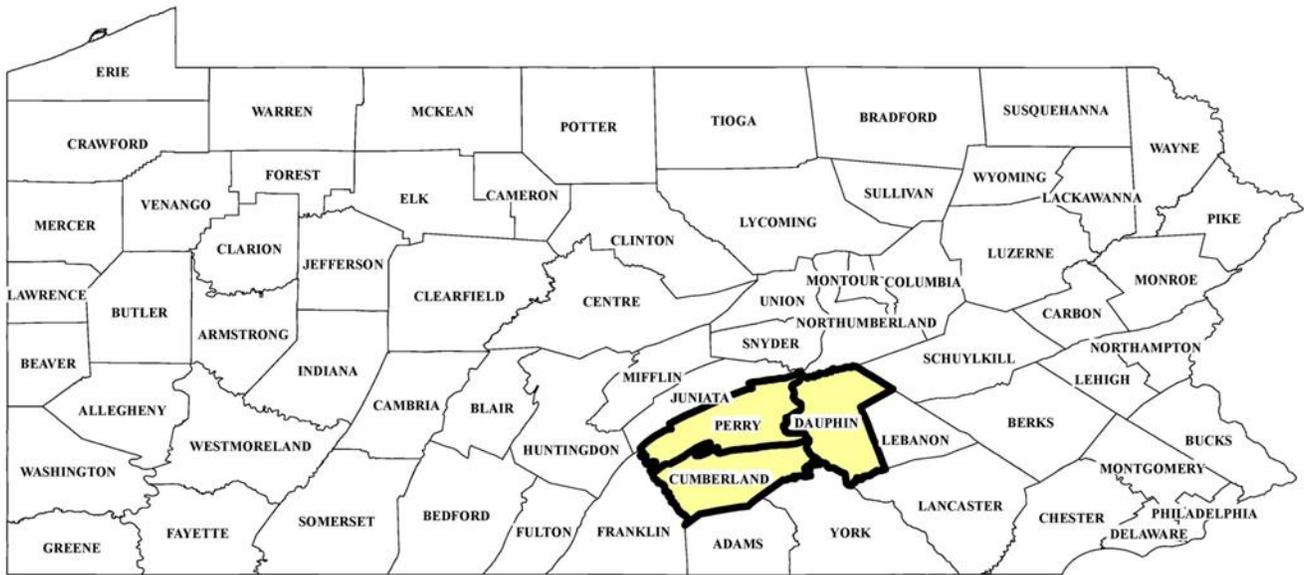


Figure B-14. Harrisburg-Carlisle, PA MSA Site Detail

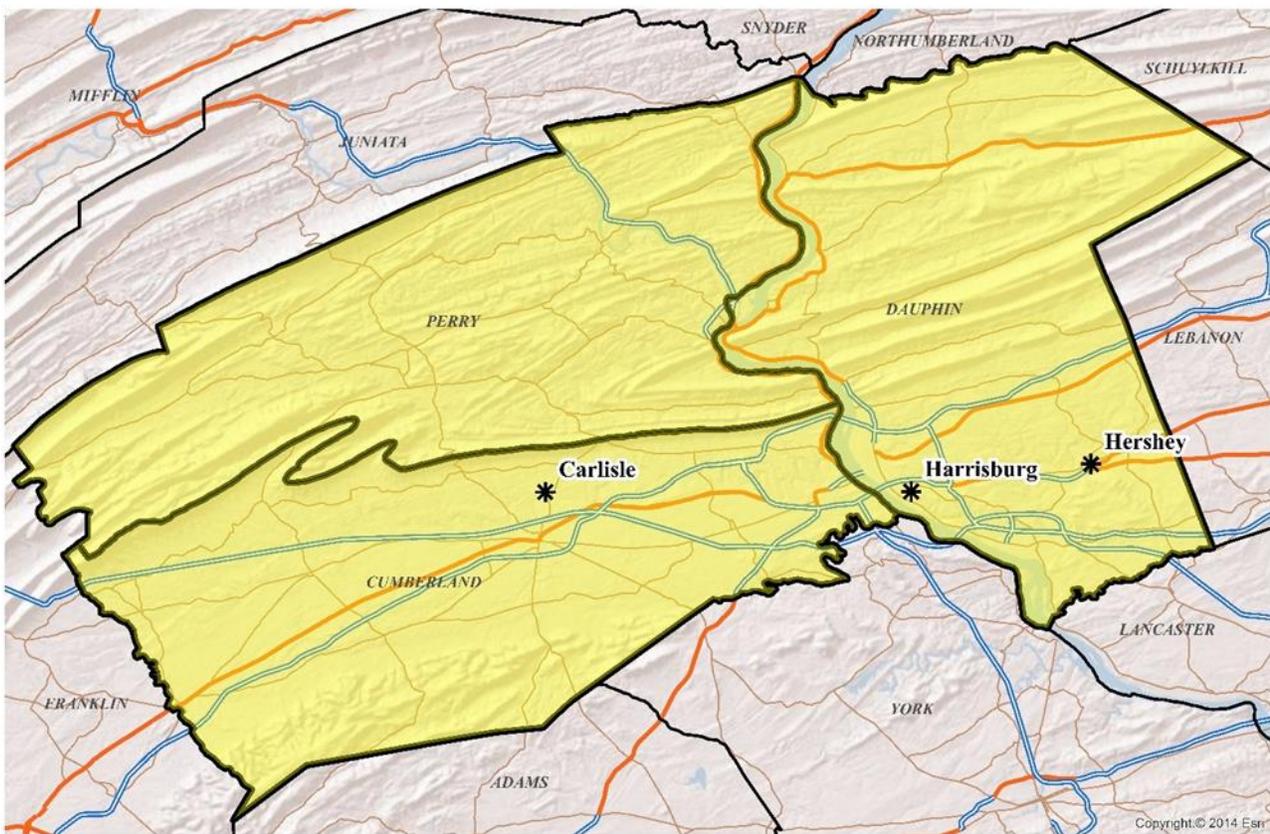


Figure B-15. Johnstown, PA MSA

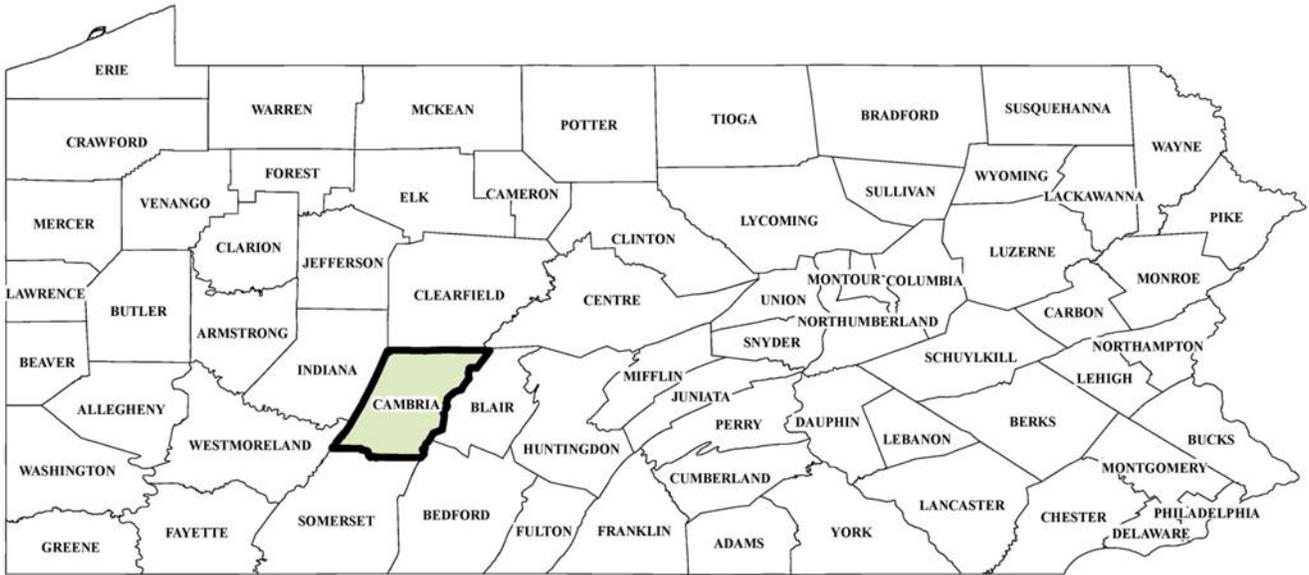


Figure B-16. Johnstown, PA MSA Site Detail

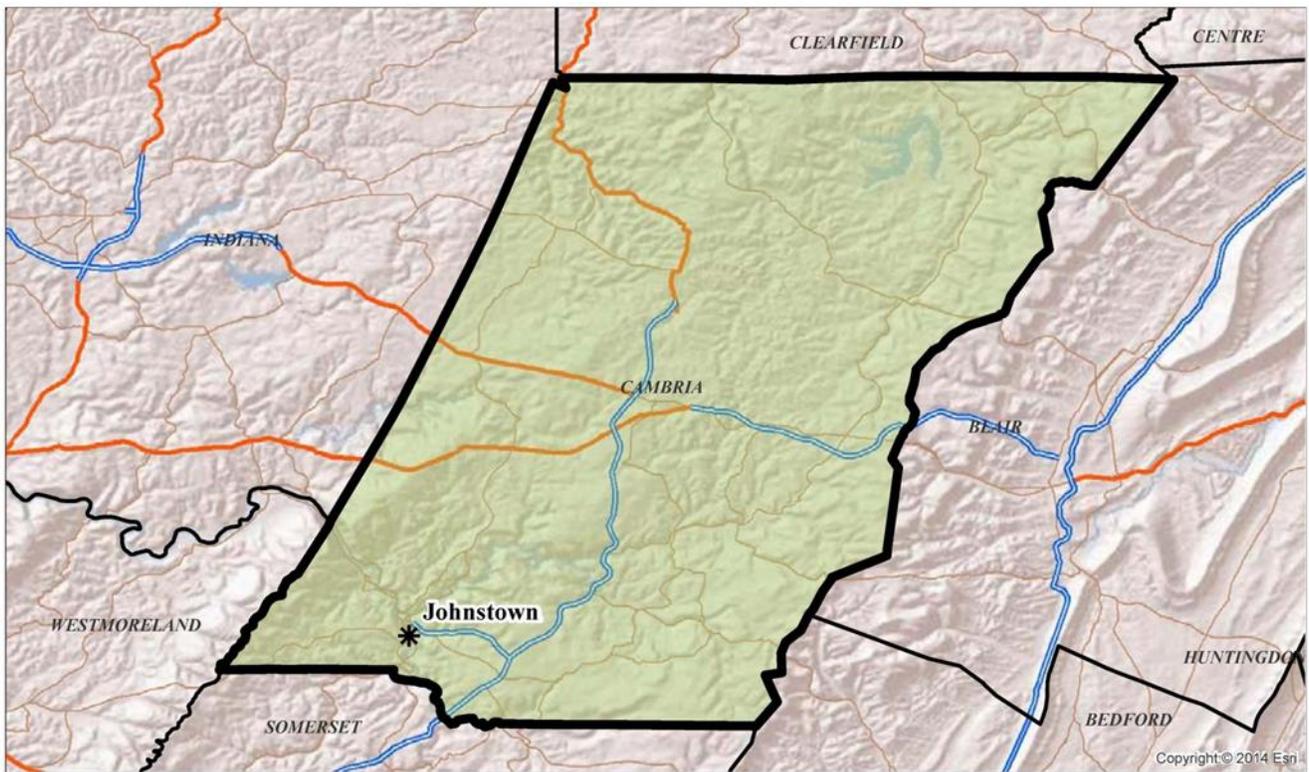


Figure B-17. Lancaster, PA MSA

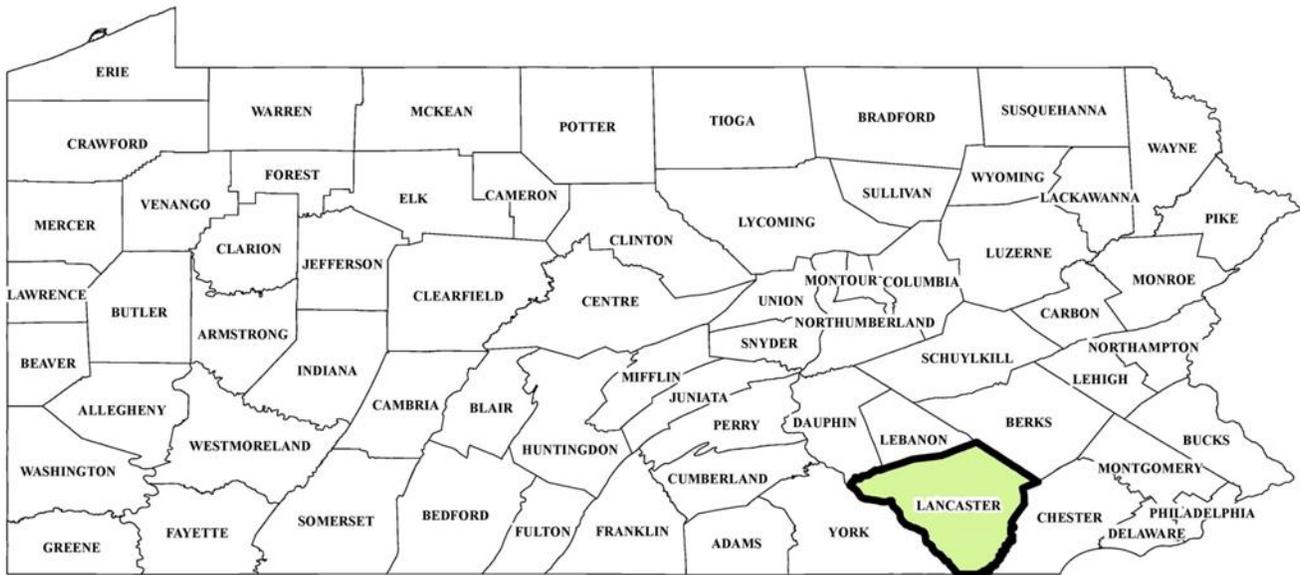


Figure B-18. Lancaster, PA MSA Site Detail

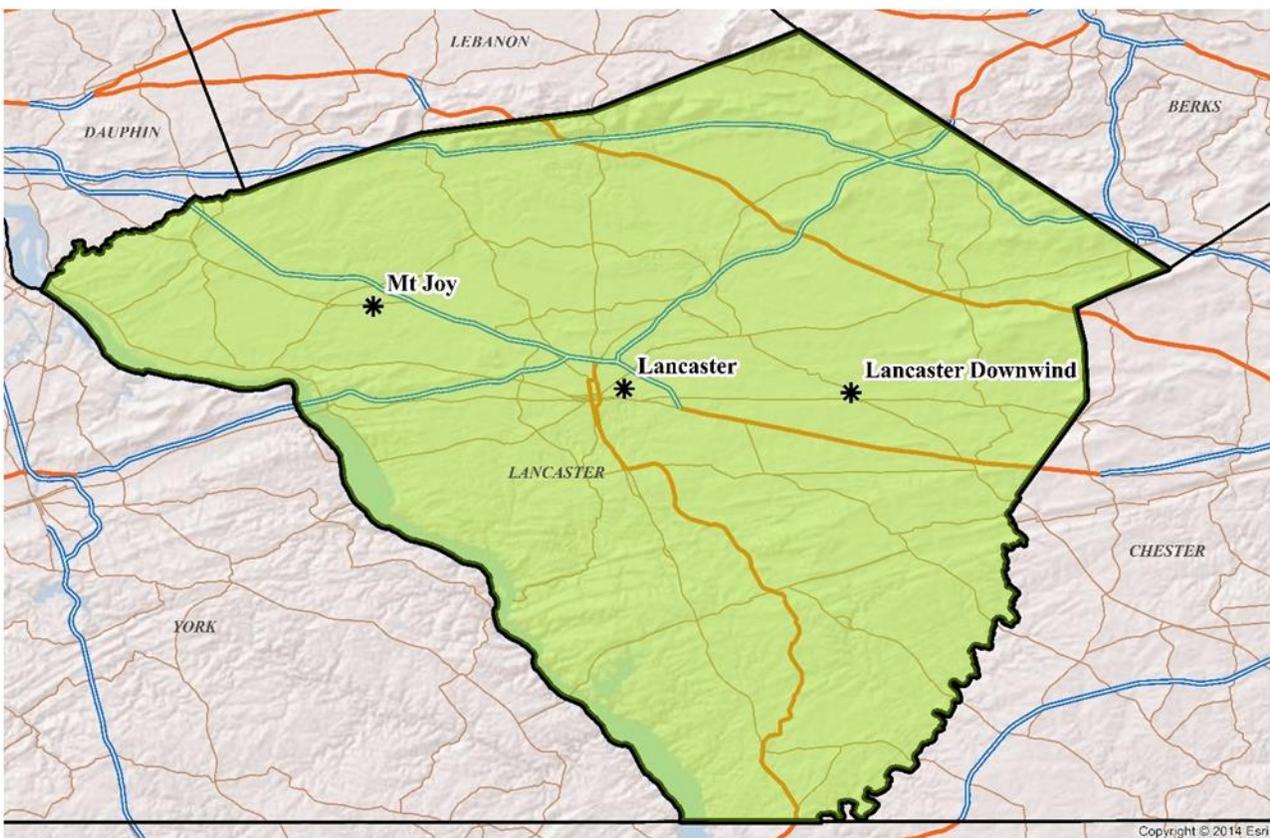


Figure B-19. Lebanon, PA MSA

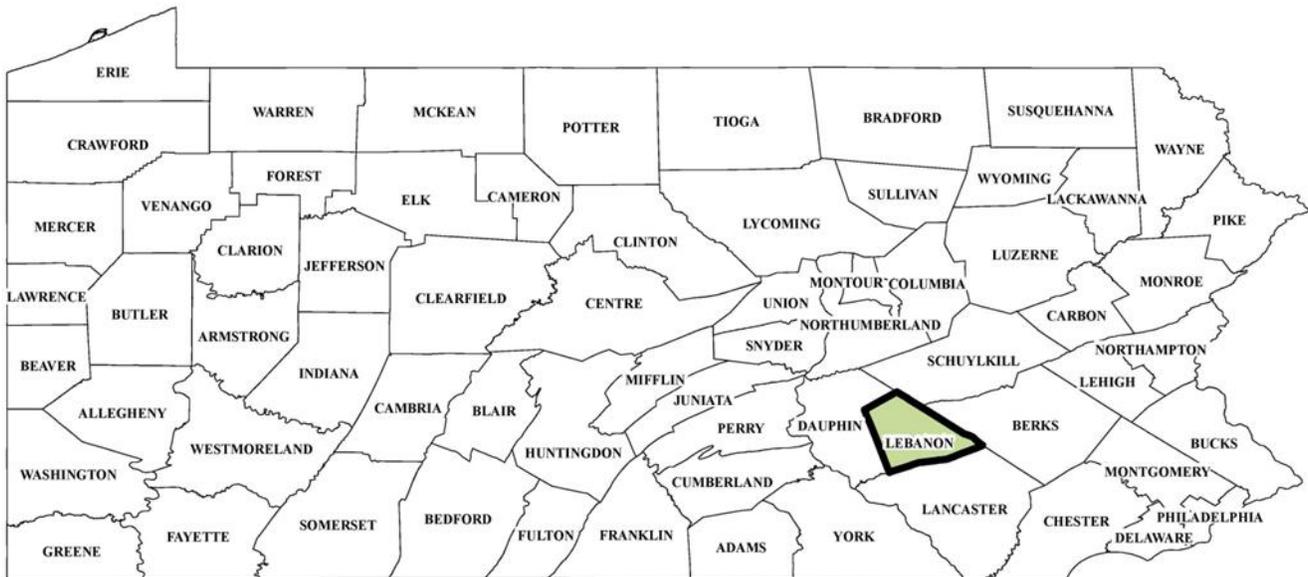


Figure B-20. Lebanon, PA MSA Site Detail

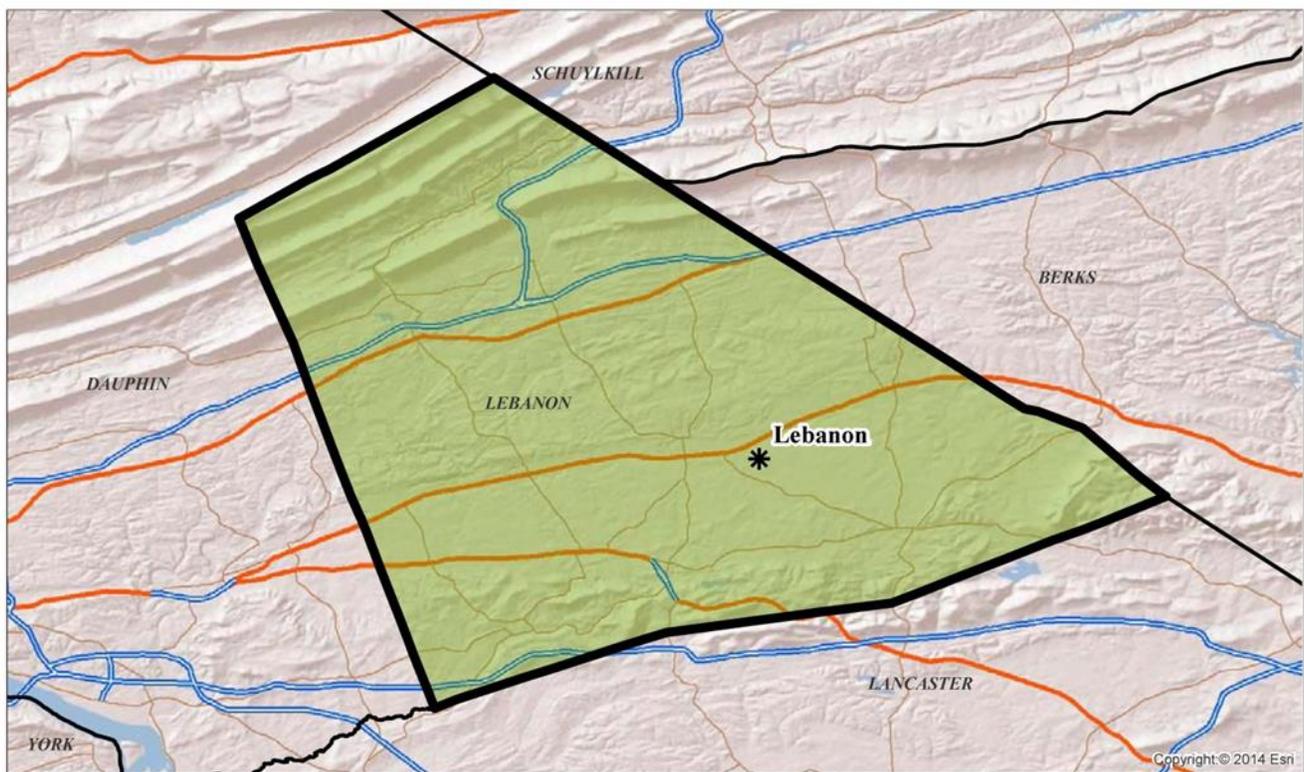


Figure B-21. Philadelphia-Camden-Wilmington, PA-NJ-DE-MD MSA (Pennsylvania portion)

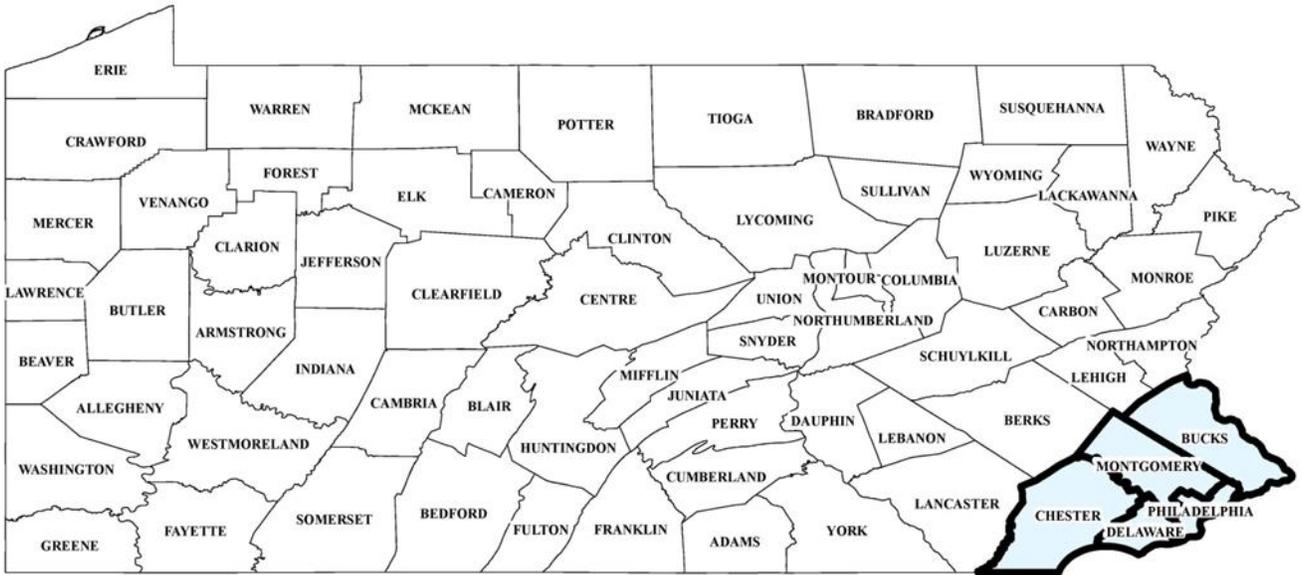


Figure B-22. Philadelphia-Camden-Wilmington, PA-NJ-DE-MD MSA (Pennsylvania portion) Site Detail

