



Revision to the Allegheny County Portion of the Pennsylvania State Implementation Plan

**Redesignation Request and Maintenance
Plan for the Liberty-Clairton, PA and
Allegheny County, PA PM_{2.5}
Nonattainment Areas for the
1997/2006/2012 NAAQS**

**Allegheny County Health Department
Air Quality Planning and Data Analysis Program**

September 22, 2022

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ACRONYMS AND ABBREVIATIONS

ACHD	Allegheny County Health Department
AEO	Annual Energy Outlook
AERMOD	American Meteorological Society/Environmental Protection Agency Regulatory Model
AERR	Air Emissions Reporting Requirements
AQS	EPA's Air Quality System
BEIS	Biogenic Emission Inventory System
CAA	Clean Air Act
CAMx	Comprehensive Air quality Model with extensions
CASAC	Clean Air Scientific Advisory Committee
con	Condensable fraction of PM _{2.5}
CFR	Code of Federal Regulations
CSAPR	Cross-State Air Pollution Rule
EGU	Electric Generating Unit
EIA	Energy Information Administration
EIS	Emissions Inventory System (EPA)
EMP	Emissions Modeling Platform
EJ	Environmental Justice
EPA	United States Environmental Protection Agency
ERC	Emission Reduction Credit
ERTAC	Eastern Regional Technical Advisory Committee
FAA	Federal Aviation Administration
FEM	Federal Equivalent Method
fil	Filterable fraction of PM _{2.5}
FMVCP	Federal Motor Vehicle Control Program
FR	Federal Register
FRM	Federal Reference Method
I/M	Inspection and Maintenance
IP	Installation Permit
MARAMA	Mid-Atlantic Regional Air Management Association, Inc.
MOVES	Motor Vehicle Emission Simulator model
MPO	Metropolitan Planning Organization
MSA	Metropolitan Statistical Area
MVEB	Motor Vehicle Emissions Budget
MVW	Mon Valley Works (U. S. Steel)
MW	Megawatt
µg/m ³	Microgram per cubic meter
µm	Micrometer, or micron
NAAQS	National Ambient Air Quality Standards
NAA	Nonattainment Area
NAICS	North American Industry Classification System
NEI	National Emission Inventory
NH ₃	Ammonia
NO _x	Oxides of Nitrogen (generally NO or NO ₂)

NNSR	Nonattainment New Source Review
NSR	New Source Review
OP	Operating Permit
PA DEP	Pennsylvania Department of Environmental Protection
PaSDC	Pennsylvania State Data Center
PEC	Pushing Emission Control
PennDot	Pennsylvania Department of Transportation
PM	Particulate Matter (airborne) of any size
PM _{2.5}	PM less than or equal to a nominal 2.5 microns in aerodynamic diameter, also referred to as fine particulates
PM ₁₀	PM less than or equal to a nominal 10 microns in aerodynamic diameter
PSD	Prevention of Significant Deterioration
psi	Pounds per square inch
PTE	Potential-to-Emit
RACM	Reasonably Available Control Measure
RACT	Reasonably Available Control Technology
RFP	Reasonable Further Progress
RPO	Regional Pennsylvania Organization
RVP	Reid Vapor Pressure
RWC	Residential Wood Combustion
SCC	Source Classification Code
SIP	State Implementation Plan
SO ₂	Sulfur Dioxide
SPC	Southwestern Planning Commission
TAF	Terminal Area Forecast
tpy	Tons per year (or tons/year) of pollutant emissions
USS	United States Steel Corporation (or U. S. Steel)
VMT	Vehicle Miles Traveled
VOC	Volatile Organic Compound

1. Overview

Particulate matter is a mixture of microscopic solids and liquid droplets suspended in air that includes inorganic salts (such as nitrates and sulfates), organic chemicals, metals, soil or dust particles, and allergens (such as fragments of pollen or mold spores). Fine particle pollution (or PM_{2.5}) describes particulate matter that is less than or equal to 2.5 micrometer (µm, or micron) in diameter, approximately 1/30th the diameter of a human hair.

Health studies have shown a significant association between exposure to PM_{2.5} and premature death from heart or lung disease. PM_{2.5} can aggravate heart and lung diseases and have been linked to effects such as cardiovascular symptoms, cardiac arrhythmias, heart attacks, respiratory symptoms, asthma attacks, and bronchitis. Individuals that may be particularly sensitive to PM_{2.5} exposure include people with heart or lung disease, older adults, and children.

Particulate matter is regulated as a criteria air pollutant under the Clean Air Act (CAA). In 1997, the U.S. Environmental Protection Agency (EPA) promulgated PM_{2.5} National Ambient Air Quality Standards (NAAQS) of 15.0 µg/m³ on an annual basis and 65 µg/m³ on a 24-hour basis. The annual standard is based on long-term averages of concentrations, while the 24-hour standard is based on 98th percentile values of the highest daily concentrations. In 2006, EPA lowered the 24-hour PM_{2.5} NAAQS to 35 µg/m³. In 2012, EPA lowered the annual PM_{2.5} NAAQS to 12.0 µg/m³.¹

For the 1997 and 2006 PM_{2.5} NAAQS, EPA designated most of the Pittsburgh Metropolitan Statistical Area (MSA) as a multi-county nonattainment area (NAA) called the Pittsburgh-Beaver Valley, PA area. A portion of southeastern Allegheny County, called the Liberty-Clairton, PA area, was designated as a separate nonattainment area within the larger Pittsburgh-Beaver Valley area. For the 2012 PM_{2.5} NAAQS, Allegheny County was designated as a contiguous nonattainment area called the Allegheny County, PA area.

Since these designations, the Allegheny County Health Department (ACHD) official PM_{2.5} monitors have shown monitored attainment of the NAAQS in both areas. The areas are also meeting all State Implementation Plan (SIP) obligations for nonattainment areas as required by the CAA² and the Code of Federal Regulations (CFR).³

The purpose of this document is to request redesignation to attainment for the Liberty-Clairton and Allegheny County areas and to provide a maintenance plan to ensure continued attainment of the PM_{2.5} NAAQS for a 10-year period following redesignation. The maintenance plan portion

¹ EPA PM NAAQS timeline: <https://www.epa.gov/pm-pollution/timeline-particulate-matter-pm-national-ambient-air-quality-standards-naaqs>

² CAA SIP Requirements: <https://www.epa.gov/air-quality-implementation-plans/sip-requirements-clean-air-act>

³ 40 CFR Chapter I Subchapter C (Air Programs): <https://www.ecfr.gov/current/title-40/chapter-I/subchapter-C>

of this document constitutes a revision to the Allegheny County Portion of the Pennsylvania SIP for PM_{2.5}.

Section 107(d)(3)(E) of the CAA specifies that an area can be redesignated to attainment based on the following criteria:

- The area has been determined to have attained the NAAQS.
- The applicable SIP for the area has been fully approved, and the area is meeting all other applicable requirements under CAA Section 110 and Part D.
- The improvement in air quality in the area is due to permanent and enforceable reductions in emissions.
- The area has a fully approved a maintenance plan according to CAA Section 175A.

Additionally, Section 175A of the CAA and additional EPA guidance specify the following elements that are required for an approvable maintenance plan:

- An attainment emissions inventory that corresponds with levels of emissions needed to attain the NAAQS.
- A maintenance demonstration showing that the area is expected to continue to maintain attainment of the NAAQS.
- A monitoring network that in accordance with EPA requirements.
- A mechanism for verification of continued attainment of the NAAQS.
- Contingency provisions to ensure that the area will maintain attainment of the NAAQS in the event of a violation in the area.

This document shows that the Liberty-Clairton and Allegheny County areas are meeting all requirements needed for redesignation, including a maintenance plan that will provide for continued attainment of the NAAQS through 2035. An additional maintenance plan for a subsequent 10-year period following the initial 10-year maintenance period will be developed and submitted to EPA within eight years after redesignation to attainment.

ACHD is also committed to the welfare of vulnerable communities that have been classified as environmental justice (EJ) areas.⁴ The maintenance plan provides focus on the surveillance and reduction of PM_{2.5} within these communities.

⁴ More information on environmental justice in Allegheny County be found at the following web site: <https://www.alleghenycounty.us/Health-Department/Resources/Data-and-Reporting/Chronic-Disease-Epidemiology/Resources,-Reports,-and-Publications.aspx>

2. Description of the Areas

EPA based the designations of the Liberty-Clairton and Allegheny County areas on several factors, including air quality concentration data, emissions and emissions-related data, meteorology, geography/topology, and jurisdictional boundaries.⁵

PM_{2.5} is composed of substances that are both primary and secondary in nature⁶ and are emitted or formed from a variety of pollutant sources. The Pittsburgh region can be affected by long-range transport of PM_{2.5} and precursors⁷ from upwind sources, and Allegheny County can also be affected by county-wide sources and specific local sources within the county. Complex river valley terrain and surface temperature inversions can also trap pollution in areas such as the Monongahela Valley (“Mon Valley”), causing more elevated concentrations than in other portions of the county.

2.1 Liberty-Clairton PM_{2.5} Area

Monitored concentrations and local source emissions that were considerably higher than the surrounding region, along with localized terrain features and microscale meteorological effects, led to the designation of the Liberty-Clairton area within the larger Pittsburgh-Beaver Valley area for the 1997 and 2006 PM_{2.5} NAAQS. The Liberty-Clairton nonattainment area consists of five municipalities: the Boroughs of Glassport, Liberty, Lincoln, Port Vue, and the City of Clairton. The City of Clairton is also classified as an environmental justice (EJ) area. Figure 2-1 shows a map of the two areas in the Pittsburgh region.

Reductions in PM_{2.5} levels in the Pittsburgh-Beaver Valley area were mainly due to regional source controls. The Pittsburgh-Beaver Valley area achieved monitored attainment of the 1997 and 2006 NAAQS with 2005-2007 and 2011-2013 design values, respectively. Determinations of monitored attainment (“clean data determinations”) were subsequently made for the area for the 1997 and 2006 NAAQS in 2012 and 2014, respectively, which suspended the SIP requirements for the area. The PA Department of Environmental Protection (PA DEP) developed and submitted the redesignation request and maintenance plan for the 1997 and 2006 NAAQS for the Pittsburgh-Beaver Valley area, which was approved in 2015.⁸

Reductions in PM_{2.5} levels in the Liberty-Clairton area were mainly due to local source controls, although regional controls also contributed to the reductions. The Liberty-Clairton area achieved monitored attainment of the 1997 and 2006 NAAQS with 2009-2011 and 2012-2014 design

⁵ EPA PM_{2.5} designations: <https://www.epa.gov/particle-pollution-designations>

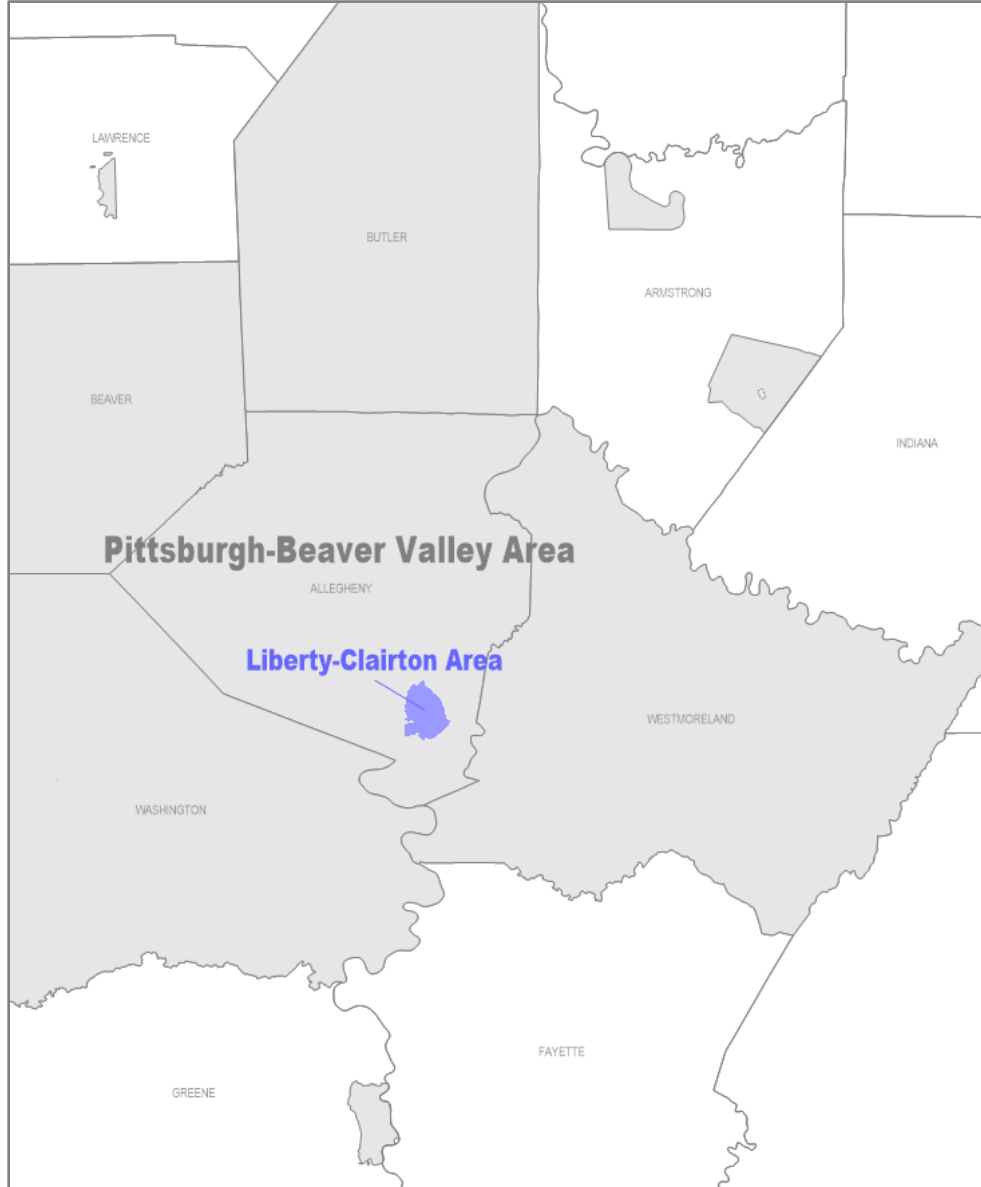
⁶ Primary (or direct) PM_{2.5} refers to particulates that are released directly into the atmosphere in solid or liquid phase or can quickly condense from gas phase (i.e., condensables). Secondary PM_{2.5} refers to particulates that are chemically transformed from precursor pollutants.

⁷ Precursors of PM_{2.5} are sulfur dioxide (SO₂), nitrogen oxides (NO_x), volatile organic compounds (VOC), and ammonia (NH₃).

⁸ SIP Status Reports: https://www3.epa.gov/airquality/urbanair/sipstatus/reports/pa_areabypoll.html

values, respectively. ACHD developed attainment demonstration SIPs for the Liberty-Clairton area for the 1997 and 2006 NAAQS, but most SIP elements were withdrawn following clean data determinations in 2013 and 2015, respectively.

Figure 2-1. Nonattainment Areas for the 1997/2006 PM_{2.5} NAAQS, Pittsburgh Region



Due to the small size of the Liberty-Clairton area, a motor vehicle emissions budget (MVEB) for transportation conformity purposes was not required for the area. Nonattainment new source review (NNSR) for the area was in effect via Allegheny County’s Article XXI Regulations. (See more under Section 4 of this document.)

2.2 Allegheny County PM_{2.5} Area

For the 2012 PM_{2.5} NAAQS, EPA designated all municipalities in Allegheny County as one nonattainment area, and all adjacent counties in the Pittsburgh MSA were showing monitored data below the NAAQS. Figure 2-2 shows a map of the Allegheny County area. Allegheny County includes many EJ communities, primarily in the City of Pittsburgh and in the river valley communities.⁹

Reductions in PM_{2.5} levels in the Allegheny County area relied on both regional and local controls, with focus on controls within the Mon Valley region. (See more under Section 5 of this document.) The Allegheny County area achieved monitored attainment of the 2012 NAAQS with 2018-2020 design values. ACHD developed an attainment demonstration SIP for the Allegheny County area for the 2012 NAAQS, for which most elements were approved in 2021. Additionally, EPA made a clean data determination for the area (effective April 15, 2022) that suspended most SIP requirements, pending continued monitored attainment and until the area can be redesignated to attainment.

Figure 2-2. Nonattainment Area for the 2012 PM_{2.5} NAAQS, Allegheny County



The attainment demonstration SIP for the 2012 NAAQS included an MVEB budget for Allegheny County, and NNSR regulations were also revised according to 2012 NAAQS requirements. (See more under Section 4 of this document.)

⁹ An interactive map of EJ areas can be found at the following web site:
<https://www.dep.pa.gov/PublicParticipation/OfficeofEnvironmentalJustice/Pages/PA-Environmental-Justice-Areas.aspx>

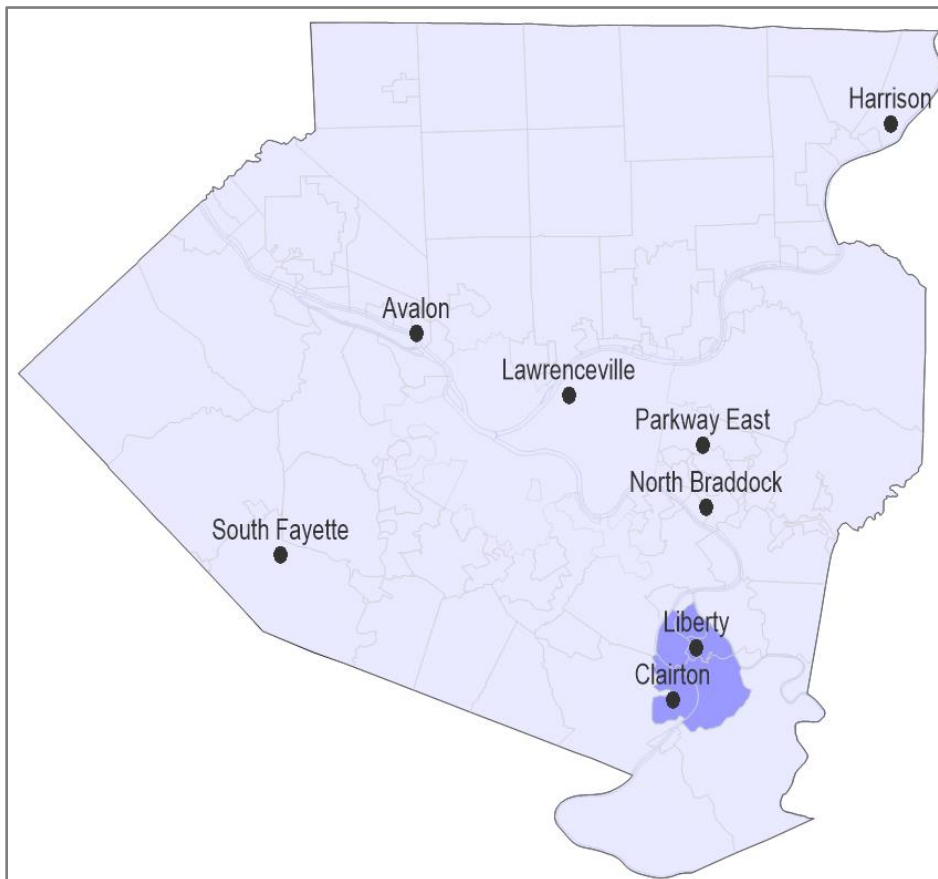
3. Attainment of the NAAQS

To qualify for redesignation, Section 107(d)(3)(E) of the CAA requires the responsible state/local agency to demonstrate that the nonattainment area is attaining the applicable NAAQS. EPA guidance (U.S. EPA, 1992) further clarifies that two components can be considered interdependently for a demonstration of attainment, with focus on areas of the highest concentrations: monitored data and modeled results.

3.1 Monitored PM_{2.5} Data

There are eight active PM_{2.5} sites currently in operation within Allegheny County, as shown in Figure 3-1. The Liberty-Clairton area has included the Liberty site since the network began in 1999 and the Clairton site since 2001. The Liberty site has consistently shown the highest monitored concentrations in Allegheny County. The Liberty-Clairton area is shaded in darker blue within Allegheny County in Figure 3-1.

Figure 3-1. ACHD PM_{2.5} Monitor Network, Currently Active Sites (2022)

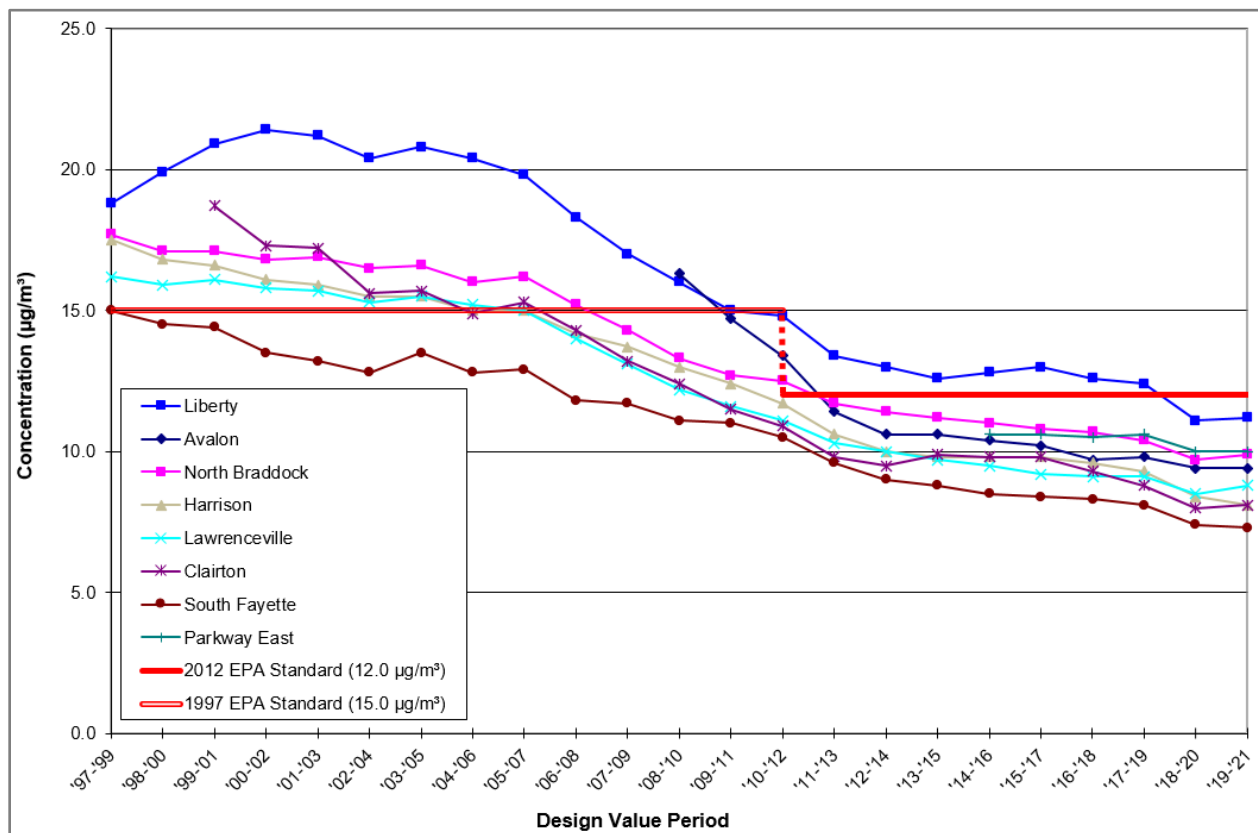


All PM_{2.5} sites in the Liberty-Clairton area have attained the 1997 and 2006 NAAQS, and all PM_{2.5} sites in the Allegheny County area have attained the 2012 NAAQS. The sites include EPA-approved Federal Reference Method (FRM) and Federal Equivalent Method (FEM)

monitors, operated according to 40 CFR Part 58 procedures.¹⁰ Data from these monitors have been fully validated, quality-assured, submitted to EPA’s Air Quality System (AQS),¹¹ and requested by ACHD for certification by EPA.