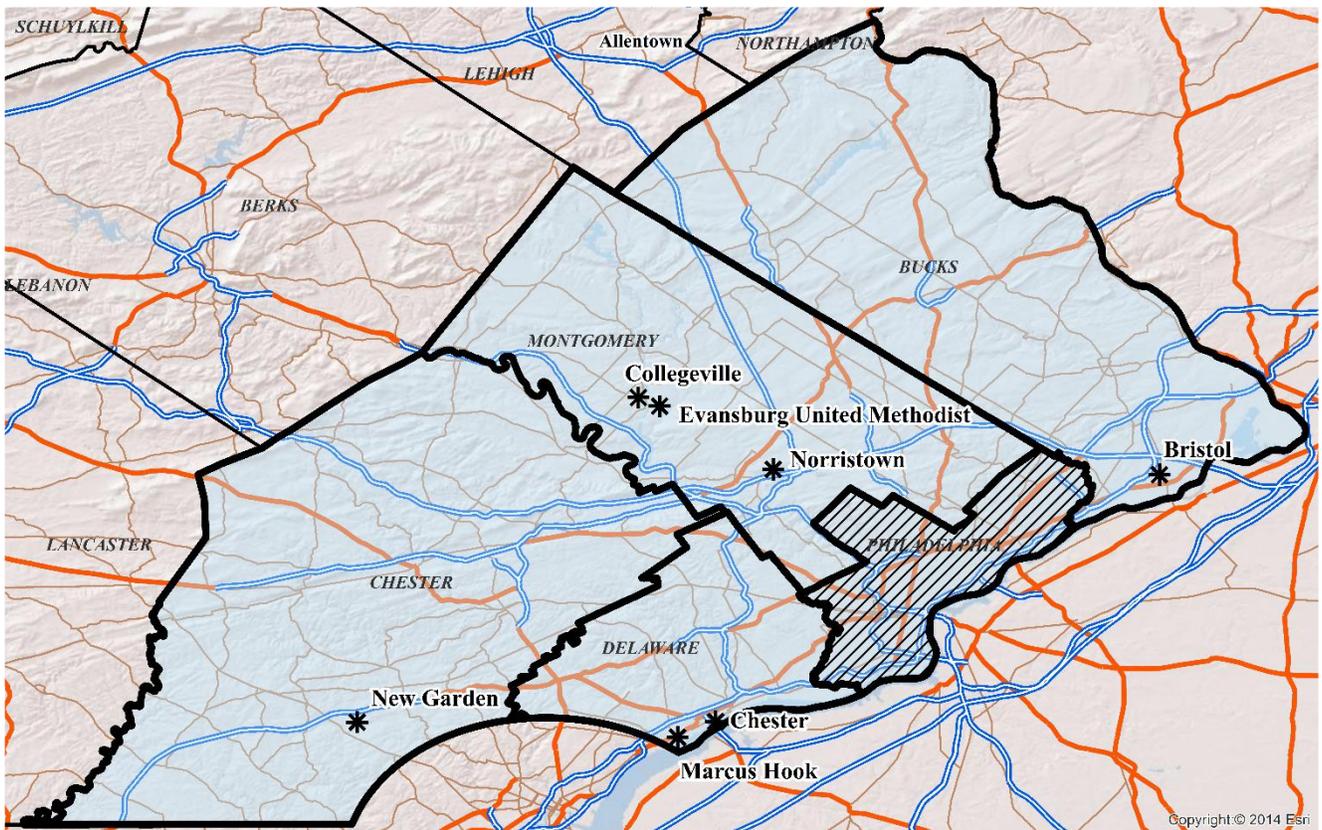


Figure B-23. Pittsburgh, PA MSA

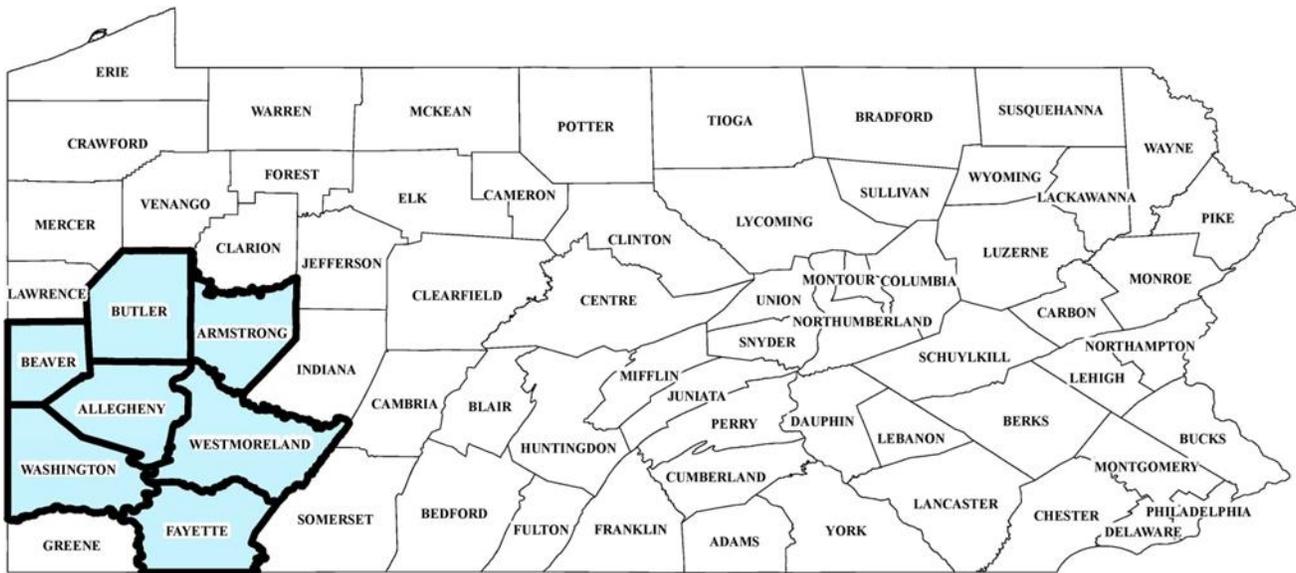


Figure B-24. Pittsburgh, PA MSA Site Detail

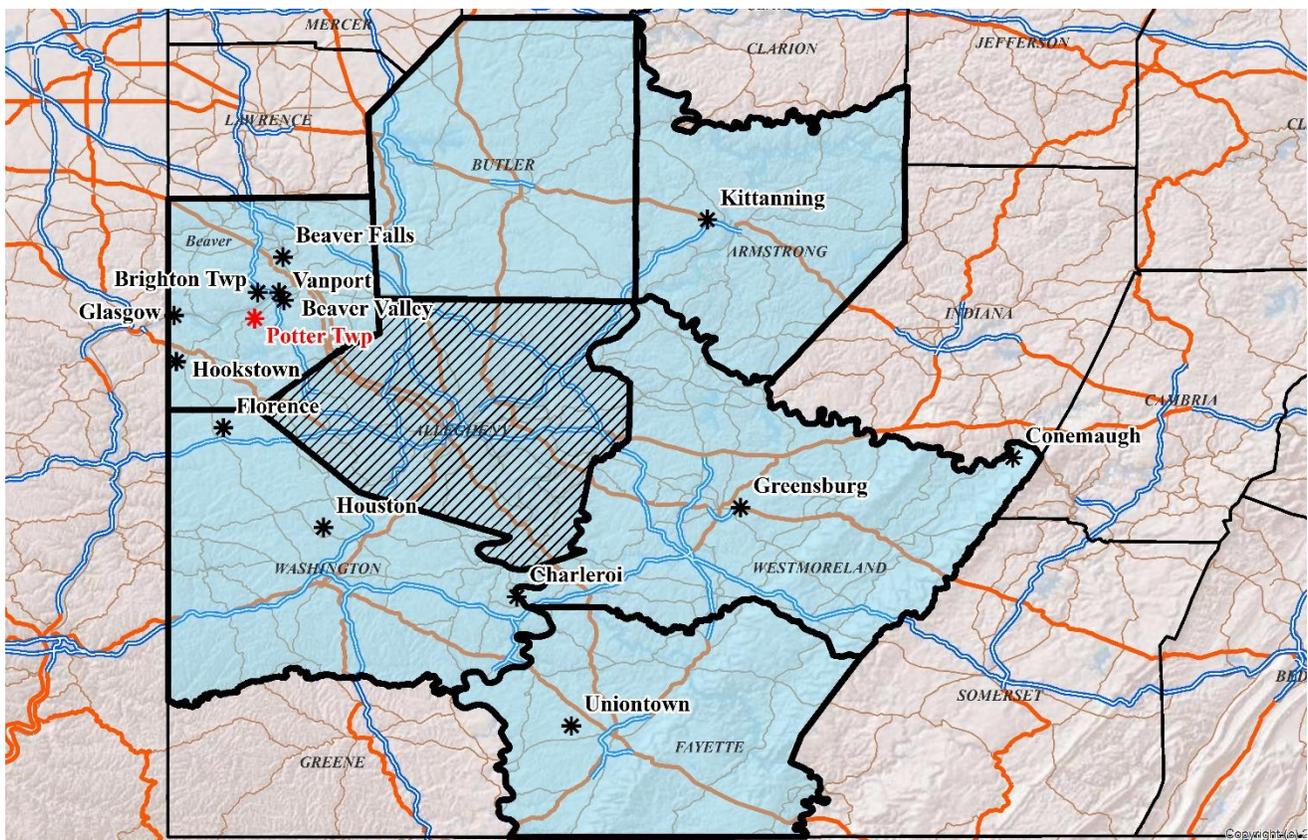


Figure B-25. Reading, PA MSA Overview

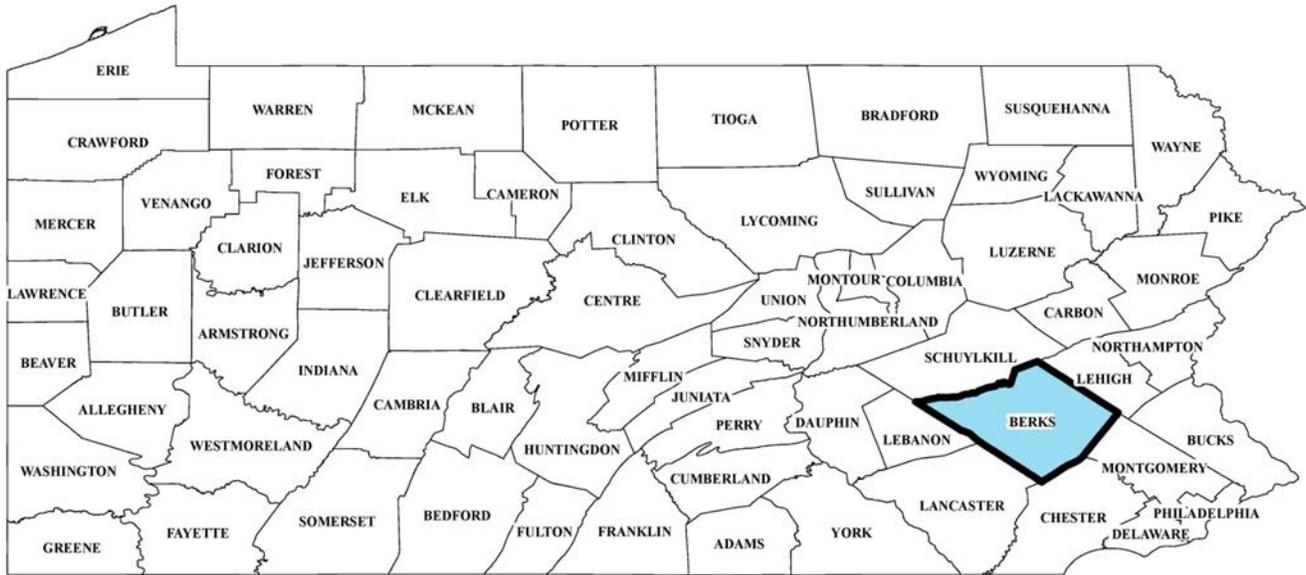


Figure B-26. Reading, PA MSA Site Detail

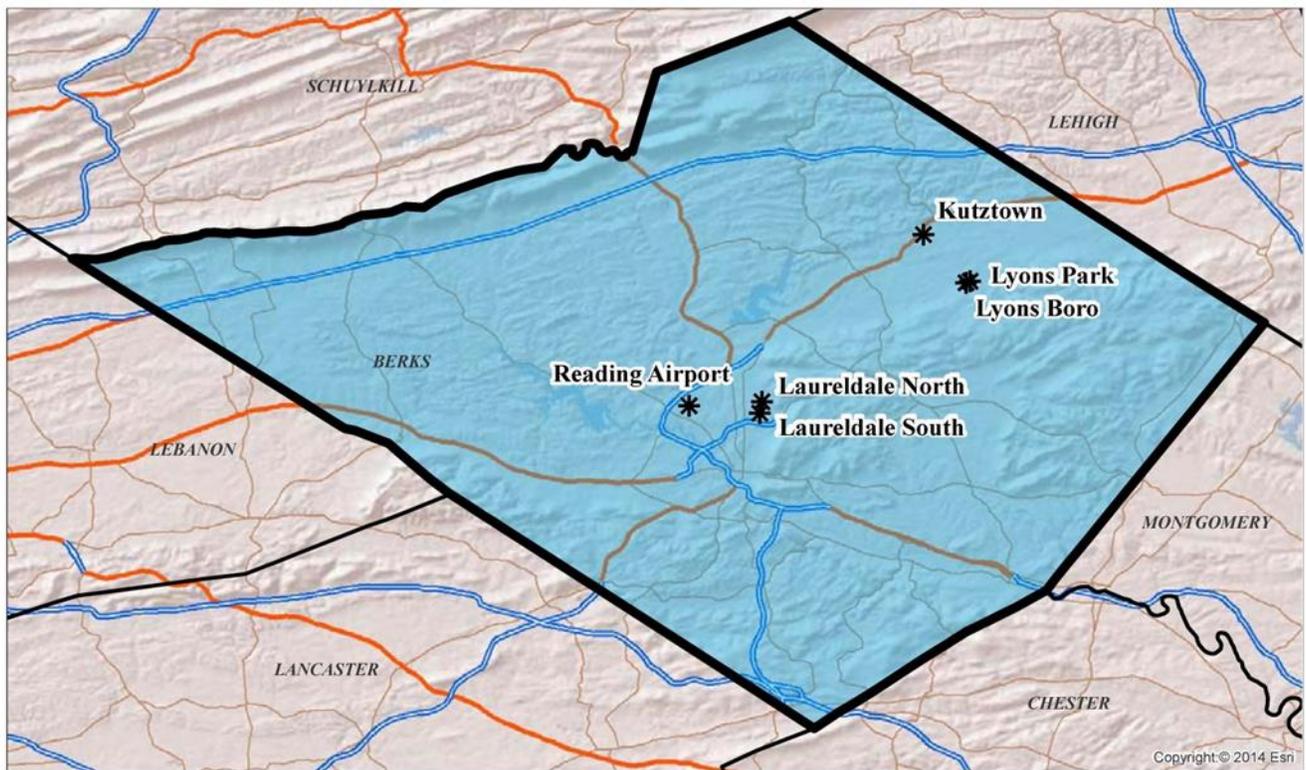


Figure B-27. Scranton-Wilkes-Barre-Hazleton, PA MSA

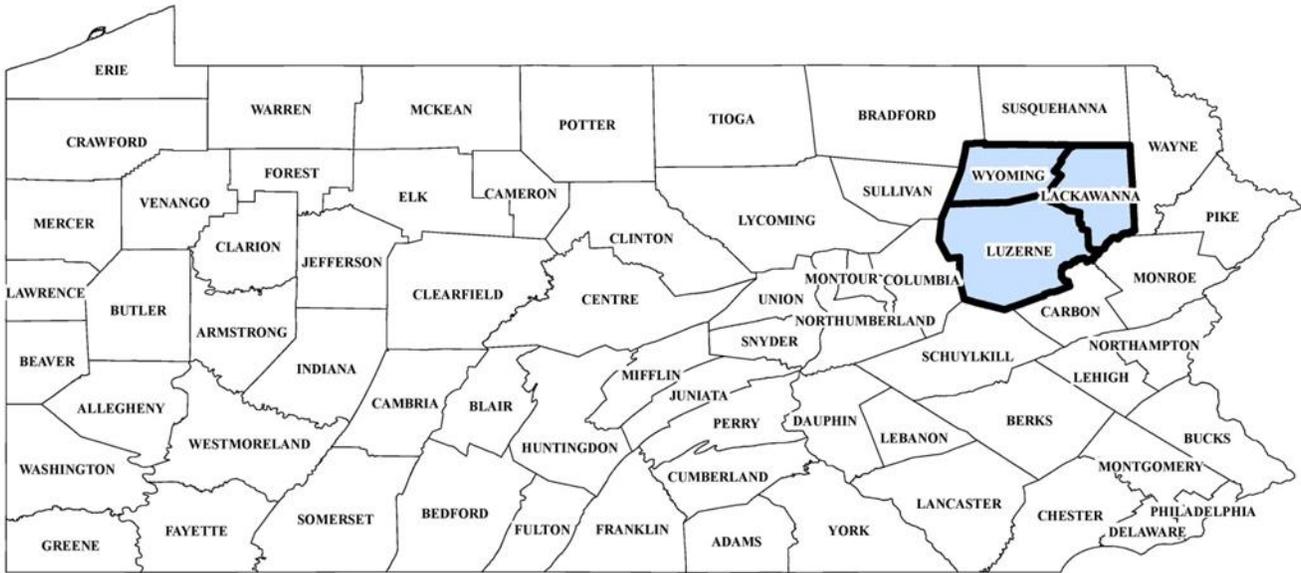


Figure B-28. Scranton-Wilkes-Barre-Hazleton, PA MSA Site Detail

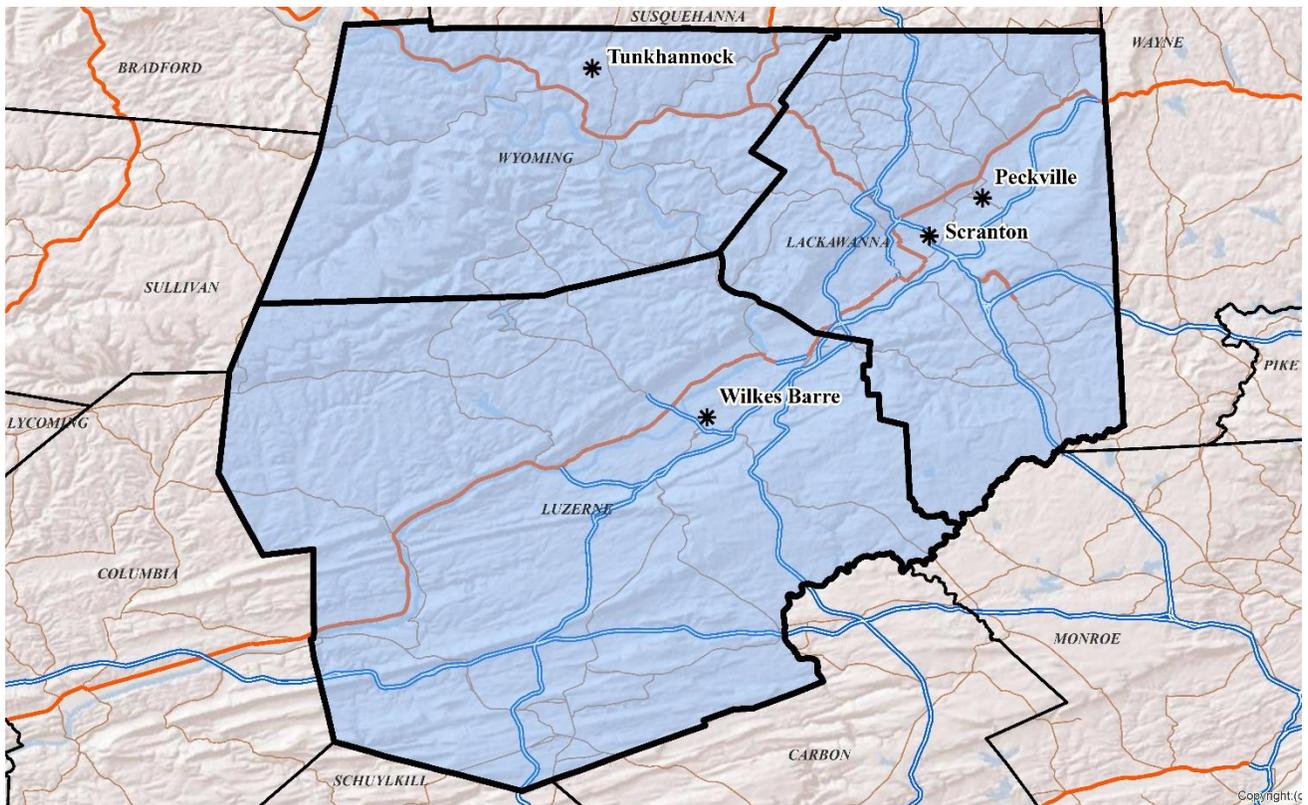


Figure B-29. State College, PA MSA

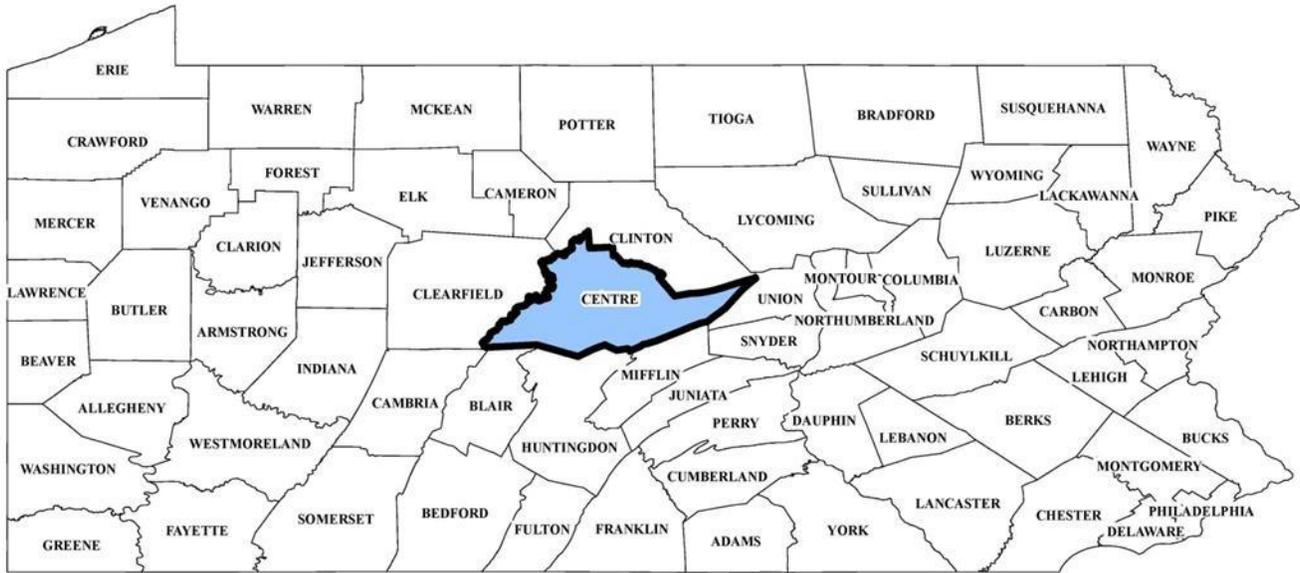


Figure B-30. State College, PA MSA Site Detail

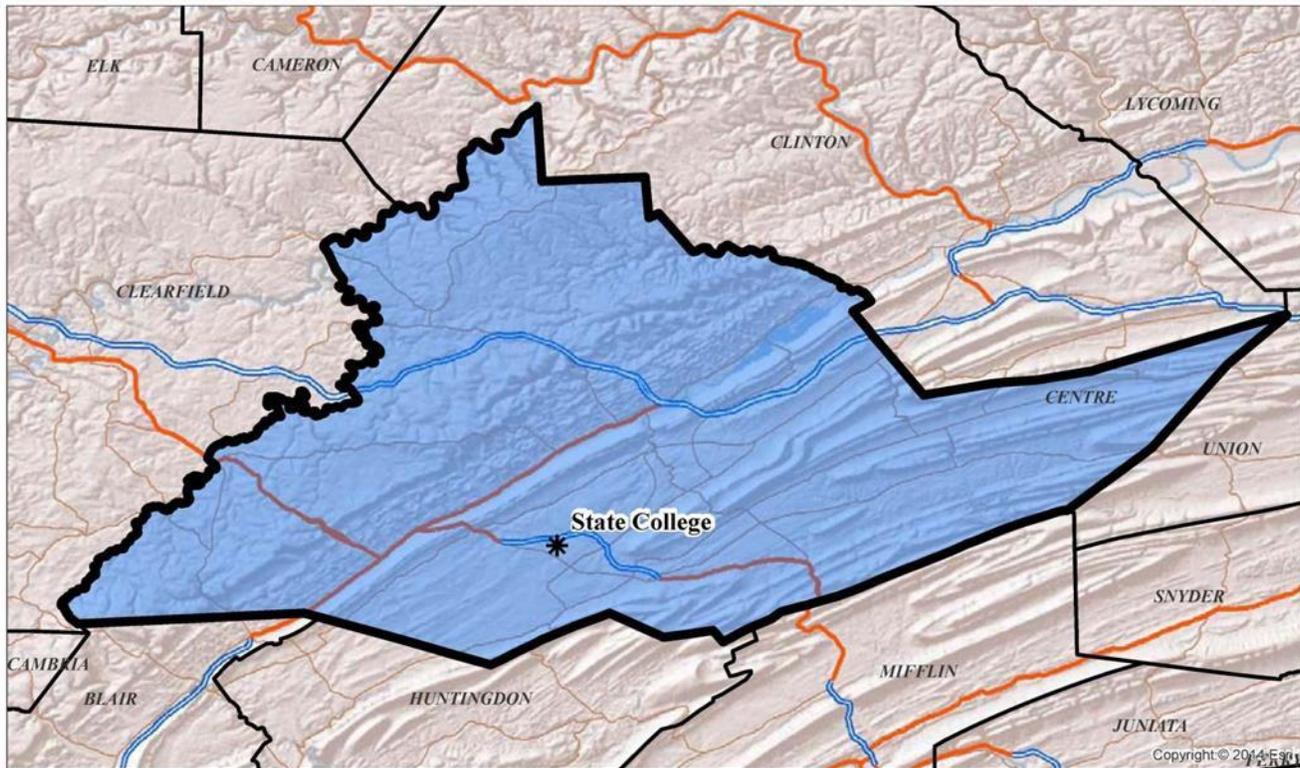


Figure B-31. Williamsport, PA MSA

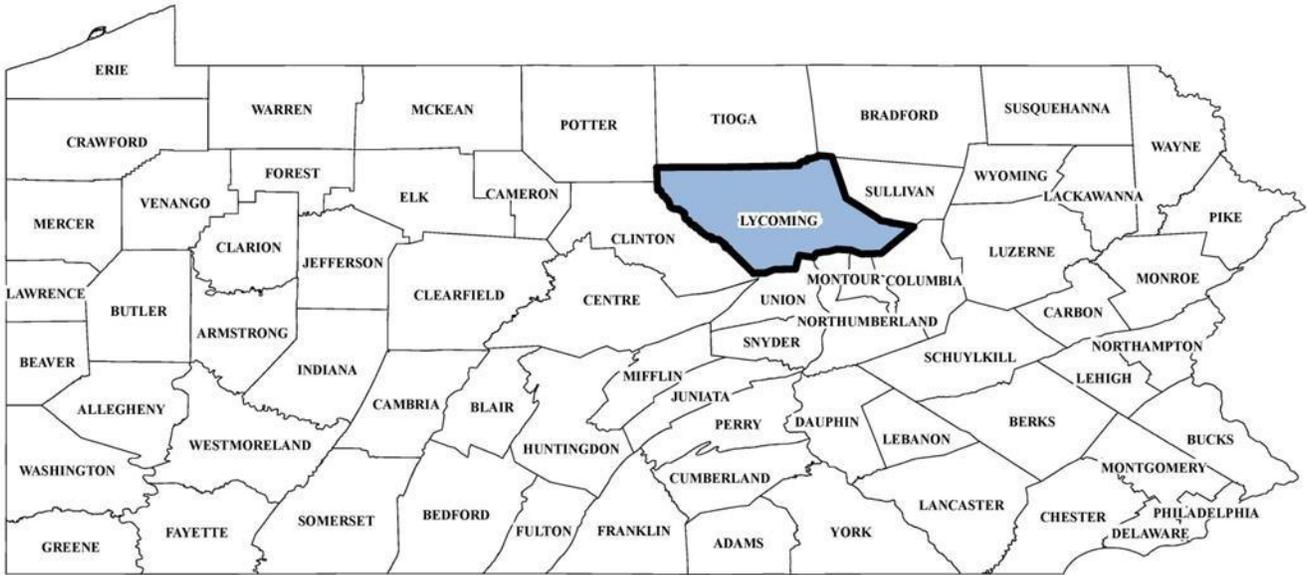


Figure B-32. Williamsport, PA MSA Site Detail

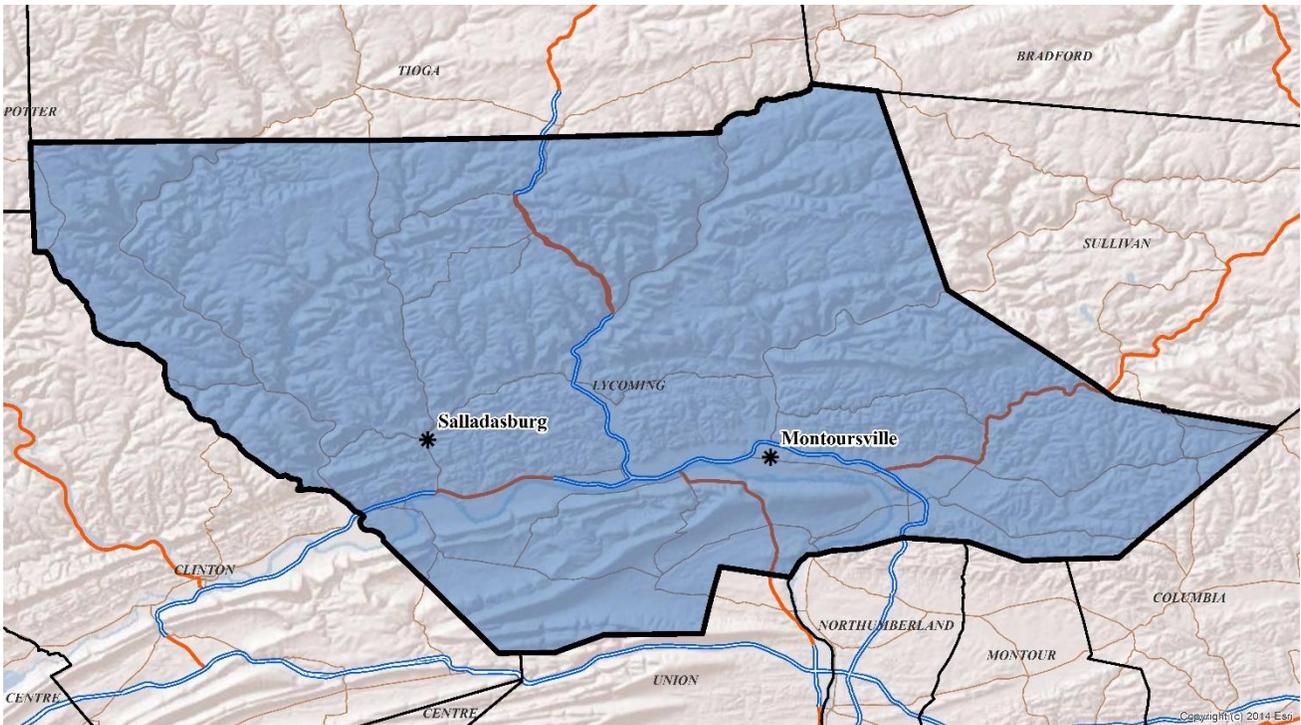


Figure B-33. York-Hanover, PA MSA

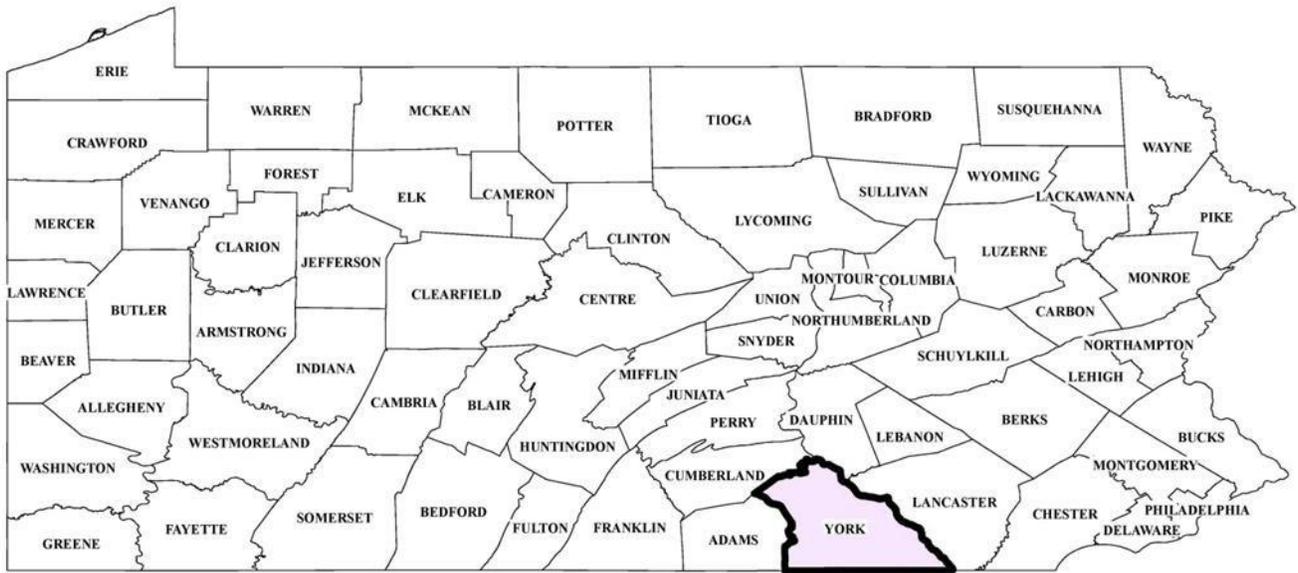


Figure B-34. York-Hanover, PA MSA Site Detail

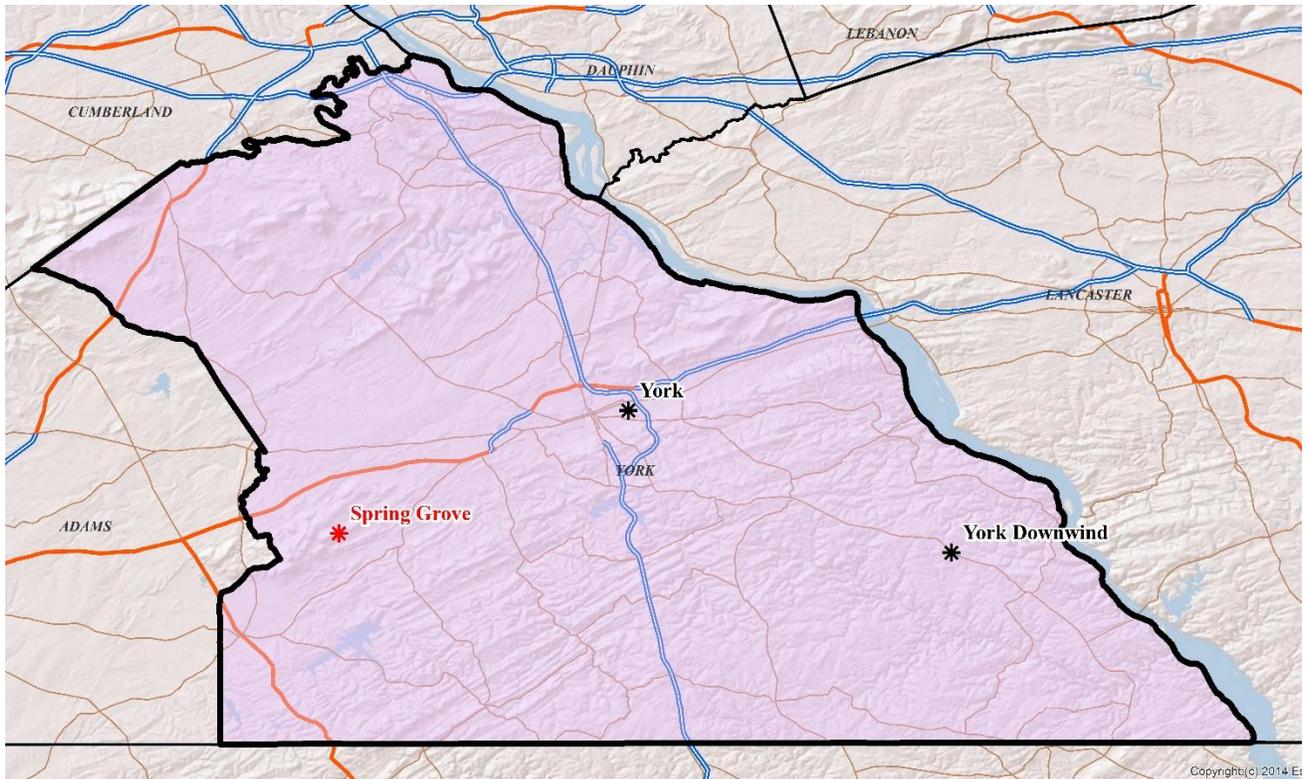


Figure B-35. Youngstown-Warren-Boardman, OH-PA MSA (Pennsylvania portion)

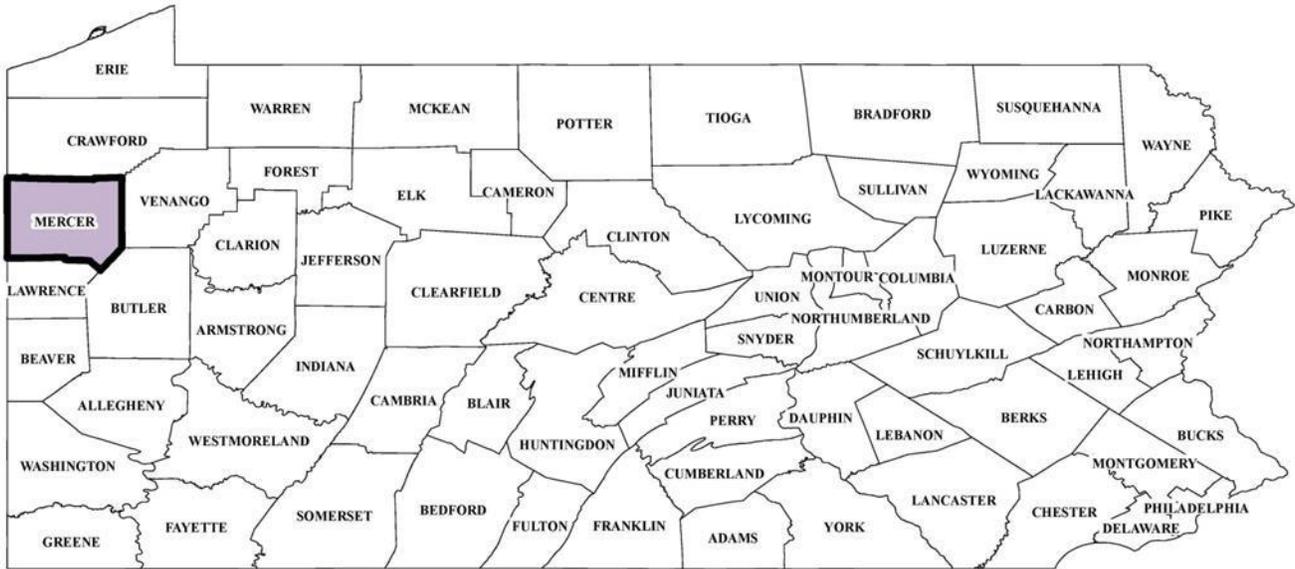


Figure B-36. Youngstown-Warren-Boardman, OH-PA MSA (Pennsylvania portion) Site Detail