Figures 3-2 and 3-3 show time series charts of the annual and 24-hour monitored design values, respectively, for the currently active sites in the ACHD network. The timeframe shown in the figures is for 1997-2021, which includes all design value periods since the 1997 NAAQS were promulgated.¹² These design values are also given in tabular format in Appendix A of this document, along with yearly annual weighted means and 98th percentile 24-hour concentrations for the same sites.

Figure 3-2. PM_{2.5} Annual Design Values (in µg/m³), by 3-Year Period, 1997 to 2021

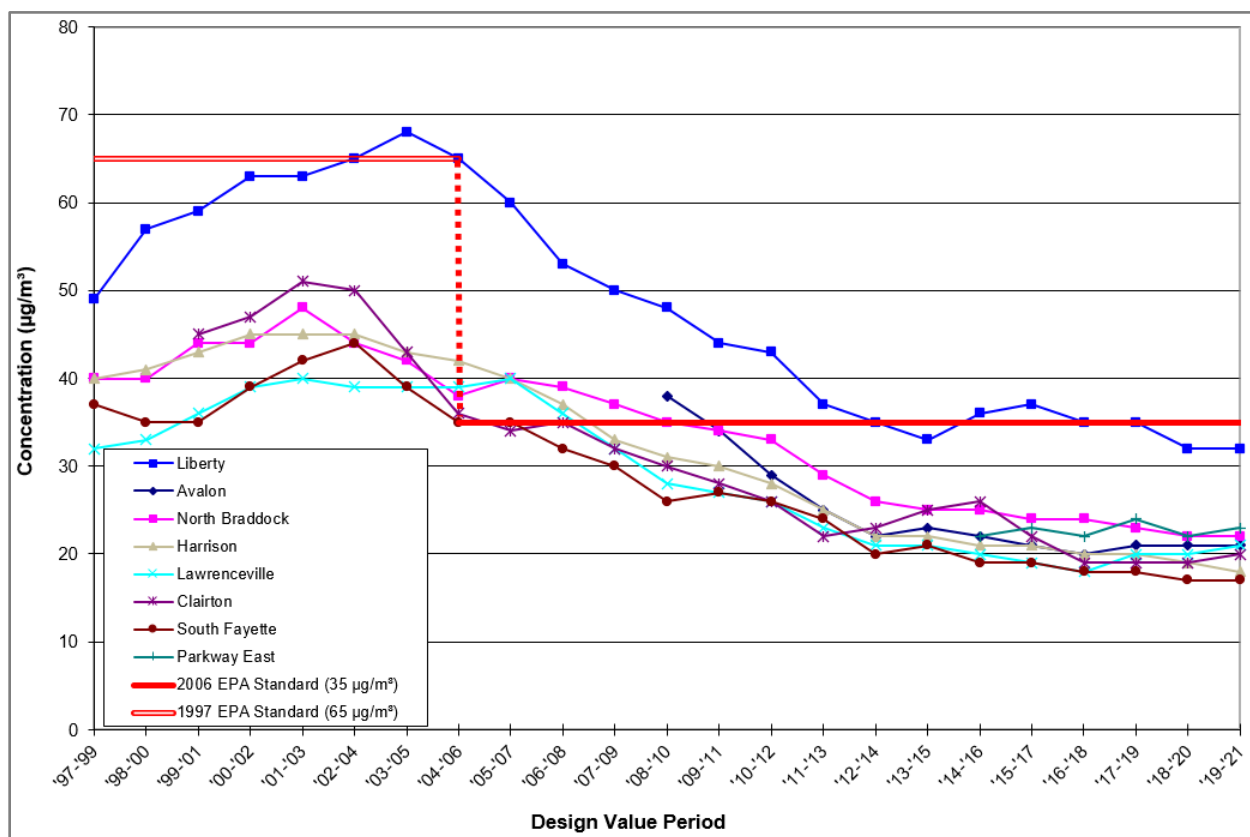


¹⁰ More information on EPA monitor network requirements is available at the following web site: <https://www.epa.gov/amtic/amtic-ambient-air-monitoring-networks>

¹¹ EPA’s AQS web site: <https://www.epa.gov/aqs>

¹²All ACHD monitor sites began operation in 1999 or later. The concentrations given in the figures are based on design values extracted from AQS, which may include incomplete design values for some sites/periods. See the EPA design values web site for more information: <https://www.epa.gov/air-trends/air-quality-design-values>

Figure 3-3. PM_{2.5} 24-Hour Design Values (in µg/m³), by 3-Year Period, 1997 to 2021



Attainment is determined by annual and 24-hour design values that are below the NAAQS. Annual and 24-hour design values are calculated as the averages of three consecutive years of annual weighted mean concentrations and 98th percentile 24-hour concentrations, respectively. (For sites with more than one monitor, the design values are based on the combined site records at each site, calculated according to EPA methodology given in 40 CFR Part 50.)

Five of the currently active monitor sites lie within EJ areas: Clairton, Harrison, Lawrenceville, North Braddock, and Parkway East. Avalon and Liberty are adjacent to EJ areas, with Liberty also lying downwind of EJ areas.

There have been eight additional sites within Allegheny County (outside of the Liberty-Clairton area) that are now inactive. These former sites were discontinued due to network redundancy, site issues, or updated monitoring objectives. The addition or removal of any monitor or site from the monitoring network is approved by EPA prior to action taken by ACHD. (See Appendix A of this document for an AQS report showing design values for all current and former sites from 1997 through 2021.)

3.2 Modeled Results

Modeling included in the SIP for the 2012 NAAQS (ACHD, 2019b) featured a detailed simulation of PM_{2.5} concentrations to a future case year of 2021, which showed attainment of the

current 2012 annual NAAQS and 2006 24-hour NAAQS. The modeling was performed using the Comprehensive Air quality Model with extensions (CAMx¹³) for regional primary and secondary PM_{2.5} impacts, along with the American Meteorological Society/Environmental Protection Agency Regulatory Model (AERMOD¹⁴) for local primary PM_{2.5} impacts in the area near the Liberty monitor. ACHD followed procedures for the modeling and the attainment tests as given in EPA guidance documents.

The modeling predicted future case impacts at current monitor site locations as well as at unmonitored locations in Allegheny County. The modeling also incorporated a degree of overestimation for the future case emissions in Allegheny County, indicating that some growth in emissions could occur beyond 2021 but not affect attainment of the NAAQS.

Modeling for the previous 1997 and 2006 NAAQS also showed attainment of the respective NAAQS for the Liberty-Clairton area, but the results were withdrawn from the final SIP submittals. The modeling for the 2012 NAAQS SIP represents the most complete and accurate predictions of recent PM_{2.5} levels in Allegheny County.

¹³ <http://www.camx.com/>

¹⁴ <https://www.epa.gov/scram/air-quality-dispersion-modeling-preferred-and-recommended-models>

4. SIP Approvals and Other CAA Requirements

For an area to be redesignated to attainment, Section 107(d)(3)(E) of the CAA requires that an applicable state implementation plan (SIP) has been fully approved by EPA for the area according to Section 110(k) of the CAA (relating to EPA's action on plans). Additionally, the area should be satisfying all other applicable requirements of Section 110 and Part D of the CAA that pertain to attainment plans for particulate matter.

As described below, the Liberty-Clairton area is meeting all SIP requirements for the 1997 and 2006 NAAQS, and the Allegheny County area is meeting all SIP requirements for the 2012 NAAQS.

4.1 SIP Approvals for the Liberty-Clairton Area

In 2011, ACHD finalized and submitted an attainment demonstration SIP for the Liberty-Clairton area for the 1997 PM_{2.5} NAAQS (ACHD, 2011). This SIP was proposed for conditional approval by EPA later in 2011, with the conditional approval related to modeling that incorporated interstate transport rules that were under national review at that time. Monitored data shortly thereafter showed attainment with 2009-2011 design values, and continued attainment was shown with 2010-2012 design values. As a result, EPA issued a determination of attainment by the attainment date and a clean data determination for the area for the 1997 NAAQS on October 25, 2013.¹⁵

The clean data determination for the Liberty-Clairton area suspended most SIP requirements for the 1997 NAAQS, so long as the area continued to show monitored attainment of the NAAQS and until redesignation to attainment can be approved. ACHD subsequently withdrew all attainment demonstration SIP elements except for a regulation change related to the definition of PM_{2.5} and the 2002 base year emissions inventory, approved by EPA on January 2, 2014.¹⁶

In 2013, ACHD finalized and submitted an attainment demonstration SIP for the Liberty-Clairton area for the 2006 PM_{2.5} NAAQS (ACHD, 2013). A ruling for this SIP was not made by EPA, and monitored data showed attainment for the area with 2012-2014 design values. EPA made a clean data determination for the area on July 10, 2015.¹⁷ The clean data determination suspended the requirements for most SIP elements for the 2006 NAAQS, and all attainment demonstration SIP elements were withdrawn by ACHD except for the 2007 base year emissions inventory, approved on October 2, 2015.¹⁸ A determination of attainment by the attainment date for the area for the 2006 NAAQS was also made on May 10, 2017.¹⁹

In 2014, a supplemental SIP was submitted for the Liberty-Clairton area, for both the 1997 and 2006 NAAQS, regarding a finding of insignificance for mobile source contributions for

¹⁵ 78 FR 63881: <https://www.govinfo.gov/content/pkg/FR-2013-10-25/pdf/2013-25040.pdf>

¹⁶ 79 FR 00054: <https://www.govinfo.gov/content/pkg/FR-2014-01-02/pdf/2013-30870.pdf>

¹⁷ 80 FR 39696: <https://www.govinfo.gov/content/pkg/FR-2015-07-10/pdf/2015-16813.pdf>

¹⁸ 80 FR 59615: <https://www.govinfo.gov/content/pkg/FR-2015-10-02/pdf/2015-24877.pdf>

¹⁹ 82 FR 21711: <https://www.govinfo.gov/content/pkg/FR-2017-05-10/pdf/2017-09391.pdf>

transportation conformity (ACHD, 2014). This insignificance finding was approved by EPA simultaneously with the approval of the 2007 base year inventory for the 2006 NAAQS (as mentioned above, on October 2, 2015). Nonattainment new source review (NNSR) regulations for PM_{2.5} for Allegheny County (for the county as a whole) were included in a separate SIP submittal (ACHD, 2012), which was approved by EPA on March 30, 2015.²⁰

4.2 SIP Approvals for the Allegheny County Area

On September 12, 2019, ACHD finalized an attainment demonstration SIP for the Allegheny County area for the 2012 PM_{2.5} NAAQS (ACHD, 2019b), submitted to EPA on September 30, 2019. A supplemental SIP to further address a motor vehicle emissions budget (MVEB) for transportation conformity purposes specific to the area for the 2012 NAAQS was finalized on September 2, 2020 (ACHD, 2020) and submitted to EPA on October 2, 2020. Additionally, a demonstration that milestones have been achieved for year 2019 for the Allegheny County area was submitted to EPA on April 8, 2020.

On May 14, 2021, EPA issued final approval of all elements of the attainment demonstration SIP and supplemental MVEB SIP, except for the contingency measures element of the attainment demonstration SIP, for which conditional approval was issued (U.S. EPA, 2021b).²¹ Monitored data showed attainment of the 2012 NAAQS with 2018-2020 design values, and EPA made a clean data determination for the Allegheny County area on March 16, 2022 (U.S. EPA, 2022).²² The area also achieved attainment by the attainment date of Dec. 31, 2021, and ACHD expects that a determination of attainment by the attainment date can be made by EPA in the near future.