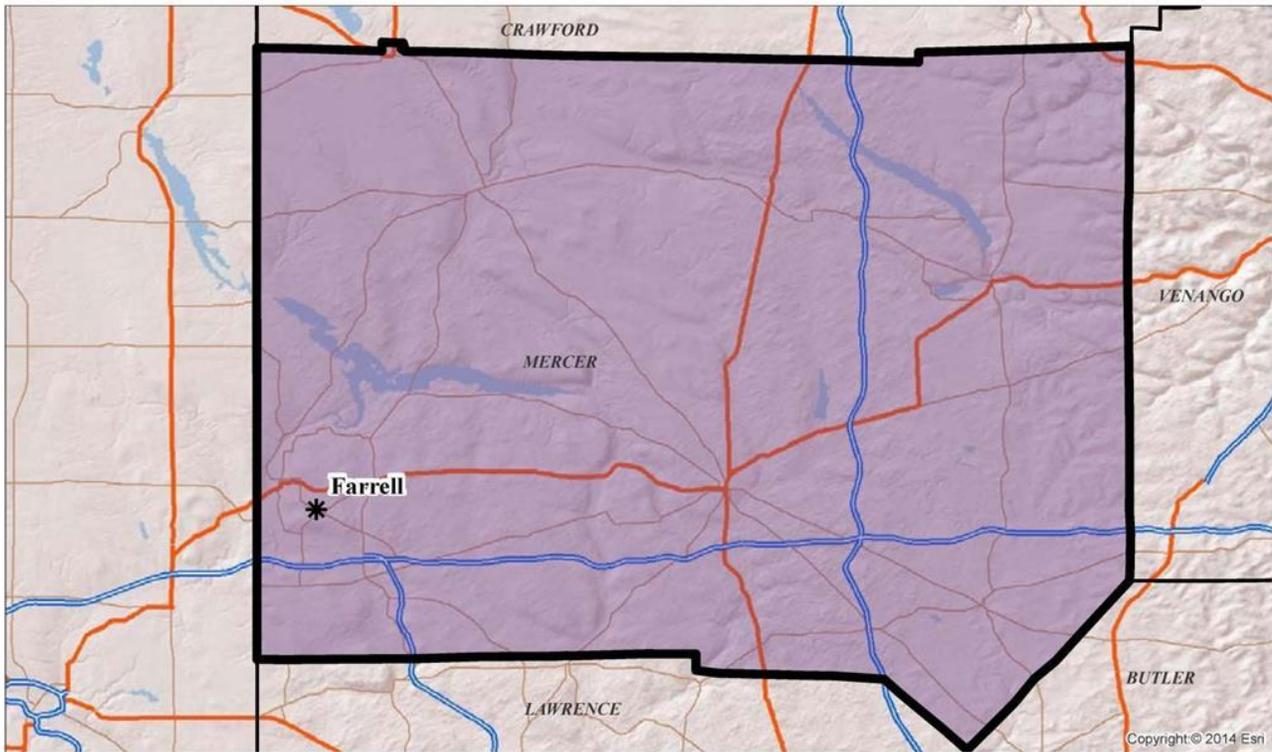


Figure B-37. Overview of the DuBois, PA Micro Area

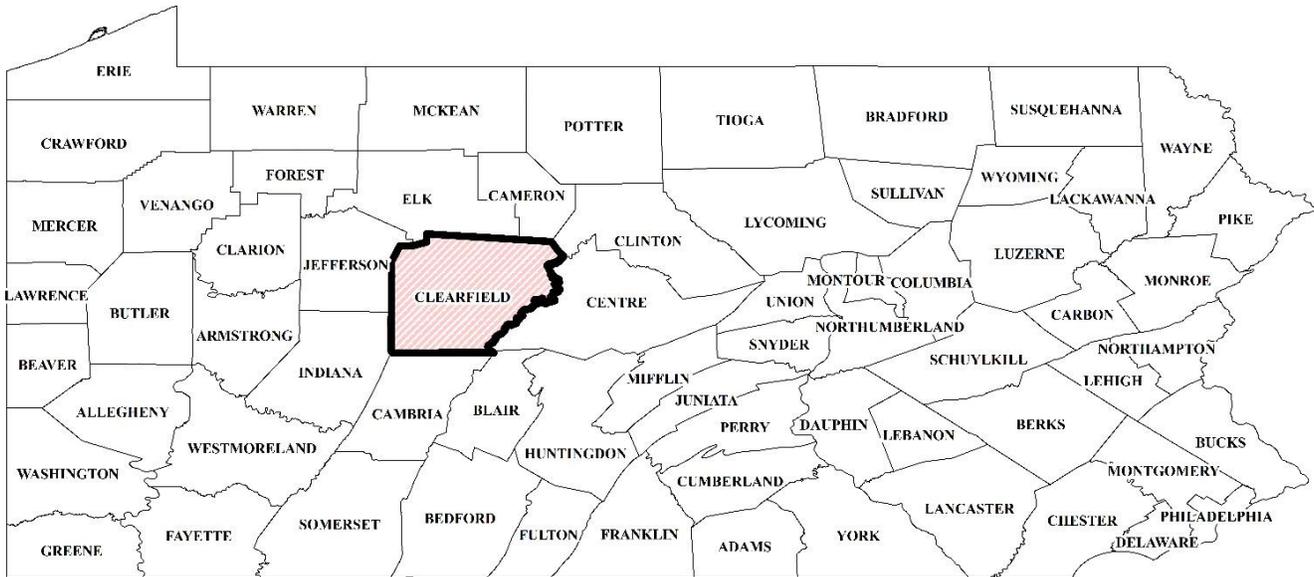


Figure B-38. DuBois, PA Micro Area Site Detail

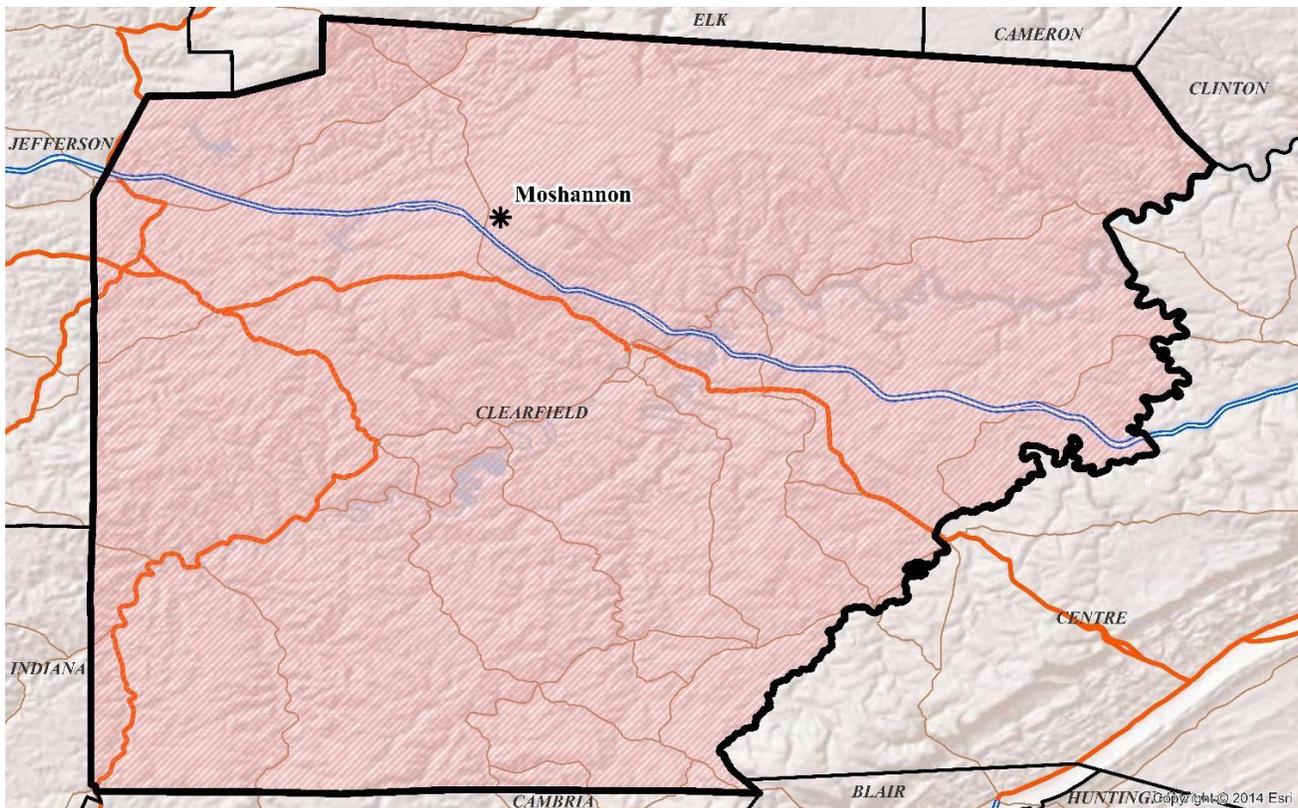


Figure B-39. Overview of the Indiana, PA Micro Area

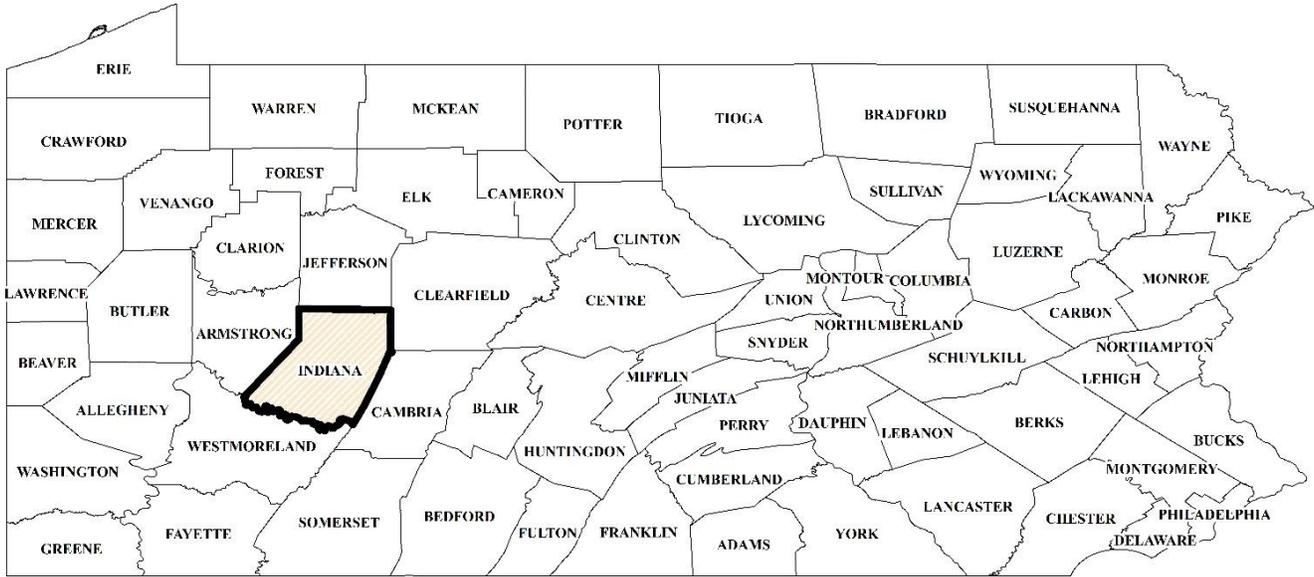


Figure B-40. Indiana, PA Micro Area Site Detail

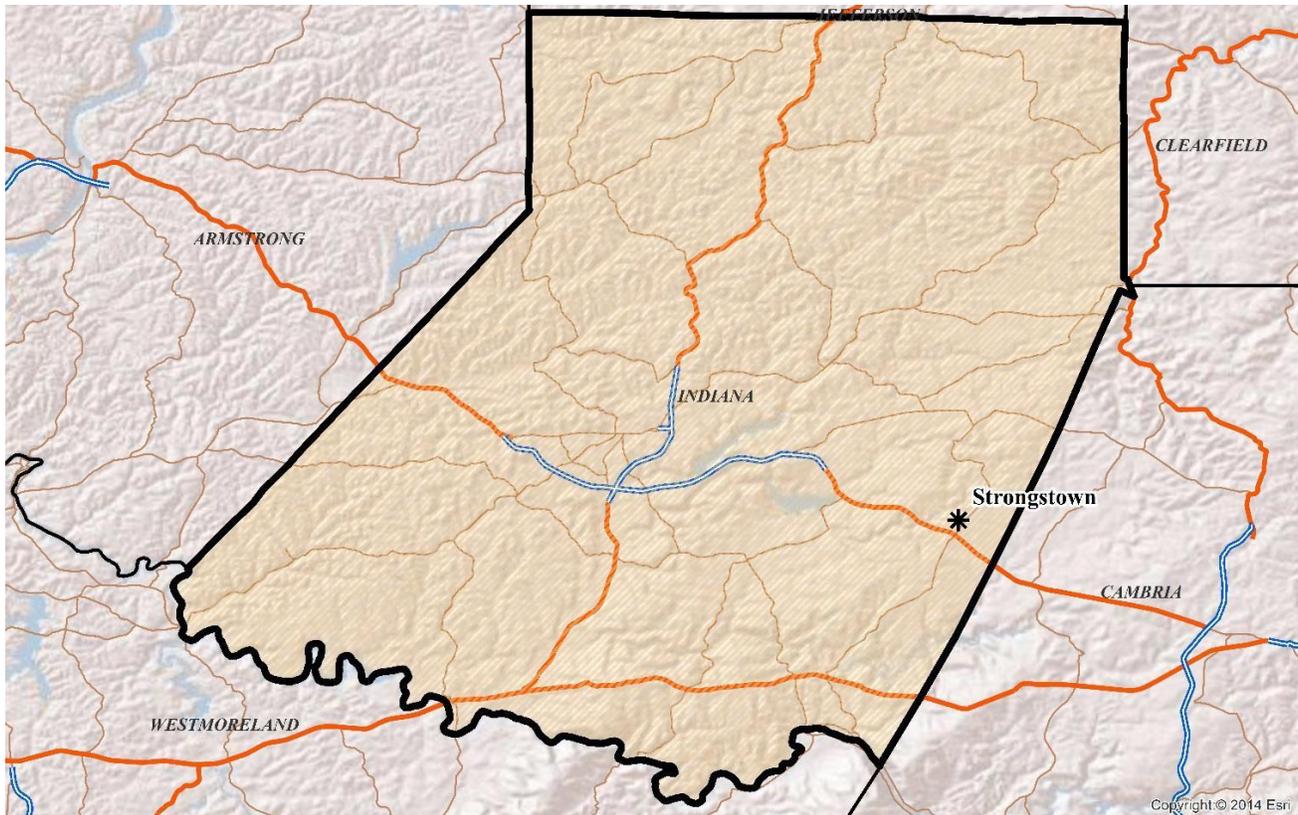


Figure B-41. Overview of the New Castle, PA Micro Area

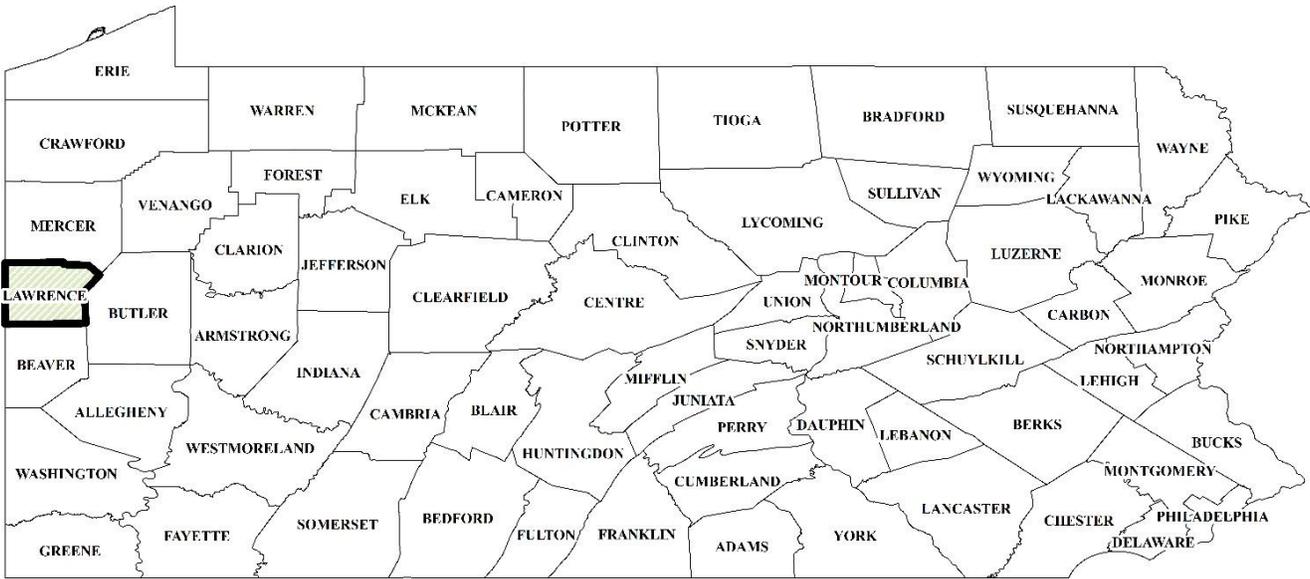


Figure B-42. New Castle, PA Micro Area Site Detail

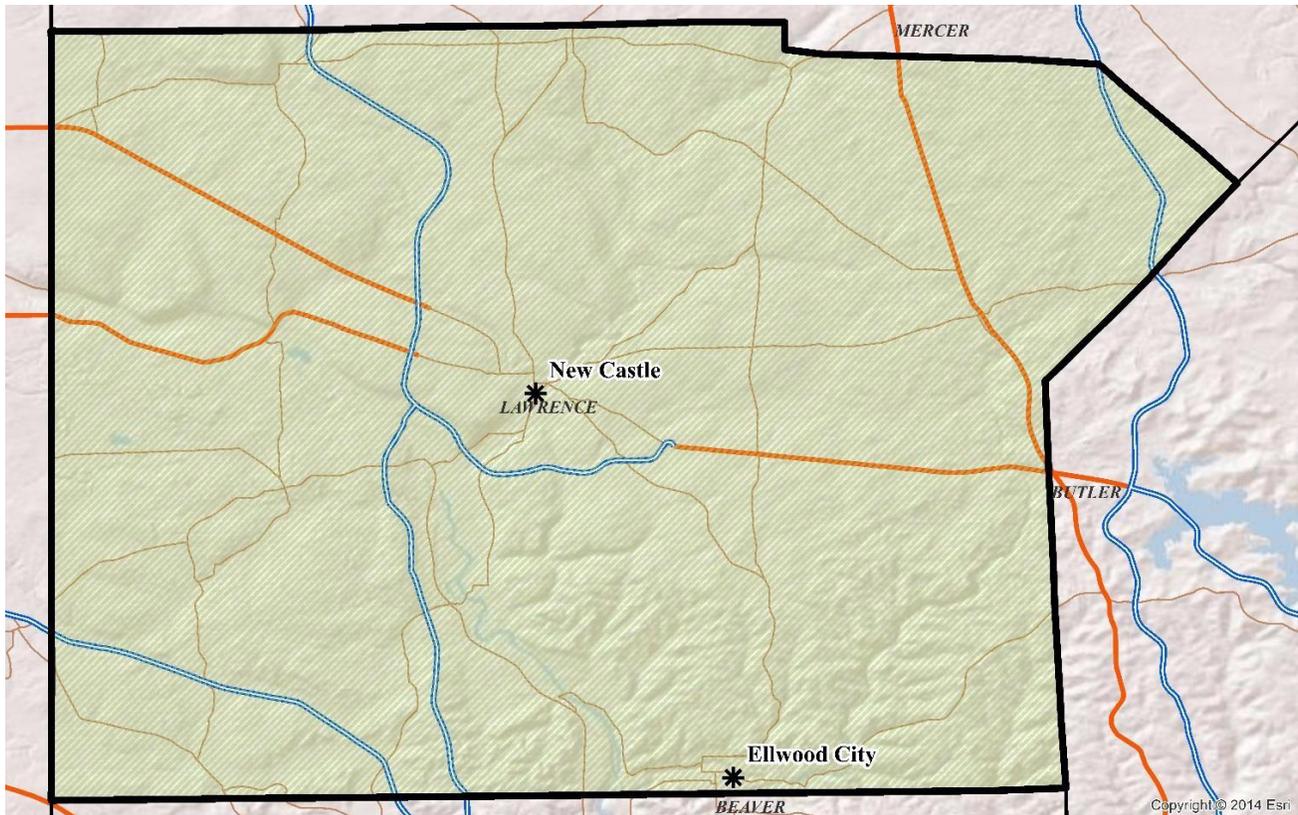


Figure B-43. Overview of the Sayre, PA Micro Area

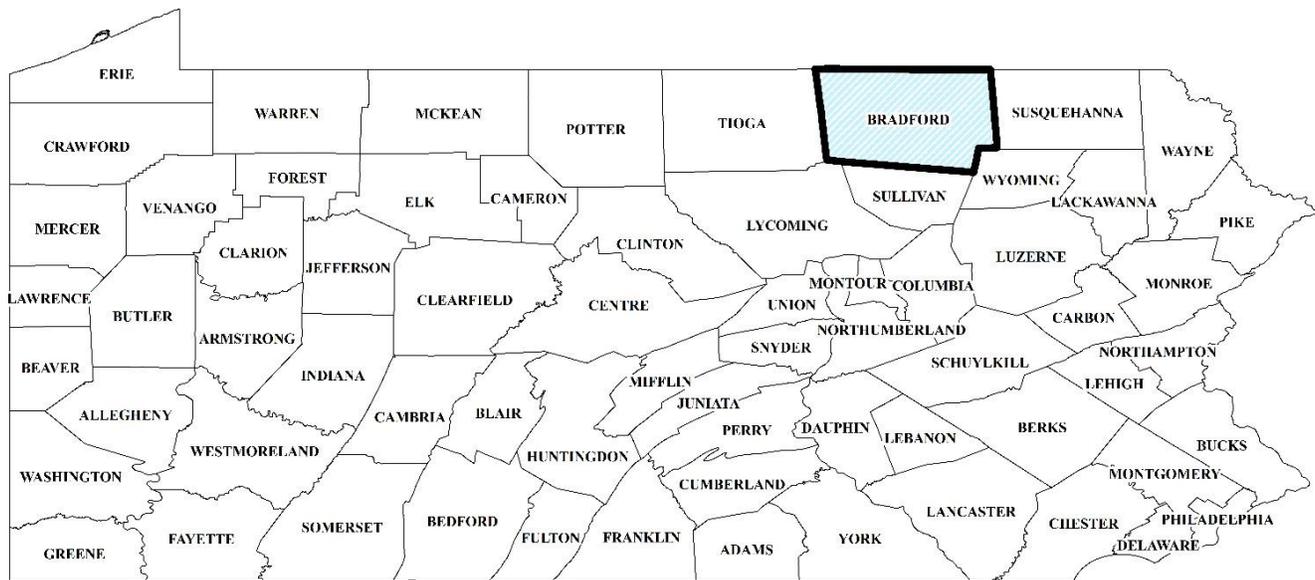


Figure B-44. Sayre, PA Micro Area Site Detail

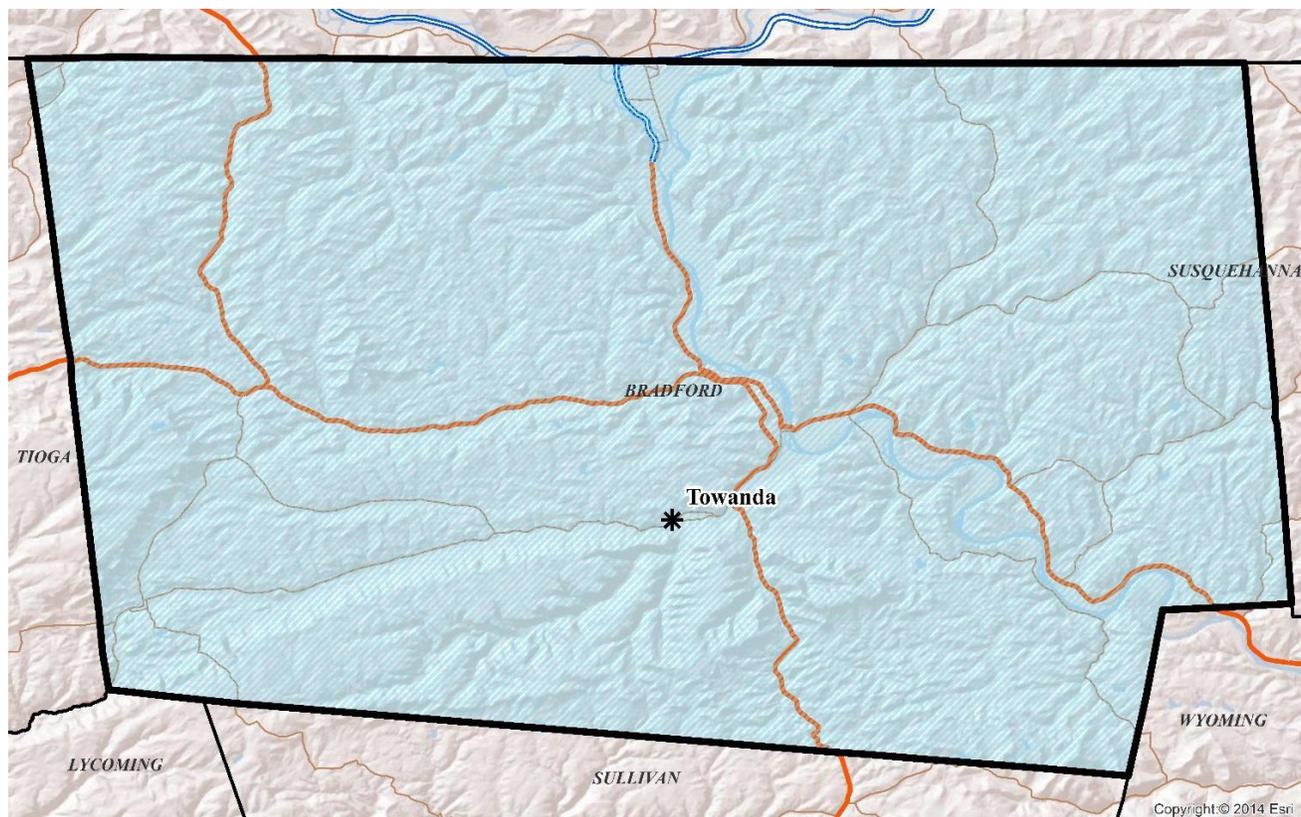


Figure B-45. Overview of the Warren, PA Micro Area

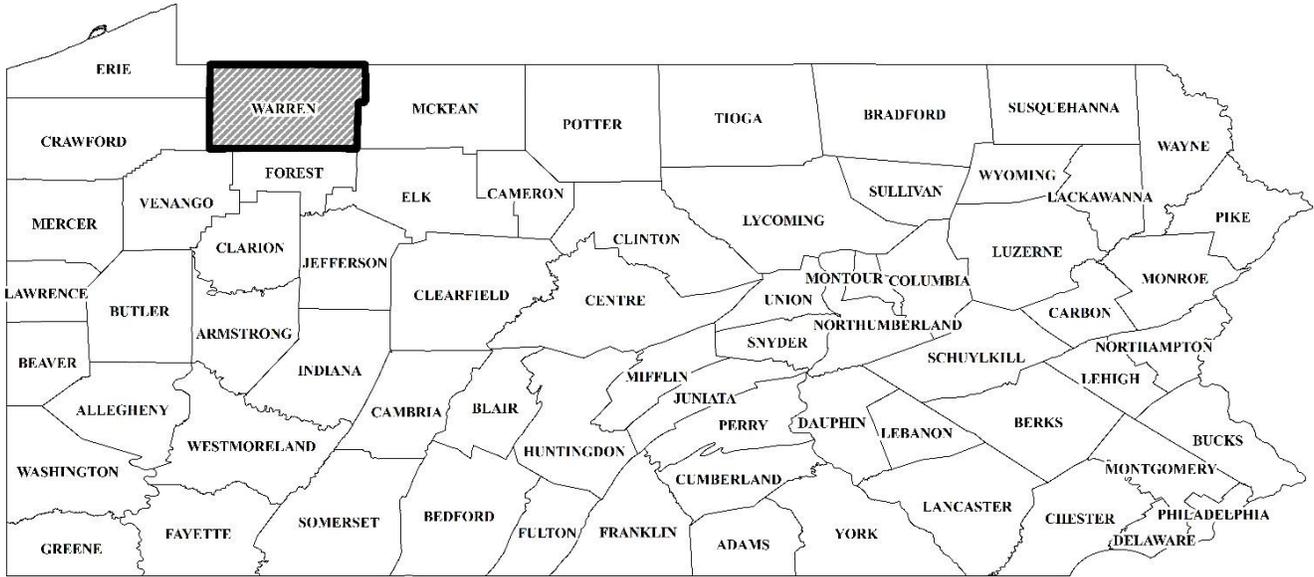


Figure B-46. Warren, PA Micro Area Site Detail

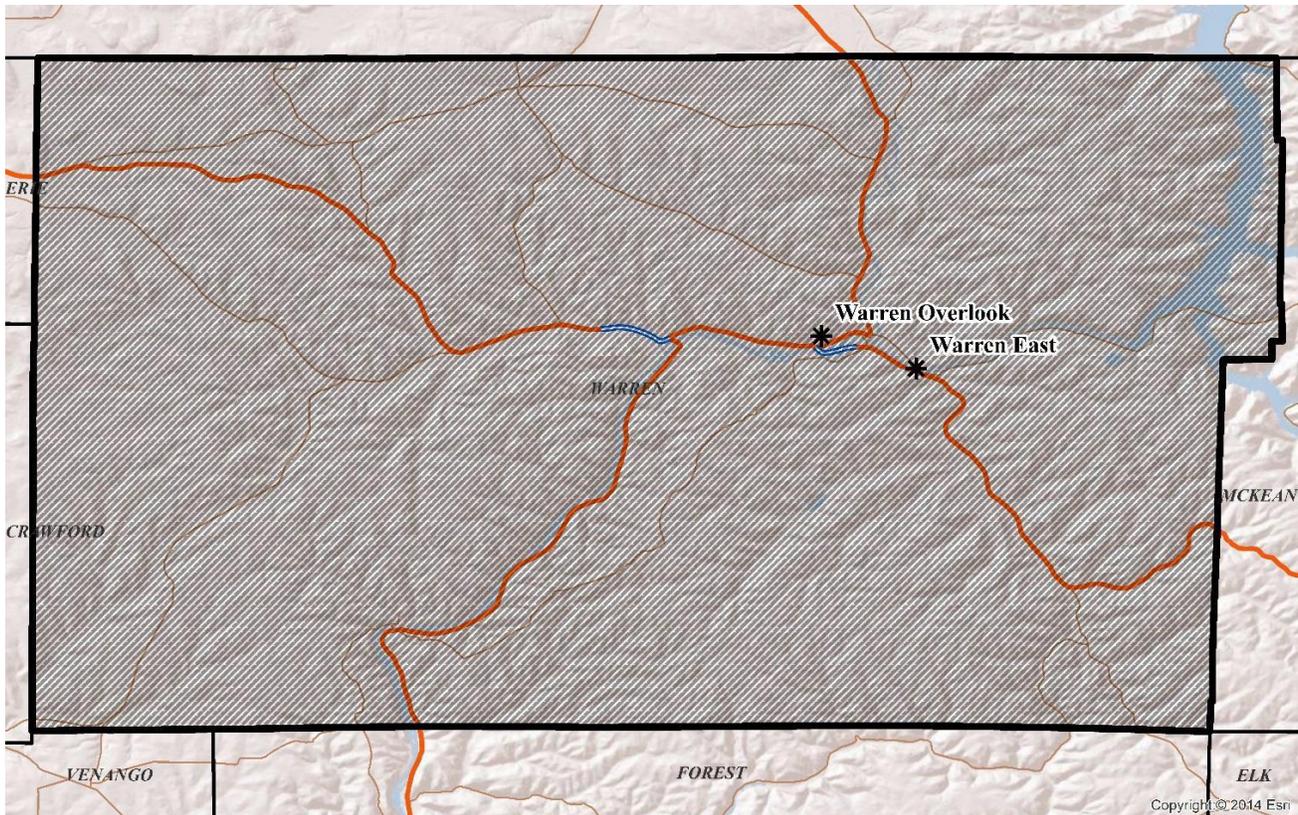


Figure B-47. Overview of the Northcentral Non-CBSA Region

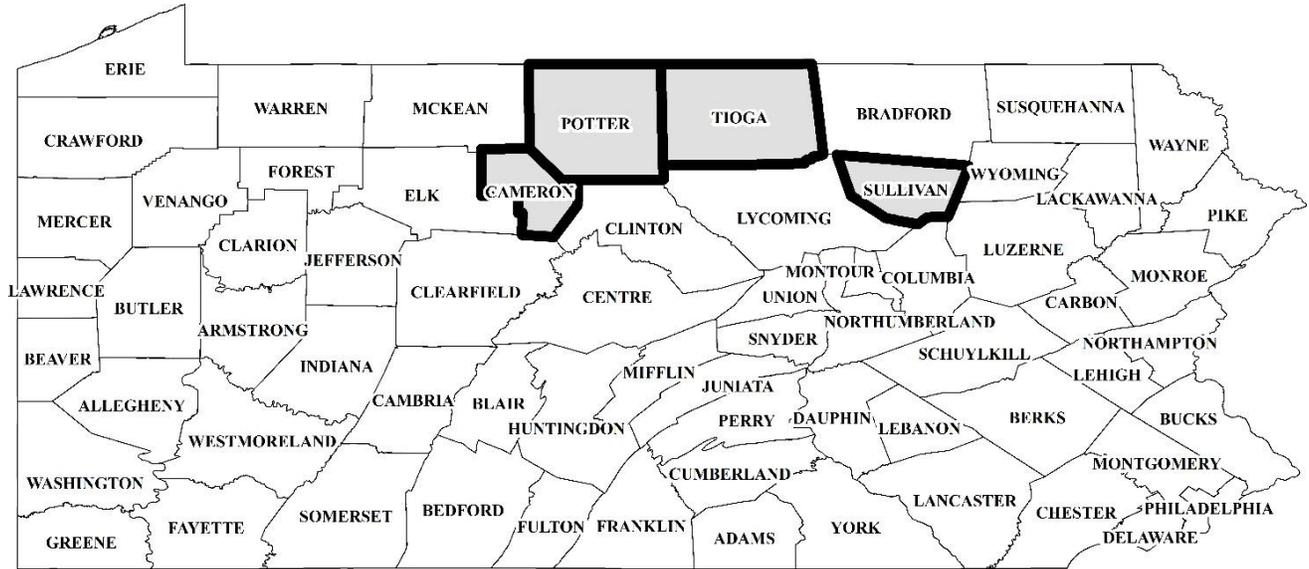


Figure B-48. Northcentral Non-CBSA Region Site Detail

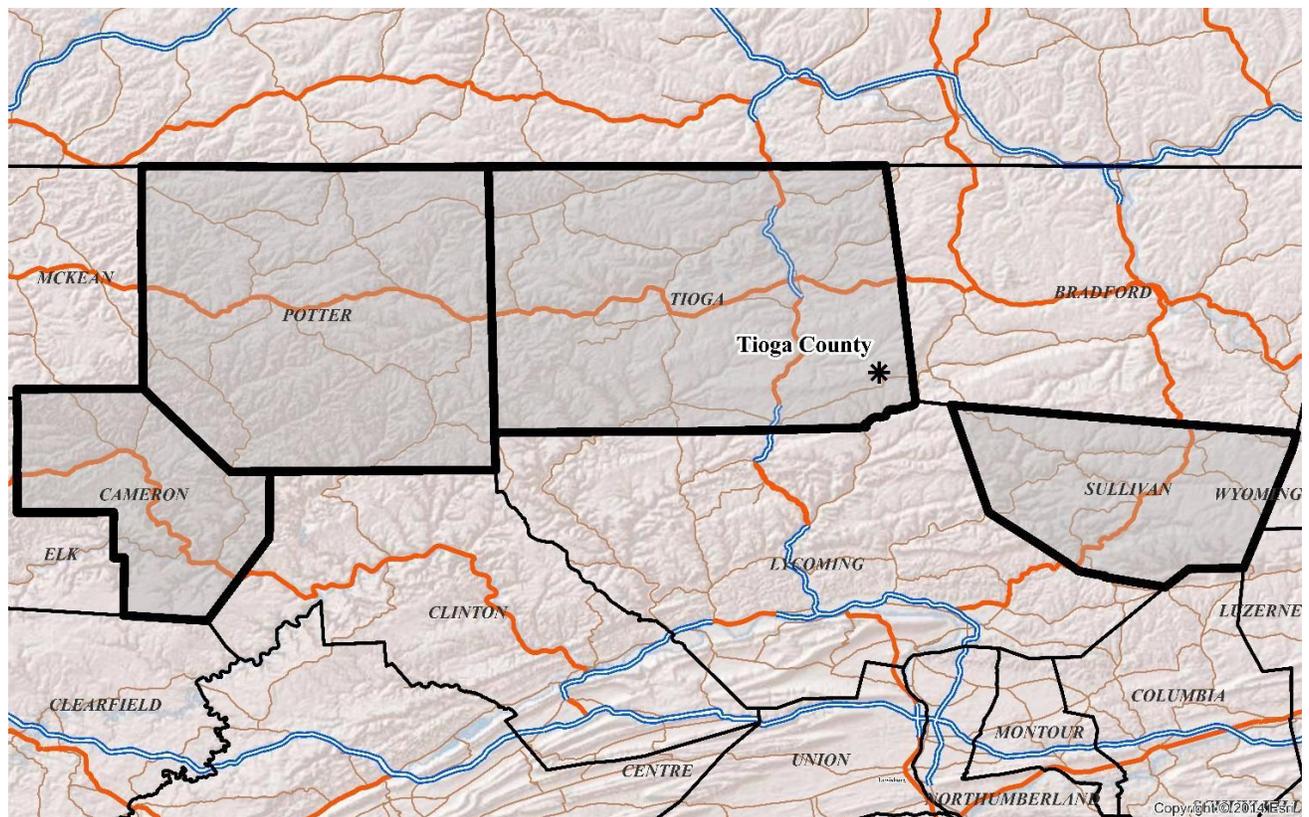


Figure B-49. Overview of the Northeast Non-CBSA Region

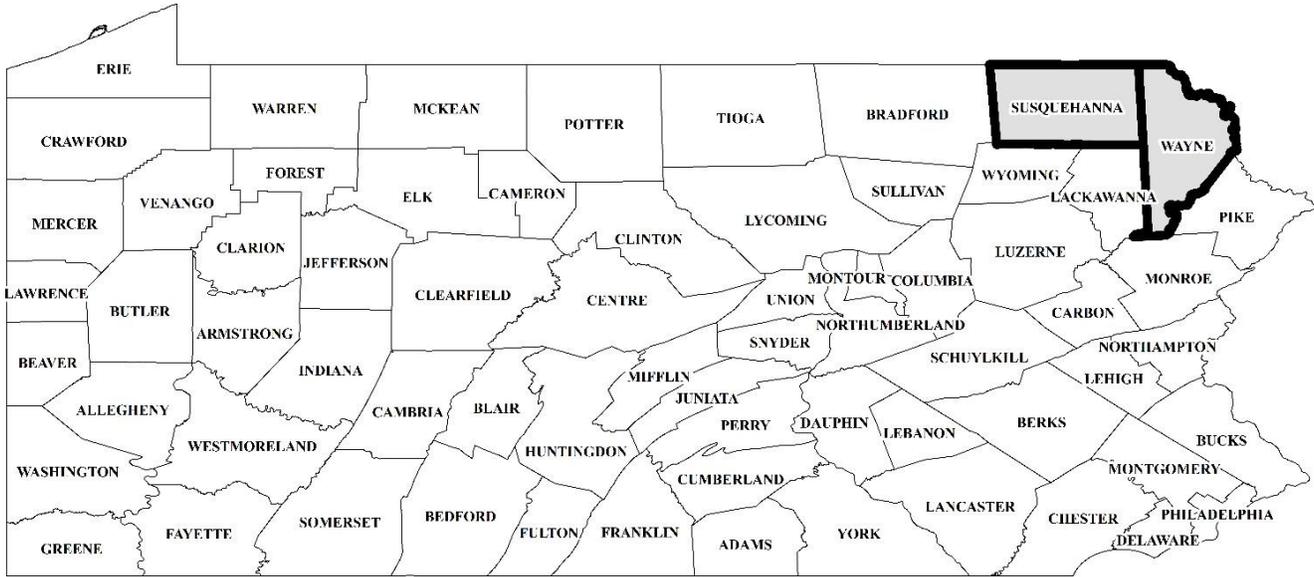


Figure B-50. Northeast Non-CBSA Region Site Detail

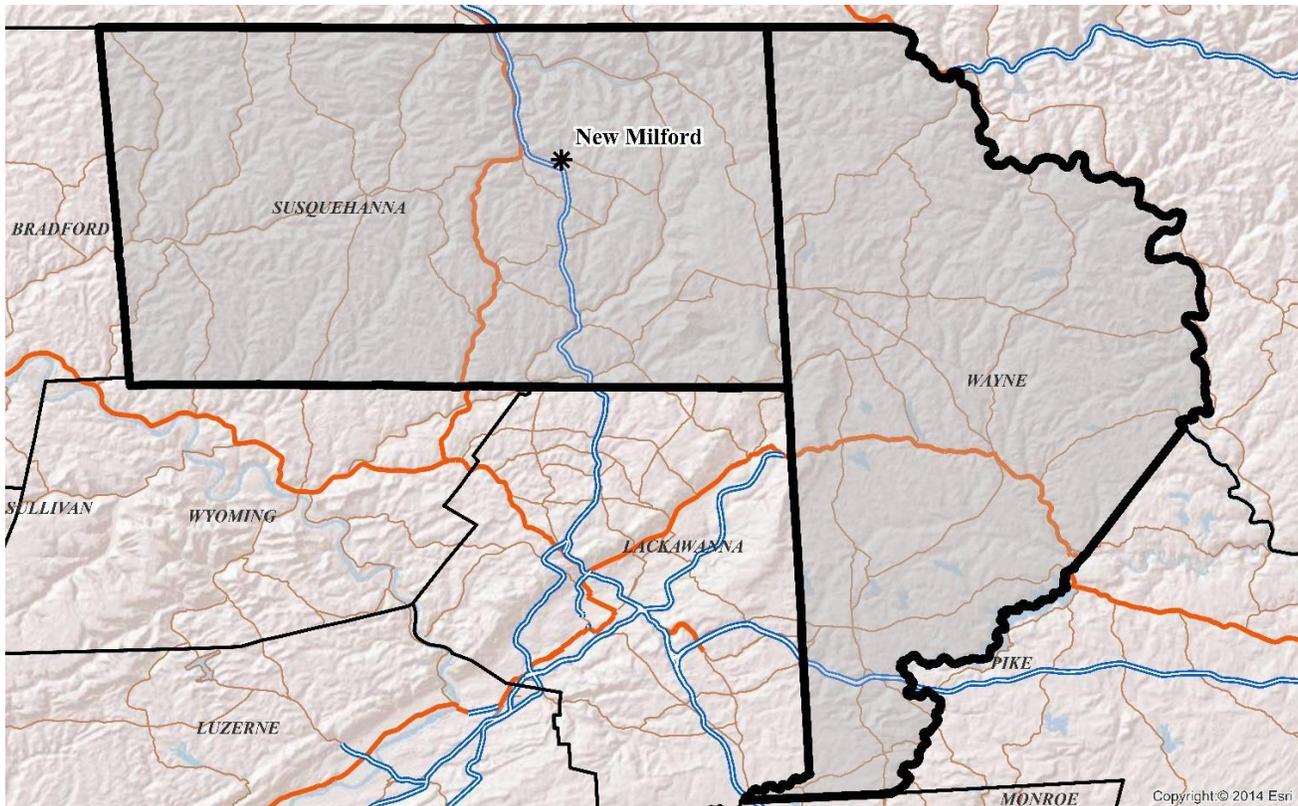


Figure B-51. Overview of the Southwest Non-CBSA Region

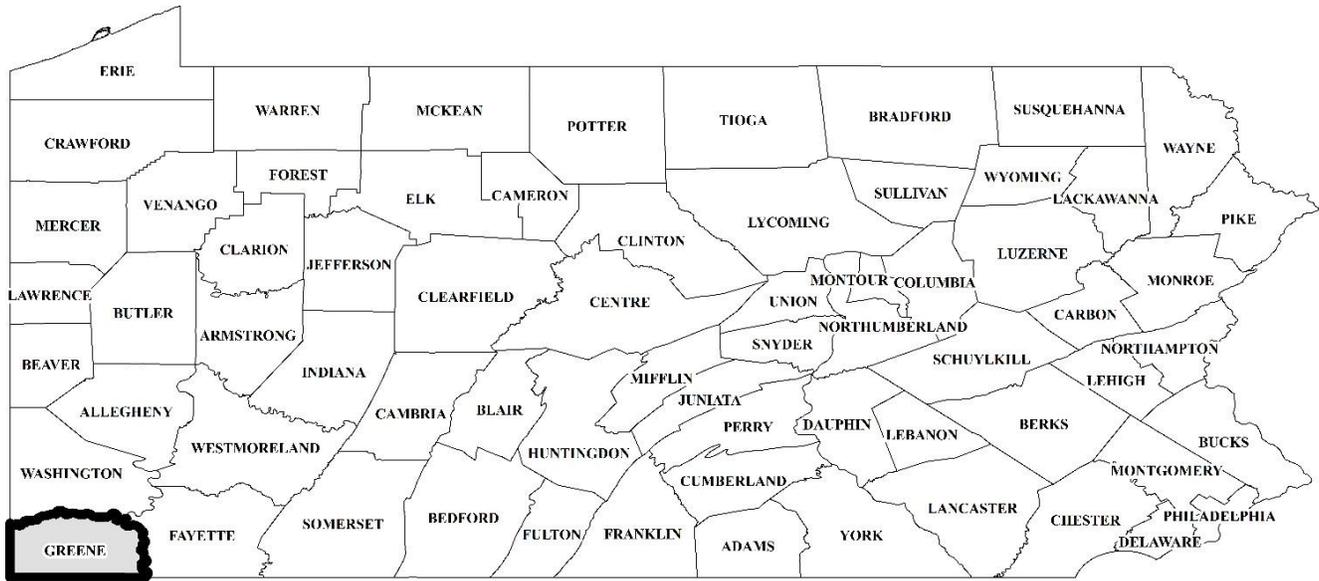
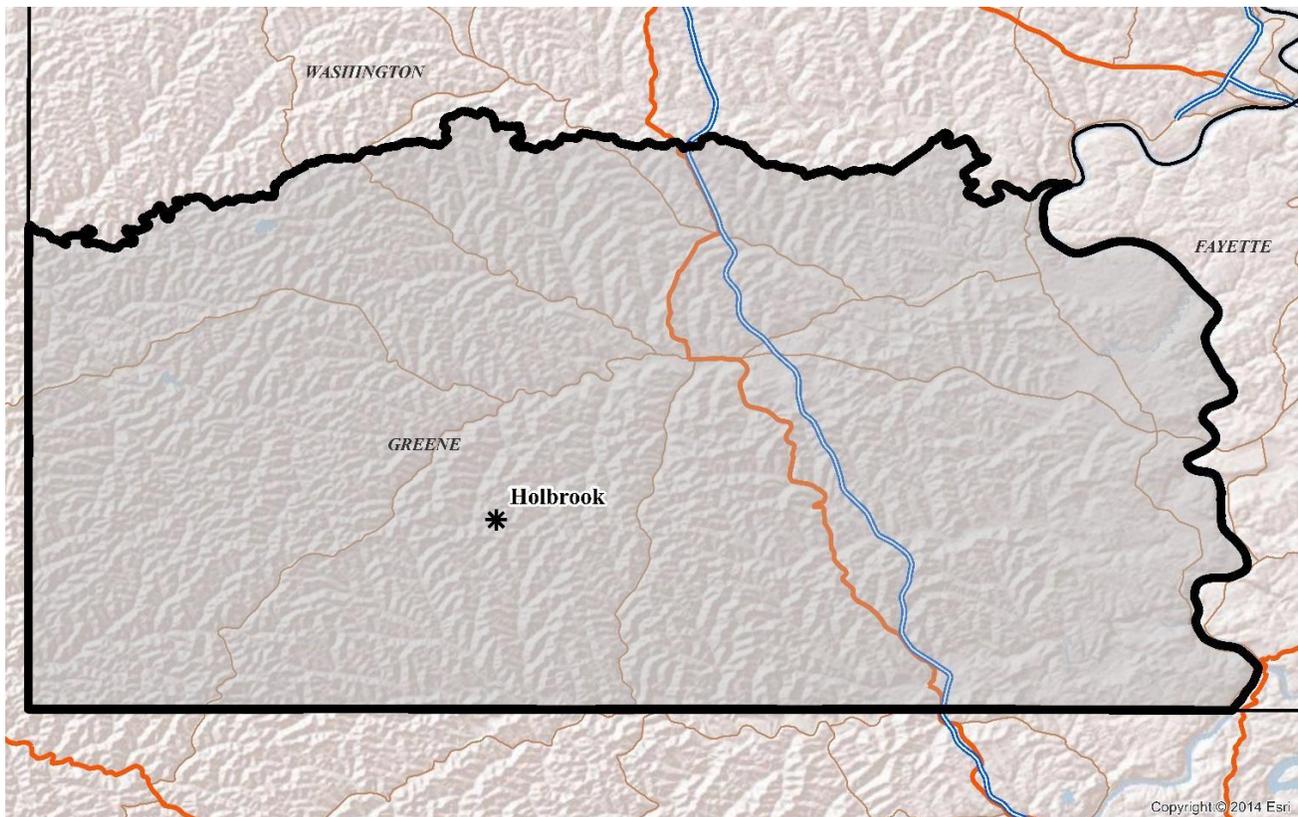


Figure B-52. Southwest Non-CBSA Region Site Detail



Appendix C – Network Design and Quality Assurance Criteria

DEP operates its air monitoring network in accordance with all applicable requirements set forth in 40 CFR Part 58, Appendices A, B, C, D, and E.

Quality Assurance Requirements– 40 CFR Part 58, Appendix A

DEP operates its Ambient Air Monitoring Network in accordance with all quality assurance requirements set forth in 40 CFR Part 58, Appendix A, “Quality Assurance Requirements for Monitors used in Evaluations of National Ambient Air Quality Standards.”

DEP has submitted Quality Assurance Project Plans (QAPP) to EPA for all criteria monitoring networks and follows the quality assurance requirements and procedures as described therein. Quality assurance data, including results from precision checks, flow rate verifications and monitor performance audits are submitted to EPA electronically, through its Air Quality System (AQS).

Collocated monitoring requirements for particulate pollutant monitoring are set forth in 40 CFR Part 58, Appendix A. These requirements are used to determine precision for the PM_{2.5} and Lead monitoring networks. A collocated monitoring requirement for PM₁₀ monitoring is also included in 40 CFR Part 58, Appendix A. This requirement is applicable only to manual method PM₁₀ monitors. All of DEP's PM₁₀ monitoring sites employ continuous monitoring methods. As there is no collocated requirement for continuous method monitoring, DEP is not required to maintain a collocated PM₁₀ monitoring site.

Fine Particulate Matter (PM_{2.5}) Collocated Monitoring Requirements

Collocated PM_{2.5} monitoring requirements are set forth in 40 CFR Part 58, Appendix A as follows:

“3.2.3 Collocated Quality Control Sampling Procedures for PM_{2.5}. For each pair of collocated monitors, designate one sampler as the primary monitor whose concentrations will be used to report air quality for the site, and designate the other as the quality control monitor. There can be only one primary monitor at a monitoring site for a given time period.

3.2.3.1 For each distinct monitoring method designation (FRM or FEM) that a PQAO is using for a primary monitor, the PQAO must have 15 percent of the primary monitors of each method designation collocated (values of 0.5 and greater round up); and have at least one collocated quality control monitor (if the total number of monitors is less than three). The first collocated monitor must be a designated FRM monitor.

3.2.3.2 In addition, monitors selected for collocation must also meet the following requirements:

(a) A primary monitor designated as an EPA FRM shall be collocated with a quality control monitor having the same EPA FRM method designation.

(b) For each primary monitor designated as an EPA FEM used by the PQAO, 50 percent of the monitors designated for collocation, or the first if only one collocation is necessary, shall be collocated with a FRM quality control monitor and 50 percent of the monitors shall be collocated with a monitor having the same method designation as the FEM primary monitor. If an odd number of collocated monitors is required, the additional monitor shall be a FRM quality control monitor.

[...]

3.2.3.4 The collocated monitors should be deployed according to the following protocol:

(a) Fifty percent of the collocated quality control monitors should be deployed at sites with annual average or daily concentrations estimated to be within plus or minus 20 percent of either the annual or 24-hour NAAQS and the remainder at the PQAOs discretion;

[...]

(d) Sample the collocated quality control monitor on a 1-in-12 day schedule. Report the measurements from both primary and collocated quality control monitors at each collocated sampling site to AQS

[...].”

DEP performs all PM_{2.5} continuous monitoring using Federal Equivalent Methods (FEM). All continuous monitors are subject to NAAQS comparison, following the site-level summary statistic procedures set forth in 40 CFR, Part 50, Appendix N, “Interpretation of the National Ambient Air Quality Standards for PM_{2.5}.”

Table C-1 displays the total number of quality assurance collocated sites operated by DEP, in relation to the 15% by method requirement in 40 CFR Part 58, Appendix A, § 3.2.3.1. This table includes information for the proposed 2020-2021 monitoring network. As shown, DEP currently meets the 15% collocation by method requirement.

Table C-1. PM_{2.5} QA-Collocated Monitoring Minimum Requirements Demonstration

Primary Monitor Method	Total No. of DEP PM _{2.5} Sites	15%	No. of DEP QA-Collocated PM _{2.5} Monitors	No. of Addt'l QA-Collocated PM _{2.5} Monitors Needed
R&P 2025 (FRM)	8	1	1	0
Teledyne 602 Beta+	4	1	1	0
Teledyne T640	22	3	3	0

Table C-2 provides details of quality assurance collocated PM_{2.5} sites operated by DEP, in relation to the collocation monitor designation requirements in 40 CFR Part 58, Appendix A, § 3.2.3.2. As shown, DEP currently meets the collocated method designation requirements.

Table C-2. PM_{2.5} QA-Collocated Monitoring Method Requirements Demonstration

Site Name	Primary PM _{2.5} Monitor Method	QA-Collocated PM _{2.5} Monitor Method
Lancaster	R&P 2025 (FRM)	R&P 2025 (FRM)
Harrisburg	Teledyne 602 Beta+	R&P 2025 (FRM)
Chester	Teledyne T640	R&P 2025 (FRM)
New Garden	Teledyne T640	R&P 2025 (FRM)
Johnstown	Teledyne T640	Teledyne T640

Table C-3 provides details of quality assurance collocated sites operated by DEP, in relation to the measurement concentration collocation requirements in 40 CFR Part 58, Appendix A, § 3.2.3.4. DEP meets these requirements.

Table C-3. PM_{2.5} QA-Collocated Monitoring Site Selection Requirements Demonstration

Site Name	24-Hour NAAQS	+/- 20% 24-Hour NAAQS	2018 Daily Design Value	Annual NAAQS	+/- 20% Annual NAAQS	2018 Annual Design Value
Lancaster	35 µg/m ³	28 – 42 µg/m ³	25 µg/m ³	12.0 µg/m ³	9.6 - 14.4 µg/m ³	9.1 µg/m ³
Harrisburg			23 µg/m ³			8.6 µg/m ³
Chester			24 µg/m ³			10.7 µg/m ³
New Garden			23 µg/m ³			9.7 µg/m ³
Johnstown			22 µg/m ³			9.7 µg/m ³

DEP operates all QA-collocated PM_{2.5} monitors at a minimum of a 1-in-6 day schedule and reports concentration measurement data from these sites to EPA via the AQS database.

Lead (Pb) Network Collocated Monitoring Requirements

Collocated lead monitoring requirements are set forth in 40 CFR Part 58, Appendix A as follows:

“3.4.4 Collocated Quality Control Sampling for TSP Pb for monitoring sites other than non-source oriented NCore. For each pair of collocated monitors for manual TSP Pb samplers, designate one sampler as the primary monitor whose concentrations will be used to report air quality for the site, and designate the other as the quality control monitor.

3.4.4.1 A PQAQO must:

(a) Have 15 percent of the primary monitors (not counting non-source oriented NCore sites in PQAQO) collocated. Values of 0.5 and greater round up; and

(b) Have at least one collocated quality control monitor (if the total number of monitors is less than three).

3.4.4.2 The collocated quality control monitors should be deployed according to the following protocol:

(a) The first collocated Pb site selected must be the site measuring the highest Pb concentrations in the network. If the site is impractical, alternative sites, approved by the EPA Regional Administrator, may be selected. If additional collocated sites are necessary, collocated sites may be chosen that reflect average ambient air Pb concentrations in the network.”

DEP currently maintains two QA-collocated sites in its lead monitoring network, Palmerton and Laureldale North (Berks County). Table C-4 provides details of number of quality assurance collocated lead sites operated by DEP, in relation to the collocation monitor designation requirements in 40 CFR Part 58, Appendix A, § 3.4.4.1. As shown, DEP meets the 15% requirement noted above.

Table C-4. Lead Collocated Monitoring Minimum Requirements Demonstration

Total No. of DEP Lead Monitoring Sites	15%	No. of DEP QA-Collocated Lead Monitors	Add'l QA-Collocated Lead Monitors Needed
12*/11	2	2	0

* DEP plans to discontinue the Potter Township site, as described in the “Modifications to Criteria Pollutant Networks” section of its 2019 Annual Network Plan.

Table C-5 displays the highest 3-month averages between 2016-2018, representing the 2018 design value period. As shown, DEP meets the requirements set forth in 40 CFR Part 58, Appendix A, § 3.4.4.2 by maintaining a QA-collocated monitor at its highest value site, Palmerton.

Table C-5. DEP Lead Concentration Values, 2016-2018

Station	County	Design Value (µg/m ³)	2016 Max 3-Month Avg (µg/m ³)	2017 Max 3-Month Avg (µg/m ³)	2018 Max 3-Month Avg (µg/m ³)
Beaver Valley	Beaver	0.01*	0.01	0.01	0.00
Chester	Delaware	0.01*	0.01	0.01	0.00
Conemaugh	Westmoreland	0.01*	0.01	0.01	0.00
Ellwood City	Lawrence	0.03	0.03	0.03	0.03
Laureldale North	Berks	0.05	0.03	0.05	0.01
Laureldale South	Berks	0.01	0.01	0.01	0.01
Lyons Boro	Berks	0.03	0.03	0.03	0.02
Lyons Park	Berks	0.02	0.02	0.02	0.01
Mt. Joy	Lancaster	0.07	0.07	0.07	0.06
Palmerton	Carbon	0.13	0.11	0.09	0.13
Potter Township**	Beaver	0.01	0.01	0.01	0.00
Vanport	Beaver	0.02	0.02	0.01	0.00

* Does not meet completeness requirements

** DEP plans to discontinue the Potter Township site, as described in the “Modifications to Criteria Pollutant Networks” section of its 2019 Annual Network Plan.

Quality Assurance Requirements – 40 CFR Part 58, Appendix B

DEP does not operate Prevention of Significant Deterioration (PSD) monitors as part of its Ambient Air Monitoring Network. Therefore, 40 CFR Part 58, Appendix B, “Quality Assurance Requirements for Prevention of Significant Deterioration (PSD) Air Monitoring,” is not applicable.

Monitoring Method Requirements – 40 CFR Part 58, Appendix C

DEP operates its Ambient Air Monitoring Network in accordance with all monitoring method requirements set forth in 40 CFR Part 58, Appendix C, “Ambient Air Quality Monitoring Methodology.” DEP uses EPA-approved Federal Reference Methods (FRM) or Federal Equivalent Methods (FEM) to perform all ambient air monitoring. Monitoring methods are listed in Appendix D of this document.

Network Design Requirements – 40 CFR Part 58, Appendix D

DEP operates its Ambient Air Monitoring Network in accordance with all network design requirements set forth in 40 CFR Part 58, Appendix D, “Network Design Criteria for Ambient Air Quality Monitoring.” The following subsections detail network design requirements for all criteria pollutants. As indicated in 40 CFR Part 58.20, Special Purpose Monitors (SPM) are not included in determining compliance with minimum monitoring requirements.

Ozone (O₃) Network Design Requirements

Minimum ozone monitoring requirements are set forth in 40 CFR Part 58, Appendix D Section 4.1, “Ozone Design Criteria,” as follows:

“4.1 Ozone (O₃) Design Criteria. (a) State, and where appropriate, local agencies must operate O₃ sites for various locations depending upon area size (in terms of population and geographic characteristics) and typical peak concentrations (expressed in percentages below, or near the O₃ NAAQS). Specific SLAMS O₃ site minimum requirements are included in Table D-2 of this appendix. The NCore sites are expected to complement the O₃ data collection that takes place at single-pollutant SLAMS sites, and both types of sites can be used to meet the network minimum requirements. The total number of O₃ sites needed to support the basic monitoring objectives of public data reporting, air quality mapping, compliance, and understanding O₃-related atmospheric processes will include more sites than these minimum numbers required in Table D-2 of this appendix. The EPA Regional Administrator and the responsible State or local air monitoring agency must work together to design and/or maintain the most appropriate O₃ network to service the variety of data needs in an area.”

Table C-6. Minimum Ozone Monitoring Requirements

(Table D-2 of Appendix D to Part 58— SLAMS Minimum O₃ Monitoring Requirements)

MSA population ^{1,2}	Most recent 3-year design value concentrations \geq 85% of any O ₃ NAAQS ³	Most recent 3-year design value concentrations $<$ 85% of any O ₃ NAAQS ^{3,4}
>10 million	4	2
4-10 million	3	1
350,000- $<$ 4 million	2	1
50,000- $<$ 350,000 ⁵	1	0

¹ Minimum monitoring requirements apply to the Metropolitan statistical area (MSA).

² Population based on latest available census figures.

³ The ozone (O₃) National Ambient Air Quality Standards (NAAQS) levels and forms are defined in 40 CFR part 50.

⁴ These minimum monitoring requirements apply in the absence of a design value.

⁵ Metropolitan statistical areas (MSA) must contain an urbanized area of 50,000 or more population.

These minimum ozone monitoring requirements are satisfied as detailed in Table C-7. Ambient air monitoring sites operated by agencies other than DEP are included in the “Other SLAMS Monitors” and “CASTNET Monitors” columns of the table. Any changes to the DEP ozone monitoring network described in this plan are included in the table. As shown, the number of ozone monitoring sites within the twenty Pennsylvania MSAs meets or exceeds the minimum monitoring requirement. In addition, the total ozone monitoring network encompasses a substantially greater number of monitoring sites than the minimum requirement, and includes several micropolitan areas and non-MSA regions of the state.

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Table C-7. Ozone Minimum Monitoring Requirements Demonstration, 2020-2021

MSA	2018 Population Estimate	Maximum 2018 Design Value	No. of Monitors Required	DEP SLAMS Monitors	Other SLAMS Monitors	Total No. SLAMS Monitors	CASTNET Monitors	Add'l Monitors Needed
Allentown-Bethlehem-Easton MSA	842,913	71	2	2	NJ-1	3		0
Altoona MSA	122,492	63	1	1		1		0
Bloomsburg-Berwick MSA	83,696	No monitors	0	0		0		0
Chambersburg-Waynesboro MSA	154,835	59	0	1		1		0
East Stroudsburg MSA	169,507	68	1	1		1		0
Erie MSA	272,061	64	1	1		1		0
Gettysburg MSA	102,811	67	1	1		2	PA-1	0
Harrisburg-Carlisle MSA	574,659	65	2	2		2		0
Johnstown MSA	131,730	61	1	1		1		0
Lancaster MSA	543,557	69	2	2		2		0
Lebanon MSA	141,314	68	1	1		1		0
New York-Newark-Jersey City MSA	19,979,477	77	4	0	NJ-9; NY-14	23		0
Philadelphia-Camden-Wilmington MSA	6,096,372	81	3	4	AMS-3; DE-4; MD-1; NJ-3	15		0
Pittsburgh MSA	2,324,743	71	2	9	ACHD-3	12		0
Reading MSA	420,152	70	2	2		2		0
Scranton-Wilkes-Barre-Hazleton MSA	555,485	64	2	3		3		0
State College MSA	162,805	64	1	1		2	PA-1	0
Williamsport MSA	113,664	63	1	1		1		0
York-Hanover MSA	448,273	67	2	2		2		0
Youngstown-Warren-Boardman MSA	538,952	69	2	1	OH-3	5	PA-1	0
DuBois, PA Micro Area	79,388	64	N/A	1		1		N/A
Indiana, PA Micro Area	84,501	69	N/A	1		1		N/A
New Castle, PA Micro Area	86,184	65	N/A	1		1		N/A
Sayre, PA Micro Area	60,833	59	N/A	1		1		N/A
Somerset, PA Micro Area	73,952	65	N/A	0		1	PA-1	N/A
St. Marys, PA Micro Area	30,169	65	N/A	0		1	PA-1	N/A
Northcentral Non-MSA Region	N/A	64	N/A	1		1		N/A
Southwest Non-MSA Region	N/A	66	N/A	1		1		N/A

Additional ozone monitoring requirements for maximum ozone concentration monitoring are set forth in 40 CFR Part 58, Appendix D, § 4.1 as follows:

“(b) Within an O₃ network, at least one O₃ site for each MSA, or CSA if multiple MSAs are involved, must be designed to record the maximum concentration for that particular metropolitan area. More than one maximum concentration site may be necessary in some areas. Table D-2 of this appendix does not account for the full breadth of additional factors that would be considered in designing a complete O₃ monitoring program for an area. Some of these additional factors include geographic size, population density, complexity of terrain and meteorology, adjacent O₃ monitoring programs, air pollution transport from neighboring areas, and measured air quality in comparison to all forms of the O₃ NAAQS (i.e., 8-hour and 1-hour forms). Networks must be designed to account for all of these area characteristics. Network designs must be re-examined in periodic network assessments. Deviations from the above O₃ requirements are allowed if approved by the EPA Regional Administrator.”