The clean data determination suspends most SIP elements for the 2012 NAAQS, including the contingency measures, so long as the area continued to show monitored attainment of the NAAQS and until redesignation to attainment can be approved. The determination of attainment by the attainment date would also permanently discharge the requirement for contingency measures for the attainment demonstration for the 2012 NAAQS for the area. Note that contingency measures are still required for an approvable maintenance plan, which is needed for redesignation (see more in Section 6.5 of this document).

ACHD will retain the SIP elements for the Allegheny County area for the 2012 NAAQS, as approved by EPA. These SIP elements include a 2011 base year emissions inventory, a particulate matter precursor contribution demonstration, a reasonably available control measures/reasonably available control technology (RACT/RACM) demonstration, an air quality modeling demonstration, a reasonable further progress (RFP) analysis, a demonstration of interim quantitative milestones to ensure timely attainment, and a motor vehicle emissions budget (MVEB) specific to the 2012 NAAQS. The contingency measures included in the attainment demonstration SIP will be considered “additional” control measures for attainment of the 2012 NAAQS.

²⁰ 80 FR 16568: <https://www.govinfo.gov/content/pkg/FR-2015-03-30/pdf/2015-07106.pdf>

²¹ 86 FR 26388: <https://www.govinfo.gov/content/pkg/FR-2021-05-14/pdf/2021-09565.pdf>

²² 87 FR 14799: <https://www.govinfo.gov/content/pkg/FR-2022-03-16/pdf/2022-05446.pdf>

Additionally, revised NNSR regulations for Allegheny County for the 2012 PM_{2.5} NAAQS were included in a separate SIP submittal (ACHD, 2019a), which was approved by EPA on June 15, 2020.²³

4.3 Base Year Emissions Inventories

A comprehensive base year emissions inventory is required by 40 CFR § 51.1008 for any nonattainment area in order to meet requirements under Section 172(c)(3) of the CAA. As specified by the EPA PM_{2.5} Implementation Rule (U.S. EPA, 2016), pollutants inventoried for a PM_{2.5} nonattainment area should include primary PM_{2.5} along with precursor pollutants SO₂, NO_x, VOC, and NH₃. EPA Emissions Inventory Guidance for PM_{2.5} (U.S. EPA, 2017) also specifies that PM₁₀ should be included because PM₁₀ emissions are often used as the basis for calculating PM_{2.5}.

Emissions inventories are compiled by ACHD and PA DEP according to EPA Air Emissions Reporting Requirements (AERR)²⁴ and related emissions inventory guidance documents. Source groups (or “data categories”) in the emissions inventories include stationary point sources, stationary nonpoint (area) sources, nonroad mobile sources, and onroad mobile sources. Fire and biogenic emissions are also included in the inventory as area sources or as separate data categories.

Emissions are inventoried in terms of actual values, based on pollutant emission factors and throughputs or capacities of each emission source. Emissions do not represent permitted or maximum allowable limits. Emissions used in the emissions inventories also matched those used in modeling demonstrations (if included in the final SIP submittals).

Data categories used for the emissions inventories are described below. The SIP submittals for each NAAQS included more specific information on the emissions inventories for each area and base year.

- Stationary point (“point”) sources are industrial or commercial sources for which ACHD collects individual annual emissions-related information. These include major and minor sources, generally with the potential to emit 25 tons/year or more of any criteria pollutant.²⁵ Note: Point source inventories can also include airport and helipad emissions, as developed by EPA for the triennial National Emissions Inventory (NEI).²⁶
- Stationary nonpoint (or “area”) sources are industrial, commercial, and residential sources that are too small or too numerous to be inventoried individually. Examples

²³ 85 FR 36161: <https://www.govinfo.gov/content/pkg/FR-2020-06-15/pdf/2020-10693.pdf>

²⁴ EPA AERR: <https://www.epa.gov/air-emissions-inventories/air-emissions-reporting-requirements-aerr>

²⁵ ACHD yearly inventories can be found at the following web site:
<https://www.dep.pa.gov/DataandTools/Reports/Pages/Air-Quality-Reports.aspx>

²⁶ EPA NEI: <https://www.epa.gov/air-emissions-inventories/national-emissions-inventory-nei>

include commercial and residential fuel combustion, solvent utilization, onshore oil and gas production, agricultural activity, and other sources. Commercial diesel marine vessels and railroad locomotives have also been included in the area source inventories (and not listed separately or as part of the nonroad mobile source inventories). PA DEP compiles area source emissions on a county-level basis every three years (matching NEI years).

- Nonroad mobile (or “nonroad”) sources encompass a diverse collection of off-highway engines, including (but not limited to) outdoor power equipment, recreational vehicles, farm and construction machinery, lawn and garden equipment, industrial equipment, and other sources. PA DEP compiles nonroad mobile source emissions on a county-level basis every three years (matching NEI years).
- Onroad mobile (or “onroad”) sources include passenger cars, light-duty trucks, heavy-duty trucks, buses, and motorcycles. The Motor Vehicle Emissions Simulator (MOVES)²⁷ model is used to generate emissions based on traffic counts, vehicle speeds, vehicle population growth, and other factors. PA DEP compiles onroad mobile source emissions on a county-level basis every three years (matching NEI years).
- Natural fire and biogenic sources are additional emissions compiled by EPA on a county-level basis. Fire emissions from inadvertent (wildfire) biomass burning are taken from EPA’s FIRES²⁸ inventory. Biogenic (non-anthropogenic) emissions from vegetation and soils are estimated by the Biogenic Emission Inventory System (BEIS)²⁹ model.

The approved 2002 and 2007 base year emissions inventories for the Liberty-Clairton area for the 1997 and 2006 NAAQS are shown below in Tables 4-1 and 4-2, respectively, with emissions given by pollutant and data category, in tons/year.

Table 4-1. Liberty-Clairton 2002 Base Year Emissions Inventory (tons/year)

Liberty-Clairton (2002)	PM_{2.5}	PM₁₀	SO₂	NO_x	VOC	NH₃
Point Sources	2,201	2,746	1,359	5,786	433	300
Area Sources	37	151	82	80	336	7
Nonroad Mobile Sources	23	29	16	228	119	0
Onroad Mobile Sources	5	7	12	283	201	14
Total	2,266	2,933	1,469	6,377	1,089	321

²⁷ <https://www.epa.gov/moves>

²⁸ <https://www3.epa.gov/ttn/chief/ap42/ch13/related/firerept.pdf>

²⁹ <https://www.epa.gov/air-emissions-modeling/biogenic-emission-inventory-system-beis>

Table 4-2. Liberty-Clairton 2007 Base Year Emissions Inventory (tons/year)

Liberty-Clairton (2007)	PM_{2.5}	PM₁₀	SO₂	NO_x	VOC	NH₃
Point Sources	947	1,137	1,741	4,842	591	18
Area Sources	26	51	50	39	256	4
Nonroad Mobile Sources	15	16	17	438	87	0
Onroad Mobile Sources	10	10	2	274	173	5
Total	998	1,214	1,811	5,593	1,106	28

The approved 2011 base year emissions inventory for the Allegheny County area for the 2012 NAAQS is shown below in Table 4-3, with emissions given by pollutant and data category, in tons/year. Note that the Allegheny County area encompasses all county municipalities, including the Liberty-Clairton area for the previous NAAQS.

Table 4-3. Allegheny County 2011 Base Year Emissions Inventory (tons/year)

Allegheny County (2011)	PM_{2.5}	PM_{2.5} (fil)	PM_{2.5} (con)	PM₁₀	SO₂	NO_x	VOC	NH₃
Point Sources	2,503	1,338	1,164	2,987	13,460	11,128	1,669	207
Area Sources	2,491	2,011	480	4,683	1,528	6,979	11,200	621
Nonroad Mobile Sources	361	361	0	378	11	3,921	3,780	5
Onroad Mobile Sources	450	450	0	984	78	13,259	7,383	304
Fires	24	24	0	29	2	5	64	4
Biogenics	0	0	0	0	0	166	5,876	0
Total	5,829	4,185	1,644	9,061	15,080	35,460	29,972	1,141

Notes on the base year emissions inventories:

- While the PM_{2.5} emissions totals for the Liberty-Clairton area do include both filterable and condensable portions of primary PM_{2.5} emissions, the inventories were not required to be given in terms of each portion (i.e., only total PM_{2.5} was reported). For later inventories, including the 2011 Allegheny County inventory, the amounts for these portions have been given in addition to the total primary PM_{2.5}, according to AERR requirements. Additionally, mobile, fire, and biogenic sources are reported only in terms of filterable PM_{2.5}.
- Fire and biogenic emissions were not listed as separate data categories for the 2002 and 2007 inventories for the Liberty-Clairton area. For later inventories, including the 2011 Allegheny County inventory, these emissions have been listed separately.
- Emissions for area and mobile sources are allocated to the county level. For the Liberty-Clairton area, the population percentage of the area was used to scale down emissions

from the county-level totals. The Liberty-Clairton area represents about 1.5% of the total county population, based on U.S. Census Bureau counts and estimates from 2000 to 2020. (See Appendix B of this document for more information.)

- Since the 2007 base year inventory for Liberty-Clairton area did not match an NEI year, area and mobile source emissions were developed by the regional planning organization (RPO) Mid-Atlantic Regional Air Management Association, Inc (MARAMA) for state/local agencies for SIP purposes.
- The sum of different data categories may not match the totals for the areas, due to rounding to whole numbers. (Note: This applies to all emissions inventory tables in this document.)

4.4 Transportation Conformity

Section 176(c)(4) of the CAA requires each state to establish a transportation conformity process. The Commonwealth of Pennsylvania adopted a conformity SIP, which was approved by EPA with an effective date of June 29, 2009. This SIP satisfies all applicable transportation conformity process requirements for designated nonattainment and maintenance areas under the NAAQS for ozone, particulate matter, and carbon monoxide.

Transportation conformity ensures that allocated vehicle emissions from highway transportation projects fall below emissions levels that are included in attainment plans. According to 40 CFR § 93.118, conformity applies to areas in which transportation related PM_{2.5} and precursor emissions are significant contributors to the area.

4.4.1 Liberty-Clairton

For the Liberty-Clairton area for the 1997 and 2006 PM_{2.5} NAAQS, a finding of insignificance of motor vehicle emission contributions was made for the area (ACHD, 2014), and transportation conformity for SIP purposes was not required. The finding of insignificance was determined from the following factors:

- Motor vehicle emissions constitute a low percentage of the total SIP inventory.
- The state of air quality as determined by monitoring data for PM_{2.5} NAAQS in the area.
- The absence of SIP motor vehicle control measures.
- Historical trends and future projections of the growth of motor vehicle emissions.

Transportation conformity in general for the Liberty-Clairton area will continue to follow procedures such as interagency consultation, according to the EPA Transportation Conformity Rule.

4.4.2 Allegheny County

For the Allegheny County area for the 2012 PM_{2.5} NAAQS, a motor vehicle emissions budget (MVEB) for the attainment year of 2021 was required for PM_{2.5} and NO_x (as a precursor to

PM_{2.5}) for transportation conformity purposes (ACHD, 2019b; SPC, 2020). Furthermore, a conformity assessment for future case emissions was performed by the Southwestern Pennsylvania Commission (SPC), which is the designated Metropolitan Planning Organization (MPO) for the Pittsburgh MSA.

For the conformity assessment, mobile source modeling was performed using MOVES version 2014b. To pass conformity tests, future case conditions that include “build” scenarios for new construction projects should fall under the level the MVEB. The conformity assessment test results are given in Table 4-4, with emissions shown in tons/year along with vehicle miles traveled (VMT) for each scenario.