Seventeen of Pennsylvania’s twenty MSAs are incorporated into Combined Statistical Areas (CSA), as defined by the U.S. Office of Management and Budget (OMB). Pennsylvania encompasses eleven CSAs, either wholly or in part. CSA include both MSAs and Micropolitan areas, and often encompass multiple states. Table C-8 displays Pennsylvania’s CSAs and their component Pennsylvania MSAs, and identifies the ozone maximum concentration sites. As noted in the table, three MSAs are not included in any CSA

Table C-8. Combined Statistical Areas (CSA), MSAs and Maximum Ozone Concentration Sites

CSA Name	Component MSA Name, Pennsylvania Portion	Max Ozone Site	AQS ID
Bloomsburg-Berwick-Sunbury, PA	Bloomsburg-Berwick, PA (MSA) Lewisburg, PA (Micropolitan) Selinsgrove, PA (Micropolitan) Sunbury, PA (Micropolitan)	<i>No monitoring required 40 CFR Part 58 Section 4.1</i>	
Erie-Meadville, PA	Erie, PA (MSA) Meadville, PA (Micropolitan)	Erie ¹	420490003
Harrisburg-York-Lebanon, PA	Gettysburg, PA (MSA)	Lebanon	420750100
	Harrisburg-Carlisle, PA (MSA)		
	Lebanon, PA (MSA)		
	York-Hanover, PA (MSA)		
Johnstown-Somerset, PA	Johnstown, PA (MSA) Somerset, PA (Micropolitan)	Johnstown ¹	420210011
New York-Newark, NY-NJ-CT-PA	Allentown-Bethlehem-Easton, PA-NJ (MSA)	<i>Area of expected maximum ozone concentrations occurs in CT</i>	
	East Stroudsburg, PA (MSA)		
	New York-Newark-Jersey City, NY-NJ-PA (MSA)		
Philadelphia-Reading-Camden, PA-NJ-DE-MD	Philadelphia-Camden-Wilmington, PA-NJ-DE-MD (MSA)	Bristol	420170012
	Reading, PA (MSA)		
Pittsburgh-New Castle-Weirton, PA-OH-WV	Indiana, PA (Micropolitan) New Castle, PA (Micropolitan) Pittsburgh, PA (MSA)	Harrison 2	420031008

CSA Name	Component MSA Name, Pennsylvania Portion	Max Ozone Site	AQS ID
State College-DuBois, PA	DuBois, PA (Micropolitan) State College, PA (MSA)	State College ¹	420270100
Washington-Baltimore-Arlington, DC-MD-VA-WV-PA	Chambersburg-Waynesboro, PA (MSA)	<i>Area of expected maximum ozone concentrations occurs in MD</i>	
Williamsport-Lock Haven, PA	Lock Haven, PA (Micropolitan) Williamsport, PA (MSA)	Montoursville ¹	420810100
Youngstown-Warren, OH-PA	Youngstown-Warren-Boardman, OH-PA (MSA)	Farrell	420850100
<i>Not in a CSA</i>	Altoona, PA (MSA)	Altoona	420130801
	Lancaster, PA (MSA)	Lancaster Downwind	420710012
	Scranton-Wilkes-Barre-Hazleton, PA (MSA)	Peckville	420690101

¹ Monitor located in population center of CSA. Monitor may not be in area of expected ozone maximum concentration (downwind of urban center); however, monitor is located to represent ozone exposure occurring to majority of CSA population

Sulfur Dioxide (SO₂) Network Design Requirements

Minimum SO₂ monitoring requirements are set forth in 40 CFR Part 58, Appendix D as follows:

“4.4.2 Requirement for Monitoring by the Population Weighted Emissions Index. (a) The population weighted emissions index (PWEI) shall be calculated by States for each core based statistical area (CBSA) they contain or share with another State or States for use in the implementation of or adjustment to the SO₂ monitoring network. The PWEI shall be calculated by multiplying the population of each CBSA, using the most current census data or estimates, and the total amount of SO₂ in tons per year emitted within the CBSA area, using an aggregate of the most recent county level emissions data available in the National Emissions Inventory for each county in each CBSA. The resulting product shall be divided by one million, providing a PWEI value, the units of which are million persons-tons per year. For any CBSA with a calculated PWEI value equal to or greater than 1,000,000, a minimum of three SO₂ monitors are required within that CBSA. For any CBSA with a calculated PWEI value equal to or greater than 100,000, but less than 1,000,000, a minimum of two SO₂ monitors are required within that CBSA. For any CBSA with a calculated PWEI value equal to or greater than 5,000, but less than 100,000, a minimum of one SO₂ monitor is required within that CBSA.”

These minimum SO₂ monitoring requirements are satisfied as detailed in Table C-9. PWEI values were calculated using the 2014 National Emissions Inventory (NEI) database, which is the most recent data available. Ambient air monitoring sites operated by agencies other than DEP are listed in the “Other SLAMS Monitors” column of the table. Any changes to the DEP SO₂ monitoring network described in this plan are included in the table. As shown, the number of SO₂ monitoring sites within the thirty-seven Pennsylvania CBSAs meets or exceeds the minimum monitoring requirement. In addition, the total SO₂ monitoring network encompasses a greater number of monitoring sites than the minimum requirement.

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Table C-9. SO₂ Minimum Monitoring Requirements Demonstration, 2020-2021

CBSA	2018 Population Estimate	2014 NEI (tons/year)	Calculated PWEI	No. of Monitors Required	DEP SLAMS Monitors	Other SLAMS Monitors	Total No. of Monitors	Add'l Monitors Needed
Allentown-Bethlehem-Easton MSA	842,913	9744.8	8214	1	1	NJ-1	2	0
Altoona MSA	122,492	4206.6	515	0	1		1	0
Bloomsburg-Berwick MSA	83,696	11332	948	0	0		0	0
Chambersburg-Waynesboro MSA	154,835	315.4	49	0	0		0	0
East Stroudsburg MSA	169,507	312.8	53	0	0		0	0
Erie MSA	272,061	280.4	76	0	0		0	0
Gettysburg MSA	102,811	161.5	17	0	1		1	0
Harrisburg-Carlisle MSA	574,659	1615	928	0	0		0	0
Johnstown MSA	131,730	8267.3	1089	0	1		1	0
Lancaster MSA	543,557	877.8	477	0	0		0	0
Lebanon MSA	141,314	576.4	81	0	0		0	0
New York-Newark-Jersey City MSA	19,979,477	109.2	2182	0	0	NJ-6; NY-7	13	0
Philadelphia-Camden-Wilmington MSA	6,096,372	8080.4	49261	1	0	AMS-2; DE-4; NJ-1	7	0
Pittsburgh MSA	2,324,743	62549.8	145412	2	4	ACHD-5	9	0
Reading MSA	420,152	1452.7	610	0	1		1	0
Scranton-Wilkes-Barre-Hazleton MSA	555,485	1487.3	826	0	1		1	0
State College MSA	162,805	1545.5	252	0	1		1	0
Williamsport MSA	113,664	928.4	106	0	0		0	0
York-Hanover MSA	448,273	18636.6	8354	1	1		1	0
Youngstown-Warren-Boardman MSA	538,952	183.7	99	0	0	OH-1	1	0
Bradford, PA Micro Area	40,968	2255.5	92	0	0		0	0
DuBois, PA Micro Area	79,388	37294.6	2961	0	0		0	0
Huntingdon, PA Micro Area	45,168	274.1	12	0	0		0	0
Indiana, PA Micro Area	84,501	135547.3	11454	1	1		1	0
Lewisburg, PA Micro Area	44,785	105.4	5	0	0		0	0
Lewistown, PA Micro Area	46,222	152.2	7	0	0		0	0
Lock Haven, PA Micro Area	38,684	118.3	5	0	0		0	0
Meadville, PA Micro Area	85,063	450.7	38	0	0		0	0
New Castle, PA Micro Area	86,184	4141.9	357	0	0		0	0
Oil City, PA Micro Area	51,266	1722.8	88	0	0		0	0

CBSA	2018 Population Estimate	2014 NEI (tons/year)	Calculated PWEI	No. of Monitors Required	DEP SLAMS Monitors	Other SLAMS Monitors	Total No. of Monitors	Add'l Monitors Needed
Pottsville, PA Micro Area	142,067	5001.3	711	0	0		0	0
Sayre, PA Micro Area	60,833	733.8	45	0	0		0	0
Selinsgrove, PA Micro Area	40,540	1626.2	66	0	0		0	0
Somerset, PA Micro Area	73,952	259.5	19	0	0		0	0
St. Marys, PA Micro Area	30,169	622.4	19	0	0		0	0
Sunbury, PA Micro Area	91,083	720.5	66	0	0		0	0
Warren, PA Micro Area	39,498	954.1	38	0	2		2	0

Nitrogen Dioxide (NO₂) Network Design Requirements

Minimum NO₂ monitoring requirements include requirements for near-road, area-wide and EPA Regional Administrator Required monitoring.

Near-Road NO₂ Monitoring

On December 22, 2016, EPA finalized revisions to the minimum monitoring requirements for near-road NO₂ monitors. The revision removes the existing requirement for near-road NO₂ monitoring stations in Core Based Statistical Areas (CBSAs) having populations between 500,000 and 1,000,000 persons. These monitors were due to have been installed and operational by January 1, 2017 (81 FR 96381).⁷ Near-road NO₂ monitoring requirements are set forth in 40 CFR Part 58, Appendix D as follows:

“4.3.2 Requirement for Near-road NO₂ Monitors

a) Within the NO₂ network, there must be one microscale near-road NO₂ monitoring station in each CBSA with a population of 1,000,000 or more persons to monitor a location of expected maximum hourly concentrations sited near a major road with high AADT counts as specified in paragraph 4.3.2(a)(1) of this appendix. An additional near-road NO₂ monitoring station is required for any CBSA with a population of 2,500,000 persons or more, or in any CBSA with a population of 1,000,000 or more persons that has one or more roadway segments with 250,000 or greater AADT counts to monitor a second location of expected maximum hourly concentrations. CBSA populations shall be based on the latest available census figures.”

The Commonwealth of Pennsylvania contains three MSAs (Figure 1), either wholly or in part, with populations greater than 1,000,000 persons. These three MSA are the New York-Newark-Jersey City, NY-NJ-PA MSA, the Philadelphia-Camden-Wilmington, PA-NJ-DE-MD MSA, and the Pittsburgh, PA MSA. NO₂ near-road monitoring for the New York-Newark-Jersey City MSA is performed by the New Jersey Department of Environmental Protection. NO₂ near-road monitoring for the Pennsylvania portion of the Philadelphia-Camden-Wilmington MSA is performed by Philadelphia Air Management Services. NO₂ near-road monitoring for the Pittsburgh MSA is performed by the Allegheny County

⁷<https://www.govinfo.gov/content/pkg/FR-2016-12-30/pdf/2016-31645.pdf>.

Health Department. Near-road NO₂ monitoring network sites for these MSAs are described in the annual air monitoring network plans of these agencies.

Area-Wide NO₂ Monitoring

Area-wide NO₂ monitoring requirements are set forth in 40 CFR Part 58, Appendix D as follows:

“4.3.3 Requirement for Area-wide NO₂ Monitoring

(a) Within the NO₂ network, there must be one monitoring station in each CBSA with a population of 1,000,000 or more persons to monitor a location of expected highest NO₂ concentrations representing the neighborhood or larger spatial scales. PAMS sites collecting NO₂ data that are situated in an area of expected high NO₂ concentrations at the neighborhood or larger spatial scale may be used to satisfy this minimum monitoring requirement when the NO₂ monitor is operated year round. Emission inventories and meteorological analysis should be used to identify the appropriate locations within a CBSA for locating required area-wide NO₂ monitoring stations. CBSA populations shall be based on the latest available census figures.”

Pennsylvania contains three MSAs with populations greater than 1,000,000 - New York-Newark-Jersey City, NY-NJ-PA MSA, Philadelphia-Camden-Wilmington, PA-NJ-DE-MD MSA and Pittsburgh, PA MSA. Monitoring networks for these MSAs are operated and maintained by the New Jersey Department of Environmental Protection and New York Department of Environmental Conservation, Philadelphia County Air Management Services and the Allegheny County Health Department, respectively. No additional area-wide NO₂ monitoring is required in Pennsylvania under the minimum monitoring requirements set forth in Appendix D.

Regional Administrator-Required NO₂ Monitoring

Regional Administrator-required (RA-40) NO₂ monitoring requirements are set forth in 40 CFR Part 58, Appendix D as follows:

“4.3.4 Regional Administrator Required Monitoring

(a) The Regional Administrators, in collaboration with States, must require a minimum of forty additional NO₂ monitoring stations nationwide in any area, inside or outside of CBSAs, above the minimum monitoring requirements, with a primary focus on siting these monitors in locations to protect susceptible and vulnerable populations. The Regional Administrators, working with States, may also consider additional factors described in paragraph (b) below to require monitors beyond the minimum network requirement.”

U.S. EPA Region III, in consultation with DEP, has selected the Chester (Delaware County) and Erie (Erie County) NO₂ monitors operated by DEP to be designated as RA-40 monitors.

In addition to satisfying the three categories of minimum monitoring requirements described above, DEP maintains NO₂ monitoring sites for use in Air Quality Index (AQI) reporting and forecasting. Ambient NO₂ concentrations are used in ambient air modeling and forecasting as a surrogate for ozone formation and to characterize the strength of meteorological inversions.

Carbon Monoxide (CO) Network Design Requirements

Minimum CO monitoring requirements include requirements for near-road and EPA Regional Administrator Required monitoring.

Near-Road CO Monitoring

Near-road CO monitoring requirements are set forth in 40 CFR Part 58, Appendix D as follows:

“4.2.1 General Requirements. (a) Except as provided in subsection (b), one CO monitor is required to operate collocated with one required near-road NO₂ monitor, as required in Section 4.3.2 of this part, in CBSAs having a population of 1,000,000 or more persons. If a CBSA has more than one required near-road NO₂ monitor, only one CO monitor is required to be collocated with a near-road NO₂ monitor within that CBSA.”

The Commonwealth of Pennsylvania contains three MSAs, either wholly or in part, with populations greater than 1,000,000 persons – New York-Newark-Jersey City, NY-NJ-PA MSA, Philadelphia-Camden-Wilmington, PA-NJ-DE-MD MSA and Pittsburgh, PA MSA. Air quality monitoring for the New York-Newark-Jersey City MSA is performed by the New York State Department of Environmental Conservation and New Jersey Department of Environmental Protection. Air Quality Monitoring for the Philadelphia-Camden-Wilmington MSA is shared between the Delaware Department of Natural Resources and Environmental Control, Maryland Department of the Environment, New Jersey Department of Environmental Protection, Philadelphia Air Management Services (Philadelphia County, PA) and DEP (remaining PA portion). Air quality monitoring for the Pittsburgh MSA is shared between the Allegheny County Health Department (Allegheny County) and DEP. For the Pennsylvania portions of these three MSAs, the NO₂ near-road monitoring requirements, and thus the CO monitoring requirements, are being met by the two aforementioned Pennsylvania county agencies. As such, DEP is not required to maintain additional CO monitors outside the Philadelphia and Allegheny County networks, for NAAQS compliance purposes.

Regional Administrator-Required Monitoring

Regional Administrator-required CO monitoring requirements are set forth in 40 CFR Part 58, Appendix D as follows:

“4.2.2 Regional Administrator Required Monitoring. (a) The Regional Administrators, in collaboration with states, may require additional CO monitors above the minimum number of monitors required in 4.2.1 of this part, where the minimum monitoring requirements are not sufficient to meet monitoring objectives. The Regional Administrator may require, at his/her discretion, additional monitors in situations where data or other information suggest that CO concentrations may be approaching or exceeding the NAAQS. Such situations include, but are not limited to,

- (1) characterizing impacts on ground-level concentrations due to stationary CO sources,*
- (2) characterizing CO concentrations in downtown areas or urban street canyons, and*
- (3) characterizing CO concentrations in areas that are subject to high ground level CO concentrations particularly due to or enhanced by topographical and meteorological impacts. The Regional Administrator and the responsible State or local air monitoring agency shall work together to design and maintain the most appropriate CO network to address the data needs for an area, and include all monitors under this provision in the annual monitoring network plan.”*

As of the date of this document, the EPA Region III Administrator has not informed DEP that any of its monitors are needed to fulfill the RA-required CO monitoring requirement, nor requested DEP to establish a new CO monitoring site to fulfill this requirement.

Fine Particulate Matter (PM_{2.5}) Network Design Requirements

Minimum PM_{2.5} monitoring requirements are set forth in 40 CFR Part 58, Appendix D as follows:

“4.7.1 General Requirements. (a) State, and where applicable local, agencies must operate the minimum number of required PM_{2.5} SLAMS sites listed in Table D-5 of this appendix. The NCore sites are expected to complement the PM_{2.5} data collection that takes place at non-NCore SLAMS sites, and both types of sites can be used to meet the minimum PM_{2.5} network requirements. Deviations from these PM_{2.5} monitoring requirements must be approved by the EPA Regional Administrator.”

Table C-10. Minimum PM_{2.5} Monitoring Requirements

(Table D-5 of Appendix D to Part 58—PM_{2.5} Minimum Monitoring Requirements)

MSA population ^{1,2}	Most recent 3-year design value ≥85% of any PM _{2.5} NAAQS ³	Most recent 3-year design value <85% of any PM _{2.5} NAAQS ^{3 4}
>1,000,000	3	2
500,000-1,000,000	2	1
50,000-<500,000 ⁵	1	0

¹ Minimum monitoring requirements apply to the Metropolitan statistical area (MSA).

² Population based on latest available census figures.

³ The PM_{2.5} National Ambient Air Quality Standards (NAAQS) levels and forms are defined in 40 CFR part 50.

⁴ These minimum monitoring requirements apply in the absence of a design value.

⁵ Metropolitan statistical areas (MSA) must contain an urbanized area of 50,000 or more population.

These minimum PM_{2.5} monitoring requirements are satisfied as detailed in Table C-11. Ambient air monitoring sites operated by agencies other than DEP are included on the map, and listed in the “Other SLAMS Monitors” column of the table. Changes to the DEP PM_{2.5} monitoring network as described in this plan are included in the table. As shown, the number of PM_{2.5} monitoring sites within the twenty Pennsylvania MSAs meets or exceeds the minimum monitoring requirement. In addition, the total PM_{2.5} monitoring network encompasses a substantially greater number of monitoring sites than the minimum requirement.

Table C-11. PM_{2.5} Minimum Monitoring Requirements Demonstration, 2020-2021

MSA	2018 Population Estimate	2018 Max Annual Design Value	2018 Max 24-hr Design Value	No. of Monitors Required	No. of DEP SLAMS Monitors	Other SLAMS Monitors	Total No. of Monitors	Add'l Monitors Needed
Allentown-Bethlehem-Easton MSA	842,913	9.0	23	1	2	NJ-1	3	0
Altoona MSA	122,492	8.1	21	0	1		1	0
Bloomsburg-Berwick MSA	83,696	No monitors		0	0		0	0
Chambersburg-Waynesboro MSA	154,835	No monitors		0	0		0	0
East Stroudsburg MSA	169,507	No monitors		0	0		0	0
Erie MSA	272,061	8.1	19	0	1		1	0

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MSA	2018 Population Estimate	2018 Max Annual Design Value	2018 Max 24-hr Design Value	No. of Monitors Required	No. of DEP SLAMS Monitors	Other SLAMS Monitors	Total No. of Monitors	Add'l Monitors Needed
Gettysburg MSA	102,811	7.6	19	0	1		1	0
Harrisburg-Carlisle MSA	574,659	8.6	24	1	2		2	0
Johnstown MSA	131,730	9.7	22	0	1		1	0
Lancaster MSA	543,557	9.8	25	1	2		2	0
Lebanon MSA	141,314	9.3	26	0	1		1	0
New York-Newark-Jersey City MSA	19,979,477	10	23	2	0	NJ-12; NY-11	23	0
Philadelphia-Camden-Wilmington MSA	6,096,372	10.7	24	3	4	AMS-5; DE-5; MD-1; NJ-3	18	0
Pittsburgh MSA	2,324,743	12.6	35	3	7	ACHD-9	16	0
Reading MSA	420,152	8.5	23	0	1		1	0
Scranton-Wilkes-Barre-Hazleton MSA	555,485	8.3	19	1	2		2	0
State College MSA	162,805	8.1	20	0	1		1	0
Williamsport MSA	113,664	Monitor start 2019		0	1		1	0
York-Hanover MSA	448,273	9.3	21	0	1		1	0
Youngstown-Warren-Boardman MSA	538,952	9.3	21	1	1	OH-2	3	0
Indiana, PA Micro Area	84,501	Pending Monitor		N/A	1		1	N/A
Sayre, PA Micro Area	60,833	7.0	17	N/A	1		1	N/A
Northcentral Non-MSA Region	N/A	7.7	17	N/A	1		1	N/A
Northeast Non-MSA Region	N/A	6.4	16	N/A	1		1	N/A
Southwest Non-MSA Region	N/A	6.2	14	N/A	1		1	N/A

A requirement for continuous PM_{2.5} monitoring is set forth in 40 CFR Part 58, Appendix D as follows:

“4.7.2 Requirement for Continuous PM_{2.5} Monitoring. The State, or where appropriate, local agencies must operate continuous PM_{2.5} analyzers equal to at least one-half (round up) the minimum required sites listed in Table D-5 of this appendix. At least one required continuous analyzer in each MSA must be collocated with one of the required FRM/FEM/ARM monitors, unless at least one of the required FRM/FEM/ARM monitors is itself a continuous FEM or ARM monitor in which case no collocation requirement applies. State and local air monitoring agencies must use methodologies and quality assurance/quality control (QA/QC) procedures approved by the EPA Regional Administrator for these required continuous analyzers.”

DEP's planned air monitoring network for 2020-2021 includes 36 continuous PM_{2.5} monitors in total, either designated as primary monitors, or collocated with FRM primary monitors. Thirty-one of these monitors are located in MSAs. DEP operates all continuous PM_{2.5} monitors as SLAMS monitors.

Table C-12 demonstrates that DEP either meets or exceeds the continuous PM_{2.5} monitoring requirement.

Table C-12. PM_{2.5} Continuous Monitoring Requirements Demonstration, 2020-2021

MSA	No. of SLAMS Monitors Required	No. of Continuous Monitors Required	No. of DEP SLAMS Continuous Method Monitors	Other Continuous Method Monitors	Total No. of Continuous Method Monitors	Add'l Continuous Monitors Required
Allentown-Bethlehem-Easton MSA	1	1	2	NJ-1	3	0
Altoona MSA	0	0	1		1	0
Bloomsburg-Berwick MSA	0	0	0		0	0
Chambersburg-Waynesboro MSA	0	0	0		0	0
East Stroudsburg MSA	0	0	0		0	0
Erie MSA	0	0	1		1	0
Gettysburg MSA	0	0	1		1	0
Harrisburg-Carlisle MSA	1	1	2		2	0
Johnstown MSA	0	0	2		2	0
Lancaster MSA	1	1	2		2	0
Lebanon MSA	0	0	1		1	0
New York-Newark-Jersey City MSA	2	1	0	NJ-7; NY-2	9	0
Philadelphia-Camden-Wilmington MSA	3	2	4	AMS-5; DE-3; MD-1; NJ-1	14	0
Pittsburgh MSA	3	2	8	ACHD-3	11	0
Reading MSA	0	0	1		1	0
Scranton-Wilkes-Barre-Hazleton MSA	1	1	2		2	0
State College MSA	0	0	1		1	0
Williamsport MSA	0	0	1		1	0
York-Hanover MSA	0	0	1		1	0
Youngstown-Warren-Boardman MSA	1	1	1	OH-1	2	0

A requirement for PM_{2.5} regional background and transport monitoring is set forth in 40 CFR Part 58, Appendix D as follows:

“4.7.3 Requirement for PM_{2.5} Background and Transport Sites. Each State shall install and operate at least one PM_{2.5} site to monitor for regional background and at least one PM_{2.5} site to monitor regional transport. These monitoring sites may be at community-oriented sites and this requirement may be satisfied by a corresponding monitor in an area having similar air quality in another State. State and local air monitoring agencies must use methodologies and QA/QC procedures approved by the EPA

Regional Administrator for these sites. Methods used at these sites may include non-federal reference method samplers such as IMPROVE or continuous PM_{2.5} monitors.”

DEP maintains the Arendtsville, Florence, New Garden and Tioga County PM_{2.5} monitoring sites for purposes of regional background and transport monitoring. Table C-13 lists these sites along with their respective measurement scales and monitoring objectives.

Table C-13. PM_{2.5} Regional Background and Transport Requirements Demonstration

Site Name	AQS Code	County	Measurement Scale	Monitoring Objective	Monitoring Method(s)
Arendtsville	420010001	Adams	Regional Scale	General/Background	Teledyne 640
Florence	421255001	Washington	Regional Scale	General/Background	Teledyne 640
New Garden	420290100	Chester	Urban Scale	Regional Transport	Teledyne 640
Tioga County	421174000	Tioga	Urban Scale	Regional Transport	Teledyne 640

The Arendtsville and Florence monitoring sites are situated in rural settings and are classified as general/background monitors. The locations of these monitoring sites are such that PM_{2.5} impacts from any existing large SO₂, NO₂ and VOC sources would not be expected to influence the PM_{2.5} concentrations measured at these sites. Located in Washington County, PM_{2.5} concentrations measured at the Florence monitoring site are used to assess the background PM_{2.5} concentrations for western Pennsylvania regions. PM_{2.5} background concentrations in western Pennsylvania are representative of air flow patterns primarily originating in Ohio and West Virginia. Similarly, the Arendtsville monitoring site located in Adams County is used to assess background concentrations in eastern Pennsylvania, representing air flow patterns from western PA, western Maryland and West Virginia.

The regional transport sites – New Garden and Tioga County – are also situated in more rural areas of PA but tend to capture regional transport of pollution. New Garden captures the emissions from the Baltimore-Washington I-95 corridor, while Tioga County captures regional transport of emissions across the northern tier of Pennsylvania.

Particulate Matter (PM₁₀) Network Design Requirements

Minimum PM₁₀ monitoring requirements are set forth in 40 CFR Part 58, Appendix D as follows:

“4.6 Particulate Matter (PM₁₀) Design Criteria. (a) Table D-4 indicates the approximate number of permanent stations required in MSAs to characterize national and regional PM₁₀ air quality trends and geographical patterns. The number of PM₁₀ stations in areas where MSA populations exceed 1,000,000 must be in the range from 2 to 10 stations, while in low population urban areas, no more than two stations are required. A range of monitoring stations is specified in Table D-4 because sources of pollutants and local control efforts can vary from one part of the country to another and therefore, some flexibility is allowed in selecting the actual number of stations in any one locale. Modifications from these PM₁₀ monitoring requirements must be approved by the Regional Administrator.”

Table C-14. Minimum PM₁₀ Monitoring Requirements

(Table D-4 of Appendix D to Part 58— PM₁₀ Minimum Monitoring Requirements (Approximate Number of Stations Per MSA)¹)

Population Category	High concentration ²	Medium concentration ³	Low concentration ^{4,5}
>1,000,000	6-10	4-8	2-4
500,000-1,000,000	4-8	2-4	1-2
250,000-500,000	3-4	1-2	0-1
100,000-250,000	1-2	0-1	0

¹ Selection of urban areas and actual numbers of stations per area will be jointly determined by EPA and the State agency.

² High concentration areas are those for which ambient PM₁₀ data show ambient concentrations exceeding the PM₁₀ NAAQS by 20 percent or more.

³ Medium concentration areas are those for which ambient PM₁₀ data show ambient concentrations exceeding 80 percent of the PM₁₀ NAAQS.

⁴ Low concentration areas are those for which ambient PM₁₀ data show ambient concentrations less than 80 percent of the PM₁₀ NAAQS.

⁵ These minimum monitoring requirements apply in the absence of a design value.

Minimum PM₁₀ monitoring requirements for Pennsylvania MSAs are detailed in Table C-15. Ambient air monitoring sites operated by agencies other than DEP are listed in the “Other SLAMS Monitors” column of the table. As shown, the number of PM₁₀ monitoring sites within the remaining Pennsylvania MSAs meets or exceeds the minimum monitoring requirement.

Table C-15. PM₁₀ Minimum Monitoring Requirements Demonstration, 2020-2021

MSA	2018 Population Estimate	2018 Max 24-hr Average	Monitoring Requirement Range	DEP SLAMS Monitors	Other SLAMS Monitors	Total No. of Monitors	Add'l Monitors Needed
Allentown-Bethlehem-Easton MSA	842,913	42	1 - 2	1		1	0
Altoona MSA	122,492	No monitors	0	0		0	0
Bloomsburg-Berwick MSA	83,696	No monitors	0	0		0	0
Chambersburg-Waynesboro MSA	154,835	No monitors	0	0		0	0
East Stroudsburg MSA	169,507	No monitors	0	0		0	0
Erie MSA	272,061	33	0 - 1	1		1	0
Gettysburg MSA	102,811	No monitors	0	0		0	0
Harrisburg-Carlisle MSA	574,659	36	1 - 2	1		1	0
Johnstown MSA	131,730	35	0	1		1	0
Lancaster MSA	543,557	39	1 - 2	1		1	0
Lebanon MSA	141,314	No monitors	0	0		0	0
New York-Newark-Jersey City MSA	19,979,477	42	2 - 4	0	NJ-2; NY-3	5	0

MSA	2018 Population Estimate	2018 Max 24-hr Average	Monitoring Requirement Range	DEP SLAMS Monitors	Other SLAMS Monitors	Total No. of Monitors	Add'l Monitors Needed
Philadelphia-Camden-Wilmington MSA	6,096,372	49	2 - 4	0	AMS-1; NJ-1	2	1
Pittsburgh MSA	2,324,743	107	2 - 4	1	ACHD-8	9	0
Reading MSA	420,152	No monitors	0 - 1	0		0	0
Scranton-Wilkes-Barre-Hazleton MSA	555,485	37	1 - 2	1		1	0
State College MSA	162,805	No monitors	0	0		0	0
Williamsport MSA	113,664	No monitors	0	0		0	0
York-Hanover MSA	448,273	No monitors	0 - 1	0		0	0
Youngstown-Warren-Boardman MSA	538,952	54	1 - 2	0	OH-3	3	0

Lead (Pb) Network Design Requirements

Minimum lead monitoring requirements are set forth in 40 CFR Part 58, Appendix D as follows:

“4.5 Lead (Pb) Design Criteria. (a) State and, where appropriate, 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, taking into account 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 [<https://www.epa.gov/air-emissions-inventories>] 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.

[...]

(ii) The Regional Administrator may waive the requirement in paragraph 4.5(a) for monitoring near Pb sources if the State or, where appropriate, local agency can demonstrate the Pb source will not contribute to a maximum Pb concentration in ambient air in excess of 50 percent of the NAAQS (based on historical monitoring data, modeling, or other means). The waiver must be renewed once every 5 years as part of the network assessment required under § 58.10(d).”

Table C-16 displays previously identified 0.5 tpy or greater lead sources in Pennsylvania, outside of Allegheny and Philadelphia Counties, along with their correlating DEP lead monitoring sites. Site locations were chosen in accordance with 40 CFR Part 58, Appendix D, based on conservative dispersion modeling, and approved by EPA Region III.

Table C-16. Lead Sources Greater Than 0.5 Tons Per Year and DEP Lead Monitoring Sites

County	Facility Name	Emissions, in tons per year					DEP Lead Monitoring Site
		2014	2015	2016	2017	2018	
Beaver	Horsehead Corp/Monaca Smelter	1.47	(facility idle)	(facility closed)	(facility closed)	(facility closed)	Beaver Valley Vanport
Beaver	Firstenergy Gen LLC/Bruce Mansfield Plt	0.55	0.30	0.30	0.17	0.08	Potter Township*
Berks	East Penn Mfg Co Inc/Battery Assembly	1.71	1.28	1.52	1.32	1.26	Lyons Boro Lyons Park
Berks	Exide Tech/Reading Smelter	(facility idle)	(facility idle)	(facility idle)	(facility idle)	(facility idle)	Laureldale North Laureldale South
Carbon	Horsehead Corp/Palmerton	1.94	1.81	1.85	0.99	1.01	Palmerton
Indiana	Genon NE Mgmt Co/Conemaugh Plt	0.11	0.11	0.10	0.11	0.05	Conemaugh
Lancaster	Mt Joy Wire Corp/Mt Joy	0.52	0.52	0.51	0.50	0.50	Mt Joy
Lawrence	Inmetco/Ellwood City	0.05	0.05	0.06	0.03	0.00	Ellwood City

* DEP plans to discontinue the Potter Township site, as described in the “Modifications to Criteria Pollutant Networks” section of its 2019 Annual Network Plan.

Siting Criteria Requirements – 40 CFR Part 58, Appendix E

DEP operates all SLAMS sites in its Ambient Air Monitoring Network in accordance with all siting criteria requirements set forth in 40 CFR Part 58, Appendix E, “Probe and Monitoring Path Siting Criteria for Ambient Air Quality Monitoring.” DEP has instituted a 5-year statewide site survey plan (corresponding with the 5-year network assessment) that examines many aspects of the site, including siting criteria. Siting criteria are also re-checked when site operators or field supervisors report construction or other activities that may impact air monitoring at the site.

Appendix D – Pennsylvania Monitoring Network Site Details

Appendix D of this document provides a detailed description of the existing monitoring network sites. This appendix includes information related to the location of the site, monitoring parameters at the site, and details about the monitors themselves in order to meet the requirements of 40 CFR Sections 58.10 (a) and 58.10 (b). Unless otherwise indicated, all criteria pollutant sites and monitors meet siting requirements set forth in of 40 CFR Part 58, Appendices A, C, D, and E. Meteorological equipment at monitoring sites are installed as an adjunct to pollutant monitoring only. As such, this equipment may not meet all siting criteria or quality assurance criteria intended for required meteorological monitoring.

Table D-1 below provides details on the methods and instrumentation utilized by DEP's Air Quality Monitoring Division for all criteria and toxic pollutant monitoring. DEP utilizes Federal Reference Methods (FRM) and Federal Equivalent Methods (FEM) in its monitoring network for criteria pollutants. Although there are no national concentration standards for air toxic pollutants, DEP uses approved EPA analytical methods to determine ambient concentrations.

Table D-1. Ambient Air Monitoring Equipment and Methods

PARAMETER	MANUFACTURER/INSTRUMENT/MODEL	EPA METHOD DESIGNATION
Continuous Gaseous Sampling		
OZONE	Teledyne Advanced Pollution Instrumentation, Model T400 Photometric Ozone Analyzer	Automated Equivalent Method: EQOA-0992-08757 FR 44565, 9/28/9263 FR 31992, 6/11/9867 FR 57811, 9/12/02 Latest Modifications: 08/2010; 05/2013; 07/2014; 9/2015
SO₂	Teledyne Advanced Pollution Instrumentation, Model T100 UV Fluorescence SO ₂ Analyzer	Automated Equivalent Method: EQSA-0495-10060 FR 17061, 4/4/95 Latest Modifications: 08/2010; 05/2013; 07/2014; 9/2015:
NO/NO₂/NO_x	Teledyne Advanced Pollution Instrumentation, Model T200 Chemiluminescence Nitrogen Oxides Analyzer for Ambient Concentrations	Automated Reference Method: RFNA-1194-09959 FR 61892, 12/2/94 Latest modifications: 03/2009; 08/2010; 10/2012; 5/2013; 06/2014 ;07/2014; 9/2015
CO	Teledyne Advanced Pollution Instrumentation, Model T300 CO Gas Filter Correlation Analyzer	Automated Reference Method: RFCA-1093-09358 FR 58166, 10/29/93 Latest Modifications: 08/2010; 05/2013; 07/2014; 9/2015:
Particulate Sampling		
PM_{2.5} (Discrete)	Thermo Fisher Scientific Partisol® 2025i Sequential PM _{2.5} Air Sampler with a BGI VSCC™	Manual Reference Method: EQPM-0202-145 67 FR 15567, 4/2/02 Latest modification: 06/2011
PM_{2.5} (Continuous)	Teledyne Advanced Pollution Instrumentation, Model 602 BetaPLUS Particle Measurement System	Automatic Equivalent Method EQPM-0912-204 77 FR 60985, 10/5/2012
	Teledyne Advanced Pollution Instrumentation, Model T640, PM Mass Monitor	Automated Equivalent Method EQPM-0516-236 81 FR 45285, 07/13/2016

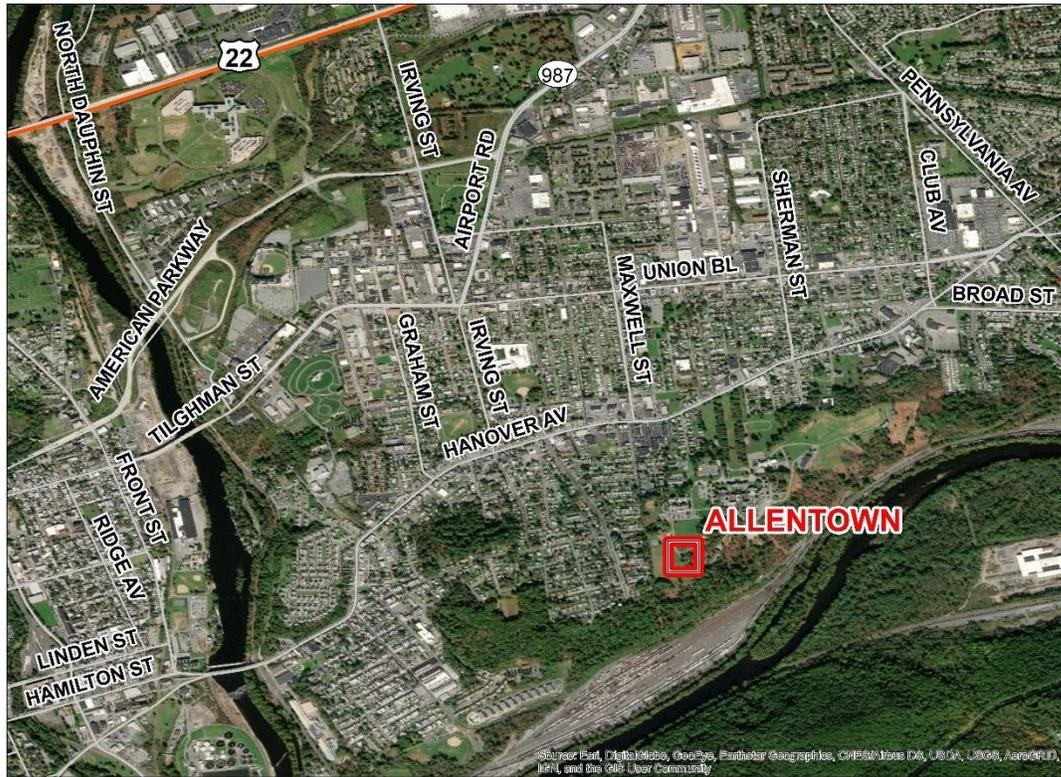
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PARAMETER	MANUFACTURER/INSTRUMENT/MODEL	EPA METHOD DESIGNATION
PM_{2.5} SPECIATION	Met One Instruments SASS PM _{2.5} Ambient Chemical Speciation Air Sampler URG Corporation 3000N Sequential Particulate Speciation System	None
PM₁₀	Thermo Scientific TEOM® 1400AB/TEOM® 1405 Continuous Ambient Particulate Monitor	Automated Equivalent Method: EQPM-1090-079 55 FR 43406, 10/29/90 Latest modification: 12/2008
LEAD	Tisch TE-5170 VFC+ Analysis by Inductively Coupled Plasma - Mass Spectrometry	Manual Equivalent Method EQL-0710-192 75 FR 45627, 8/3/10
METALS (PM₁₀-based)	Thermo GMW PM ₁₀ High-Volume Air Sampler - Volumetric Model SA/G1200	Manual Reference Method: RFPS-1287-063 52 FR 45684, 12/01/87 53 FR 1062, 1/15/88
METALS (TSP-based)	Thermo GMW TSP High-Volume Air Sampler - Volumetric Flow Controlled Inductively Coupled Plasma - Mass Spectrometry (Metals)	Manual Reference Method Code 802 47 FR 54912, 12/6/82 48 FR 17355 4/22/83 EPA Compendium Method IO-3.5
Other Toxic Sampling		
VOC	ATEC Model 2200-12 ATEC Model 2200-22	EPA Compendium Method TO-15
CARBONYLS	ATEC Model 2200	EPA Compendium Method 8315A
Meteorological Parameters*		
AMBIENT TEMPERATURE	Met One AIO2 All In One Weather Sensor	None
BAROMETRIC PRESSURE		
PRECIPITATION		
RELATIVE HUMIDITY		
SOLAR RADIATION		
WIND SPEED & DIRECTION		

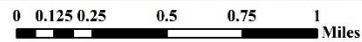
*Note: DEP is in the process of expanding and upgrading the meteorological equipment installed at its monitoring sites. The start dates for meteorological equipment listed on the following pages reflect the start dates for upgraded equipment.