Table 4-4. Conformity Assessment Summary for Allegheny County, 2021 to 2045

VMT/Emissions	2021	2024	2025	2035	2045
Annual VMT	8,392,670,908	8,515,585,240	8,505,510,575	8,825,191,074	9,257,473,452
<i>PM_{2.5} MVEB</i>	<u>266</u>	<u>266</u>	<u>266</u>	<u>266</u>	<u>266</u>
PM _{2.5} Build	247	207	196	133	119
<i>NO_x MVEB</i>	<u>5,708</u>	<u>5,708</u>	<u>5,708</u>	<u>5,708</u>	<u>5,708</u>
NO _x Build	4,957	3,525	3,166	1,594	1,423

All future case conditions passed the conformity tests, with the future build case emissions falling under the MVEB. Note: Safety margins were not used for the MVEB in the SIP for the 2012 NAAQS.

4.5 Other CAA Requirements

The Liberty-Clairton and Allegheny County are additionally meeting all other requirements of Section 110 and Part D of the CAA that have not already addressed in the above sections of this document.

4.5.1 Section 110(a)

Section 110(a) of the CAA contains the general requirements for SIP submittals. The applicable requirements for nonattainment areas, including Section 110(a)(2), are satisfied by Allegheny County’s portion of the PA SIP approved in 1981, and its subsequent amendments.

Also included in Section 110(a) is the requirement to satisfy Part C of the CAA, related to the prevention of significant deterioration (PSD) for air quality in areas of attainment. The Allegheny County portion of the PA SIP was revised in October 1983, by the addition of Section 809 to Article XX, Allegheny County Health Department’s Rules and Regulations for Air Pollution Control. Section 809 of Article XX adopted in entirety, and incorporated by reference, the PSD requirements of 40 CFR Part 52.

4.5.2 Section 172(c)

Section 172(c) of the CAA contains the general provisions required to be included in a SIP for a nonattainment area. These provisions include attainment demonstrations, reasonably available control measures, reasonable further progress, inventory data, and permitting requirements.

As mentioned in the previous sections of this document, the requirements for most of these SIP elements were suspended for both the Liberty-Clairton and Allegheny County areas, providing that monitored attainment is maintained until the redesignation request can be approved. ACHD will retain all elements of the attainment demonstration SIP for the 2012 NAAQS, including the base year inventory. The base year inventories for the Liberty-Clairton area for the 1997 and 2007 NAAQS have been approved by EPA.

Section 172(c)(5) of the CAA also requires that a nonattainment plan includes provisions that shall require permits for the construction and operation of new or modified major stationary sources anywhere in the nonattainment area to be in accordance with Section 173 (under NNSR requirements). For the 1997 and 2006 NAAQS, the NNSR regulations for Allegheny County were approved in 2015. For the 2012 NAAQS, these regulations were amended and approved in 2020 to include VOC and NH₃ as precursors and to revise the significant impact levels (SILs) for PM_{2.5}.

4.5.3 Section 173

Section 173 of the CAA includes requirements related to permitting of air pollution sources in nonattainment areas. ACHD's Article XXI Rules and Regulations for Air Pollution Control³⁰ addresses all required provisions for the permitting of sources in nonattainment areas, including NNSR.

4.5.4 Sections 188-189

Sections 188 and 189 of the CAA pertain to schedules and other general provisions for the SIP submittals for nonattainment areas. The ACHD SIPs for the PM_{2.5} NAAQS have met the applicable dates required for the SIP submittals. Additionally, the ACHD's SIPs accordingly addressed requirements of Section 189(e) of the CAA for controls for PM_{2.5} precursors as part of PM_{2.5} attainment demonstrations.

³⁰ https://www.alleghenycounty.us/uploadedFiles/Allegheny_Home/Health_Department/Article-21-Air-Pollution-Control.pdf

5. Permanent and Enforceable Control Measures

For redesignation for an area, Section 107(d)(3)(E) of the CAA requires that the improvement in air quality is due to permanent and enforceable reductions in emissions resulting from implementation of the applicable SIP controls, federal and state rules and regulations, and other permanent and enforceable reductions.

As further clarified in EPA guidance (U.S. EPA, 1992), the state/local agency should estimate the percent reduction (from the year that was used to determine the design value for designation and classification) achieved from the applicable regulations and control measures that have been adopted and implemented. The reductions should also not be a result of temporary economic conditions or unusually favorable meteorology.

This section provides descriptions of the controls in place for the areas and estimates of the emissions reductions for each NAAQS. Note that there is some overlap of controls for the different NAAQS due to the timeframes of each NAAQS and the implementation of controls. Additionally, controls that are specific to one area may also affect the other area. For example, controls for specific point sources in the Liberty-Clairton area that led to reductions the 24-hour 2006 NAAQS may have also led to reductions in the Allegheny County area for the annual 2012 NAAQS, and vice versa. However, the control measures listed in this section generally correspond with the sources within the areas and the timeframes in which monitored attainment occurred for each NAAQS.

5.1 PM_{2.5} NAAQS Timeframes

Below is a timeline of attainment of the PM_{2.5} NAAQS for each area, including the designation and clean data design value periods. For each NAAQS, the Liberty site has been the determining site for attainment in the Liberty-Clairton and Allegheny County areas.

- For the 1997 NAAQS, the Liberty-Clairton area was designated a nonattainment area based on 2001-2003 monitored design values and achieved clean data based on 2009-2011 monitored design values. This timeframe corresponded with a reduction in monitored annual design values at the Liberty site from 21.2 µg/m³ to 15.0 µg/m³.
- For the 2006 NAAQS, the Liberty-Clairton area was designated a nonattainment area based on 2006-2008 monitored design values and achieved clean data based on 2012-2014 monitored design values. This timeframe corresponded with a reduction in monitored 24-hour design values at the Liberty site from 53 µg/m³ to 35 µg/m³.
- For the 2012 NAAQS, the Allegheny County area was designated a nonattainment area based on 2011-2013 monitored design values and achieved clean data based on 2018-2020 monitored design values. This timeframe corresponded with a reduction in monitored annual design values at the Liberty site from 13.4 µg/m³ to 11.1 µg/m³.

5.2 Implemented Controls

Adopted and implemented controls that have contributed to the reductions of PM_{2.5} levels are described below, grouped by area and/or control type.

Stationary point sources in Allegheny County require an operating permit (OP) in order to conduct operations and an installation permit (IP) in order to install new equipment or to expand processes. These permits are federally enforceable via 40 CFR §52.2020, regarding EPA-approved ACHD regulations. Conditions of installation permits and all other applicable regulations are incorporated into operating permits, and all operating permits are renewed every five years.

For a source that permanently ceases all operations, the corresponding operating permit becomes inactive, either by termination or expiration. After a permit is inactive, any future operation at the source property requires a new permit application along with new source review (NSR). ACHD enforcement staff conducts follow-up inspections at these sources to ensure continued inactivity and/or demolition at these properties.

Sources with shutdowns of either the entire facility or specific processes may apply for emissions reduction credits (ERCs) through the PA DEP's ERC registry.³¹ However, these credits can be purchased for use at any location in PA and some surrounding states. ACHD also assumes that ERC emissions are unlikely to be utilized at the same source property and at the same emission rates and source parameters. Therefore, ERCs are not included in future emissions inventory projections.

Note that most of the controls mentioned here have been previously discussed in detail in the ACHD SIP submittals (ACHD 2011, 2013, 2019b).

5.2.1 Liberty-Clairton Source Controls

Several point source controls have been implemented at the United States Steel Corporation (U. S. Steel, or USS) Mon Valley Works (MVW) Clairton Plant since the PM_{2.5} designations. These controls contributed to PM_{2.5} and precursor emissions reductions for the Liberty-Clairton area for the 1997 and 2006 NAAQS as well as for the Allegheny County area for the 2012 NAAQS.

Some of these controls were required by consent order and agreements entered into between ACHD and USS and in 2007 and in 2008 (with the latter amended in 2010 and 2011). These consent order and agreements were incorporated by reference into installation permits for the C Coke Battery (IP #0052-I011) and Quench Towers 5A and 7A (IP #0052-I014a). The USS Clairton Plant's Title V operating permit (OP #0052) incorporates conditions from IPs and other applicable regulations.

Controls specific to the USS Clairton Plant include the following:

³¹ December 3, 2021 version of the ERC registry:
http://files.dep.state.pa.us/Air/AirQuality/AQPortalFiles/Permits/erc/ERC_PA_Report.pdf

- Three rounds of an enhanced preventive maintenance refractory repair plan for Coke Battery 15 were completed in 2008.
- Coke Batteries 7-9 and associated processes were permanently shut down in 2009.
- The replacement of all heating walls for B Coke Battery was completed in 2010.
- The replacement of 25 heating walls for Coke Battery 19 was completed in 2012.
- The USS Clairton Plant Title V permit (OP #0052) issued in 2012 included baffle washing and maintenance requirements at all quench towers.
- New low-emission Quench Towers 5A and 7A were installed in 2013 as the main quench towers for Coke Batteries 13-15 and 19-20, respectively.
- A new Screening Station 4 was installed as a replacement to Screening Station #3 in 2013.

Note that the installation of the new C Coke Battery in 2012 led to an increase in emissions within the Liberty-Clairton area after the shutdown of Coke Batteries 7-9 occurred in 2009. However, the overall result since the NAAQS designations is a gradual decrease in long-term emissions in the area (see more under Section 5.3 of this document).

5.2.2 Allegheny County Source Controls

In addition to the controls implemented at the USS Clairton Plant, several controls were implemented at other major point source facilities in Allegheny County. These facilities are outside of the Liberty-Clairton area, and their modifications are mostly applicable to the control of PM_{2.5} and precursors for the Allegheny County area for the 2012 NAAQS.

Controls at major sources include the following over the timeframe of 2011 to 2017, which corresponds to the attainment timeframe for the Allegheny County area for the 2012 NAAQS.

- The GenOn Cheswick power plant installed a flue gas desulfurization (FGD) system in 2010 (IP #0054-I004), with full operation of the system started in mid-2011. (Note: This source has now ceased operations; see more under Section 6 of this document.)
- The ATI Flat Rolled Products (Allegheny Ludlum) specialty steel-making facility in Harrison Township installed a new Hot Rolling Processing Facility (HRPF) at the plant (IP #0062-I008) in 2013, along with a consolidation of melt shops in 2011 (IP #0062-I007).
- The McConway & Torley steel foundry completed several modifications since 2011, including a new electric arc furnace, new baghouses, and new ladle preheater burners (IPs #0275-I007, I008, I011, I013).

- The Bay Valley food manufacturing facility permanently switched from coal to natural gas as fuel for all boilers in 2015 (IP #0079-I005).

5.2.3 Allegheny County Source Shutdowns

The following major point source facilities in Allegheny County have been permanently retired from 2011 to 2017, with their permits terminated or expired. These shutdowns are mostly applicable to the control of PM_{2.5} and precursors for the Allegheny County area for the 2012 NAAQS. The year that each source ceased operations is shown in parentheses.

- ACN container facility (2013)
- Guardian glass plant (2015)
- Shenango coke plant (2016)

5.2.4 Federal and State Rules and Regulations

Many federal and state rules and regulations have also contributed to the control of PM_{2.5} and precursors. These rules and programs have reduced emissions from several source categories regionally, in addition to the reductions to stationary point source controls mentioned above. Since these rules and regulations are applicable to sources county-wide, only measures that occurred from 2011 to 2017 are listed below, corresponding with the attainment timeframe for the Allegheny County area for the 2012 NAAQS. The year that the rule or regulation was finalized in shown in parentheses. These rules and regulations include, but are not limited to, the following:

- Federal standards for residential wood heaters (2011)
- Federal emissions and fuel efficiencies for medium and heavy-duty vehicles (2011, 2016)
- Federal emissions and fuel economy standards for light-duty vehicles (2012)
- Federal maximum achievable control technology (MACT) rules for industrial, commercial, and institutional boilers (2013)
- Federal standards for reciprocating internal combustion engines (RICE) (2013)
- Federal standards for commercial and industrial solid waste incinerators (CISWI) (2013)
- Federal tier 3 vehicle emissions and fuel standards (2014)
- Federal Cross-State Air Pollution Rule (CSAPR) NO_x budgets (2015)
- PA VOC limits for adhesives and sealants (2012)
- PA sulfur limits for commercial fuel oil (2016)

5.3 Emissions Reductions

This section provides quantifications of the emissions reductions achieved in the areas during the attainment timeframes.