DEP's 2020 ANNUAL AMBIENT AIR MONITORING NETWORK PLAN

SITE NAME: ALLENTOWN
AQS ID: 420770004
CBSA: Allentown-Bethlehem-Easton MSA
COUNTY: LEHIGH
MUNICIPALITY: CITY OF ALLENTOWN
LATITUDE: 40.61194445
LONGITUDE: -75.43261111
ADDRESS: STATE HOSPITAL REAR 1600 HANOVER AVE
COMMENTS: Meets federal monitoring requirements in the Allentown-Bethlehem-Easton MSA



Monitoring Site

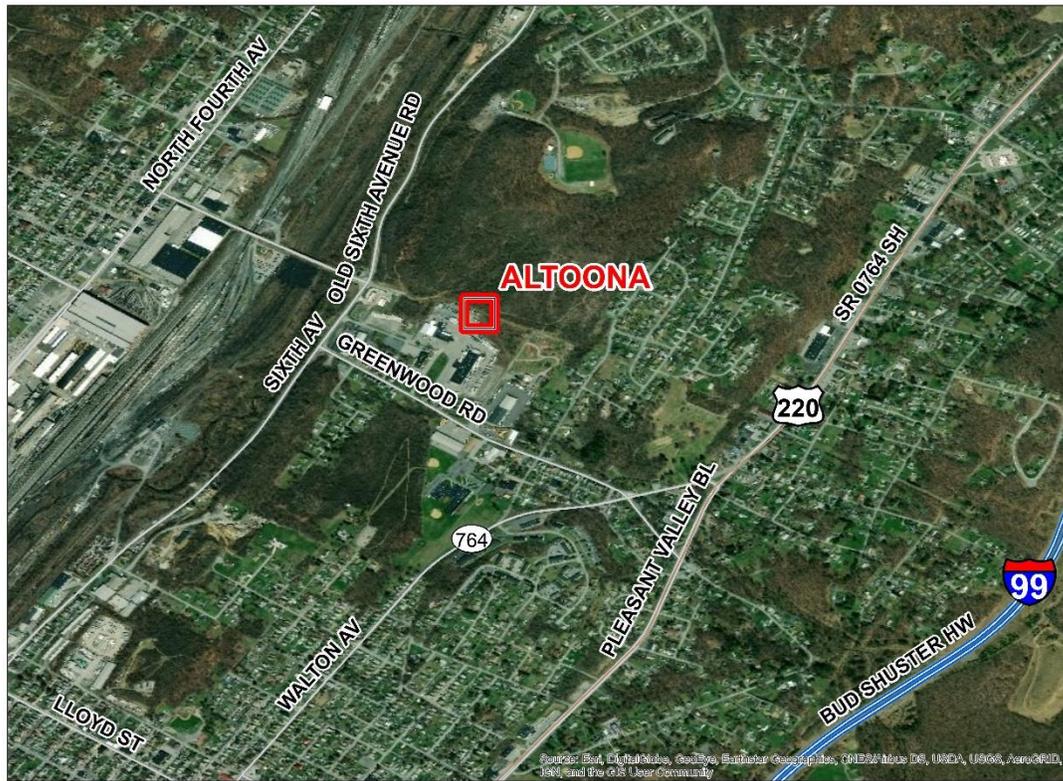


Monitor Summary

Monitor	Network	Start Date	Frequency	Method Description	Monitoring Scale	Appendix D Objectives
Ozone	SLAMS	1/1/1984	Continuous	UV Absorption	Neighborhood	Population Exposure
PM _{2.5}	SLAMS	1/1/2016	Continuous	Scattered Light Spectrometry	Neighborhood	Source Oriented
PM ₁₀	SLAMS	5/16/1996	Continuous	TEOM Gravimetric	Neighborhood	Population Exposure
Meteorology	Other	8/15/2019	Continuous	Met One AIO2	N/A	N/A

DEP's 2020 ANNUAL AMBIENT AIR MONITORING NETWORK PLAN

SITE NAME: ALTOONA
AQS ID: 420130801
CBSA: Altoona MSA
COUNTY: BLAIR
MUNICIPALITY: LOGAN TWP
LATITUDE: 40.53563889
LONGITUDE: -78.37036111
ADDRESS: 2ND AVE & 7TH ST
COMMENTS: Monitors for NAAQS compliance for criteria pollutants in Altoona MSA



Monitoring Site



0 0.075 0.15 0.3 0.45 0.6 Miles

Monitor Summary

Monitor	Network	Start Date	Frequency	Method Description	Monitoring Scale	Appendix D Objectives
Ozone	SLAMS	5/1/1978	Continuous	UV Absorption	Urban Scale	Max Ozone Concentration
SO ₂	SLAMS	5/1/1978	Continuous	UV Fluorescence	Neighborhood	Population Exposure
PM _{2.5}	SLAMS	6/1/2010	Continuous	Scattered Light Spectrometry	Neighborhood	Population Exposure
Meteorology	Other	New 2020	Continuous	Met One AIO2	N/A	N/A

DEP's 2020 ANNUAL AMBIENT AIR MONITORING NETWORK PLAN

SITE NAME: ARENDSVILLE
AQS ID: 420010001
CBSA: Gettysburg MSA
COUNTY: ADAMS
MUNICIPALITY: FRANKLIN TWP
LATITUDE: 39.92330556
LONGITUDE: -77.30816667
ADDRESS: WINDING ROAD, BIGLERVILLE
COMMENTS: Monitors regional transport of pollutants into eastern PA



Monitoring Site



0 0.05 0.1 0.2 0.3 0.4 Miles

Monitor Summary

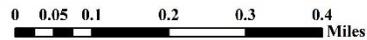
Monitor	Network	Start Date	Frequency	Method Description	Monitoring Scale	Appendix D Objectives
Ozone	SLAMS	11/1/2014	Continuous	UV Absorption	Regional Scale	Regional Transport
SO ₂	SLAMS	10/6/2014	Continuous	UV Fluorescence	Urban Scale	General/Background
NO ₂	SLAMS	6/24/1997	Continuous	Chemiluminescence	Urban Scale	General/Background
CO	SLAMS	6/24/1997	Continuous	Non-dispersive Infrared	Neighborhood	General/Background
PM _{2.5}	SLAMS	7/1/2009	Continuous	Scattered Light Spectrometry	Regional Scale	General/Background
PM _{2.5} Speciation	CSN	1/1/2002	1 in 6	Gravimetric	Urban Scale	General/Background
VOC	Other	6/2/1997	1 in 6	Canister	N/A	N/A
Carbonyls	Other	6/2/1997	1 in 6	DNPH - Coated Cartridges	N/A	N/A
Meteorology	Other	New 2020	Continuous	Met One AIO2	N/A	N/A

DEP's 2020 ANNUAL AMBIENT AIR MONITORING NETWORK PLAN

SITE NAME: BEAVER FALLS
AQS ID: 420070014
CBSA: Pittsburgh MSA
COUNTY: BEAVER
MUNICIPALITY: CITY OF BEAVER FALLS
LATITUDE: 40.74780556
LONGITUDE: -80.31575
ADDRESS: EIGHTH STREET AND RIVER ALLEY
COMMENTS: Monitors for NAAQS compliance for criteria pollutants



Monitoring Site



Monitor Summary

Monitor	Network	Start Date	Frequency	Method Description	Monitoring Scale	Appendix D Objectives
Ozone	SLAMS	1/1/1974	Continuous	UV Absorption	Urban Scale	Population Exposure
NO ₂	SLAMS	1/1/1974	Continuous	Chemiluminescence	Neighborhood	Population Exposure
PM _{2.5}	SLAMS	12/1/1999	Daily	Gravimetric	Neighborhood	Population Exposure
PM _{2.5}	SLAMS	7/16/2004	Continuous	Scattered Light Spectrometry	Neighborhood	Population Exposure
PM ₁₀	SLAMS	9/20/1995	Continuous	TEOM Gravimetric	Neighborhood	Population Exposure
Meteorology	Other	1/14/2020	Continuous	Met One AIO2	N/A	N/A

DEP's 2020 ANNUAL AMBIENT AIR MONITORING NETWORK PLAN

SITE NAME: BEAVER VALLEY
AQS ID: 420070007
CBSA: Pittsburgh MSA
COUNTY: BEAVER
MUNICIPALITY: CENTER TWP
LATITUDE: 40.671394
LONGITUDE: -80.314264
ADDRESS: 200 FAIRVIEW DRIVE
COMMENTS: Monitors lead concentrations from nearby source



Monitor Summary

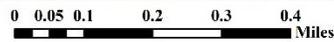
Monitor	Network	Start Date	Frequency	Method Description	Monitoring Scale	Appendix D Objectives
Pb	SLAMS	1/1/2010	1 in 6	ICP-MS	Middle Scale	Source Oriented
VOC	Other	4/1/2017	1 in 6	Canister	N/A	N/A
Metals	Other	2/20/2011	1 in 6	High Volume Sampler with Quartz Filter	N/A	N/A
Meteorology	Other	New 2020	Continuous	Met One AIO2	N/A	N/A

DEP's 2020 ANNUAL AMBIENT AIR MONITORING NETWORK PLAN

SITE NAME: BRIGHTON TWP
AQS ID: 420070005
CBSA: Pittsburgh MSA
COUNTY: BEAVER
MUNICIPALITY: BRIGHTON TWP
LATITUDE: 40.68547222
LONGITUDE: -80.3605
ADDRESS: 1015 SEBRING ROAD
COMMENTS: Monitors ozone and SO₂ concentrations within the Ohio River valley



Monitoring Site

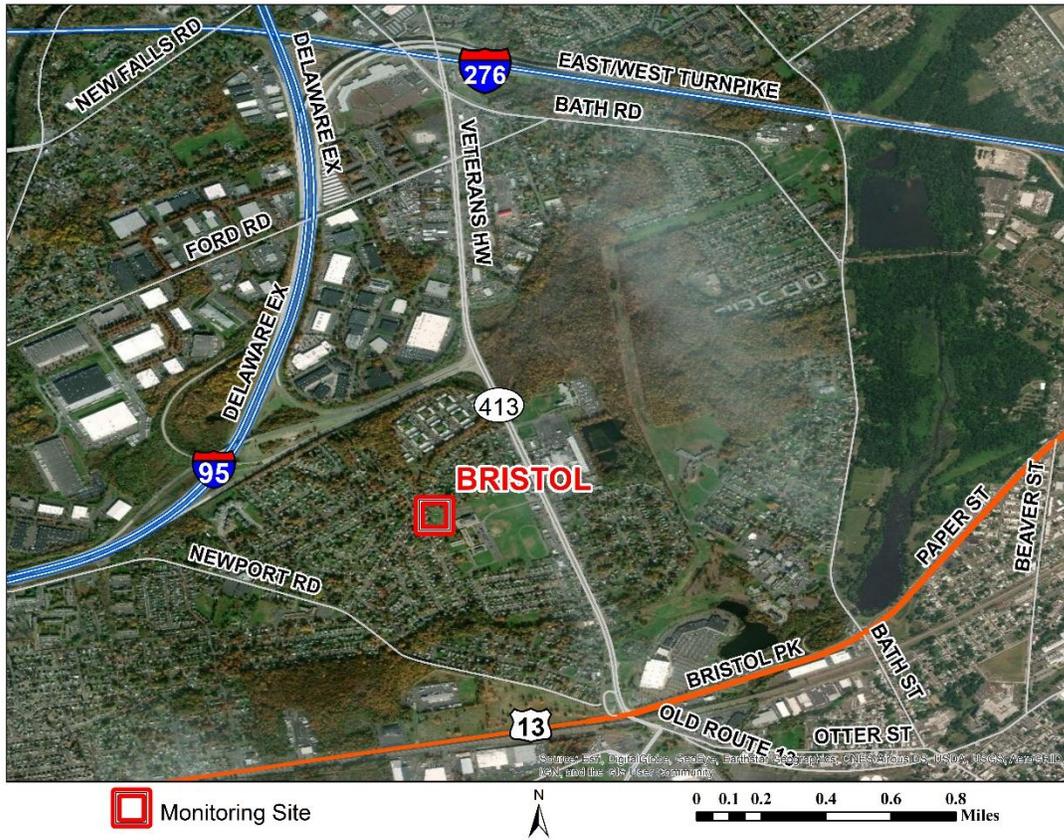


Monitor Summary

<i>Monitor</i>	<i>Network</i>	<i>Start Date</i>	<i>Sample Frequency</i>	<i>Method Description</i>	<i>Monitoring Scale</i>	<i>Appendix D Objectives</i>
Ozone	SLAMS	4/20/1994	Continuous	UV Absorption	Neighborhood	Population Exposure
SO₂	SLAMS	4/20/1994	Continuous	UV Fluorescence	Neighborhood	Highest Concentration
Meteorology	Other	New 2020	Continuous	Met One AIO2	N/A	N/A

DEP's 2020 ANNUAL AMBIENT AIR MONITORING NETWORK PLAN

SITE NAME: BRISTOL
AQS ID: 420170012
CBSA: Philadelphia-Camden-Wilmington MSA
COUNTY: BUCKS
MUNICIPALITY: BRISTOL TWP
LATITUDE: 40.10738889
LONGITUDE: -74.88247222
ADDRESS: ROCKVIEW DRIVE
COMMENTS: Monitors downwind concentration of ozone from mobile sources in the Philadelphia metro area

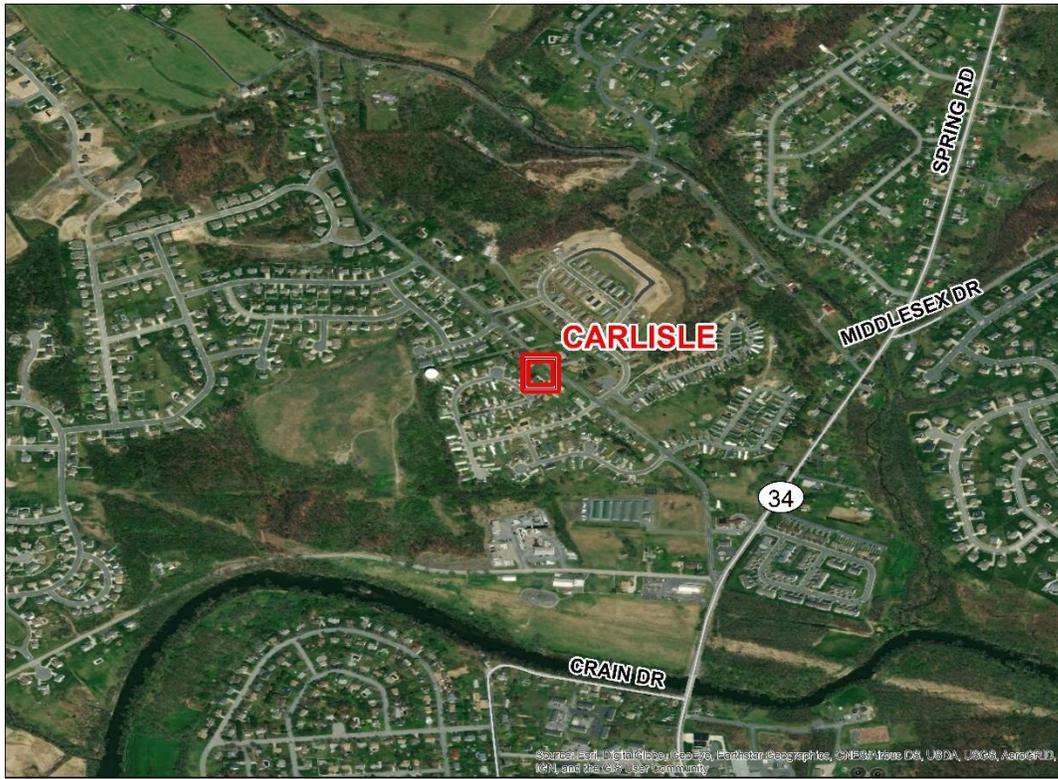


Monitor Summary

Monitor	Network	Start Date	Sample Frequency	Method Description	Monitoring Scale	Appendix D Objectives
Ozone	SLAMS	1/1/1974	Continuous	UV Absorption	Neighborhood	Max Ozone Concentration
Meteorology	Other	12/4/2019	Continuous	Met One AIO2	N/A	N/A

DEP’s 2020 ANNUAL AMBIENT AIR MONITORING NETWORK PLAN

SITE NAME: CARLISLE
AQS ID: 420410101
CBSA: Harrisburg-Carlisle MSA
COUNTY: CUMBERLAND
MUNICIPALITY: NORTH MIDDLETON TWP
LATITUDE: 40.24661111
LONGITUDE: -77.18372222
ADDRESS: IMPERIAL COURT
COMMENTS: Monitors fine particulate matter to meet federal monitoring requirements in the Harrisburg MSA



 Monitoring Site



0 0.05 0.1 0.2 0.3 0.4 Miles

Monitor Summary

<i>Monitor</i>	<i>Network</i>	<i>Start Date</i>	<i>Sample Frequency</i>	<i>Method Description</i>	<i>Monitoring Scale</i>	<i>Appendix D Objectives</i>
PM_{2.5}	SLAMS	3/29/2001	Daily	Gravimetric	Neighborhood	Population Exposure
PM_{2.5}	SLAMS	1/1/2009	Continuous	Beta Attenuation	Neighborhood	Population Exposure
Meteorology	Other	8/23/2019	Continuous	Met One AIO2	N/A	N/A

DEP's 2020 ANNUAL AMBIENT AIR MONITORING NETWORK PLAN

SITE NAME: CHARLEROI
AQS ID: 421250005
CBSA: Pittsburgh MSA
COUNTY: WASHINGTON
MUNICIPALITY: CHARLEROI BORO
LATITUDE: 40.14658333
LONGITUDE: -79.90222222
ADDRESS: CHARLEROI WASTE TREATMENT PLANT
COMMENTS: Monitors for criteria pollutants to meet federal requirements including NAAQS compliance in the Pittsburgh MSA



Monitor Summary

Monitor	Network	Start Date	Sample Frequency	Method Description	Monitoring Scale	Appendix D Objectives
Ozone	SLAMS	1/1/1974	Continuous	UV Absorption	Neighborhood	Population Exposure
SO ₂	SLAMS	1/1/1974	Continuous	UV Fluorescence	Neighborhood	Population Exposure
NO ₂	SLAMS	1/1/1974	Continuous	Chemiluminescence	Neighborhood	Population Exposure
PM _{2.5}	SLAMS	1/12/2016	Daily	Gravimetric	Neighborhood	Population Exposure
PM _{2.5}	SLAMS	4/1/2009	Continuous	Beta Attenuation	Neighborhood	Population Exposure
PM _{2.5}	SLAMS	12/11/2018	Continuous	Scattered Light Spectrometry	Neighborhood	Population Exposure
VOC	Other	5/31/2009	1 in 6	Canister	N/A	N/A
Meteorology	Other	10/16/2019	Continuous	Met One AIO2	N/A	N/A

DEP's 2020 ANNUAL AMBIENT AIR MONITORING NETWORK PLAN

SITE NAME: CHESTER
AQS ID: 420450002
CBSA: Philadelphia-Camden-Wilmington MSA
COUNTY: DELAWARE
MUNICIPALITY: CITY OF CHESTER
LATITUDE: 39.83519445
LONGITUDE: -75.37211111
ADDRESS: FRONT ST & NORRIS ST
COMMENTS: Monitors criteria pollutants for NAAQS compliance in the Philadelphia-Camden-Wilmington MSA.



Monitoring Site



0 0.1 0.2 0.4 0.6 0.8 Miles

Monitor Summary

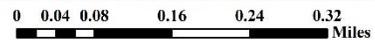
Monitor	Network	Start Date	Sample Frequency	Method Description	Monitoring Scale	Appendix D Objectives
Ozone	SLAMS	1/1/1974	Continuous	UV Absorption	Urban Scale	Population Exposure
NO ₂	SLAMS	1/1/1974	Continuous	Chemiluminescence	Neighborhood	Population Exposure
PM _{2.5}	SLAMS	4/1/2009	Continuous	Scattered Light Spectrometry	Neighborhood	Population Exposure
PM _{2.5} Speciation	CSN	12/1/2014	1 in 6	Gravimetric	Neighborhood	Population Exposure
Pb	SLAMS	2/1/1994	1 in 6	ICP-MS	Neighborhood	Population Exposure
VOC	Other	1/10/1995	1 in 6	Canister	N/A	N/A
Metals	Other	1/10/1995	1 in 6	High Volume Sampler with Quartz Filter	N/A	N/A
Meteorology	Other	New 2020	Continuous	Met One AIO2	N/A	N/A

DEP's 2020 ANNUAL AMBIENT AIR MONITORING NETWORK PLAN

SITE NAME: COLLEGEVILLE
AQS ID: 420910005
CBSA: Philadelphia-Camden-Wilmington MSA
COUNTY: MONTGOMERY
MUNICIPALITY: COLLEGEVILLE BORO
LATITUDE: 40.1925
LONGITUDE: -75.4575
ADDRESS: URSINUS COLLEGE
COMMENTS: Monitors for VOCs near source



 Monitoring Site



Monitor Summary

Monitor	Network	Start Date	Sample Frequency	Method Description	Monitoring Scale	Appendix D Objectives
VOC	Other	5/18/2007	1 in 6	Canister	N/A	N/A
Meteorology	Other	8/12/2019	Continuous	Met One AIO2	N/A	N/A

DEP'S 2020 ANNUAL AMBIENT AIR MONITORING NETWORK PLAN

SITE NAME: CONEMAUGH
AQS ID: 421290009
CBSA: Pittsburgh MSA
COUNTY: WESTMORELAND
MUNICIPALITY: ST CLAIR TWP
LATITUDE: 40.39292
LONGITUDE: -79.02446
ADDRESS: SUGAR RUN - RT 711
COMMENTS: Monitors lead concentrations from nearby source



 Monitoring Site



0 0.075 0.15 0.3 0.45 0.6 Miles

Monitor Summary

<i>Monitor</i>	<i>Network</i>	<i>Start Date</i>	<i>Sample Frequency</i>	<i>Method Description</i>	<i>Monitoring Scale</i>	<i>Appendix D Objectives</i>
Pb	SLAMS	1/1/2010	1 in 6	ICP-MS	Middle Scale	Source Oriented

DEP's 2020 ANNUAL AMBIENT AIR MONITORING NETWORK PLAN

SITE NAME: ELLWOOD CITY
AQS ID: 420730011
CBSA: New Castle Micropolitan Area
COUNTY: LAWRENCE
MUNICIPALITY: ELLWOOD CITY BORO
LATITUDE: 40.859409
LONGITUDE: -80.276131
ADDRESS: Spring Avenue Ext. & Arch St.
COMMENTS: Monitors lead concentrations from nearby source



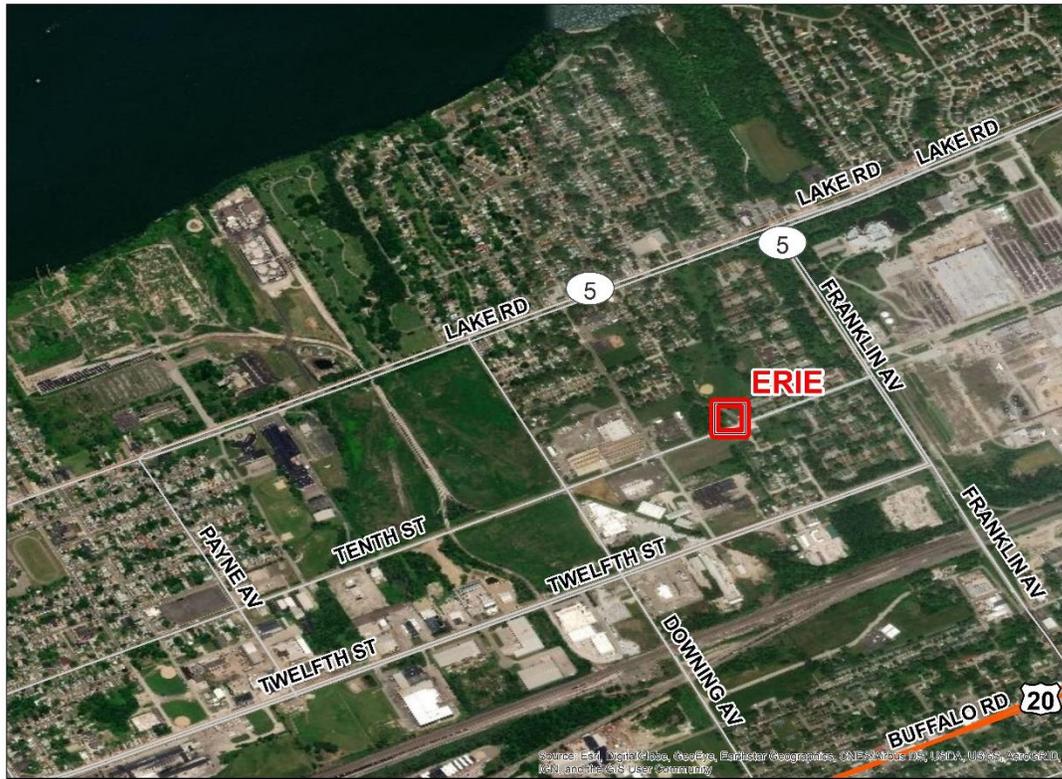
 Monitoring Site

Monitor Summary

<i>Monitor</i>	<i>Network</i>	<i>Start Date</i>	<i>Sample Frequency</i>	<i>Method Description</i>	<i>Monitoring Scale</i>	<i>Appendix D Objectives</i>
Pb	SLAMS	1/1/2010	1 in 6	ICP-MS	Middle Scale	Source Oriented
Metals	Other	4/21/2016	1 in 6	High Volume Sampler with Quartz Filter	N/A	N/A

DEP's 2020 ANNUAL AMBIENT AIR MONITORING NETWORK PLAN

SITE NAME: ERIE
AQS ID: 420490003
CBSA: Erie MSA
COUNTY: ERIE
MUNICIPALITY: CITY OF ERIE
LATITUDE: 42.14197222
LONGITUDE: -80.03869444
ADDRESS: 10TH AND MARNE STREETS
COMMENTS: Monitors for NAAQS compliance in the Erie MSA



Monitoring Site



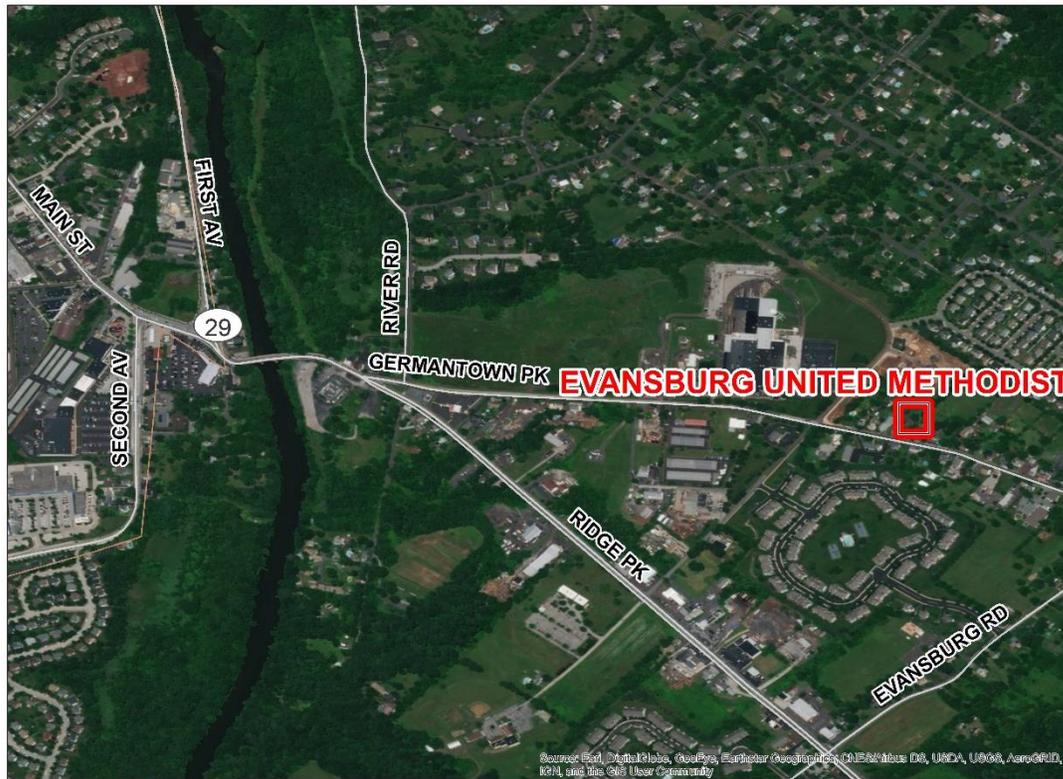
0 0.075 0.15 0.3 0.45 0.6 Miles

Monitor Summary

<i>Monitor</i>	<i>Network</i>	<i>Start Date</i>	<i>Sample Frequency</i>	<i>Method Description</i>	<i>Monitoring Scale</i>	<i>Appendix D Objectives</i>
Ozone	SLAMS	5/18/1988	Continuous	UV Absorption	Neighborhood	Population Exposure
NO₂	SLAMS	5/18/1988	Continuous	Chemiluminescence	Neighborhood	Population Exposure
CO	SLAMS	11/1/2004	Continuous	Non-dispersive Infrared	Neighborhood	Population Exposure
PM_{2.5}	SLAMS	7/1/2009	Continuous	Scattered Light Spectrometry	Neighborhood	Population Exposure
PM₁₀	SLAMS	8/10/1995	Continuous	TEOM Gravimetric	Neighborhood	Population Exposure
VOC	Other	12/6/2018	1 in 6	Canister	N/A	N/A
Meteorology	Other	7/10/2019	Continuous	Met One AIO2	N/A	N/A

DEP's 2020 ANNUAL AMBIENT AIR MONITORING NETWORK PLAN

SITE NAME: EVANSBURG UNITED METHODIST
AQS ID: 420910016
CBSA: Philadelphia-Camden-Wilmington MSA
COUNTY: MONTGOMERY
MUNICIPALITY: LOWER PROVIDENCE TWP
LATITUDE: 40.183056
LONGITUDE: -75.434167
ADDRESS: 3871 GERMANTOWN PIKE
COMMENTS: Monitors for VOC's near source



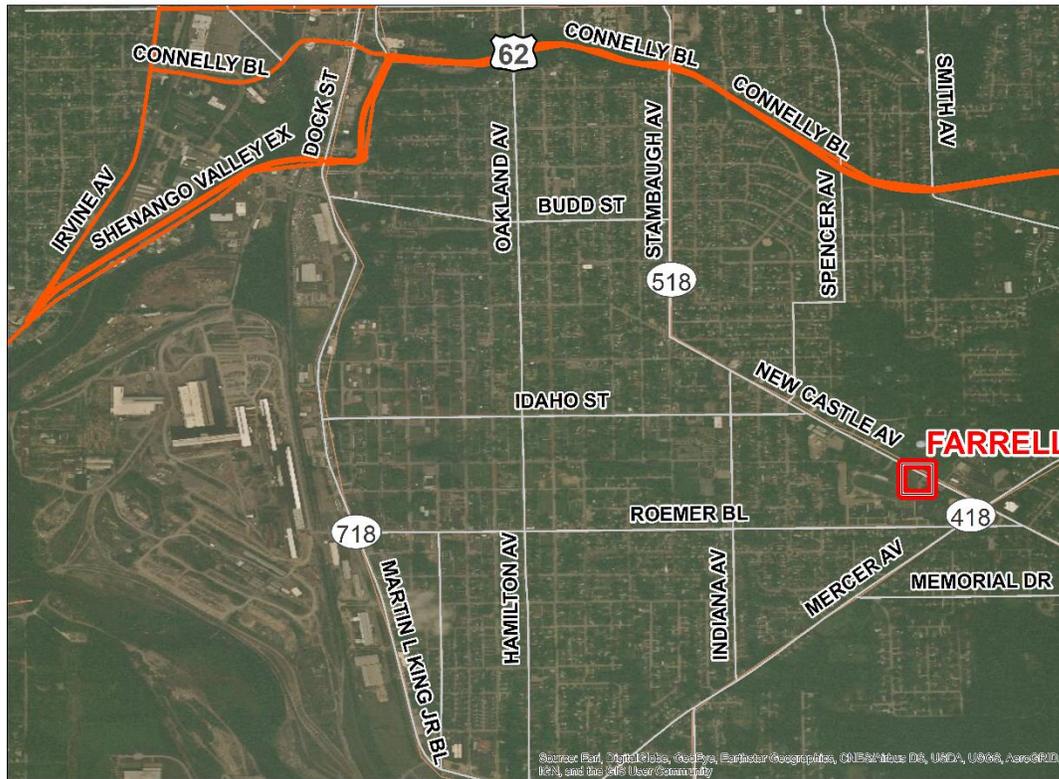
 Monitoring Site

Monitor Summary

<i>Monitor</i>	<i>Network</i>	<i>Start Date</i>	<i>Sample Frequency</i>	<i>Method Description</i>	<i>Monitoring Scale</i>	<i>Appendix D Objectives</i>
VOC	Other	2/18/2009	1 in 6	Canister	N/A	N/A

DEP's 2020 ANNUAL AMBIENT AIR MONITORING NETWORK PLAN

SITE NAME: FARRELL
AQS ID: 420850100
CBSA: Youngstown-Warren-Boardman MSA
COUNTY: MERCER
MUNICIPALITY: CITY OF FARRELL
LATITUDE: 41.21405556
LONGITUDE: -80.48347222
ADDRESS: PA518 (NEW CASTLE ROAD) & PA418
COMMENTS: Meets federal monitoring requirements in the PA part of the Youngstown-Warren-Boardman MSA



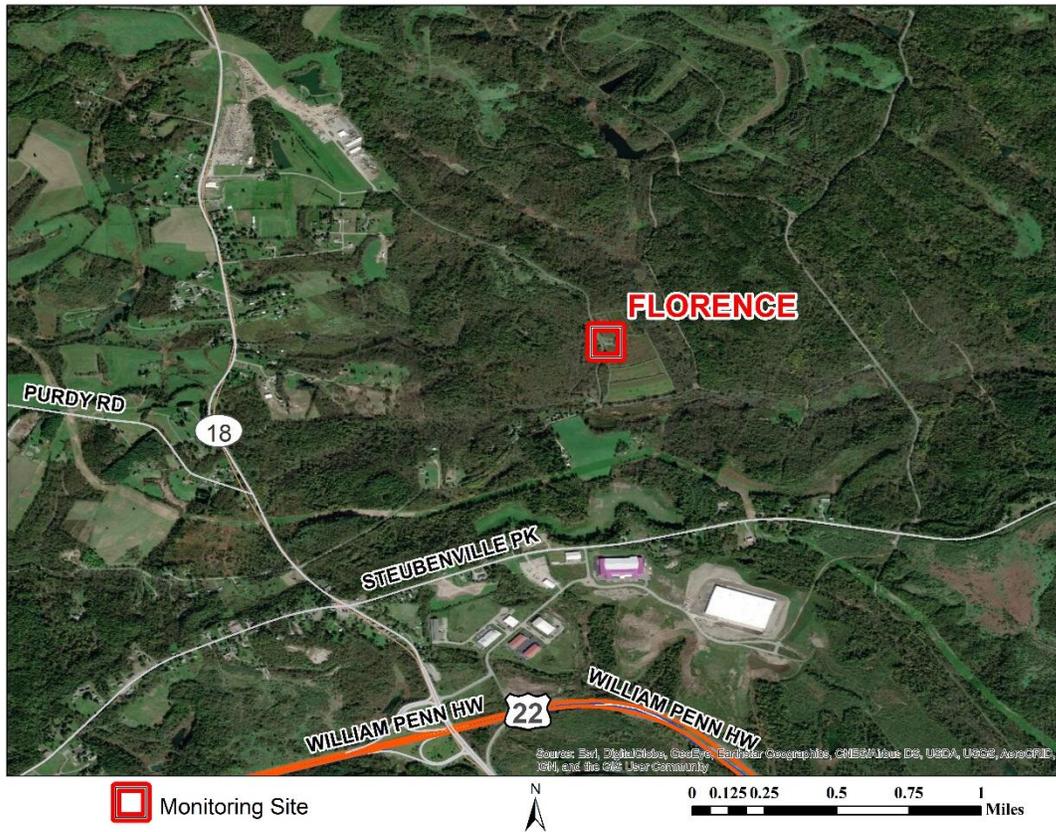
Monitoring Site

Monitor Summary

Monitor	Network	Start Date	Sample Frequency	Method Description	Monitoring Scale	Appendix D Objectives
Ozone	SLAMS	9/1/1980	Continuous	UV Absorption	Urban Scale	Max Ozone Concentration
PM _{2.5}	SLAMS	11/3/2010	Continuous	Scattered Light Spectrometry	Urban Scale	Population Exposure
Meteorology	Other	1/8/2020	Continuous	Met One AIO2	N/A	N/A

DEP'S 2020 ANNUAL AMBIENT AIR MONITORING NETWORK PLAN

SITE NAME: FLORENCE
AQS ID: 421255001
CBSA: Pittsburgh MSA
COUNTY: WASHINGTON
MUNICIPALITY: HANOVER TWP
LATITUDE: 40.44547222
LONGITUDE: -80.42122222
ADDRESS: HILLMAN STATE PARK - KINGS CREEK ROAD
COMMENTS: Monitors transport of pollutants into PA from upwind areas including Ohio and West Virginia

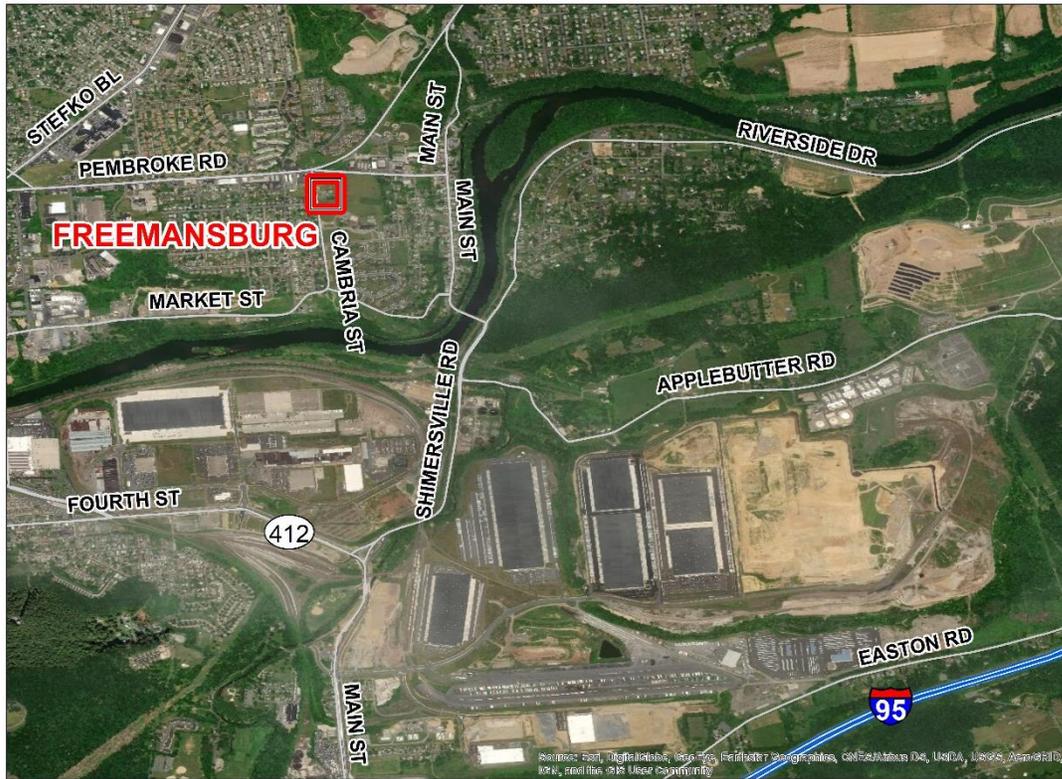


Monitor Summary

Monitor	Network	Start Date	Sample Frequency	Method Description	Monitoring Scale	Appendix D Objectives
Ozone	SLAMS	6/8/1995	Continuous	UV Absorption	Regional Scale	Regional Transport
SO ₂	SLAMS	1/1/1982	Continuous	UV Fluorescence	Urban Scale	Regional Transport
PM _{2.5}	SLAMS	7/1/2009	Continuous	Scattered Light Spectrometry	Regional Scale	General/Background
PM _{2.5} Speciation	CSN	1/1/2002	1 in 6	Gravimetric	Regional Scale	Regional Transport
Meteorology	Other	4/26/2019	Continuous	Met One AIO2	N/A	N/A

DEP's 2020 ANNUAL AMBIENT AIR MONITORING NETWORK PLAN

SITE NAME: FREEMANSBURG
AQS ID: 420950025
CBSA: Allentown-Bethlehem-Easton MSA
COUNTY: NORTHAMPTON
MUNICIPALITY: FREEMANSBURG BORO
LATITUDE: 40.62847222
LONGITUDE: -75.34158333
ADDRESS: WASHINGTON & CAMBRIA STS.
 FREEMANSBURG
COMMENTS: Meets federal monitoring requirements in the Allentown-Bethlehem-Easton MSA



Monitoring Site



0 0.125 0.25 0.5 0.75 1 Miles

Monitor Summary

Monitor	Network	Start Date	Sample Frequency	Method Description	Monitoring Scale	Appendix D Objectives
Ozone	SLAMS	8/20/1997	Continuous	UV Absorption	Neighborhood	Population Exposure
SO ₂	SLAMS	2/22/2018	Continuous	UV Fluorescence	Neighborhood	Population Exposure
NO ₂	SLAMS	8/20/1997	Continuous	Chemiluminescence	Neighborhood	Population Exposure
PM _{2.5}	SLAMS	2/27/2012	Daily	Gravimetric	Neighborhood	Population Exposure
PM _{2.5}	SLAMS	7/1/2009	Continuous	Beta Attenuation	Neighborhood	Population Exposure
Meteorology	Other	9/25/2019	Continuous	Met One AIO2	N/A	N/A

DEP's 2020 ANNUAL AMBIENT AIR MONITORING NETWORK PLAN

SITE NAME: GLASGOW
AQS ID: 420070035
CBSA: Pittsburgh MSA
COUNTY: BEAVER
MUNICIPALITY: GLASGOW BOROUGH
LATITUDE: 40.644637
LONGITUDE: -80.508413
ADDRESS: UNION LANE
COMMENTS: Measures ambient levels of heavy metals near local source



 Monitoring Site



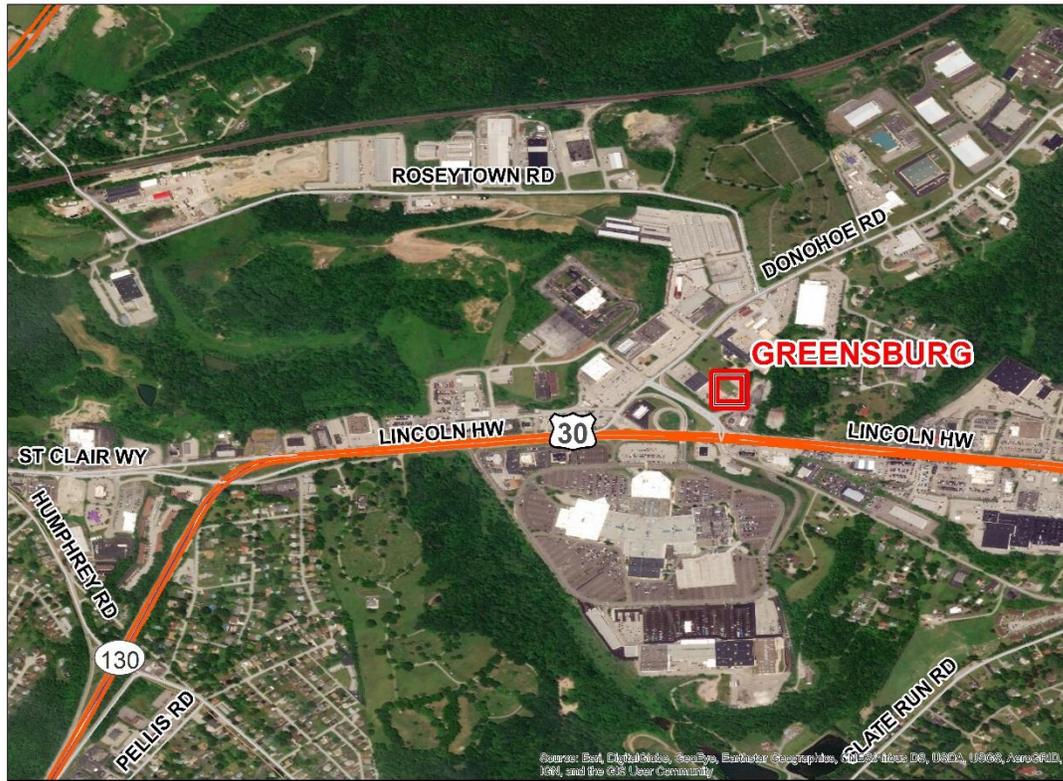
0 0.05 0.1 0.2 0.3 0.4 Miles

Monitor Summary

<i>Monitor</i>	<i>Network</i>	<i>Start Date</i>	<i>Sample Frequency</i>	<i>Method Description</i>	<i>Monitoring Scale</i>	<i>Appendix D Objectives</i>
Metals	Other	10/16/2017	1 in 6	High Volume Sampler with Quartz Filter	N/A	N/A
Metals (TSP-based)	Other	10/16/2017	1 in 6	High Volume Sampler with Glass Filter	N/A	N/A
Meteorology	Other	New 2020	Continuous	Met One AIO2	N/A	N/A

DEP'S 2020 ANNUAL AMBIENT AIR MONITORING NETWORK PLAN

SITE NAME: GREENSBURG
AQS ID: 421290008
CBSA: Pittsburgh MSA
COUNTY: WESTMORELAND
MUNICIPALITY: HEMPFIELD TWP
LATITUDE: 40.30438889
LONGITUDE: -79.50605556
ADDRESS: DONOHOE ROAD - PENN DOT MAINT DIST BLDG
COMMENTS: Meets federal monitoring requirements in the Pittsburgh MSA and for NAAQS compliance



Monitoring Site



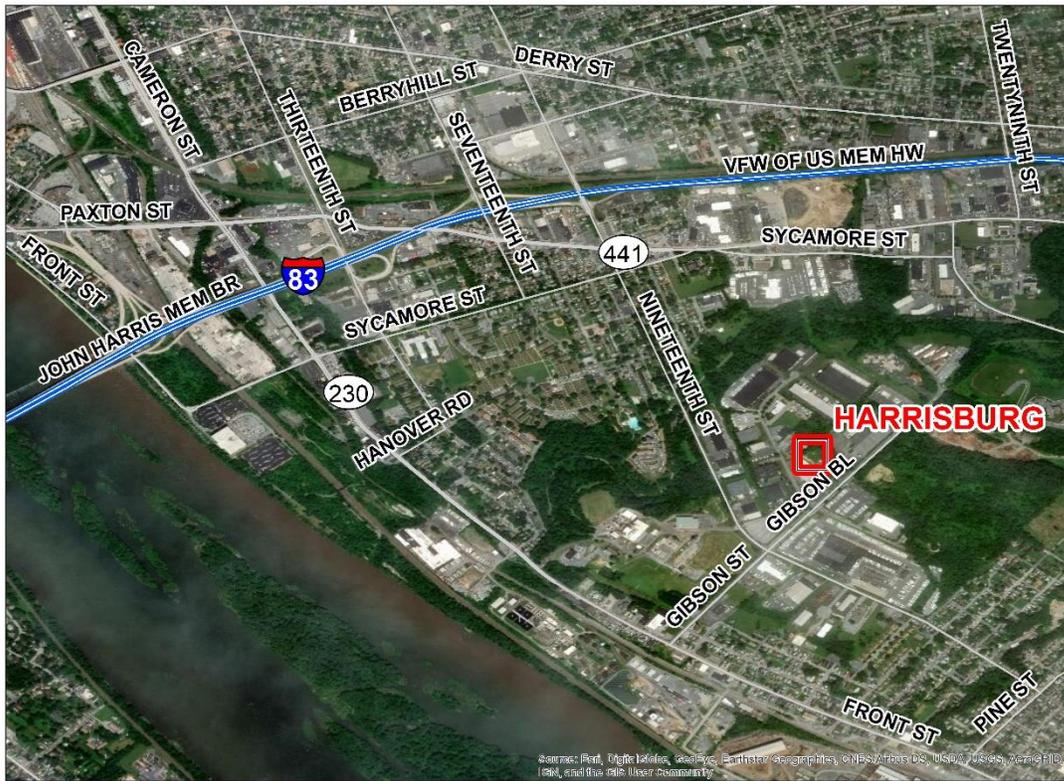
0 0.05 0.1 0.2 0.3 0.4 Miles

Monitor Summary

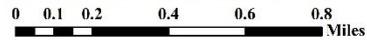
<i>Monitor</i>	<i>Network</i>	<i>Start Date</i>	<i>Sample Frequency</i>	<i>Method Description</i>	<i>Monitoring Scale</i>	<i>Appendix D Objectives</i>
Ozone	SLAMS	10/1/1997	Continuous	UV Absorption	Urban Scale	Population Exposure
PM_{2.5}	SLAMS	7/1/2009	Continuous	Beta Attenuation	Neighborhood	Population Exposure
PM_{2.5} Speciation	CSN	1/1/2002	1 in 6	Gravimetric	Urban Scale	Population Exposure
VOC	Other	1/2/2010	1 in 6	Canister	N/A	N/A
Meteorology	Other	10/4/2019	Continuous	Met One AIO2	N/A	N/A

DEP's 2020 ANNUAL AMBIENT AIR MONITORING NETWORK PLAN

SITE NAME: HARRISBURG
AQS ID: 420430401
CBSA: Harrisburg-Carlisle MSA
COUNTY: DAUPHIN
MUNICIPALITY: SWATARA TWP
LATITUDE: 40.246992
LONGITUDE: -76.846988
ADDRESS: 651 Gibson Blvd
COMMENTS: Monitors criteria pollutants for NAAQS compliance in the Harrisburg MSA



 Monitoring Site

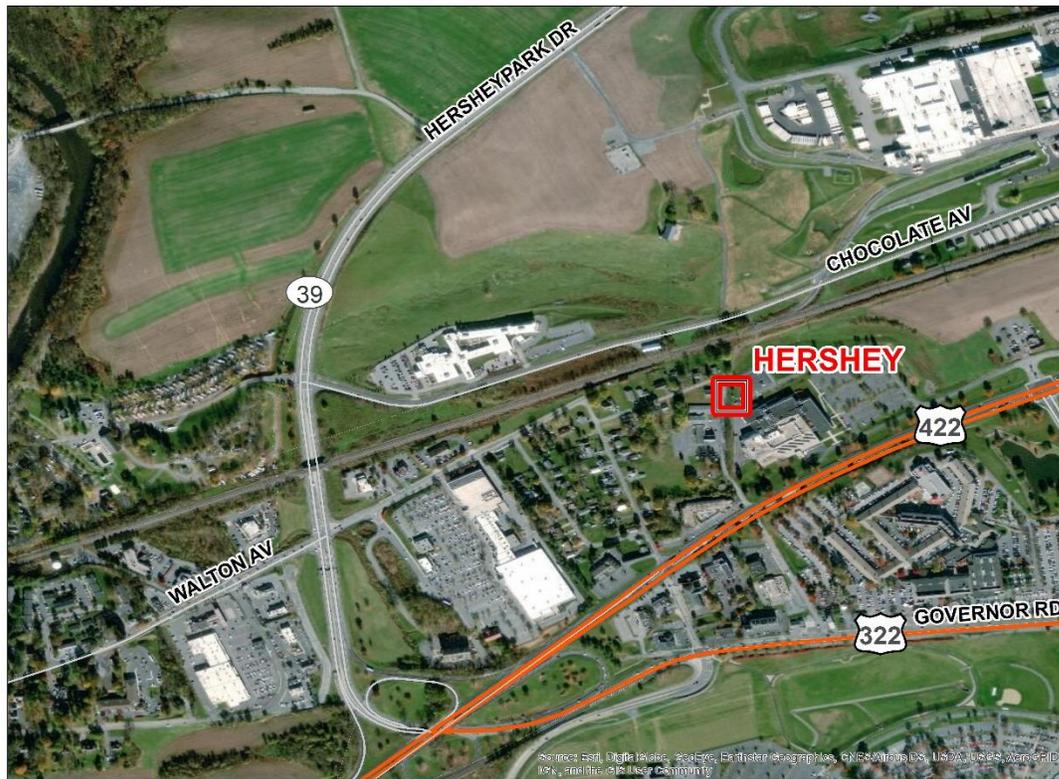


Monitor Summary

<i>Monitor</i>	<i>Network</i>	<i>Start Date</i>	<i>Sample Frequency</i>	<i>Method Description</i>	<i>Monitoring Scale</i>	<i>Appendix D Objectives</i>
Ozone	SLAMS	6/1/1978	Continuous	UV Absorption	Neighborhood	Population Exposure
PM_{2.5}	SLAMS	1/1/2009	Continuous	Beta Attenuation	Neighborhood	Population Exposure
Meteorology	Other	4/30/2019	Continuous	Met One AIO2	N/A	N/A

DEP's 2020 ANNUAL AMBIENT AIR MONITORING NETWORK PLAN

SITE NAME: HERSHEY
AQS ID: 420431100
CBSA: Harrisburg-Carlisle MSA
COUNTY: DAUPHIN
MUNICIPALITY: DERRY TWP
LATITUDE: 40.27241667
LONGITUDE: -76.68141667
ADDRESS: SIPE AVE & MAE STREET
COMMENTS: Monitors criteria pollutants for NAAQS compliance in the Harrisburg MSA; also measures concentrations downwind of the Harrisburg Metro Area



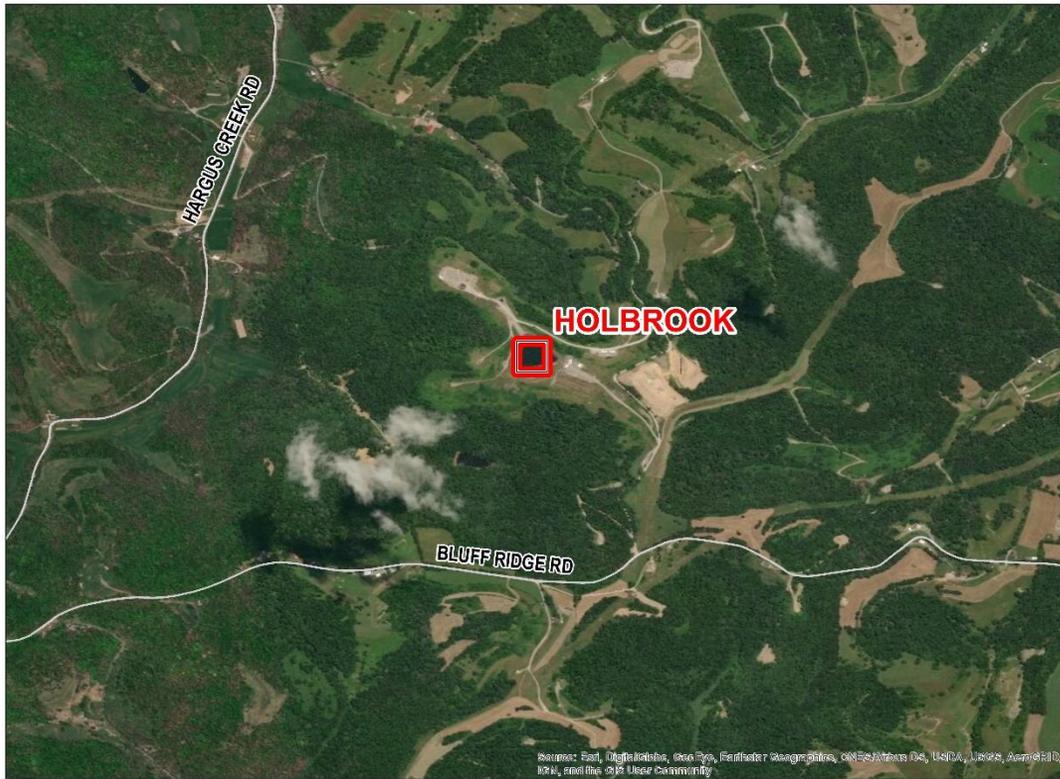
 Monitoring Site

Monitor Summary

Monitor	Network	Start Date	Sample Frequency	Method Description	Monitoring Scale	Appendix D Objectives
Ozone	SLAMS	8/1/1981	Continuous	UV Absorption	Urban Scale	Max Ozone Concentration
PM ₁₀	SLAMS	1/19/2012	Continuous	TEOM Gravimetric	Neighborhood	Population Exposure
Meteorology	Other	8/13/2019	Continuous	Met One AIO2	N/A	N/A

DEP's 2020 ANNUAL AMBIENT AIR MONITORING NETWORK PLAN

SITE NAME: HOLBROOK
AQS ID: 420590002
CBSA: Southwest Region - Non-CBSA
COUNTY: GREENE
MUNICIPALITY: CENTER TWP
LATITUDE: 39.81602778
LONGITUDE: -80.28480556
ADDRESS: 4.8 KM SE OF HOLBROOK
COMMENTS: Monitors transport of pollutants into PA from WV and OH



 Monitoring Site



0 0.1 0.2 0.4 0.6 0.8 Miles

Monitor Summary

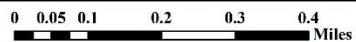
<i>Monitor</i>	<i>Network</i>	<i>Start Date</i>	<i>Sample Frequency</i>	<i>Method Description</i>	<i>Monitoring Scale</i>	<i>Appendix D Objectives</i>
Ozone	SLAMS	1/1/1997	Continuous	UV Absorption	Regional Scale	Regional Transport
PM_{2.5}	SLAMS	1/1/2016	Continuous	Scattered Light Spectrometry	Neighborhood	Source Oriented
Meteorology	Other	10/17/2019	Continuous	Met One AIO2	N/A	N/A

DEP's 2020 ANNUAL AMBIENT AIR MONITORING NETWORK PLAN

SITE NAME: HOOKSTOWN
AQS ID: 420070002
CBSA: Pittsburgh MSA
COUNTY: BEAVER
MUNICIPALITY: GREENE TWP
LATITUDE: 40.56305556
LONGITUDE: -80.50444445
ADDRESS: ROUTE 168 & TOMLINSON ROAD
COMMENTS: Monitors transport of pollutants into PA from WV and OH



Monitoring Site



Monitor Summary

<i>Monitor</i>	<i>Network</i>	<i>Start Date</i>	<i>Sample Frequency</i>	<i>Method Description</i>	<i>Monitoring Scale</i>	<i>Appendix D Objectives</i>
Ozone	SLAMS	6/8/1995	Continuous	UV Absorption	Regional Scale	Regional Transport
SO₂	SLAMS	1/1/1983	Continuous	UV Fluorescence	Urban Scale	Regional Transport
Meteorology	Other	New 2020	Continuous	Met One AIO2	N/A	N/A

DEP's 2020 ANNUAL AMBIENT AIR MONITORING NETWORK PLAN

SITE NAME: HOUSTON
AQS ID: 421255200
CBSA: Pittsburgh MSA
COUNTY: WASHINGTON
MUNICIPALITY: CHARTIERS TWP
LATITUDE: 40.269163
LONGITUDE: -80.242697
ADDRESS: 220 MEDDINGS RD
COMMENTS: Monitors criteria pollutants and VOC's downwind of natural gas processing facility



 Monitoring Site



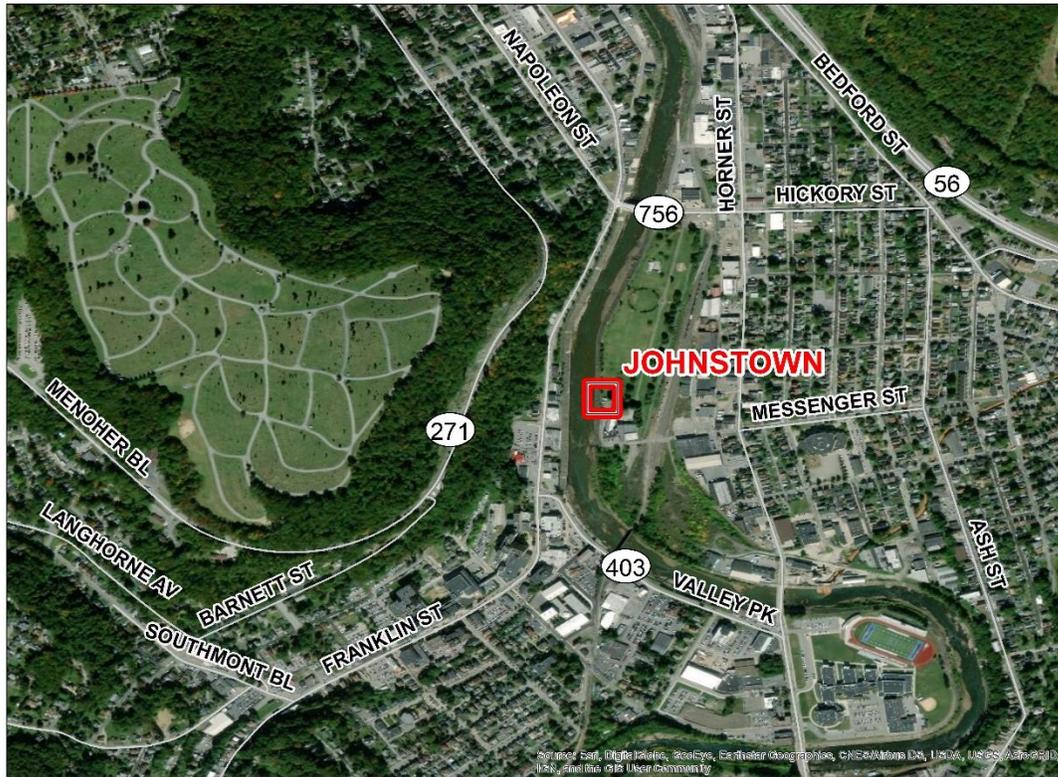
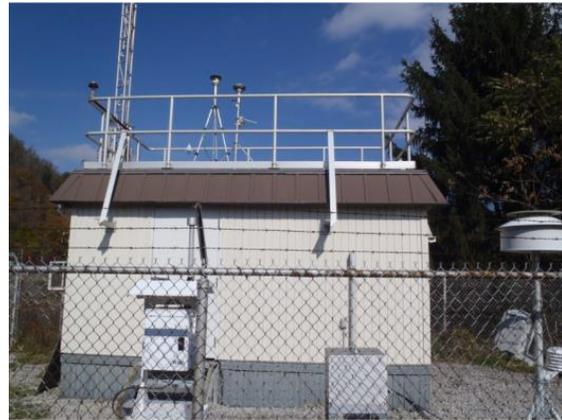
0 0.05 0.1 0.2 0.3 0.4 Miles

Monitor Summary

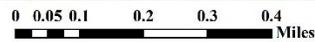
Monitor	Network	Start Date	Sample Frequency	Method Description	Monitoring Scale	Appendix D Objectives
Ozone	SLAMS	3/14/2018	Continuous	UV Absorption	Neighborhood	Source Oriented
NO ₂	SLAMS	7/23/2012	Continuous	Chemiluminescence	Neighborhood	Source Oriented
PM _{2.5}	SLAMS	1/1/2019	Continuous	Scattered Light Spectrometry	Neighborhood	Source Oriented
VOC	Other	7/23/2012	1 in 6	Canister	N/A	N/A
Carbonyls	Other	7/23/2012	1 in 6	DNPH - Coated Cartridges	N/A	N/A
Meteorology	Other	New 2020	Continuous	Met One AIO2	N/A	N/A

DEP's 2020 ANNUAL AMBIENT AIR MONITORING NETWORK PLAN

SITE NAME: JOHNSTOWN
AQS ID: 420210011
CBSA: Johnstown MSA
COUNTY: CAMBRIA
MUNICIPALITY: CITY OF JOHNSTOWN
LATITUDE: 40.30994445
LONGITUDE: -78.91544445
ADDRESS: MILLER AUTO SHOP 1 MESSENGER ST
COMMENTS: Monitors for NAAQS compliance of criteria pollutants in the Johnstown MSA



Monitoring Site

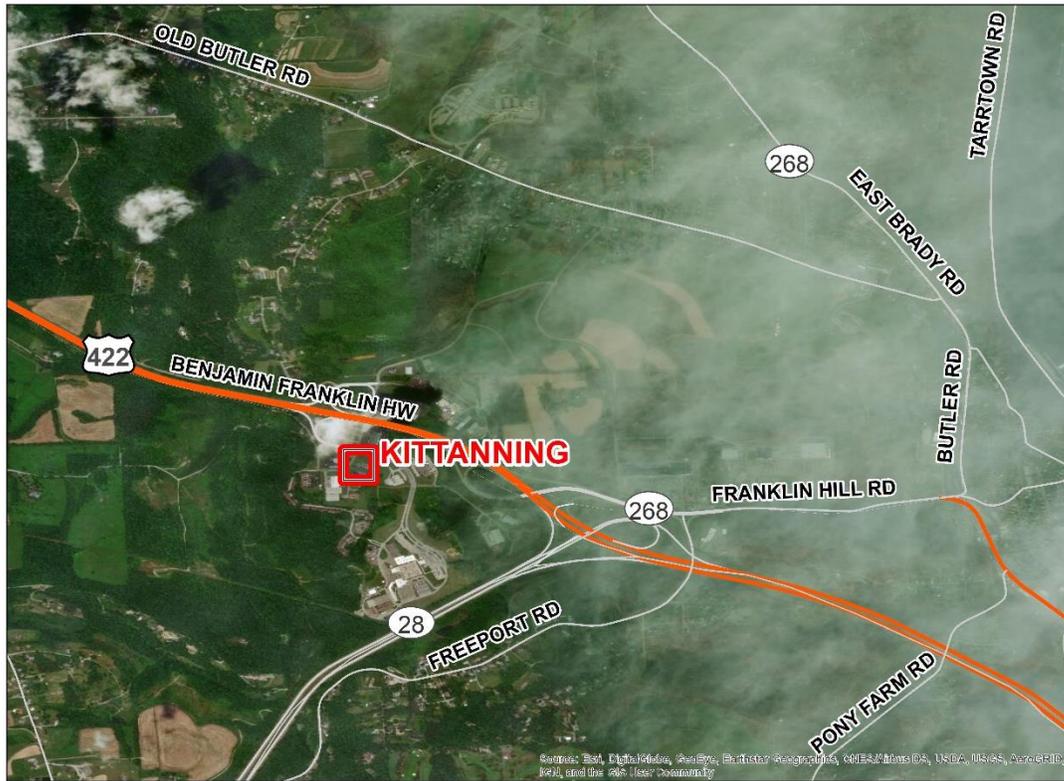


Monitor Summary

Monitor	Network	Start Date	Sample Frequency	Method Description	Monitoring Scale	Appendix D Objectives
Ozone	SLAMS	1/1/1974	Continuous	UV Absorption	Neighborhood	Population Exposure
SO ₂	SLAMS	1/1/1974	Continuous	UV Fluorescence	Urban Scale	Population Exposure
NO ₂	SLAMS	1/1/1974	Continuous	Chemiluminescence	Neighborhood	Population Exposure
CO	SLAMS	1/1/1978	Continuous	Non-dispersive Infrared	Neighborhood	Population Exposure
PM _{2.5}	SLAMS	4/1/2009	Continuous	Scattered Light Spectrometry	Neighborhood	Population Exposure
PM _{2.5} Speciation	CSN	1/26/2009	1 in 6	Gravimetric	Neighborhood	Population Exposure
PM ₁₀	SLAMS	4/18/1996	Continuous	TEOM Gravimetric	Neighborhood	Population Exposure
Meteorology	Other	New 2020	Continuous	Met One AIO2	N/A	N/A

DEP's 2020 ANNUAL AMBIENT AIR MONITORING NETWORK PLAN

SITE NAME: KITTANNING
AQS ID: 420050001
CBSA: Pittsburgh MSA
COUNTY: ARMSTRONG
MUNICIPALITY: EAST FRANKLIN TWP
LATITUDE: 40.814
LONGITUDE: -79.56469445
ADDRESS: GLADE DR. & NOLTE RD. KITTANNING
COMMENTS: Monitors PM_{2.5} and ozone downwind of Pittsburgh MSA



 Monitoring Site



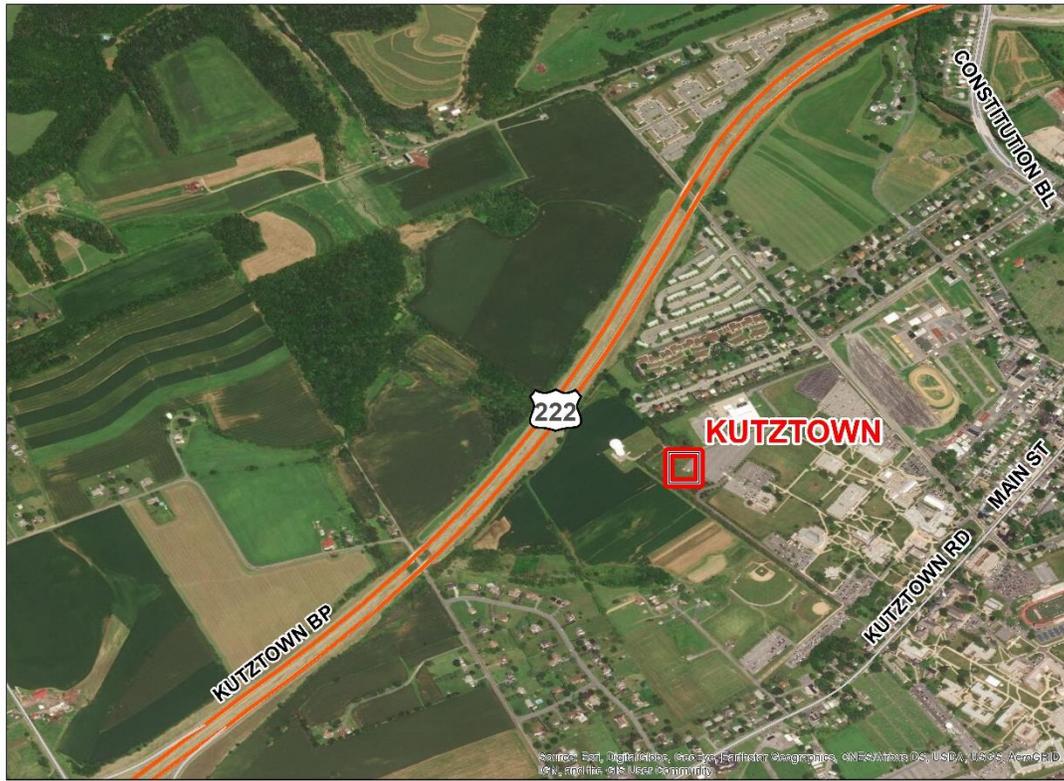
0 0.125 0.25 0.5 0.75 1 Miles

Monitor Summary

Monitor	Network	Start Date	Sample Frequency	Method Description	Monitoring Scale	Appendix D Objectives
Ozone	SLAMS	8/14/1997	Continuous	UV Absorption	Urban Scale	Max Ozone Concentration
PM _{2.5}	SLAMS	7/1/2009	Continuous	Beta Attenuation	Urban Scale	Extreme Downwind
Meteorology	Other	New 2020	Continuous	Met One AIO2	N/A	N/A

DEP's 2020 ANNUAL AMBIENT AIR MONITORING NETWORK PLAN

SITE NAME: KUTZTOWN
AQS ID: 420110006
CBSA: Reading MSA
COUNTY: BERKS
MUNICIPALITY: MAXATAWNY TWP
LATITUDE: 40.51408
LONGITUDE: -75.78972
ADDRESS: KUTZTOWN UNIVERSITY CAMPUS
COMMENTS: Measures downwind ozone concentrations of the Reading metro area



 Monitoring Site



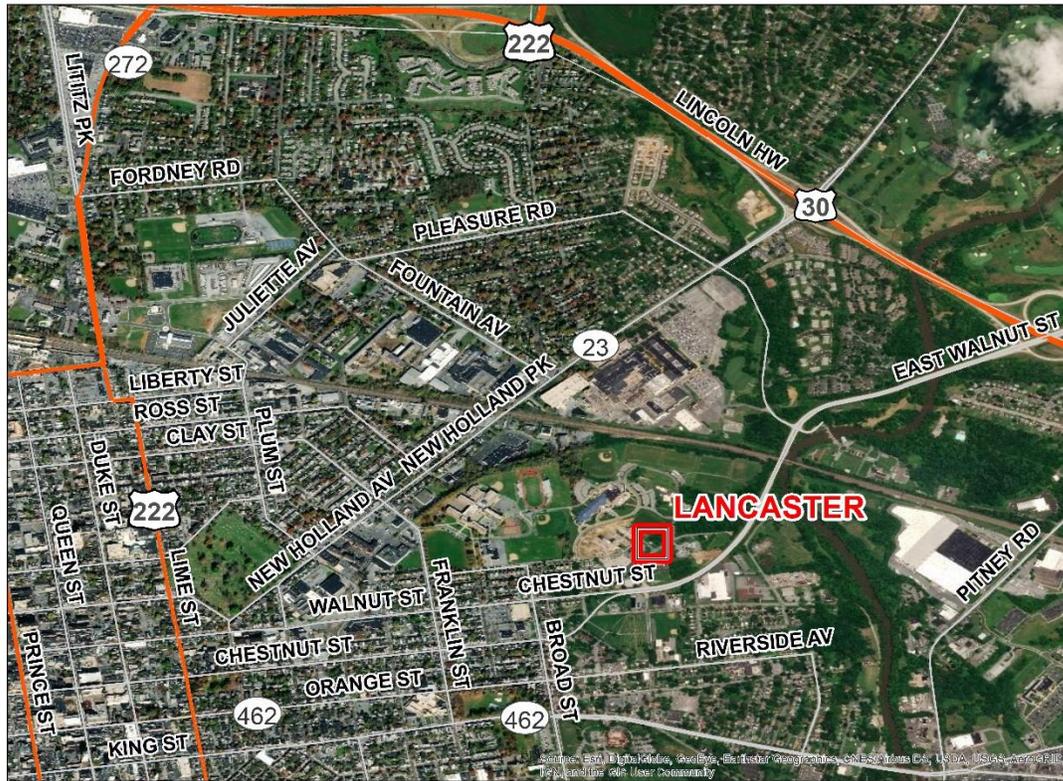
0 0.05 0.1 0.2 0.3 0.4 Miles

Monitor Summary

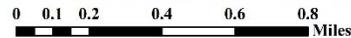
<i>Monitor</i>	<i>Network</i>	<i>Start Date</i>	<i>Sample Frequency</i>	<i>Method Description</i>	<i>Monitoring Scale</i>	<i>Appendix D Objectives</i>
Ozone	SLAMS	9/27/2007	Continuous	UV Absorption	Urban Scale	Extreme Downwind
Meteorology	Other	9/11/2019	Continuous	Met One AIO2	N/A	N/A

DEP's 2020 ANNUAL AMBIENT AIR MONITORING NETWORK PLAN

SITE NAME: LANCASTER
AQS ID: 420710007
CBSA: Lancaster MSA
COUNTY: LANCASTER
MUNICIPALITY: CITY OF LANCASTER
LATITUDE: 40.04686111
LONGITUDE: -76.28341667
ADDRESS: ABRAHAM LINCOLN JR HIGH GROFFTOWN RD
COMMENTS: Monitors for NAAQS compliance for criteria pollutants in the Lancaster MSA



Monitoring Site



Monitor Summary

Monitor	Network	Start Date	Sample Frequency	Method Description	Monitoring Scale	Appendix D Objectives
Ozone	SLAMS	1/1/1974	Continuous	UV Absorption	Neighborhood	Population Exposure
PM _{2.5}	SLAMS	1/1/1999	Daily	Gravimetric	Neighborhood	Population Exposure
PM _{2.5}	SLAMS	11/1/2003	Continuous	Scattered Light Spectrometry	Neighborhood	Population Exposure
PM _{2.5} Speciation	CSN	1/1/2002	1 in 6	Gravimetric	Neighborhood	Population Exposure
PM ₁₀	SLAMS	3/22/1995	Continuous	TEOM Gravimetric	Neighborhood	Population Exposure
VOC	Other	5/24/1999	1 in 6	Canister	N/A	N/A
Carbonyls	Other	5/24/1999	1 in 6	DNPH - Coated Cartridges	N/A	N/A
Metals	Other	5/24/1999	1 in 6	High Volume Sampler with Quartz Filter	N/A	N/A
Meteorology	Other	9/18/2019	Continuous	Met One AIO2	N/A	N/A

DEP's 2020 ANNUAL AMBIENT AIR MONITORING NETWORK PLAN

SITE NAME: LANCASTER DOWNWIND
AQS ID: 420710012
CBSA: Lancaster MSA
COUNTY: LANCASTER
MUNICIPALITY: LEACOCK TWP
LATITUDE: 40.043833
LONGITUDE: -76.1124
ADDRESS: 3445 W. NEWPORT ROAD
COMMENTS: Measures downwind ozone concentrations of the Lancaster metro area



 Monitoring Site



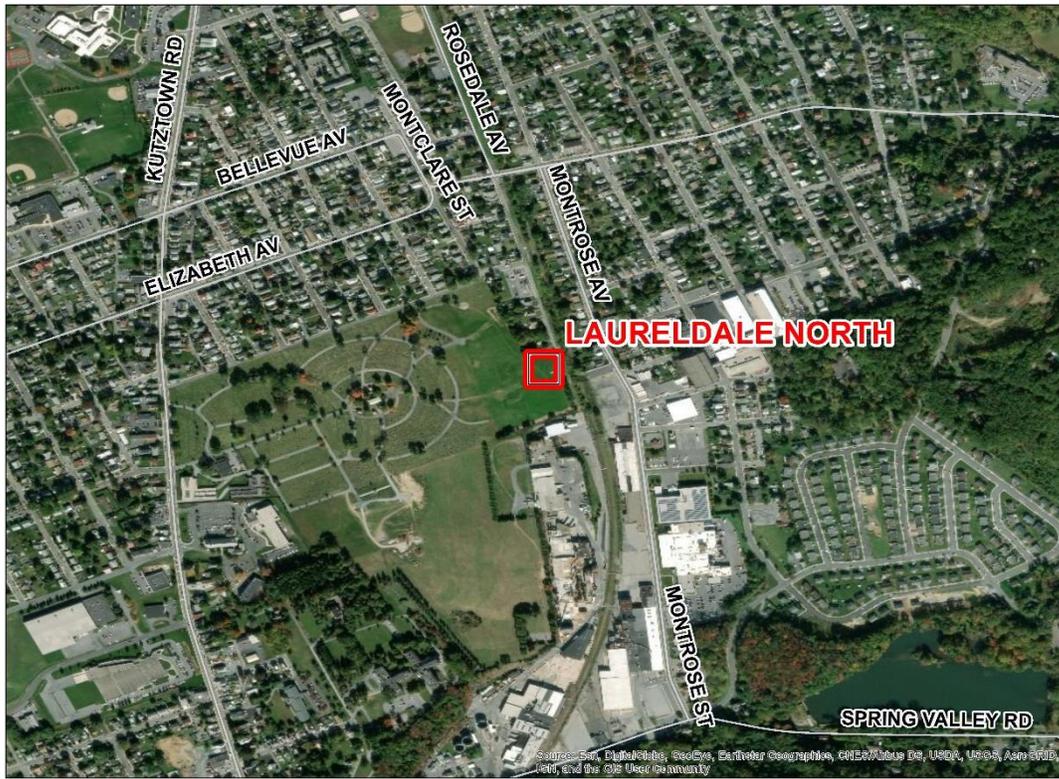
0 0.05 0.1 0.2 0.3 0.4 Miles

Monitor Summary

Monitor	Network	Start Date	Sample Frequency	Method Description	Monitoring Scale	Appendix D Objectives
Ozone	SLAMS	4/1/2008	Continuous	UV Absorption	Urban Scale	Extreme Downwind
PM _{2.5}	SLAMS	1/1/2016	Daily	Gravimetric	Urban Scale	Population Exposure
PM _{2.5}	SLAMS	1/1/2014	Continuous	Scattered Light Spectrometry	Urban Scale	Population Exposure
PM _{2.5} Speciation	CSN	11/1/2016	1 in 6	Gravimetric	Urban Scale	Population Exposure
Meteorology	Other	New 2020	Continuous	Met One AIO2	N/A	N/A

DEP's 2020 ANNUAL AMBIENT AIR MONITORING NETWORK PLAN

SITE NAME: LAURELDALE NORTH
AQS ID: 420110020
CBSA: Reading MSA
COUNTY: BERKS
MUNICIPALITY: MUHLENBERG TWP
LATITUDE: 40.385981
LONGITUDE: -75.912856
ADDRESS: 3139 KUTZTOWN ROAD
COMMENTS: Monitors lead concentrations from nearby sources



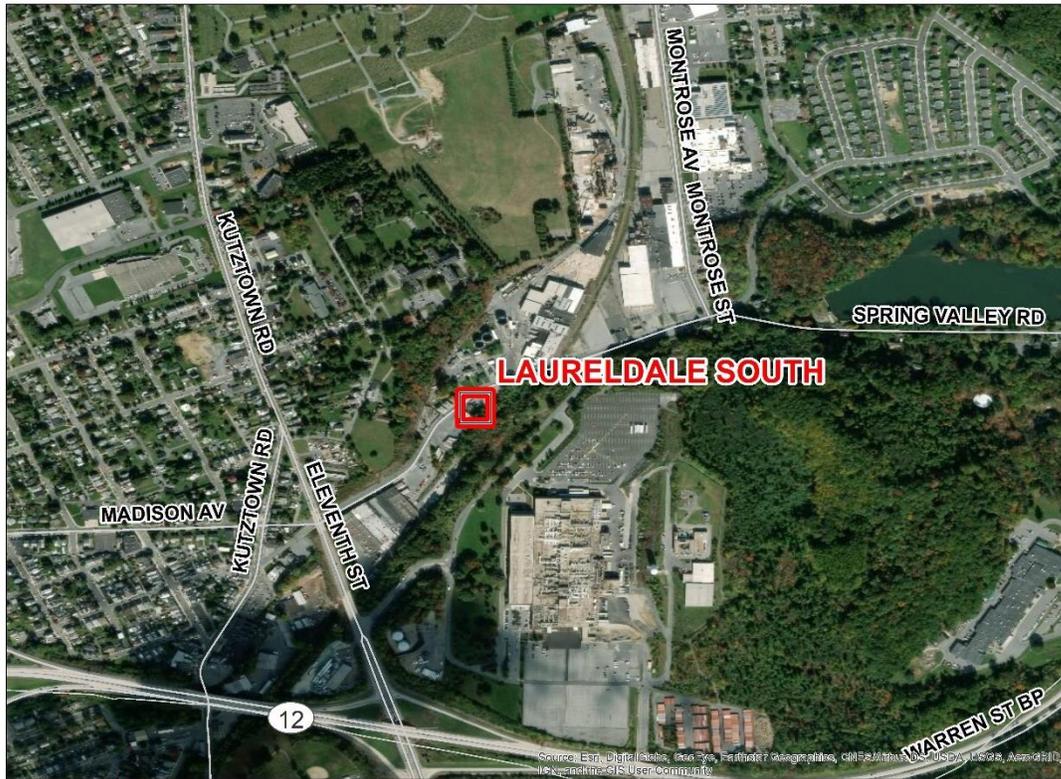
Monitoring Site

Monitor Summary

<i>Monitor</i>	<i>Network</i>	<i>Start Date</i>	<i>Sample Frequency</i>	<i>Method Description</i>	<i>Monitoring Scale</i>	<i>Appendix D Objectives</i>
Pb	SLAMS	1/1/2010	1 in 6	ICP-MS	Middle Scale	Source Oriented

DEP's 2020 ANNUAL AMBIENT AIR MONITORING NETWORK PLAN

SITE NAME: LAURELDALE SOUTH
AQS ID: 420111717
CBSA: Reading MSA
COUNTY: BERKS
MUNICIPALITY: MUHLENBERG TWP
LATITUDE: 40.37730556
LONGITUDE: -75.91458333
ADDRESS: SPRING VALLEY ROAD
COMMENTS: Monitors lead concentrations from nearby sources – legacy site



Monitoring Site



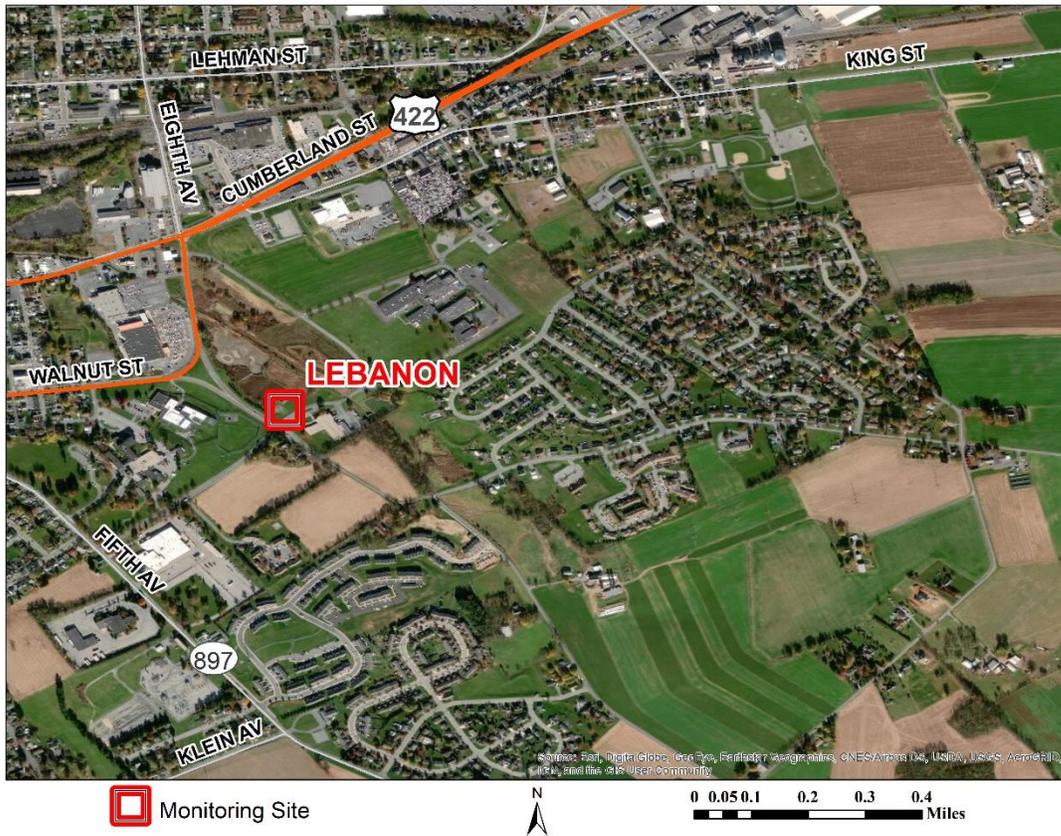
0 0.05 0.1 0.2 0.3 0.4 Miles

Monitor Summary

<i>Monitor</i>	<i>Network</i>	<i>Start Date</i>	<i>Sample Frequency</i>	<i>Method Description</i>	<i>Monitoring Scale</i>	<i>Appendix D Objectives</i>
Pb	SLAMS	1/1/1976	1 in 6	ICP-MS	Neighborhood	Source Oriented

DEP'S 2020 ANNUAL AMBIENT AIR MONITORING NETWORK PLAN

SITE NAME: LEBANON
AQS ID: 420750100
CBSA: Lebanon MSA
COUNTY: LEBANON
MUNICIPALITY: SOUTH LEBANON TWP
LATITUDE: 40.338400
LONGITUDE: -76.394585
ADDRESS: 190 BIRCH RD
COMMENTS: Meets federal monitoring requirements in the Lebanon MSA



Monitor Summary

Monitor	Network	Start Date	Sample Frequency	Method Description	Monitoring Scale	Appendix D Objectives
Ozone	SLAMS	2/25/2011	Continuous	UV Absorption	Urban Scale	Max Ozone Concentration
PM _{2.5}	SLAMS	1/7/2016	Daily	Gravimetric	Urban Scale	Population Exposure
PM _{2.5}	SLAMS	2/25/2011	Continuous	Beta Attenuation	Urban Scale	Population Exposure
PM _{2.5} Speciation	CSN	1/1/2020	1 in 6	Gravimetric	Urban Scale	Population Exposure
Meteorology	Other	9/5/2019	Continuous	Met One AIO2	N/A	N/A

DEP's 2020 ANNUAL AMBIENT AIR MONITORING NETWORK PLAN

SITE NAME: LYONS BORO
AQS ID: 420110021
CBSA: Reading MSA
COUNTY: BERKS
MUNICIPALITY: LYONS BORO
LATITUDE: 40.477075
LONGITUDE: -75.756919
ADDRESS: KEMP ST.
COMMENTS: Monitors lead concentrations from nearby sources