5.3.1 Liberty-Clairton Reductions

Since the Liberty-Clairton area achieved clean data for the 1997 NAAQS based on 2009-2011 monitored design values, reductions from the base year 2002 to a “control” year 2011 is appropriate for examination of the reductions in emissions. Emissions for the 2011 control year were taken from the 2011 base year inventory developed for the 2012 NAAQS SIP for the Allegheny County area. Similar to the other Liberty-Clairton inventories, the point source emissions for 2011 were for facilities located within the Liberty-Clairton area, and area and mobile source emissions were scaled from the county level to the area-level based on population percentage of the Liberty-Clairton area (1.5%).

Table 5-1 shows the total emissions reductions by pollutant from the 2002 base year inventory to the 2011 control year inventory for the Liberty-Clairton area, shown as negative values in tons/year. The percent changes from base year to control year are also given. Note: For consistency with the 2002 base year emissions inventory, the 2011 control year inventory does not show PM_{2.5} by filterable and condensable portions. Additionally, fires and biogenic emissions are included with the area source emissions. (See Appendix B of this document for the 2011 control year emissions inventory for Liberty-Clairton by data category totals.)

Table 5-1. Liberty-Clairton Emissions Reductions, 1997 NAAQS (tons/year)

Liberty-Clairton Totals (1997 NAAQS)	PM_{2.5}	PM₁₀	SO₂	NO_x	VOC	NH₃
2002 Base Year	2,266	2,933	1,469	6,377	1,089	321
2011 Control Year	644	841	1,492	3,456	776	138
<i>Reduction, Base to Control Year</i>	<i>-1,622</i>	<i>-2,092</i>	<i>23</i>	<i>-2,921</i>	<i>-313</i>	<i>-183</i>
<i>Percent Change</i>	<i>-72%</i>	<i>-71%</i>	<i>2%</i>	<i>-46%</i>	<i>-29%</i>	<i>-57%</i>

Substantial reductions in emissions of PM_{2.5} and most precursors occurred in the Liberty-Clairton area during the 1997 NAAQS attainment timeframe. Some of the reductions for primary PM_{2.5} may be overestimates due to changes in emissions inventory methodologies for PM_{2.5}. PM_{2.5} was a newer pollutant at the time of the base year inventory, and enhancements have been made to the emission calculation methodologies since that time. Nonetheless, the reductions over the timeframe were based on physical controls that led to less emissions and lower concentrations in the area. SO₂ was the only pollutant that did not show a reduction in emissions in the area, but SO₂ as a precursor is less important than primary PM_{2.5} for attainment in the Liberty-Clairton area. (See the SIP for the 2012 NAAQS (ACHD, 2019b) for more details on precursors and localized transformation.)

Since the Liberty-Clairton area achieved clean data for the 2006 NAAQS based on 2012-2014 monitored design values, reductions from the base year 2007 to a control year 2014 is appropriate for examination of emissions reductions for the 2006 NAAQS. Emissions for the 2014 control year were taken from the 2014 NEI. Like other Liberty-Clairton inventories, point

source emissions were for sources within the area, and area and mobile source emissions were scaled from the county level based on population percentage (1.5%). (See Appendix B of this document for the 2014 control year emissions inventory for Liberty-Clairton by data category totals; the 2014 inventory also included corrections identical to those made to the 2017 attainment inventory, as described in Appendix B.)

Table 5-2 shows the total emissions reductions by pollutant from the 2007 base year inventory to the 2014 control year inventory for the Liberty-Clairton area, shown as negative values in tons/year. The percent changes from base year to control year are also given.

Table 5-2. Liberty-Clairton Emissions Reductions, 2006 NAAQS (tons/year)

Liberty-Clairton Totals (2006 NAAQS)	PM_{2.5}	PM₁₀	SO₂	NO_x	VOC	NH₃
2007 Base Year	998	1,214	1,811	5,593	1,106	28
2014 Control Year	739	1,003	1,520	4,177	751	156
<i>Reduction, Base to Control Year</i>	<i>-259</i>	<i>-211</i>	<i>-291</i>	<i>-1,416</i>	<i>-355</i>	<i>128</i>
<i>Percent Change</i>	<i>-26%</i>	<i>-17%</i>	<i>-16%</i>	<i>-25%</i>	<i>-32%</i>	<i>457%</i>

Similar to Table 5-1, Table 5-2 shows considerable reductions in emissions of PM_{2.5} and most precursors during the corresponding attainment timeframe. NH₃ was the only pollutant that did not show a reduction in emissions in the area, due to changes in emission inventory methodologies. However, NH₃ has been found to be an insignificant precursor for attainment in Allegheny County, including the Liberty-Clairton area. (See the SIP for the 2012 NAAQS (ACHD, 2019b) for more details on NH₃ as a precursor.)

5.3.2 Allegheny County Reductions

The Allegheny County area achieved clean data for 2012 NAAQS based on 2018-2020 monitored design values, but as discussed in the following section of this document (Section 6.1, regarding the attainment inventories), 2017 is a more appropriate year for use as a control year than any year in the 2018-2020 timeframe. Therefore, emissions reductions have been examined from the base year 2011 to a control year 2017, which is also being used in the maintenance demonstration as the attainment inventory year. Emissions for the 2017 control/attainment year were taken from 2017 NEI and MOVES3 output, with corrections to NEI as noted in Appendix B of this document.

Table 5-3 shows the total emissions reductions by pollutant from the 2011 base year inventory to the 2017 control/attainment year inventory for the Allegheny County area, shown as negative values in tons/year. The percent changes from base year to control year are also given.

Table 5-3. Allegheny County Emissions Reductions, 2012 NAAQS (tons/year)

Allegheny County Totals (2012 NAAQS)	PM_{2.5}	PM_{2.5} (fil)	PM_{2.5} (con)	PM₁₀	SO₂	NO_x	VOC	NH₃
2011 Base Year	5,829	4,185	1,644	9,061	15,080	35,460	29,972	1,141
2017 Control Year	4,437	3,207	1,230	6,728	5,033	23,273	25,383	1,238
<i>Reduction, Base to Control Year</i>	-1,392	-978	-414	-2,333	-10,047	-12,187	-4,589	97
<i>Percent Change</i>	-24%	-23%	-25%	-26%	-67%	-34%	-15%	9%

The Allegheny County area showed considerable reductions during the 2012 NAAQS attainment timeframe for all pollutants except NH₃. Like mentioned above for the Liberty-Clairton area for the 2006 NAAQS, NH₃ has been found to be an insignificant precursor in Allegheny County.

5.4 Conditions During Attainment

Emissions reductions that led to monitored attainment for each area and NAAQS were not a result of temporary economic conditions or unusually favorable meteorology during the attainment timeframes.

5.4.1 Emissions

Except for two years since the NAAQS designations, industrial production and anthropogenic activity levels have remained somewhat consistent in both the Liberty-Clairton and Allegheny County areas. Year 2009 emissions were affected by economic recession, and year 2020 emissions were affected by the onset of the COVID pandemic.

Following the economic recession in 2008, year 2009 was a low year for emissions specifically from the point source category, with low production levels at most industrial facilities throughout Allegheny County, including the Liberty-Clairton area. Monitored data for year 2009 were included in the 2009-2011 design values that showed attainment for Liberty-Clairton area for the 1997 NAAQS. However, production levels in 2010-2011 were representative of more typical production levels in the area. Attainment of the NAAQS has also been maintained in the Liberty-Clairton area since the clean data determination based on 2009-2011 design values, with continued decreases in emissions and monitored concentrations.

Year 2020 was a low year for emissions due to the COVID pandemic, with lower region-wide emissions from nearly all data categories, most notably from mobile sources. Monitored data for year 2020 were included in the 2018-2020 design values that showed attainment for Allegheny County area. However, analysis included in the SIP for the 2012 NAAQS (ACHD, 2019b) showed that the area was on course to achieve attainment under more normal conditions. Levels of emissions and monitored concentrations in 2021 and 2022 to-date have risen to levels that are

similar to years prior to the pandemic, with more typical production and anthropogenic activity (motor vehicle use, employment levels, etc.).

Although the low emissions in 2009 and 2020 were not the causes of monitored attainment for the 1997 or 2012 NAAQS, the conditions in these years did provide evidence that large reductions in emissions can directly affect monitored concentrations in the areas. This concept has been used as the primary basis in the maintenance demonstration for this plan (see Section 6.2 of this document).

5.4.2 Meteorology

Attainment of the NAAQS for the Liberty-Clairton and Allegheny County areas was also not driven by unusually favorable meteorology. Monitored concentrations can be affected by meteorological conditions including surface temperature inversions, average temperature, total precipitation, and other factors. Over the timeframe of 2001-2020, there was some variation in meteorology for the Pittsburgh region,³² and the design value periods used for the NAAQS determinations included years with both above and below normal statistics for these parameters.

Table 5-4 shows the yearly frequency of surface temperature inversions, average temperature, total precipitation, and the Liberty annual weighted mean and 98th percentile concentrations over the period of 2001-2020. The Liberty site has been the highest-concentration PM_{2.5} site in the county in every year since monitoring began in 1999. (Note: An inversion analysis for year 2021 is not available at the time of this document.)

³² Temperature and precipitation statistics were taken from the National Weather Service (NWS) web site for Pittsburgh: <https://www.weather.gov/pbz/>

Inversion statistics for the Pittsburgh NWS location were taken from the University of Wyoming web site: <http://weather.uwyo.edu/upperair/sounding.html>

The frequency of temperature inversions was determined by number of days per year with morning (12Z) upper air readings showing an inversion of 1.0 °C or greater.

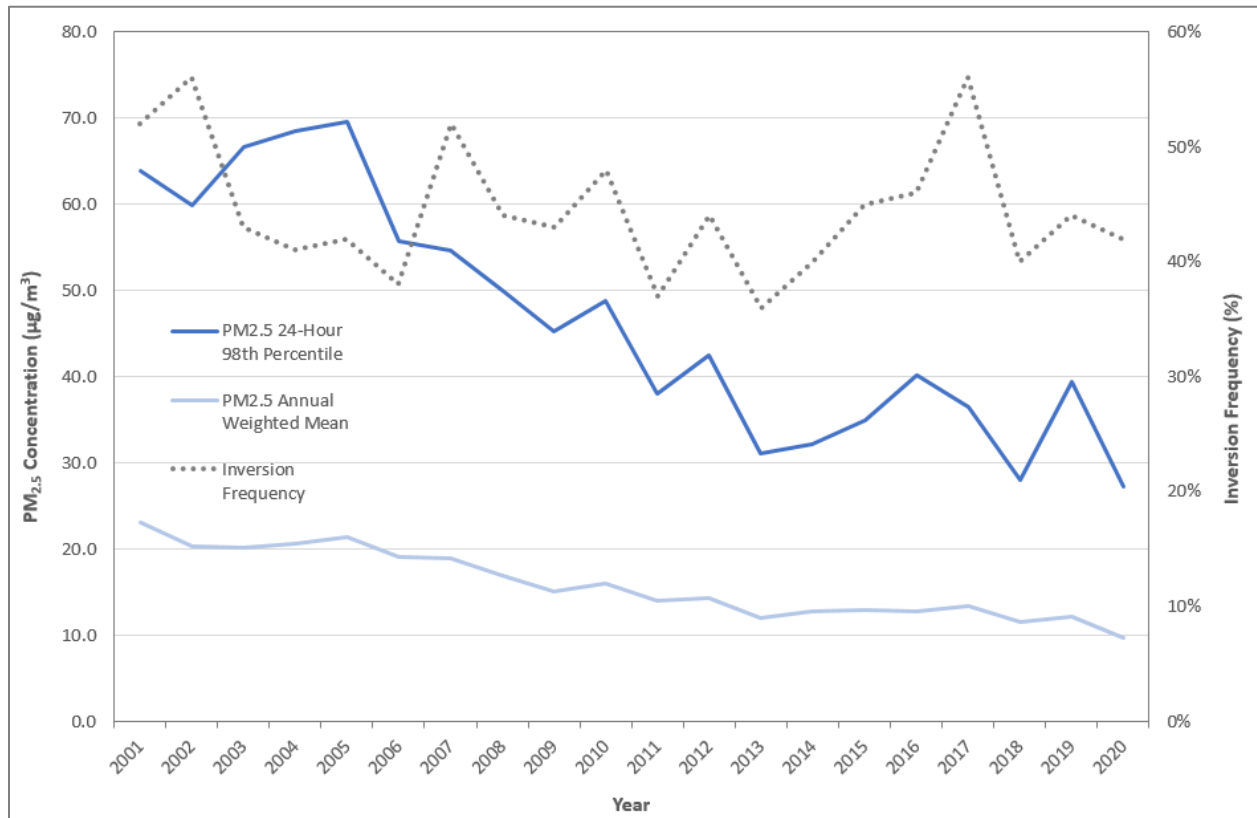
Table 5-4. Yearly Meteorological Parameters and Liberty Concentrations, 2001 to 2020