 Monitoring Site



0 0.035 0.07 0.14 0.21 0.28 Miles

Monitor Summary

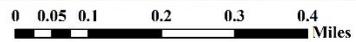
<i>Monitor</i>	<i>Network</i>	<i>Start Date</i>	<i>Sample Frequency</i>	<i>Method Description</i>	<i>Monitoring Scale</i>	<i>Appendix D Objectives</i>
Pb	SLAMS	1/1/2010	1 in 6	ICP-MS	Middle Scale	Source Oriented

DEP’s 2020 ANNUAL AMBIENT AIR MONITORING NETWORK PLAN

SITE NAME: LYONS PARK
AQS ID: 420110022
CBSA: Reading MSA
COUNTY: BERKS
MUNICIPALITY: LYONS BORO
LATITUDE: 40.478319
LONGITUDE: -75.753947
ADDRESS: PARK AVE.
COMMENTS: Monitors lead concentrations from nearby sources



Monitoring Site



Monitor Summary

<i>Monitor</i>	<i>Network</i>	<i>Start Date</i>	<i>Sample Frequency</i>	<i>Method Description</i>	<i>Monitoring Scale</i>	<i>Appendix D Objectives</i>
Pb	SLAMS	1/1/2010	1 in 6	ICP-MS	Middle Scale	Source Oriented

DEP's 2020 ANNUAL AMBIENT AIR MONITORING NETWORK PLAN

SITE NAME: MARCUS HOOK
AQS ID: 420450109
CBSA: Philadelphia-Camden-Wilmington MSA
COUNTY: DELAWARE
MUNICIPALITY: MARCUS HOOK BORO
LATITUDE: 39.8178
LONGITUDE: -75.4142
ADDRESS: EAST 8TH AVE & CHURCH ST.
COMMENTS: Monitors criteria pollutants and VOC near oil refineries



 Monitoring Site



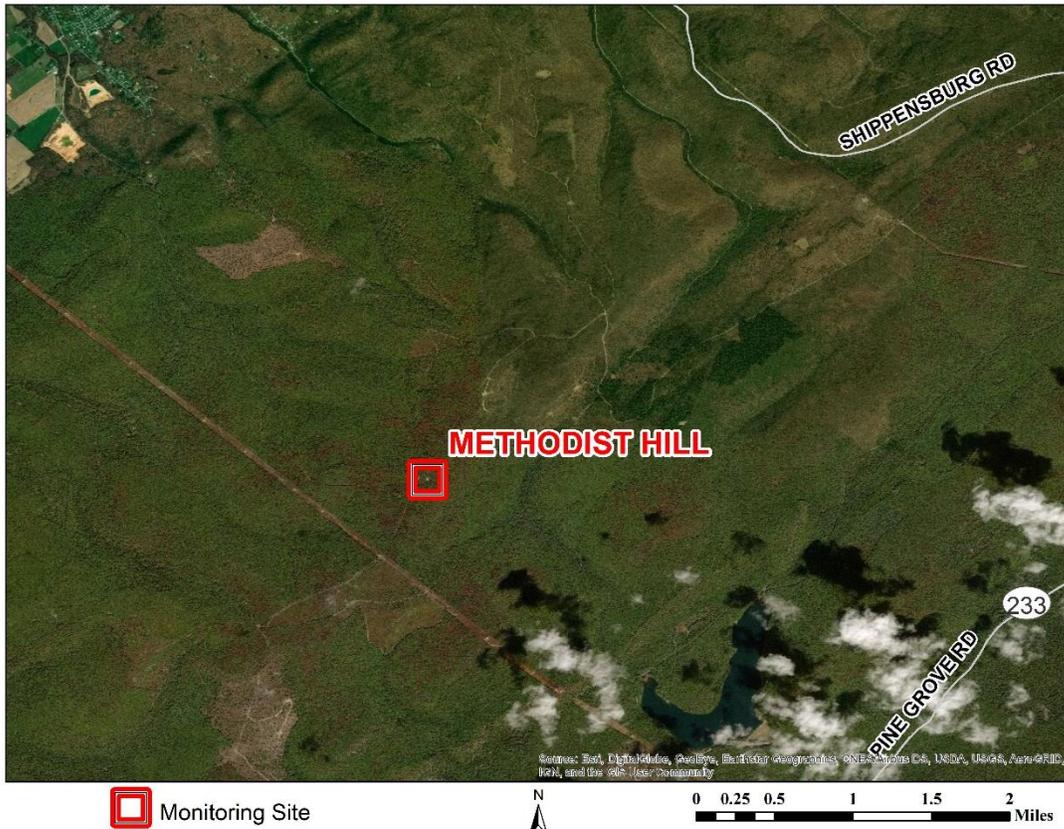
0 0.075 0.15 0.3 0.45 0.6 Miles

Monitor Summary

<i>Monitor</i>	<i>Network</i>	<i>Start Date</i>	<i>Sample Frequency</i>	<i>Method Description</i>	<i>Monitoring Scale</i>	<i>Appendix D Objectives</i>
PM _{2.5}	SPM	12/1/2014	Continuous	Scattered Light Spectrometry	Neighborhood	Population Exposure
VOC	Other	4/2/1995	1 in 6	Canister	N/A	N/A

DEP's 2020 ANNUAL AMBIENT AIR MONITORING NETWORK PLAN

SITE NAME: METHODIST HILL
AQS ID: 420550001
CBSA: Chambersburg-Waynesboro MSA
COUNTY: FRANKLIN
MUNICIPALITY: SOUTHAMPTON TWP
LATITUDE: 39.96072222
LONGITUDE: -77.47552778
ADDRESS: FOREST ROAD - METHODIST HILL
COMMENTS: Monitors regional transport of ozone into areas east of the Appalachians



 Monitoring Site

Monitor Summary

<i>Monitor</i>	<i>Network</i>	<i>Start Date</i>	<i>Sample Frequency</i>	<i>Method Description</i>	<i>Monitoring Scale</i>	<i>Appendix D Objectives</i>
Ozone	SLAMS	6/26/1996	Continuous	UV Absorption	Regional Scale	Regional Transport
Meteorology	Other	11/15/2019	Continuous	Met One AIO2	N/A	N/A

DEP's 2020 ANNUAL AMBIENT AIR MONITORING NETWORK PLAN

SITE NAME: MONTOURSVILLE
AQS ID: 420810100
CBSA: Williamsport MSA
COUNTY: LYCOMING
MUNICIPALITY: MONTOURSVILLE BORO
LATITUDE: 41.25019445
LONGITUDE: -76.91344445
ADDRESS: 899 CHERRY STREET
COMMENTS: Meets ozone monitoring requirements in the Williamsport MSA



 Monitoring Site



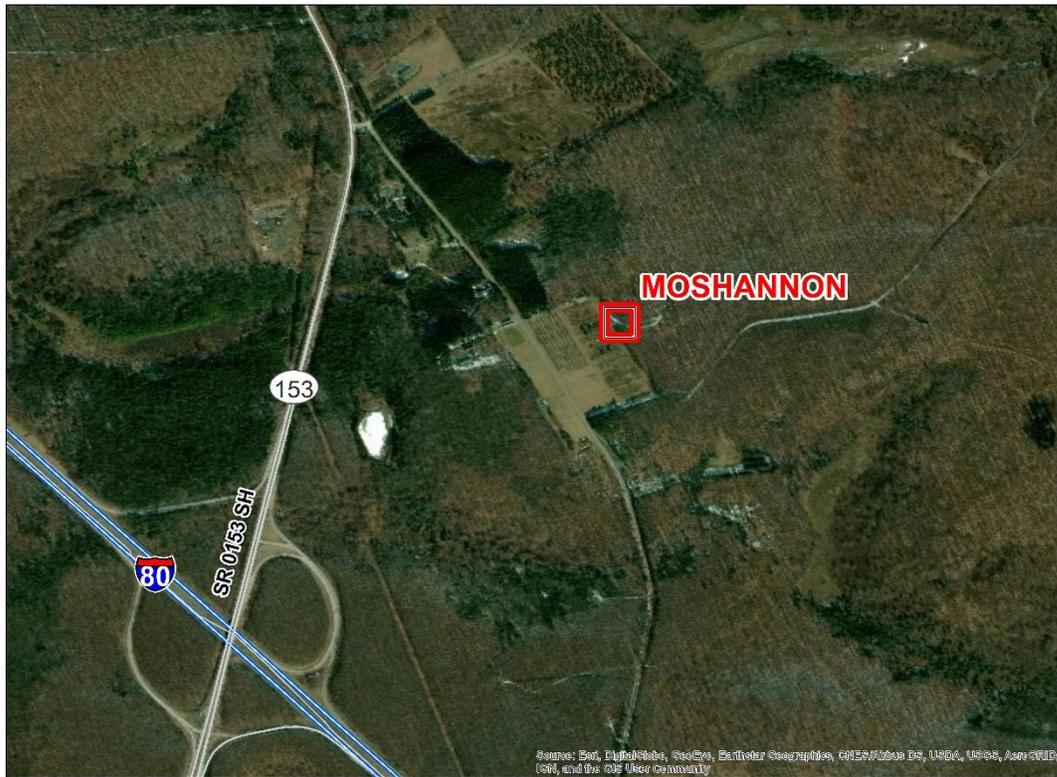
0 0.075 0.15 0.3 0.45 0.6 Miles

Monitor Summary

<i>Monitor</i>	<i>Network</i>	<i>Start Date</i>	<i>Sample Frequency</i>	<i>Method Description</i>	<i>Monitoring Scale</i>	<i>Appendix D Objectives</i>
Ozone	SLAMS	11/20/2001	Continuous	UV Absorption	Urban Scale	Population Exposure
Meteorology	Other	12/18/2019	Continuous	Met One AIO2	N/A	N/A

DEP's 2020 ANNUAL AMBIENT AIR MONITORING NETWORK PLAN

SITE NAME: MOSHANNON
AQS ID: 420334000
CBSA: DuBois Micropolitan Area
COUNTY: CLEARFIELD
MUNICIPALITY: PINE TWP
LATITUDE: 41.1175
LONGITUDE: -78.52619445
ADDRESS: LOCATED NEAR S.B. ELLIOTT STATE PARK
COMMENTS: Originally sited for research purposes investigating effects of ozone on vegetation by Penn State University



Monitoring Site



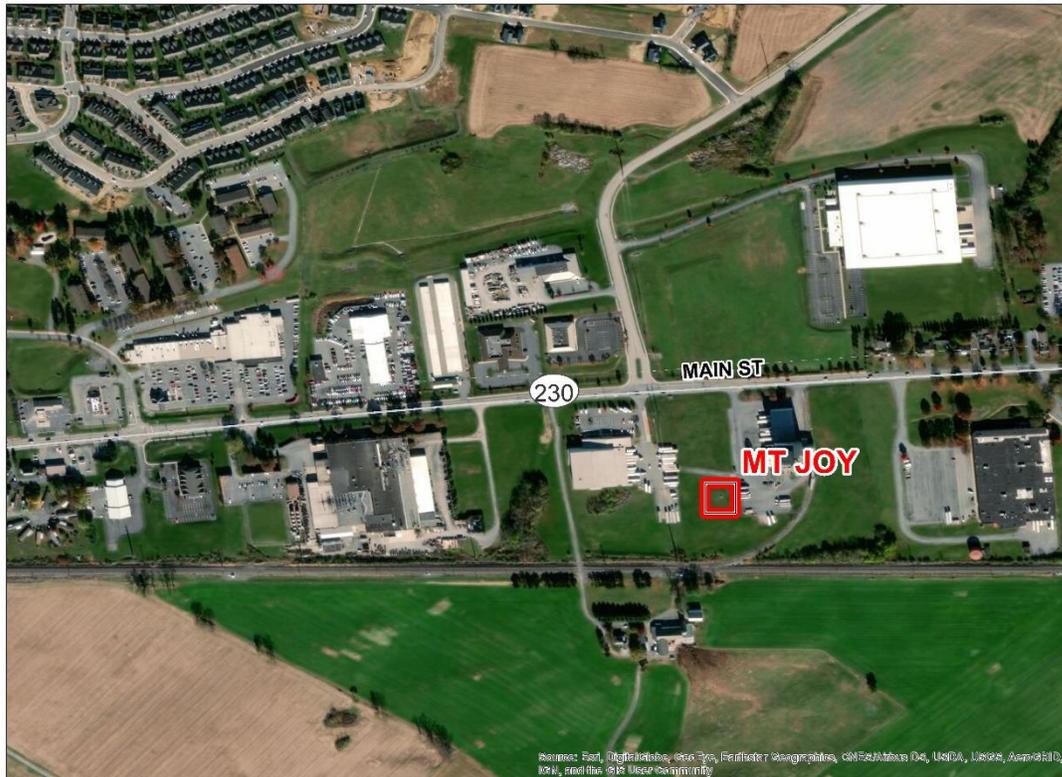
0 0.075 0.15 0.3 0.45 0.6 Miles

Monitor Summary

<i>Monitor</i>	<i>Network</i>	<i>Start Date</i>	<i>Sample Frequency</i>	<i>Method Description</i>	<i>Monitoring Scale</i>	<i>Appendix D Objectives</i>
Ozone	SLAMS	4/1/1996	Continuous	UV Absorption	Regional Scale	Regional Transport
Meteorology	Other	New 2020	Continuous	Met One AIO2	N/A	N/A

DEP's 2020 ANNUAL AMBIENT AIR MONITORING NETWORK PLAN

SITE NAME: MT JOY
AQS ID: 420710009
CBSA: Lancaster MSA
COUNTY: LANCASTER
MUNICIPALITY: RAPHO TWP
LATITUDE: 40.108944
LONGITUDE: -76.472235
ADDRESS: 1088 EAST MAIN STREET
COMMENTS: Monitors lead concentrations downwind of nearby source



 Monitoring Site



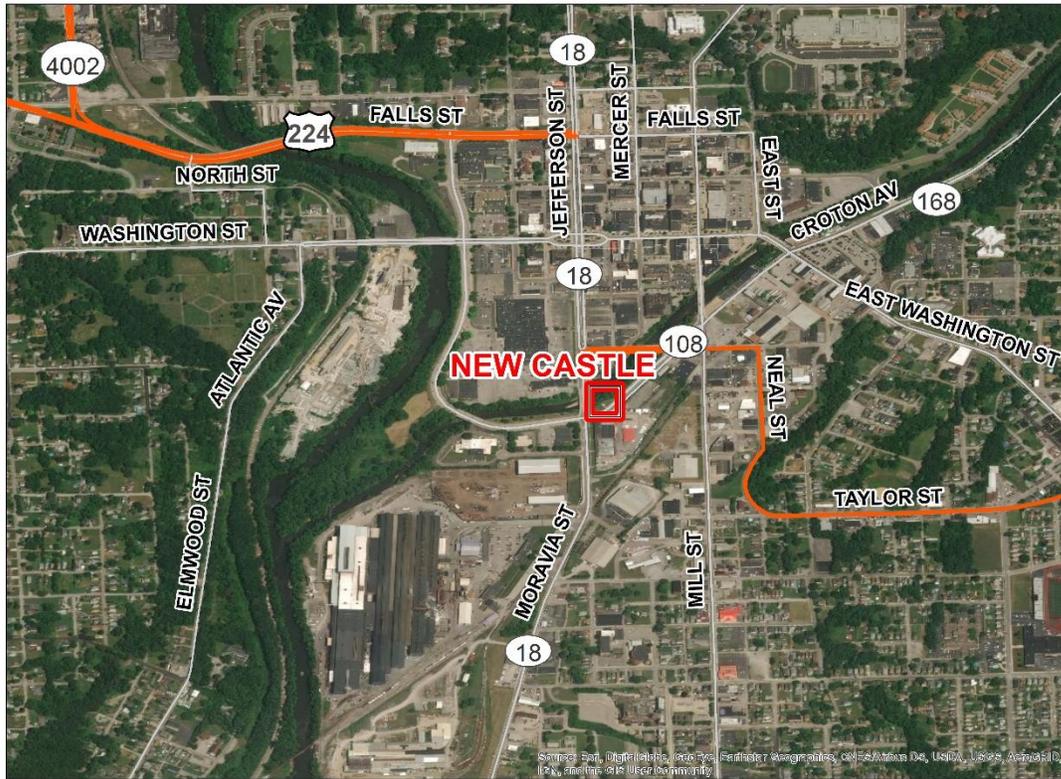
0 0.035 0.07 0.14 0.21 0.28 Miles

Monitor Summary

<i>Monitor</i>	<i>Network</i>	<i>Start Date</i>	<i>Sample Frequency</i>	<i>Method Description</i>	<i>Monitoring Scale</i>	<i>Appendix D Objectives</i>
Pb	SLAMS	1/1/2012	1 in 6	ICP-MS	Middle Scale	Source Oriented

DEP's 2020 ANNUAL AMBIENT AIR MONITORING NETWORK PLAN

SITE NAME: NEW CASTLE
AQS ID: 420730015
CBSA: New Castle Micropolitan Area
COUNTY: LAWRENCE
MUNICIPALITY: CITY OF NEW CASTLE
LATITUDE: 40.99605556
LONGITUDE: -80.34652778
ADDRESS: S CROTON AVE & JEFFERSON ST.
COMMENTS: Monitors criteria pollutants downwind of source regions



Monitoring Site



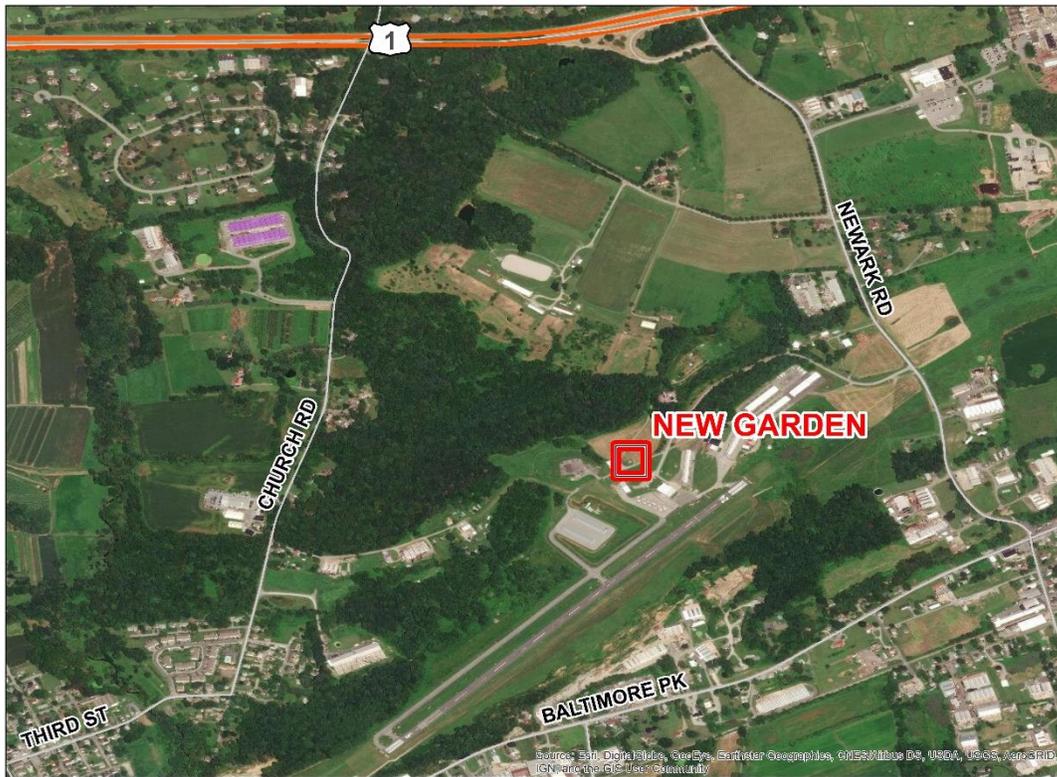
0 0.05 0.1 0.2 0.3 0.4 Miles

Monitor Summary

Monitor	Network	Start Date	Sample Frequency	Method Description	Monitoring Scale	Appendix D Objectives
Ozone	SLAMS	1/1/1974	Continuous	UV Absorption	Urban Scale	Population Exposure
Meteorology	Other	1/9/2020	Continuous	Met One AIO2	N/A	N/A

DEP'S 2020 ANNUAL AMBIENT AIR MONITORING NETWORK PLAN

SITE NAME: NEW GARDEN
AQS ID: 420290100
CBSA: Philadelphia-Camden-Wilmington MSA
COUNTY: CHESTER
MUNICIPALITY: NEW GARDEN TWP
LATITUDE: 39.83458333
LONGITUDE: -75.76805556
ADDRESS: NEW GARDEN AIRPORT - TOUGHKENAMON
COMMENTS: Meets federal monitoring requirements in the Philadelphia-Camden-Wilmington MSA



 Monitoring Site



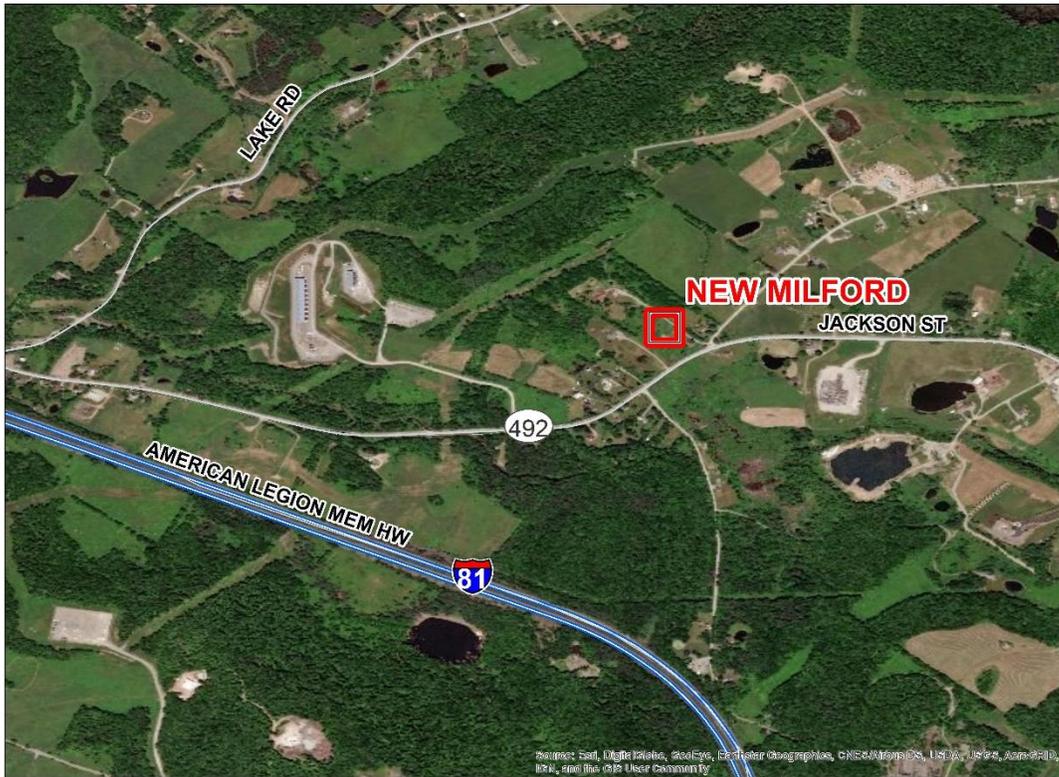
0 0.05 0.1 0.2 0.3 0.4 Miles

Monitor Summary

<i>Monitor</i>	<i>Network</i>	<i>Start Date</i>	<i>Sample Frequency</i>	<i>Method Description</i>	<i>Monitoring Scale</i>	<i>Appendix D Objectives</i>
Ozone	SLAMS	6/29/2000	Continuous	UV Absorption	Regional Scale	Extreme Downwind
PM_{2.5}	SLAMS	7/1/2009	Continuous	Scattered Light Spectrometry	Urban Scale	Regional Transport
PM_{2.5} Speciation	CSN	1/1/2002	1 in 6	Gravimetric	Regional Scale	Regional Transport
Meteorology	Other	11/20/2019	Continuous	Met One AIO2	N/A	N/A

DEP's 2020 ANNUAL AMBIENT AIR MONITORING NETWORK PLAN

SITE NAME: NEW MILFORD
AQS ID: 421150215
CBSA: Northeast Region – Non-CBSA
COUNTY: SUSQUEHANNA
MUNICIPALITY: NEW MILFORD TWP
LATITUDE: 41.867336
LONGITUDE: -75.686602
ADDRESS: HALL RD
COMMENTS: PM_{2.5} network expansion due to shale gas activities



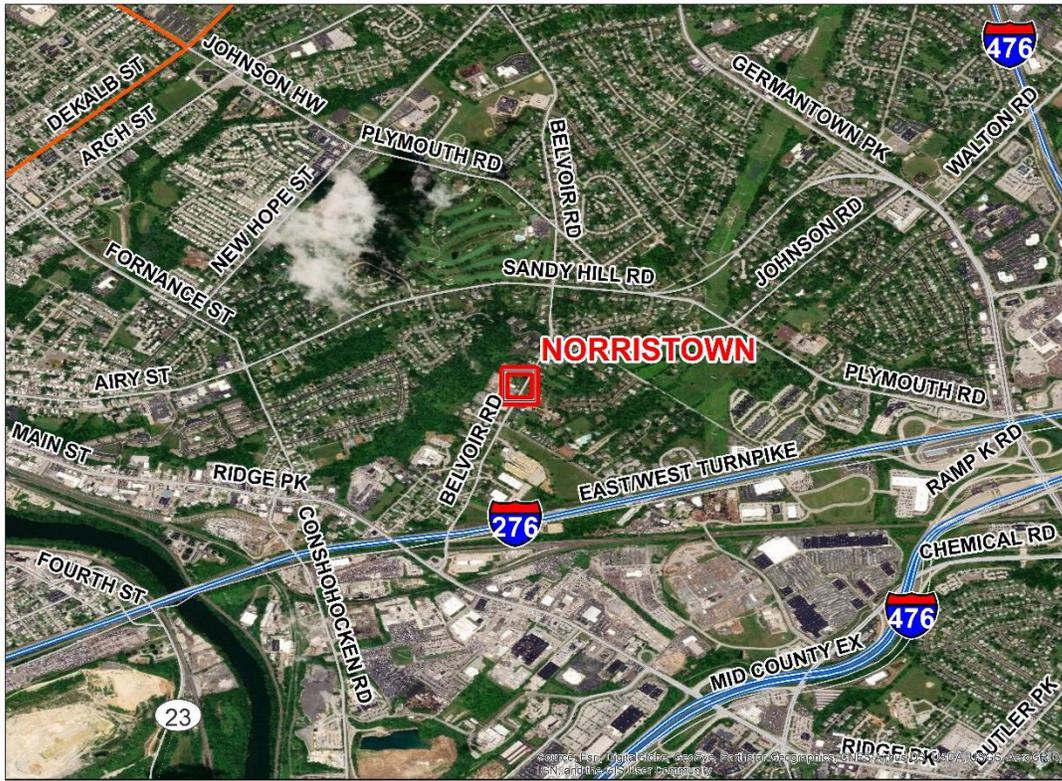
 Monitoring Site

Monitor Summary

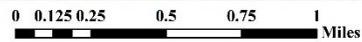
<i>Monitor</i>	<i>Network</i>	<i>Start Date</i>	<i>Sample Frequency</i>	<i>Method Description</i>	<i>Monitoring Scale</i>	<i>Appendix D Objectives</i>
PM_{2.5}	SLAMS	10/1/2018	Continuous	Scattered Light Spectrometry	Neighborhood	Source Oriented
VOC	Other	10/1/2018	1 in 6	Canister	N/A	N/A
Carbonyls	Other	10/1/2018	1 in 6	DNPH - Coated Cartridges	N/A	N/A
Meteorology	Other	8/14/2019	Continuous	Met One AIO2	N/A	N/A

DEP's 2020 ANNUAL AMBIENT AIR MONITORING NETWORK PLAN

SITE NAME: NORRISTOWN
AQS ID: 420910013
CBSA: Philadelphia-Camden-Wilmington MSA
COUNTY: MONTGOMERY
MUNICIPALITY: PLYMOUTH TWP
LATITUDE: 40.11327778
LONGITUDE: -75.30869445
ADDRESS: STATE ARMORY - 1046 BELVOIR RD
COMMENTS: Meets federal monitoring requirements in the PA part of the Philadelphia-Camden-Wilmington MSA



Monitoring Site



Monitor Summary

<i>Monitor</i>	<i>Network</i>	<i>Start Date</i>	<i>Sample Frequency</i>	<i>Method Description</i>	<i>Monitoring Scale</i>	<i>Appendix D Objectives</i>
Ozone	SLAMS	1/1/1974	Continuous	UV Absorption	Neighborhood	Population Exposure
PM_{2.5}	SLAMS	10/30/2003	Continuous	Beta Attenuation	Neighborhood	Population Exposure
Meteorology	Other	New 2020	Continuous	Met One AIO2	N/A	N/A

DEP's 2020 ANNUAL AMBIENT AIR MONITORING NETWORK PLAN

SITE NAME: PALMERTON
AQS ID: 420250214
CBSA: Allentown-Bethlehem-Easton MSA
COUNTY: CARBON
MUNICIPALITY: LOWER TOWAMENSING TWP
LATITUDE: 40.814204
LONGITUDE: -75.580448
ADDRESS: 620 LITTLE GAP RD
COMMENTS: Monitors lead concentrations from nearby source



 Monitoring Site



0 0.05 0.1 0.2 0.3 0.4 Miles

Monitor Summary

<i>Monitor</i>	<i>Network</i>	<i>Start Date</i>	<i>Sample Frequency</i>	<i>Method Description</i>	<i>Monitoring Scale</i>	<i>Appendix D Objectives</i>
Pb	SLAMS	5/9/2012	1 in 6	ICP-MS	Middle Scale	Source Oriented

DEP's 2020 ANNUAL AMBIENT AIR MONITORING NETWORK PLAN

SITE NAME: PALMERTON ELECTRIC
AQS ID: 420250216
CBSA: Allentown-Bethlehem-Easton MSA
COUNTY: CARBON
MUNICIPALITY: LOWER TOWAMENSING TWP
LATITUDE: 40.81329
LONGITUDE: -75.56979
ADDRESS: LITTLE GAP RD
COMMENTS: Monitors metals near source region



Monitoring Site



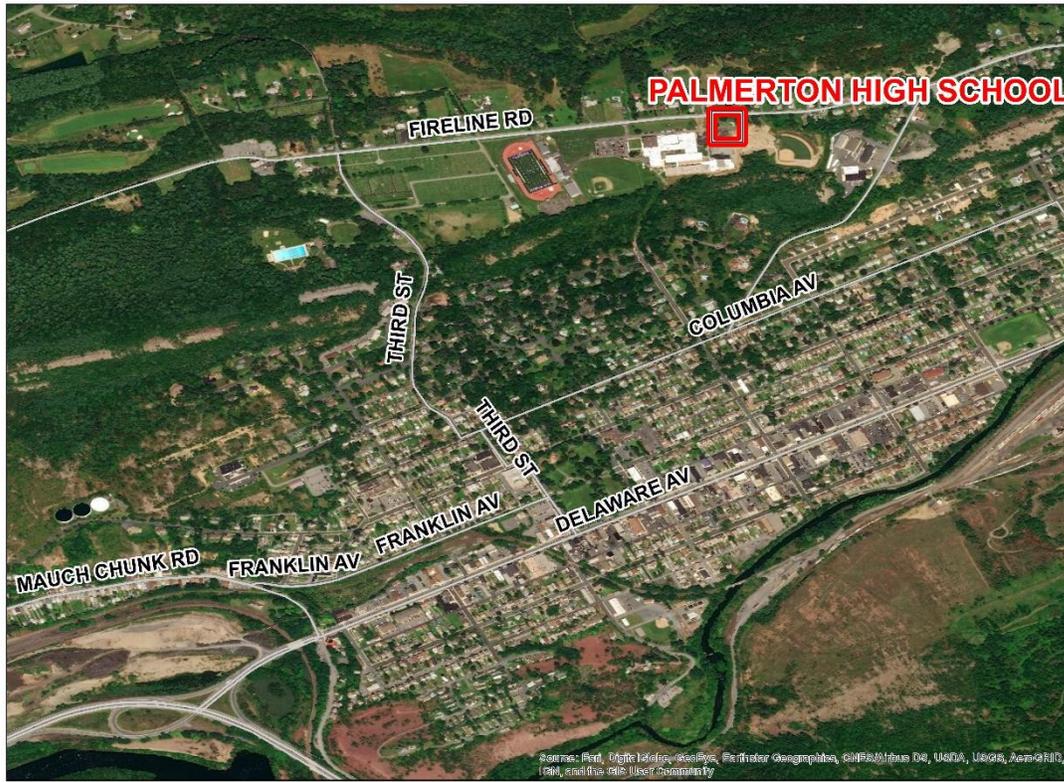
0 0.05 0.1 0.2 0.3 0.4 Miles

Monitor Summary

<i>Monitor</i>	<i>Network</i>	<i>Start Date</i>	<i>Sample Frequency</i>	<i>Method Description</i>	<i>Monitoring Scale</i>	<i>Appendix D Objectives</i>
Metals	Other	4/1/2017	1 in 6	High Volume Sampler with Quartz Filter	N/A	N/A
Metals (TSP-based)	Other	1/1/2017	1 in 6	High Volume Sampler with Glass Filter	N/A	N/A
Meteorology	Other	7/24/2019	Continuous	Met One AIO2	N/A	N/A

DEP's 2020 ANNUAL AMBIENT AIR MONITORING NETWORK PLAN

SITE NAME: PALMERTON HIGH SCHOOL
AQS ID: 420250217
CBSA: Allentown-Bethlehem-Easton MSA
COUNTY: CARBON
MUNICIPALITY: LOWER TOWAMENSING TWP
LATITUDE: 40.812488
LONGITUDE: -75.60594
ADDRESS: 3525 FIRELINE RD
COMMENTS: Monitors lead concentrations from nearby source



Monitoring Site



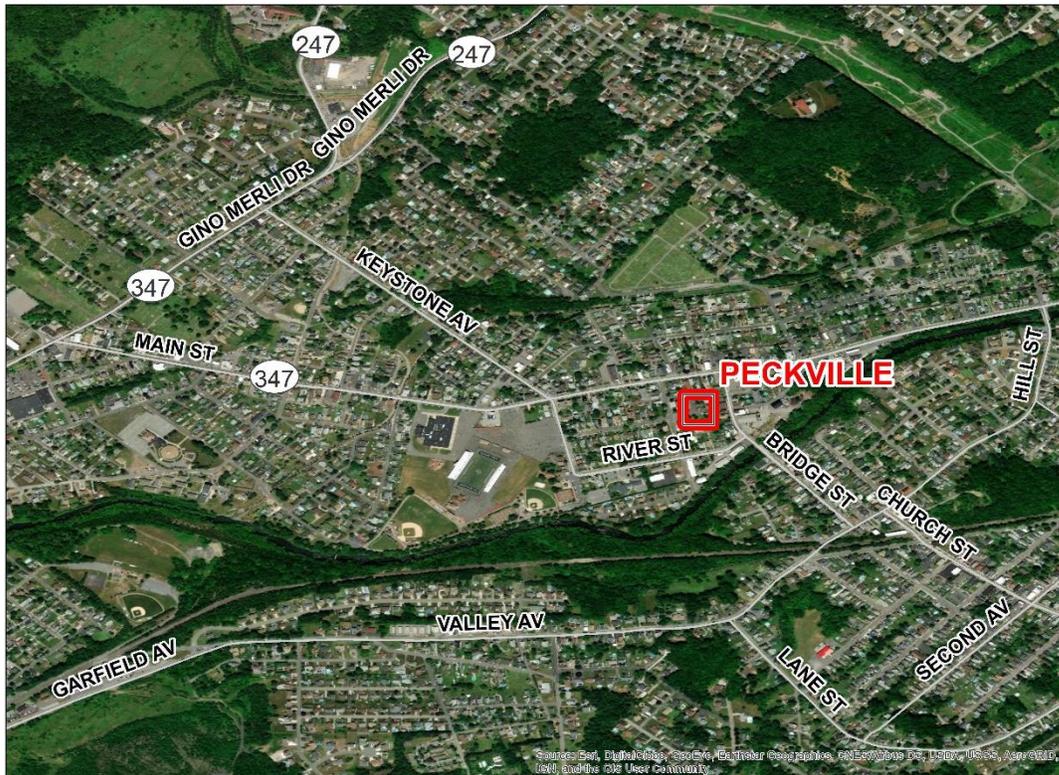
0 0.05 0.1 0.2 0.3 0.4 Miles

Monitor Summary

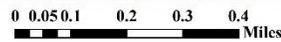
<i>Monitor</i>	<i>Network</i>	<i>Start Date</i>	<i>Sample Frequency</i>	<i>Method Description</i>	<i>Monitoring Scale</i>	<i>Appendix D Objectives</i>
Pb	SPM	New 2020	1 in 6	ICP-MS	Middle Scale	Source Oriented
Metals	Other	New 2020	1 in 6	High Volume Sampler with Quartz Filter	N/A	N/A
Meteorology	Other	New 2020	Continuous	Met One AIO2	N/A	N/A

DEP’s 2020 ANNUAL AMBIENT AIR MONITORING NETWORK PLAN

SITE NAME: PECKVILLE
AQS ID: 420690101
CBSA: Scranton-Wilkes-Barre-Hazleton MSA
COUNTY: LACKAWANNA
MUNICIPALITY: BLAKELY BORO
LATITUDE: 41.47908333
LONGITUDE: -75.57819445
ADDRESS: WILSON FIRE CO. ERIE & PLEASANT
COMMENTS: Monitors ozone concentrations to meet federal requirements in the Scranton-Wilkes-Barre MSA



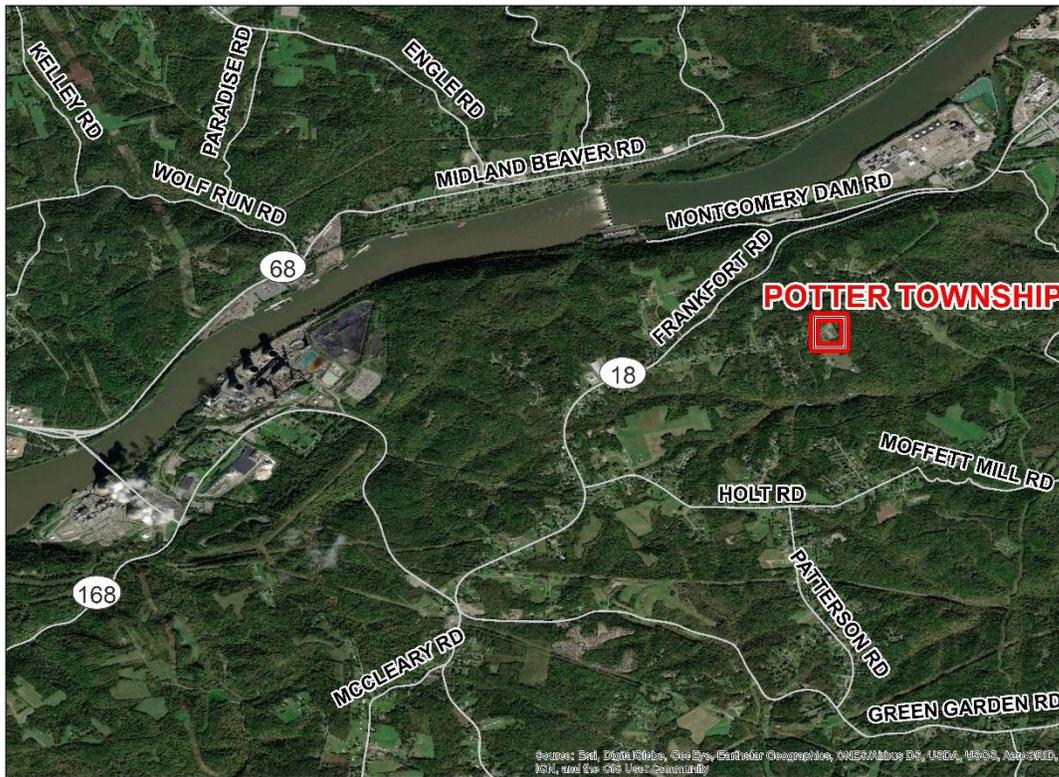
 Monitoring Site



Monitor Summary

Monitor	Network	Start Date	Sample Frequency	Method Description	Monitoring Scale	Appendix D Objectives
Ozone	SLAMS	4/1/1991	Continuous	UV Absorption	Urban Scale	Max Ozone Concentration
Meteorology	Other	New 2020	Continuous	Met One AIO2	N/A	N/A

SITE NAME: POTTER TOWNSHIP
AQS ID: 420070006
CBSA: Pittsburgh MSA
COUNTY: BEAVER
MUNICIPALITY: POTTER TWP
LATITUDE: 40.638936
LONGITUDE: -80.365653
ADDRESS: 206 MOWRY RD
COMMENTS: Monitors lead concentrations from nearby source
This site will be discontinued.



 Monitoring Site



0 0.25 0.5 1 1.5 2 Miles

Monitor Summary

Monitor	Network	Start Date	Sample Frequency	Method Description	Monitoring Scale	Appendix D Objectives
Pb (discontinue)	SLAMS	1/1/2010	1 in 6	ICP-MS	Middle Scale	Source Oriented

DEP’s 2020 ANNUAL AMBIENT AIR MONITORING NETWORK PLAN

SITE NAME: PRESQUE ISLE
AQS ID: 420490004
CBSA: Erie MSA
COUNTY: ERIE
MUNICIPALITY: MILLCREEK TWP
LATITUDE: 42.159912
LONGITUDE: -80.080276
ADDRESS: COAST GUARD RD
COMMENTS: Monitors VOC’s and metals near source regions



 Monitoring Site



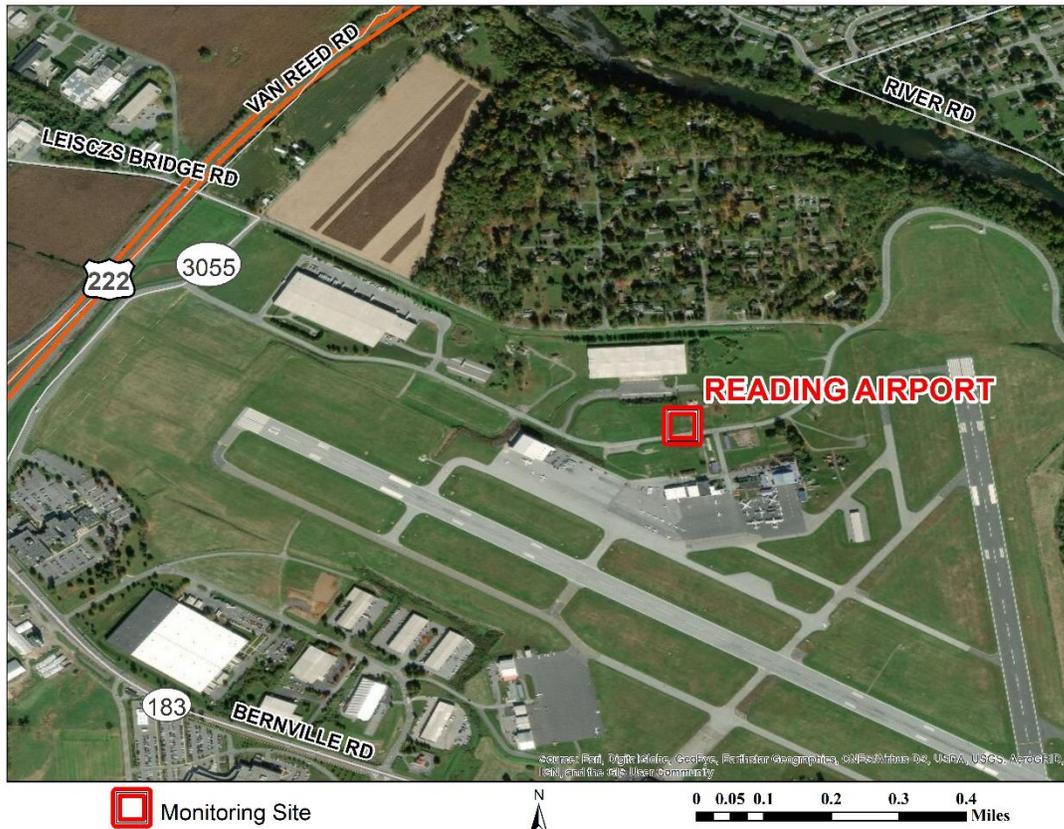
0 0.05 0.1 0.2 0.3 0.4 Miles

Monitor Summary

<i>Monitor</i>	<i>Network</i>	<i>Start Date</i>	<i>Sample Frequency</i>	<i>Method Description</i>	<i>Monitoring Scale</i>	<i>Appendix D Objectives</i>
VOC	Other	6/8/2000	1 in 6	Canister	N/A	N/A
Metals	Other	6/8/2000	1 in 6	High Volume Sampler with Quartz Filter	N/A	N/A

DEP's 2020 ANNUAL AMBIENT AIR MONITORING NETWORK PLAN

SITE NAME: READING AIRPORT
AQS ID: 420110011
CBSA: Reading MSA
COUNTY: BERKS
MUNICIPALITY: BERN TWP
LATITUDE: 40.38335
LONGITUDE: -75.9686
ADDRESS: 1059 ARNOLD ROAD
COMMENTS: Monitors for NAAQS compliance for criteria pollutants in Reading MSA



Monitor Summary

Monitor	Network	Start Date	Sample Frequency	Method Description	Monitoring Scale	Appendix D Objectives
Ozone	SLAMS	7/1/2007	Continuous	UV Absorption	Neighborhood	Population Exposure
SO ₂	SLAMS	7/1/2007	Continuous	UV Fluorescence	Neighborhood	Population Exposure
PM _{2.5}	SLAMS	7/1/2007	Daily	Gravimetric	Neighborhood	Population Exposure
PM _{2.5}	SLAMS	7/1/2007	Continuous	Scattered Light Spectrometry	Neighborhood	Population Exposure
VOC	Other	6/17/2007	1 in 6	Canister	N/A	N/A
Metals	Other	6/17/2007	1 in 6	High Volume Sampler with Quartz Filter	N/A	N/A
Meteorology	Other	10/9/2019	Continuous	Met One AIO2	N/A	N/A

DEP’s 2020 ANNUAL AMBIENT AIR MONITORING NETWORK PLAN

SITE NAME: SALLADASBURG
AQS ID: 420810419
CBSA: Williamsport MSA
COUNTY: LYCOMING
MUNICIPALITY: MIFFLIN TWP
LATITUDE: 41.266263
LONGITUDE: -77.231189
ADDRESS: SALLADASBURG ELEMENTARY SCHOOL
COMMENTS: PM_{2.5} network expansion due to shale gas activities



 Monitoring Site



0 0.05 0.1 0.2 0.3 0.4 Miles

Monitor Summary

<i>Monitor</i>	<i>Network</i>	<i>Start Date</i>	<i>Sample Frequency</i>	<i>Method Description</i>	<i>Monitoring Scale</i>	<i>Appendix D Objectives</i>
PM_{2.5}	SLAMS	7/25/2019	Continuous	Scattered Light Spectrometry	Neighborhood	Source Oriented
Meteorology	Other	7/24/2019	Continuous	Met One AIO2	N/A	N/A

DEP's 2020 ANNUAL AMBIENT AIR MONITORING NETWORK PLAN

SITE NAME: SCRANTON
AQS ID: 420692006
CBSA: Scranton-Wilkes-Barre-Hazleton MSA
COUNTY: LACKAWANNA
MUNICIPALITY: CITY OF SCRANTON
LATITUDE: 41.442146
LONGITUDE: -75.630139
ADDRESS: GEORGE ST TROOP AND CITY OF SCRANTON
COMMENTS: Monitors for NAAQS compliance for criteria pollutants in the Scranton-Wilkes-Barre MSA



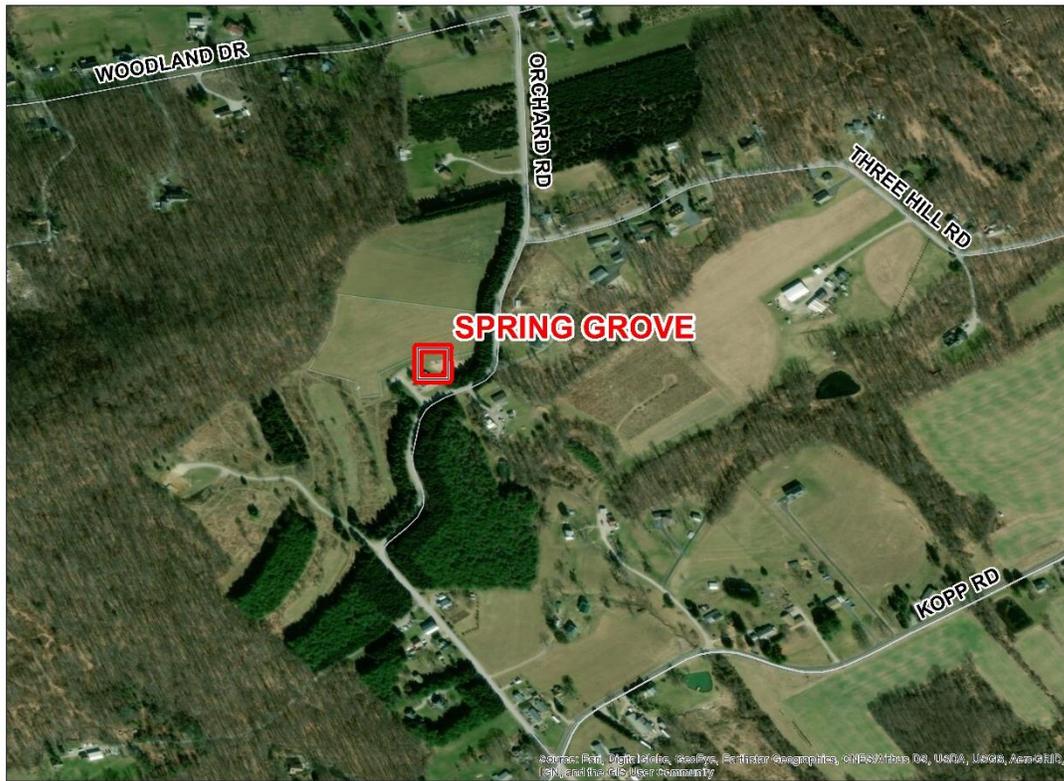
Monitor Summary

Monitor	Network	Start Date	Sample Frequency	Method Description	Monitoring Scale	Appendix D Objectives
Ozone	SLAMS	1/14/1974	Continuous	UV Absorption	Neighborhood	Max Ozone Concentration
NO ₂	SLAMS	1/1/1974	Continuous	Chemiluminescence	Neighborhood	Population Exposure
CO	SLAMS	1/1/1978	Continuous	Non-dispersive Infrared	Neighborhood	Population Exposure
PM _{2.5}	SLAMS	7/1/2009	Continuous	Scattered Light Spectrometry	Neighborhood	Population Exposure
Meteorology	Other	New 2020	Continuous	Met One AIO2	N/A	N/A

DEP's 2020 ANNUAL AMBIENT AIR MONITORING NETWORK PLAN

SITE NAME: SPRING GROVE
AQS ID: 421330012
CBSA: York MSA
COUNTY: York
MUNICIPALITY: JACKSON TWP
LATITUDE: 39.8751
LONGITUDE: -76.912256
ADDRESS: ORCHARD RD
COMMENTS: Source monitor to fulfill SO₂ DRR requirements
This site will be discontinued.

Photo not available



 Monitoring Site



0 0.0325 0.065 0.13 0.195 0.26 Miles

Monitor Summary

Monitor	Network	Start Date	Sample Frequency	Method Description	Monitoring Scale	Appendix D Objectives
SO ₂ (discontinue)	SLAMS	1/1/2017	Continuous	Pulsed Fluorescence	Urban Scale	Source Oriented

DEP's 2020 ANNUAL AMBIENT AIR MONITORING NETWORK PLAN

SITE NAME: STATE COLLEGE
AQS ID: 420270100
CBSA: State College MSA
COUNTY: CENTRE
MUNICIPALITY: COLLEGE TWP
LATITUDE: 40.81116667
LONGITUDE: -77.87722222
ADDRESS: PENN STATE UNIVERSITY - ARBORETUM SITE
COMMENTS: Meets federal monitoring requirements in the State College MSA



Monitor Summary

Monitor	Network	Start Date	Sample Frequency	Method Description	Monitoring Scale	Appendix D Objectives
Ozone	SLAMS	4/1/2000	Continuous	UV Absorption	Neighborhood	Population Exposure
SO ₂	SLAMS	3/8/2002	Continuous	UV Fluorescence	Neighborhood	Population Exposure
NO ₂	SLAMS	3/8/2002	Continuous	Chemiluminescence	Neighborhood	Population Exposure
PM _{2.5}	SLAMS	9/1/2010	Continuous	Scattered Light Spectrometry	Neighborhood	Population Exposure
Meteorology	Other	8/15/2019	Continuous	Met One AIO2	N/A	N/A

DEP's 2020 ANNUAL AMBIENT AIR MONITORING NETWORK PLAN

SITE NAME: STRONGSTOWN
AQS ID: 420630004
CBSA: Indiana Micropolitan Area
COUNTY: INDIANA
MUNICIPALITY: PINE TWP
LATITUDE: 40.563486
LONGITUDE: -78.9199432
ADDRESS: RT 403
COMMENTS: Monitors SO₂ concentrations in Indiana-Cambria County nonattainment area



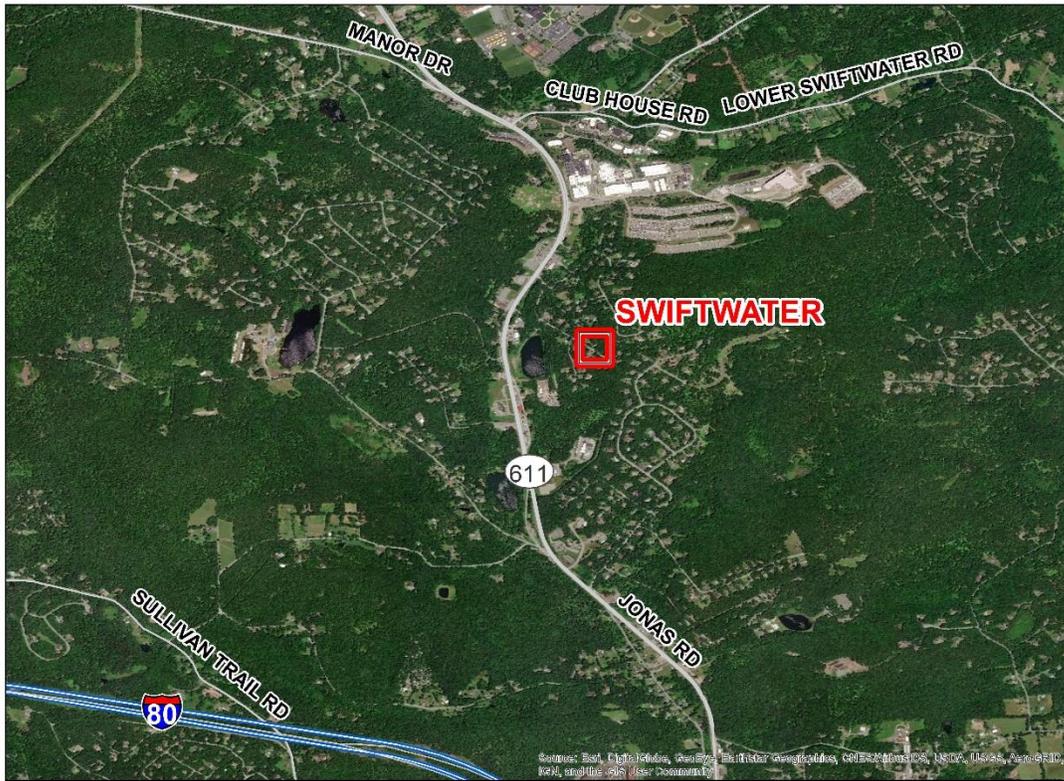
 Monitoring Site

Monitor Summary

<i>Monitor</i>	<i>Network</i>	<i>Start Date</i>	<i>Sample Frequency</i>	<i>Method Description</i>	<i>Monitoring Scale</i>	<i>Appendix D Objectives</i>
Ozone	SLAMS	11/1/2004	Continuous	UV Absorption	Urban Scale	Extreme Downwind
SO₂	SLAMS	11/1/2004	Continuous	UV Fluorescence	Urban Scale	Regional Transport
PM_{2.5}	SLAMS	7/25/2019	Continuous	Scattered Light Spectrometry	Neighborhood	Source Oriented
Meteorology	Other	New 2020	Continuous	Met One AIO2	N/A	N/A

DEP's 2020 ANNUAL AMBIENT AIR MONITORING NETWORK PLAN

SITE NAME: SWIFTWATER
AQS ID: 420890002
CBSA: East Stroudsburg MSA
COUNTY: MONROE
MUNICIPALITY: POCONO TWP
LATITUDE: 41.08306
LONGITUDE: -75.32328
ADDRESS: DEP/DCNR Pocono District Office
COMMENTS: Meets federal monitoring requirements in the PA portion of the East Stroudsburg MSA



 Monitoring Site

Monitor Summary

<i>Monitor</i>	<i>Network</i>	<i>Start Date</i>	<i>Sample Frequency</i>	<i>Method Description</i>	<i>Monitoring Scale</i>	<i>Appendix D Objectives</i>
Ozone	SLAMS	4/1/2006	Continuous	UV Absorption	Urban Scale	Extreme Downwind
Meteorology	Other	12/18/2019	Continuous	Met One AIO2	N/A	N/A

DEP’s 2020 ANNUAL AMBIENT AIR MONITORING NETWORK PLAN

SITE NAME: TIOGA COUNTY
AQS ID: 421174000
CBSA: Northcentral Region - Non-CBSA
COUNTY: TIOGA
MUNICIPALITY: UNION TWP
LATITUDE: 41.64558333
LONGITUDE: -76.93797222
ADDRESS: TIOGA
COMMENTS: Monitors for criteria pollutants near natural gas production facilities



 Monitoring Site



0 0.075 0.15 0.3 0.45 0.6 Miles

Monitor Summary

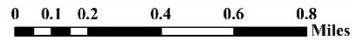
<i>Monitor</i>	<i>Network</i>	<i>Start Date</i>	<i>Sample Frequency</i>	<i>Method Description</i>	<i>Monitoring Scale</i>	<i>Appendix D Objectives</i>
Ozone	SLAMS	6/1/1999	Continuous	UV Absorption	Regional Scale	Regional Transport
NO₂	SLAMS	5/9/2012	Continuous	Chemiluminescence	Urban Scale	Source Oriented
PM_{2.5}	SLAMS	10/1/2014	Continuous	Scattered Light Spectrometry	Urban Scale	Regional Transport
Meteorology	Other	10/15/2019	Continuous	Met One AIO2	N/A	N/A

DEP's 2020 ANNUAL AMBIENT AIR MONITORING NETWORK PLAN

SITE NAME: TOWANDA
AQS ID: 420150011
CBSA: Sayre Micropolitan Area
COUNTY: BRADFORD
MUNICIPALITY: MONROE TWP
LATITUDE: 41.70539
LONGITUDE: -76.512876
ADDRESS: Rt. 414 & MAIN ST
COMMENTS: Monitors downwind concentration of pollutants from natural gas production facilities



Monitoring Site



Monitor Summary

<i>Monitor</i>	<i>Network</i>	<i>Start Date</i>	<i>Sample Frequency</i>	<i>Method Description</i>	<i>Monitoring Scale</i>	<i>Appendix D Objectives</i>
Ozone	SLAMS	2/27/2013	Continuous	UV Absorption	Neighborhood	Source Oriented
NO₂	SLAMS	3/1/2013	Continuous	Chemiluminescence	Neighborhood	Source Oriented
PM_{2.5}	SLAMS	1/1/2016	Continuous	Scattered Light Spectrometry	Neighborhood	Source Oriented
Meteorology	Other	10/15/2019	Continuous	Met One AIO2	N/A	N/A

DEP's 2020 ANNUAL AMBIENT AIR MONITORING NETWORK PLAN

SITE NAME: TUNKHANNOCK
AQS ID: 421310010
CBSA: Scranton-Wilkes-Barre-Hazleton MSA
COUNTY: WYOMING
MUNICIPALITY: LEMON TWP
LATITUDE: 41.605244
LONGITUDE: -75.95774
ADDRESS: BAKER HIRKEY RD
COMMENTS:



 Monitoring Site



0 0.05 0.1 0.2 0.3 0.4 Miles

Monitor Summary

<i>Monitor</i>	<i>Network</i>	<i>Start Date</i>	<i>Sample Frequency</i>	<i>Method Description</i>	<i>Monitoring Scale</i>	<i>Appendix D Objectives</i>
PM _{2.5}	SLAMS	12/4/2019	Continuous	Scattered Light Spectrometry	Neighborhood	Source Oriented
VOC	Other	11/29/2019	1 in 6	Canister	N/A	N/A
Carbonyls	Other	11/29/2019	1 in 6	DNPH - Coated Cartridges	N/A	N/A
Meteorology	Other	12/3/2019	Continuous	Met One AIO2	N/A	N/A

DEP's 2020 ANNUAL AMBIENT AIR MONITORING NETWORK PLAN

SITE NAME: UNIONTOWN
AQS ID: 420510524
CBSA: Pittsburgh MSA
COUNTY: FAYETTE
MUNICIPALITY: MENALLEN TWP
LATITUDE: 39.917663
LONGITUDE: -79.805499
ADDRESS: NEW SALEM RD
COMMENTS: PM_{2.5} network expansion due to shale gas activities



 Monitoring Site



0 0.05 0.1 0.2 0.3 0.4 Miles

Monitor Summary

<i>Monitor</i>	<i>Network</i>	<i>Start Date</i>	<i>Sample Frequency</i>	<i>Method Description</i>	<i>Monitoring Scale</i>	<i>Appendix D Objectives</i>
Ozone	SLAMS	5/17/2018	Continuous	UV Absorption	Neighborhood	Population Exposure
NO₂	SLAMS	5/21/2018	Continuous	Chemiluminescence	Neighborhood	Population Exposure
PM_{2.5}	SLAMS	6/7/2018	Continuous	Scattered Light Spectrometry	Neighborhood	Source Oriented
VOC	Other	6/1/2018	1 in 6	Canister	N/A	N/A
Carbonyls	Other	6/1/2018	1 in 6	DNPH - Coated Cartridges	N/A	N/A
Meteorology	Other	New 2020	Continuous	Met One AIO2	N/A	N/A

DEP's 2020 ANNUAL AMBIENT AIR MONITORING NETWORK PLAN

SITE NAME: VANPORT
AQS ID: 420070505
CBSA: Pittsburgh MSA
COUNTY: BEAVER
MUNICIPALITY: VANPORT TWP
LATITUDE: 40.68486111
LONGITUDE: -80.32291667
ADDRESS: TAMAQUI DR
COMMENTS: Monitors lead concentrations from source area – legacy site



 Monitoring Site



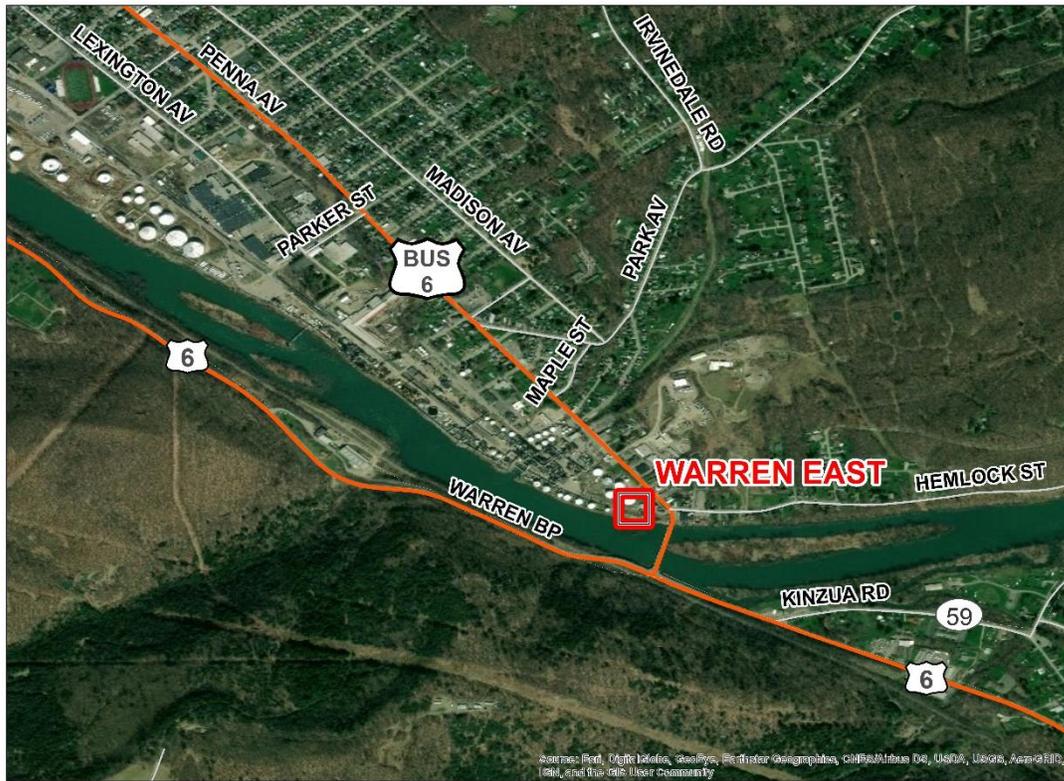
0 0.075 0.15 0.3 0.45 0.6 Miles

Monitor Summary

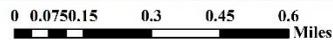
Monitor	Network	Start Date	Sample Frequency	Method Description	Monitoring Scale	Appendix D Objectives
Pb	SLAMS	3/1/1971	1 in 6	ICP-MS	Middle Scale	Source Oriented

DEP's 2020 ANNUAL AMBIENT AIR MONITORING NETWORK PLAN

SITE NAME: WARREN EAST
AQS ID: 421230005
CBSA: Warren Micropolitan Area
COUNTY: WARREN
MUNICIPALITY: CITY OF WARREN
LATITUDE: 41.825708
LONGITUDE: -79.119952
ADDRESS: 2044 PENNSYLVANIA AVE EAST
COMMENTS: Monitors SO₂ concentrations in the Warren nonattainment area



Monitoring Site

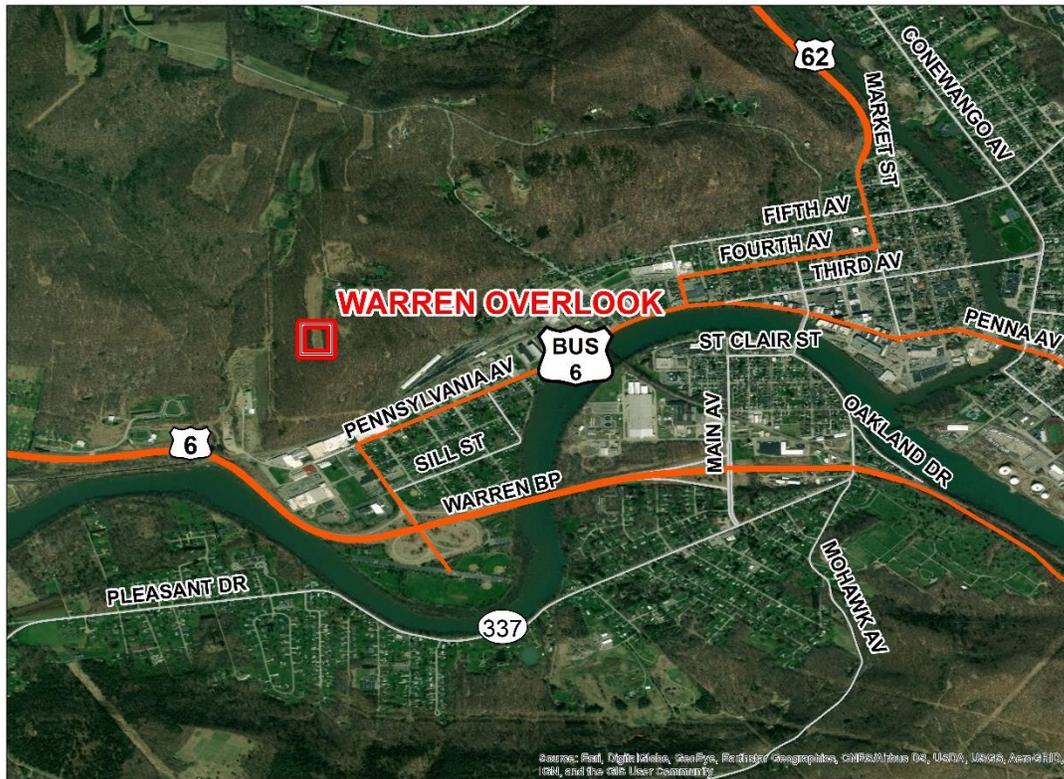


Monitor Summary

Monitor	Network	Start Date	Sample Frequency	Method Description	Monitoring Scale	Appendix D Objectives
SO ₂	SLAMS	1/1/2012	Continuous	UV Fluorescence	Micro Scale	Population Exposure
Meteorology	Other	1/13/2020	Continuous	Met One AIO2	N/A	N/A

DEP's 2020 ANNUAL AMBIENT AIR MONITORING NETWORK PLAN

SITE NAME: WARREN OVERLOOK
AQS ID: 421230004
CBSA: Warren Micropolitan Area
COUNTY: WARREN
MUNICIPALITY: CONEWANGO TWP
LATITUDE: 41.84372222
LONGITUDE: -79.17288889
ADDRESS: OVERLOOK SITE - NEAR STONE HILL ROAD
COMMENTS: Monitors SO₂ concentrations in the Warren nonattainment area



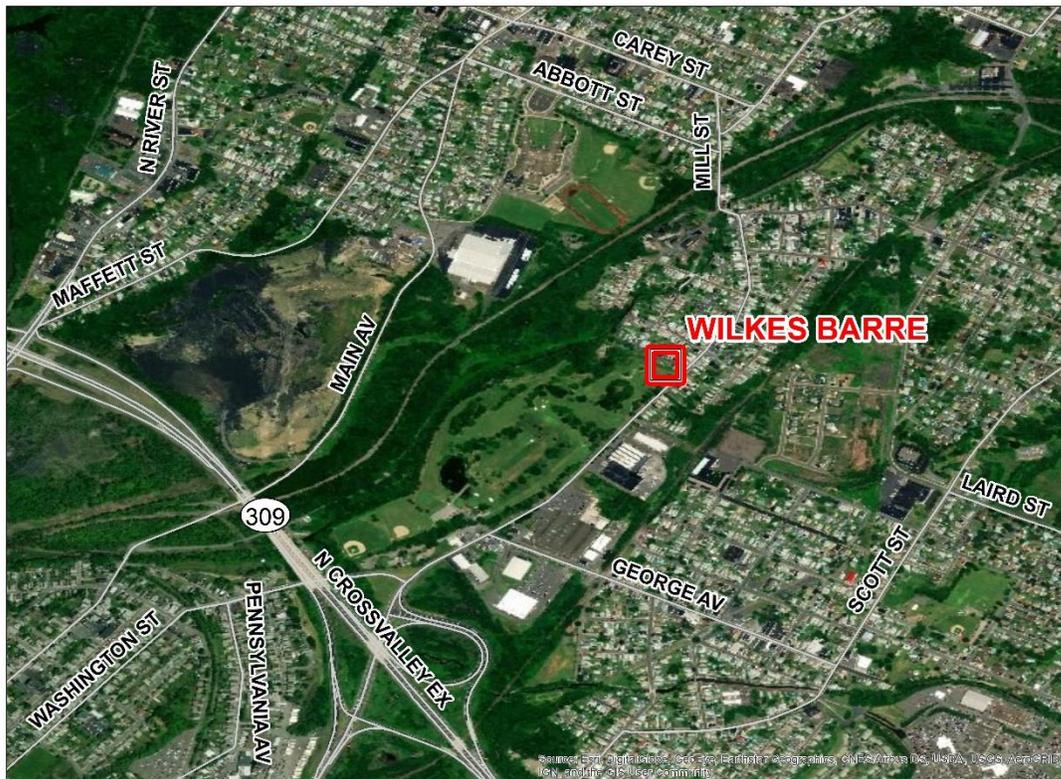
Monitoring Site

Monitor Summary

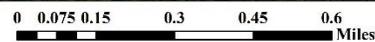
Monitor	Network	Start Date	Sample Frequency	Method Description	Monitoring Scale	Appendix D Objectives
SO ₂	SLAMS	11/25/1996	Continuous	UV Fluorescence	Neighborhood	Highest Concentration
Meteorology	Other	1/7/2020	Continuous	Met One AIO2	N/A	N/A

DEP's 2020 ANNUAL AMBIENT AIR MONITORING NETWORK PLAN

SITE NAME: WILKES-BARRE
AQS ID: 420791101
CBSA: Scranton-Wilkes-Barre-Hazleton MSA
COUNTY: LUZERNE
MUNICIPALITY: CITY OF WILKES-BARRE
LATITUDE: 41.26597222
LONGITUDE: -75.84636111
ADDRESS: CHILWICK & WASHINGTON STS
COMMENTS: Meets federal monitoring requirements in the Scranton-Wilkes-Barre MSA



 Monitoring Site

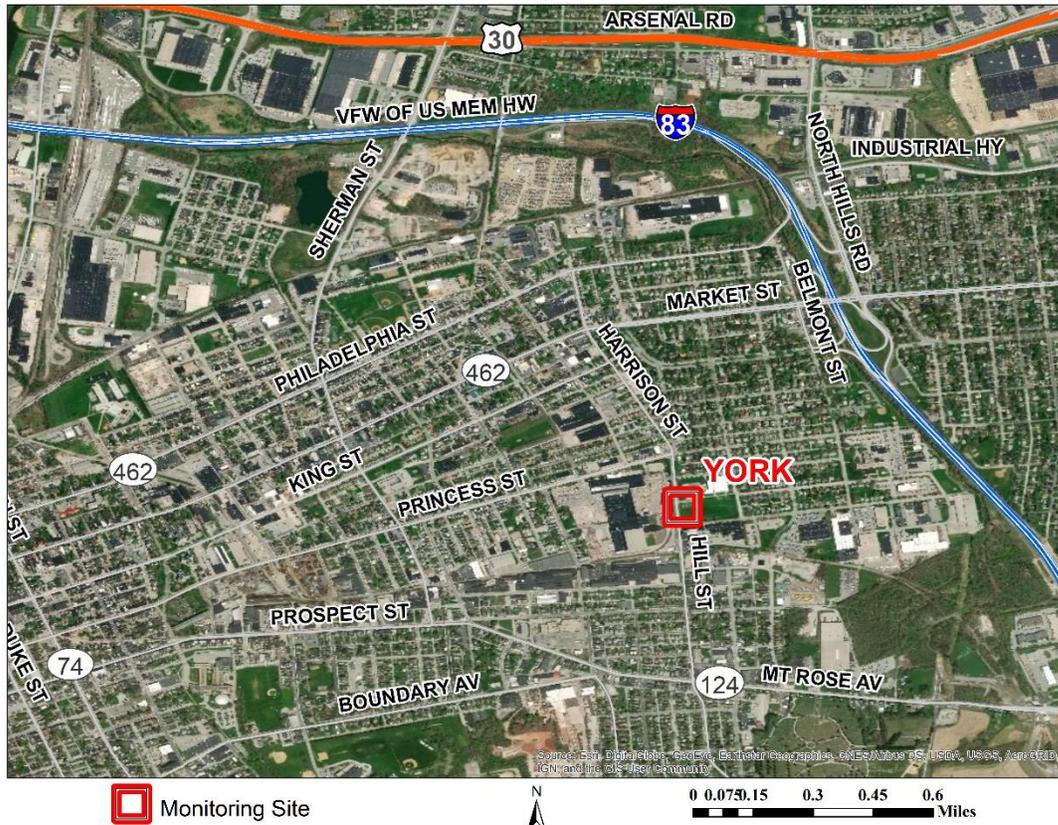


Monitor Summary

<i>Monitor</i>	<i>Network</i>	<i>Start Date</i>	<i>Sample Frequency</i>	<i>Method Description</i>	<i>Monitoring Scale</i>	<i>Appendix D Objectives</i>
Ozone	SLAMS	5/28/1982	Continuous	UV Absorption	Neighborhood	Population Exposure
SO₂	SLAMS	5/28/1982	Continuous	UV Fluorescence	Neighborhood	Population Exposure
PM₁₀	SLAMS	10/20/1994	Continuous	TEOM Gravimetric	Neighborhood	Population Exposure
Meteorology	Other	New 2020	Continuous	Met One AIO2	N/A	N/A

DEP's 2020 ANNUAL AMBIENT AIR MONITORING NETWORK PLAN

SITE NAME: YORK
AQS ID: 421330008
CBSA: York-Hanover MSA
COUNTY: YORK
MUNICIPALITY: SPRING GARDEN TWP
LATITUDE: 39.96552778
LONGITUDE: -76.69958333
ADDRESS: HILL ST.
COMMENTS: Monitors for NAAQS compliance and to meet federal monitoring requirements in the York-Hanover MSA



Monitor Summary

Monitor	Network	Start Date	Sample Frequency	Method Description	Monitoring Scale	Appendix D Objectives
Ozone	SLAMS	1/1/1974	Continuous	UV Absorption	Urban Scale	Population Exposure
SO ₂	SLAMS	4/1/1974	Continuous	UV Fluorescence	Urban Scale	Population Exposure
NO ₂	SLAMS	1/1/1974	Continuous	Chemiluminescence	Neighborhood	Population Exposure
PM _{2.5}	SLAMS	8/19/2004	Continuous	Scattered Light Spectrometry	Neighborhood	Population Exposure
VOC	Other	1/15/2011	1 in 6	Canister	N/A	N/A
Meteorology	Other	8/29/2019	Continuous	Met One AIO2	N/A	N/A

DEP's 2020 ANNUAL AMBIENT AIR MONITORING NETWORK PLAN

SITE NAME: YORK DOWNWIND
AQS ID: 421330011
CBSA: York-Hanover MSA
COUNTY: YORK
MUNICIPALITY: CHANCEFORD TWP
LATITUDE: 39.860972
LONGITUDE: -76.462055
ADDRESS: 2632 DELTA ROAD
COMMENTS: Measures downwind ozone concentrations of the York metro area



 Monitoring Site

Monitor Summary

<i>Monitor</i>	<i>Network</i>	<i>Start Date</i>	<i>Sample Frequency</i>	<i>Method Description</i>	<i>Monitoring Scale</i>	<i>Appendix D Objectives</i>
Ozone	SLAMS	4/22/2008	Continuous	UV Absorption	Urban Scale	Extreme Downwind
Meteorology	Other	8/29/2019	Continuous	Met One AIO2	N/A	N/A

Appendix E – SO₂ Data Requirements Rule Update

On August 21, 2015, EPA published the SO₂ Data Requirements Rule (DRR) in the Federal Register (80 FR 51052).⁸ EPA developed the DRR to address the need for additional air quality data to be used for implementing the 1-hour SO₂ NAAQS. The SO₂ DRR outlines guidelines each state must follow to gather air quality data and information in areas around large SO₂ sources, where currently available data is insufficient to characterize the air quality. The air quality data developed by air agencies pursuant to the DRR may be used by EPA in future actions to evaluate areas' air quality under the 2010 1-hour SO₂ NAAQS, including area designations and redesignations, as appropriate. The DRR is codified in 40 CFR Part 51, Subpart BB ("Data Requirements for Characterizing Air Quality for the Primary SO₂ NAAQS.")

In its 2016 Annual Monitoring Network Plan (ANP), DEP outlined the facilities that would be undergoing the modeling and monitoring pathways to meet the conditions within the SO₂ DRR. To support the designation process of the 2010 SO₂ NAAQS, DEP submitted to EPA in January 2017 dispersion modeling analyses for those facilities that were outlined in its 2016 ANP as undergoing the SO₂ DRR modeling pathway. EPA subsequently designated areas in Pennsylvania with respect to the 2010 SO₂ NAAQS on January 9, 2019 (83 FR 1098).⁹

For those facilities that underwent the modeling pathway for designation purposes, there are ongoing data requirements that must be met, set forth in 40 CFR Part 51.1205(b) as follows:

“Modeled Areas: For any area where modeling of actual SO₂ emissions serve as the basis for designating such area as attainment for the 2010 SO₂ NAAQS, the air agency shall submit an annual report to the EPA Regional Administrator by July 1 of each year, either as a stand-alone document made available for public inspection, or as an appendix to its Annual Monitoring Network Plan (also due on July 1 each year under 40 CFR 58.10), that documents the annual SO₂ emissions of each applicable source in each such area and provides an assessment of the cause of any emissions increase from the previous year. The first report for each such area is due by July 1 of the calendar year after the effective date of the area’s initial designation.”

As outlined in 83 FR 1098, Pennsylvania has areas designated as attainment/unclassifiable and unclassifiable with respect to the 2010 SO₂ NAAQS. Table E-1 outlines the SO₂ designation status of areas in which facilities are situated that underwent the modeling pathway.

Table E-1. List of SO₂ DRR Modeling Pathway Facilities and Respective SO₂ Designation

Area	County	PA Primary Facility ID	Facility	2010 SO ₂ NAAQS Designation
Cambria County Cluster	Cambria	271745	CAMBRIA COGEN CO / EBENSBURG	Unclassifiable
	Cambria	243395	EBENSBURG POWER CO / EBENSBURG COGENERATION PLT	Unclassifiable
	Cambria	280848	INTER POWER AHLCON L / COLVER POWER PROJ	Unclassifiable
Carbon/Schuylkill Counties Cluster	Carbon	475620	PANTHER CREEK POWER OPR LLC / NESQUEHONING	Unclassifiable

⁸ <https://www.govinfo.gov/content/pkg/FR-2015-08-21/pdf/2015-20367.pdf>

⁹ <https://www.govinfo.gov/content/pkg/FR-2018-01-09/pdf/2017-28423.pdf>

DEP’s 2020 ANNUAL AMBIENT AIR MONITORING NETWORK PLAN

Area	County	PA Primary Facility ID	Facility	2010 SO ₂ NAAQS Designation
	Schuylkill	494374	GILBERTON POWER CO / JOHN B RICH MEM POWER STA	Unclassifiable
	Schuylkill	471717	NORTHEASTERN POWER CO / MCADOO COGEN	Unclassifiable
	Schuylkill	467540	SCHUYLKILL ENERGY RES / ST NICHOLAS COGEN	Unclassifiable
	Schuylkill	467888	WHEELABRATOR FRACKVILLE / MOREA PLT	Unclassifiable
Delaware/Philadelphia Counties Cluster	Delaware	484329	COVANTA DELAWARE VALLEY LP / DELAWARE VALLEY RES REC	Attainment / Unclassifiable
	Delaware	242584	EXELON GENERATION CO / EDDYSTONE	Attainment / Unclassifiable
	Delaware	240406	KIMBERLY CLARK PA LLC / CHESTER OPR	Attainment / Unclassifiable
	Philadelphia	749286	PHILA ENERGY SOL REF / PES	Attainment / Unclassifiable
Lehigh/Northampton Counties Cluster	Lehigh	276779	LAFARGE CORP / WHITEHALL PLT	Unclassifiable
	Northampton	262830	ESSROC / NAZARETH LOWER CEMENT PLT I II III	Unclassifiable
	Northampton	510100	HERCULES CEMENT CO LP / STOCKERTOWN	Unclassifiable
	Northampton	478429	KEYSTONE PORTLAND CEMENT / EAST ALLEN	Unclassifiable
	Northampton	240279	NORTHAMPTON GEN CO / NORTHAMPTON	Unclassifiable
Allegheny County	Allegheny	737442	NRG MIDWEST LP / CHESWICK	Unclassifiable
Clearfield County	Clearfield	249235	NRG REMA LLC / SHAWVILLE GEN STA	Unclassifiable
Montour County	Montour	254018	PPL MONTOUR LLC / MONTOUR SES	Attainment / Unclassifiable

40 CFR Part 51.1205(b) requires DEP to submit an annual report by July 1 for any area where modeling of actual SO₂ emissions served as the basis for designating the area attainment for the 2010 SO₂ NAAQS. As outlined in its 2016 ANP, DEP used 2014 actual SO₂ emissions data to characterize whether a facility or group of facilities (cluster) would meet the SO₂ DRR conditions. As of the date of this document, DEP has quality assured SO₂ emissions data through 2018. Table E-2 displays the annual emissions and average emissions from 2014 and 2016 through 2018, for those facilities that underwent the modeling pathway in areas subsequently designated as attainment for the 2010 SO₂ NAAQS.

Table E-2. List of SO₂ DRR Modeling Pathway Facilities and Respective SO₂ Emissions from 2014 and 2016 to 2018, in tons per year

Area	County	PA Primary Facility ID*	Facility	2014	2016	2017	2018	2016-18 Average**
Delaware/ Philadelphia Counties Cluster	Delaware	484329	COVANTA DELAWARE VALLEY LP / DELAWARE VALLEY RES REC	316.2	211.0	88.6	149.0	149.5
	Delaware	242584	EXELON GENERATION CO / EDDYSTONE	155.2	8.0	3.1	8.5	6.5
	Delaware	240406	KIMBERLY CLARK PA LLC / CHESTER OPR	1068.5	892.0	885.2	959.6	912.3
	Philadelphia	749286	PHILA ENERGY SOL REF / PES	354.8	184.9	192.5	176.9	184.8
Montour County	Montour	254018	MONTOUR LLC / MONTOUR SES	10979.8	7655.5	5263.9	5092.4	6003.9

* Modeling results submitted to EPA were summarized in EPA's Technical Support Document for Pennsylvania (https://www.epa.gov/sites/production/files/2017-08/documents/35_pa_so2_rd3-final.pdf).

** Emissions from 2015 to 2018 can be verified on the DEP's Air Quality Reports website (<https://www.dep.pa.gov/DataandTools/Reports/Pages/Air-Quality-Reports.aspx>).

As shown in the table, all facilities in both areas have reported a decrease in SO₂ emissions. For the Delaware/Philadelphia counties cluster, SO₂ emissions dropped 33.9% from the initial 2014 reported emissions to the three-year average of 2016-2018. In addition, the modeling that was submitted to EPA for the Delaware/Philadelphia counties cluster demonstrated that the maximum modeled 1-hour 99th percentile concentration was 72.7 µg/m³. The 1-hour SO₂ NAAQS is 75 ppb, or 196.5 µg/m³.

With respect to the facility in Montour County, SO₂ emissions dropped 45.3%. The modeling that was submitted to EPA for the MONTOUR LLC/MONTOUR SES facility demonstrated that the maximum modeled 1-hour 99th percentile concentration was 130.19 µg/m³.

Based on its analysis of the 2016 to 2018 SO₂ emissions data and the modeling analysis results that were completed as part of the designation process, DEP is not proposing to require additional modeling to characterize the air quality in any of its attainment areas with respect to the 2010 SO₂ NAAQS.