Year	Frequency of Inversions (%)	Average Temperature (°F)	Total Precipitation (inches)	Liberty Annual Weighted Mean (µg/m ³)	Liberty 24-hour 98th Percentile (µg/m ³)
2001	52%	52.2	35.7	23.1	63.9
2002	56%	52.6	32.3	20.3	59.9
2003	43%	50.3	41.0	20.2	66.6
2004	41%	51.6	57.4	20.7	68.5
2005	42%	51.6	41.2	21.4	69.6
2006	38%	52.3	34.9	19.1	55.7
2007	52%	52.0	40.7	18.9	54.7
2008	44%	50.9	39.7	17.0	50.0
2009	43%	51.0	32.8	15.0	45.3
2010	48%	51.9	37.9	16.0	48.8
2011	37%	52.8	44.2	14.0	38.0
2012	44%	54.2	41.7	14.3	42.5
2013	36%	51.5	36.7	12.0	31.1
2014	40%	50.0	36.8	12.7	32.2
2015	45%	52.5	40.6	12.9	34.9
2016	46%	54.2	35.0	12.8	40.2
2017	56%	53.6	42.2	13.4	36.5
2018	40%	52.3	57.8	11.5	28.0
2019	44%	52.4	52.5	12.2	39.4
2020	42%	53.3	39.3	9.8	27.2

As discussed in the meteorological analysis provided in the SIP for the 2012 NAAQS (ACHD, 2019b), periods of elevated PM_{2.5} concentrations at Liberty generally coincide with the presence of temperature inversions. Temperature, precipitation, and other meteorological factors can also affect the formation of PM_{2.5}, but to a lesser extent than inversions.

While there has been an overall increasing trend for average temperature and total precipitation in the Pittsburgh region since 2001, the average frequency of inversions has remained about the same throughout the period (44%). Figure 5-1 shows a time series chart of inversion frequencies along with the Liberty annual weighted means and 24-hour 98th percentile concentrations over the timeframe of 2001-2020.

Figure 5-1. Yearly Inversion Frequencies and Liberty PM_{2.5} Concentrations, 2001 to 2020



While the variations in concentrations correlate with inversion frequencies from year to year, Liberty concentrations have declined throughout the timeframe due to emissions controls and not due to unusually favorable meteorology.

6. Maintenance Plan

For an area to be redesignated, Section 175A of the CAA requires a fully approved maintenance plan for the nonattainment area to be in place. The maintenance plan should be devised to provide for continued attainment of the applicable NAAQS for a period of 10 years following the redesignation to attainment.

EPA guidance (U.S. EPA, 1992) further specifies that an approvable maintenance plan should include the following elements:

- Attainment inventory
- Maintenance demonstration
- Monitoring network
- Verification of continued attainment
- Contingency provisions

This section provides the required elements for a maintenance plan for the 1997 and 2006 NAAQS for the Liberty-Clairton area and for the 2012 NAAQS for the Allegheny County area.

6.1 Attainment Emissions Inventories

EPA guidance (U.S. EPA, 1992) specifies that the state/local agency should develop an attainment emissions inventory to identify the level of emissions in the area which is sufficient to attain the NAAQS. This inventory should be consistent with EPA's most recent guidance on emission inventories for nonattainment areas available at the time and should include the emissions during the timeframe associated with the monitoring data showing attainment.

6.1.1 Attainment Year

For the attainment emissions inventories for this maintenance plan, year 2017 will be used for both the Liberty-Clairton area for the 1997 and 2006 NAAQS and the Allegheny County area for the 2012 NAAQS. Point and area source emissions have been taken directly from 2017 NEI, except for corrections noted in Appendix B of this document. Nonroad and onroad mobile source emissions were taken from MOVES3 model output. MOVES3 was run by PA DEP and Michael Baker International for the nonroad and onroad mobile source emissions for 2017 and the projected 2026 and 2035 years. Since this modeling is an update to data included in the 2017 NEI, the MOVES3 output was used for the 2017 attainment inventories. (See more below in Section 6.2 of this document.)

The pollutants and sources in the 2017 attainment inventories follow the same methodology as described for the base year inventories (see Section 4 of this document). The data categories include stationary point sources, area sources, nonroad and onroad mobile sources, and fire and biogenic sources.

The Liberty-Clairton area achieved monitored attainment of the 1997 NAAQS with 2009-2011 design values, followed by monitored attainment of the 2006 NAAQS with 2012-2014 design

values. Years that fall within these design value periods could be representative of levels of emissions that led to attainment of the 1997 and 2006 NAAQS. However, although occurring later than the design value periods that first achieved monitored attainment for the 1997 and 2006 NAAQS, year 2017 is an appropriate year for the Liberty-Clairton area for the following reasons:

- For the 1997 NAAQS, 2011 NEI would be an available emissions inventory with all data categories compiled (point, area, mobile, and fires/biogenics) within the design value timeframe of 2009-2011. This was used as the “control” year for the emissions reductions in Section 5.3 above. However, it would be illogical to project emissions from 2011, since a 10-year maintenance timeframe has already been surpassed. Additionally, the 2012 NAAQS replaced the 1997 NAAQS with a more stringent annual level, and the Allegheny County area encompasses the Liberty-Clairton area. Projected emissions for the Liberty-Clairton area would be inherently included with projections for the Allegheny County area, for which 2017 is the most appropriate attainment year (see more below).
- For the 2006 NAAQS, 2014 NEI would be an available emissions inventory within the design value timeframe of 2012-2014, and 2014 was used as the control year for the reductions for the 2006 NAAQS in Section 5.3 above. However, the use of 2017 as the attainment year, which is the next available NEI year, allows for consistency with the attainment year for the Allegheny County area. Like mentioned above for the 1997 NAAQS, the Liberty-Clairton area is encompassed by Allegheny County and would be included in projections from a 2017 attainment year.
- The 2011 and 2014 NEI both show higher emissions than the 2017 NEI for the Liberty-Clairton area (see Appendix B of this document). The use of an attainment inventory with less emissions than what was needed for attainment can be considered a stricter approach for the maintenance tests. In order to demonstrate maintenance, future case projections should show values that are lower than the attainment year emissions; since the 2017 inventory is less than the 2011 and 2014 inventories, the use of 2017 as the attainment inventory allows for less growth in emissions and a greater degree of maintenance for the area.

The Allegheny County area achieved monitored attainment of the 2012 NAAQS with 2018-2020 design values, and one of these years could be used as an attainment year. However, year 2017 is a more appropriate year for the following reasons:

- 2017 NEI is the most recent year with emissions compiled for all data categories. The use of 2018 or 2019 as an attainment year would need to be forecast from 2017 for area and mobile sources, which could lead to less accurate data than the directly compiled data for 2017.
- Years 2018 and 2019, while showing lower concentrations than in 2017, include higher than expected precursor emissions from the largest point sources. The high precursor emissions were due to an extended equipment breakdown at the U. S. Steel Clairton Plant (from Dec. 2018 to Apr. 2019), as well as higher than normal demand for electricity from

the Cheswick power plant (in 2018). These emissions are not representative of typical emissions from these sources, and the use of 2018 or 2019 data would add high bias to emissions that would not coincide with emissions levels that are more representative of attainment conditions.

- Year 2017 monitored concentrations were driven by unfavorable meteorology, including the highest frequency of surface temperature inversions during the timeframe of 2001-2020 (see Section 5.4 of this document). Without the high frequency of inversions in 2017, and without PM_{2.5} exceedances that occurred during the extended equipment breakdown at U. S. Steel Clairton in 2019, the design value period of 2017-2019 (which would have included emissions for year 2017) would likely have attained the 2012 annual NAAQS.
- The 2012 NAAQS SIP used a projected inventory to 2021 for future case modeling and design value predictions. The point source emissions for the 2021 projected inventory were based on typical emissions levels over the 2015-2017 timeframe, including emissions that occurred after controls that were in place by 2017. Therefore, 2017 was the first year in which emissions would have been representative of the expected emissions that would coincide with attainment (monitored or modeled).
- 2020 NEI will not be finalized during the development of this maintenance plan. Even if available, 2020 would be inappropriate for use as an attainment inventory due to low regional emissions during the COVID-19 pandemic.

6.1.2 Attainment Inventories

The 2017 attainment emissions inventories for the Liberty-Clairton and Allegheny County areas are shown below in Tables 6-1 and 6-2, respectively, based on reported 2017 NEI and modeled MOVES3 emissions, in tons/year.

Table 6-1. 2017 Attainment Inventory for the Liberty-Clairton Area (tons/year)

Liberty-Clairton (2017)	PM_{2.5}	PM_{2.5} (fil)	PM_{2.5} (con)	PM₁₀	SO₂	NO_x	VOC	NH₃
Point Sources	680	384	295	878	1,130	2,626	184	119
Area Sources	38	29	10	62	3	91	185	10
Nonroad Mobile Sources	4	4	0	4	0	39	36	0
Onroad Mobile Sources	4	4	0	9	1	121	52	4
Fires	0	0	0	0	0	0	0	0
Biogenics	0	0	0	0	0	3	85	0
Total	726	421	305	953	1,134	2,880	543	133

Table 6-2. 2017 Attainment Inventory for the Allegheny County Area (tons/year)

Allegheny County (2017)	PM_{2.5}	PM_{2.5} (fil)	PM_{2.5} (con)	PM₁₀	SO₂	NO_x	VOC	NH₃
Point Sources	1,351	758	593	1,752	4,758	6,336	1,493	305
Area Sources	2,564	1,927	637	4,113	224	6,059	12,360	657
Nonroad Mobile Sources	264	264	0	278	4	2,616	2,370	6
Onroad Mobile Sources	257	257	0	584	47	8,046	3,469	271
Fires	0	0	0	0	0	0	1	0
Biogenics	0	0	0	0	0	216	5,690	0
Total	4,437	3,207	1,230	6,728	5,033	23,273	25,383	1,238

Detailed emissions by facility/process or source sector/description for the attainment inventories can be found in Appendix B of this document.

6.2 Maintenance Demonstration

According to Section 175A of the CAA and EPA guidance (U.S. EPA, 1992), a state/local agency may demonstrate maintenance of the NAAQS by either showing that future emissions of PM_{2.5} and precursors will not exceed the level of the attainment inventory for the area or by modeling to show that the future mix of sources and emission rates will not cause a violation of the NAAQS in the area.

To demonstrate maintenance of the 1997 and 2006 NAAQS for the Liberty-Clairton area and the 2012 NAAQS for the Allegheny County area, future case PM_{2.5} and precursor emissions have been projected to an interim year 2026 and a maintenance year 2035. The maintenance year 2035 represents a period of 10 years after 2025 and a period of 18 years after the attainment inventory year 2017. The future case projections take economic, population, and travel growth factors into account.

Since emissions for nearly all pollutants and data categories and are expected to remain below the attainment inventories, modeling has not been performed for this demonstration.

6.2.1 Projection Methodologies

To demonstrate maintenance, inventory projections should show that PM_{2.5} and precursors will remain at levels that will provide for continued attainment of the PM_{2.5} NAAQS for at least 10 years following redesignation. Like described in earlier sections, area and mobile sources emissions projections for the Liberty-Clairton area were based on a percentage of the Allegheny County emissions projections. Emissions have been projected based on the following methodologies, summarized by data category below.

Stationary (Point and Area) Sources

For point and area sources, growth factors developed by the Mid-Atlantic Regional Air Management Association, Inc. (MARAMA) and other sources have been used to project emissions from the attainment year 2017 to the future years 2026 and 2035. Resources that were used to derive growth factors include the following (and other) databases and tools:

- Energy Information Administration (EIA) Annual Energy Outlook (AEO) 2022
- Pennsylvania Industry Employment 2018-2028 Long-Term Projections
- National Inventory Collaborative 2016v1 Emissions Modeling Platform (EMP)
- Eastern Regional Technical Advisory Committee (ERTAC) Electricity Generating Unit (EGU) emission projection tool
- Federal Aviation Administration (FAA) Terminal Area Forecast (TAF)

For major point sources with enforceable controls or shutdowns that occurred since the 2017 attainment inventories (or with controls/shutdowns on the way), the resulting emissions reductions have been incorporated into the future case point source emissions projections. These reductions apply to the following major point source facilities:

- The Koppers Clairton tar refining facility, located adjacent to the USS Clairton Plant, ceased operations in 2017. All equipment was removed from the site in 2019, and the permit expired in 2021. This facility was excluded from the projected inventories for both the Liberty-Clairton and Allegheny County areas.
- The GenOn Cheswick 637 megawatt (MW) coal-fired power plant ceased operations on March 31, 2022 and was permanently retired on April 1, 2022. The facility property was sold to a redevelopment group on April 6, 2022, and the Title V operating permit was terminated on April 15, 2022. The Cheswick facility was excluded from the projected inventories for Allegheny County. Future plans for the property include the demolition of all existing equipment and repurposing for uses other than the generation of electricity.³³
- The USS Clairton Plant announced that it will cease operation of its Coke Batteries 1, 2, and 3 in early 2023. This shutdown is planned as part of settlement agreement between ACHD and USS in 2019, and the permanent retirement of the batteries and associated processes will be reflected in a future revision to the Title V operating permit for the plant. Batteries 1-3 and associated processes were excluded from the projected inventories for both the Liberty-Clairton and Allegheny County areas. The shutdown of Batteries 1-3 also represents the largest expected reduction in primary PM_{2.5} from any point source facility after the attainment year of 2017. This reduction provides extra benefit for the City of Clairton, which is an EJ community.

³³ <https://triblive.com/local/valley-news-dispatch/springdale-power-plant-shuts-down-demolition-work-to-begin/>

One new minor point source (Energy Center Uptown) that began operation since the 2017 inventory has been added to the future case projections for both 2026 and 2035 for the Allegheny County area. This source is a steam generation facility in the City of Pittsburgh.

One new major point source (Invenergy Allegheny Energy Center (AEC)) has been proposed for construction in Elizabeth Township in the Allegheny County area. This facility would be a 639 MW natural gas-fired combined-cycle power plant. Invenergy has gone through the new source review process for this proposed plant, and ACHD issued an installation permit (IP #0959-I001) for the plant on October 5, 2021. For high-end estimates for the future case emissions, permitted emissions limits (plant-wide) have been added to the projections for 2026 and 2035 for Allegheny County.

Appendices C and E of this document contain more information on the projected inventories and the methodologies used for the stationary point and area sources, including growth factors for specific processes/sectors.

Mobile (Nonroad and Onroad) Sources

The EPA MOVES3 model (v3.0.3, 20220105) was used to generate nonroad and onroad mobile source emissions for years 2017, 2026, and 2035. PA DEP performed the nonroad modeling, and Michael Baker International³⁴ performed the onroad modeling. The methodology for the modeling was consistent with EPA technical guidance (U.S. EPA, 2020b). More details on the MOVES modeling can be found in the documentation in Appendix D of this document.

For year 2017, Allegheny County was required to use a summertime (May through September) gasoline fuel with a Reid Vapor Pressure (RVP)³⁵ of 7.8 pounds per square inch (psi). This was reflected in the model through modifying the MOVES input database to account for the lower RVP fuel use requirement. The future year 2026 and 2035 model runs assumed the use of federal conventional gasoline with summer and winter RVP (plus the 1.0 psi RVP waiver for ethanol blends) in Allegheny County.

For the nonroad mobile source modeling, default Allegheny County equipment populations and activity data incorporated into the nonroad equipment component of MOVES3 were used to estimate emissions. The modeling used local temperatures, relative humidity, and fuel specifications identical to those used for MOVES modeling of the highway vehicle emissions. MOVES3 includes county-specific future growth factors and estimates daily emissions for nonroad diesel, conventional gasoline, liquefied petroleum gas, and compressed natural gas-fueled nonroad equipment types on typical weekday and weekend days for each month of the analysis year.

The model was configured to generate both weekday and weekend daily nonroad emissions for each month of the year, aggregated by SCC using post-processing scripts included with MOVES3. The daily emissions output in grams per given day were then multiplied by the

³⁴ Michael Baker International: <https://mbakerintl.com/>

³⁵ EPA RVP: <https://www.epa.gov/gasoline-standards/gasoline-reid-vapor-pressure>

number of respective weekdays or weekend days in the given month for the analysis year. The resultant emissions were converted to tons and summed to estimate annual emissions of PM_{2.5} and precursors for each nonroad SCC. 2017 local meteorological data was used for the 2017 base year analysis, and 2020 local meteorological data was used for the future years 2026 and 2035.

Natural (Fire and Biogenic) Sources

Based on EPA methodology (EPA, 2017), fire and biogenic sources are generally not projected to future case scenarios, since their emissions can be dependent on meteorology. These emissions have been held constant from 2017 through the 2026 and 2035 projection years.

6.2.2 Projected Emissions Inventories

Tables 6-3 and 6-4 show the projected emissions inventories by pollutant and data category for the 2026 interim and 2035 maintenance years, respectively, for the Liberty-Clairton area. Projections were based on the methodologies described above in Section 6.2.1 and in Appendices C and E of this document.

Table 6-3. 2026 Interim Inventory for the Liberty-Clairton Area (tons/year)

Liberty-Clairton (2026)	PM_{2.5}	PM_{2.5} (fil)	PM_{2.5} (con)	PM₁₀	SO₂	NO_x	VOC	NH₃
Point Sources	537	289	248	682	999	2,142	158	104
Area Sources	39	29	10	63	4	93	200	10
Nonroad Mobile Sources	3	3	0	3	0	27	34	0
Onroad Mobile Sources	2	2	0	9	0	56	29	3
Fires	0	0	0	0	0	0	0	0
Biogenics	0	0	0	0	0	3	85	0
Total	580	323	258	756	1,003	2,322	505	118

Table 6-4. 2035 Maintenance Inventory for the Liberty-Clairton Area (tons/year)

Liberty-Clairton (2035)	PM_{2.5}	PM_{2.5} (fil)	PM_{2.5} (con)	PM₁₀	SO₂	NO_x	VOC	NH₃
Point Sources	510	274	236	646	982	2,154	148	97
Area Sources	40	30	10	65	4	91	203	10
Nonroad Mobile Sources	2	2	0	3	0	26	35	0
Onroad Mobile Sources	2	2	0	9	0	40	23	3
Fires	0	0	0	0	0	0	0	0
Biogenics	0	0	0	0	0	3	85	0
Total	554	308	246	722	986	2,313	495	111

Tables 6-5 and 6-6 show the projected emissions inventories by pollutant and data category for the 2026 interim and 2035 maintenance years, respectively, for the Allegheny County area. Projections were based on the methodologies described above in Section 6.2.1 of this document.

Table 6-5. 2026 Interim Inventory for the Allegheny County Area (tons/year)

Allegheny County (2026)	PM_{2.5}	PM_{2.5} (fil)	PM_{2.5} (con)	PM₁₀	SO₂	NO_x	VOC	NH₃
Point Sources	1,184	657	527	1,481	2,732	5,144	1,563	334
Area Sources	2,568	1,917	651	4,181	267	6,175	13,313	687
Nonroad Mobile Sources	182	182	0	194	3	1,811	2,287	7
Onroad Mobile Sources	161	161	0	605	25	3,748	1,906	229
Fires	0	0	0	0	0	0	1	0
Biogenics	0	0	0	0	0	216	5,690	0
Total	4,095	2,917	1,178	6,462	3,027	17,094	24,760	1,257

Table 6-6. 2035 Maintenance Inventory for the Allegheny County Area (tons/year)

Allegheny County (2035)	PM_{2.5}	PM_{2.5} (fil)	PM_{2.5} (con)	PM₁₀	SO₂	NO_x	VOC	NH₃
Point Sources	1,160	647	513	1,471	2,710	5,258	1,601	357
Area Sources	2,648	1,970	678	4,319	273	6,039	13,533	684
Nonroad Mobile Sources	158	158	0	169	4	1,709	2,347	8
Onroad Mobile Sources	128	128	0	591	22	2,638	1,556	222
Fires	0	0	0	0	0	0	1	0
Biogenics	0	0	0	0	0	216	5,690	0
Total	4,095	2,903	1,191	6,551	3,009	15,861	24,728	1,271

These projected inventories for 2026 and 2035 for the Liberty-Clairton and Allegheny County areas are shown in detail by facility/process or source sector/description in Appendix C of this document.

6.2.3 Maintenance Tests

Maintenance of the NAAQS can be demonstrated if projected emissions are lower than the attainment inventories. This test is similar in methodology to the calculation of emissions reductions from the permanent control measures in Section 5 of this document. The inventory totals for the Liberty-Clairton area are given below in Table 6-7, along with the reductions of the projected year totals from the attainment year totals shown as negative values, by pollutant, in tons/year. “Total PM_{2.5}” is calculated as the sum of PM_{2.5} and precursors for each inventory year, with PM₁₀ excluded.

Table 6-7. Liberty-Clairton Area, Inventory Totals and Reductions (tons/year)

Liberty-Clairton Totals	PM_{2.5}	PM_{2.5} (fil)	PM_{2.5} (con)	PM₁₀	SO₂	NO_x	VOC	NH₃	Total PM_{2.5}
2017 Attainment Year	726	421	305	953	1,134	2,880	543	133	5,416
2026 Interim Year	580	323	258	756	1,003	2,322	505	118	4,529
2035 Maintenance Year	554	308	246	722	986	2,313	495	111	4,460
<i>Reduction, Attainment to Interim Year</i>	-146	-99	-47	-196	-131	-559	-37	-15	-887
<i>Reduction, Attainment to Maintenance Year</i>	-172	-113	-59	-231	-148	-567	-48	-22	-956

The projected inventories for both the interim year 2026 and maintenance year 2035 show lower emissions (for each pollutant and for total PM_{2.5} and precursors) than the attainment year 2017 for the Liberty-Clairton area, indicating that the area passes the maintenance test for this demonstration.

The inventory totals for the Allegheny County area are given below in Table 6-8, along with the reductions of the projected year totals from the attainment year totals shown as negative values, by pollutant, in tons/year.

Table 6-8. Allegheny County Area, Inventory Totals and Reductions (tons/year)

Allegheny County Totals	PM_{2.5}	PM_{2.5} (fil)	PM_{2.5} (con)	PM₁₀	SO₂	NO_x	VOC	NH₃	Total PM_{2.5}
2017 Attainment Year	4,437	3,207	1,230	6,728	5,033	23,273	25,383	1,238	59,364
2026 Interim Year	4,095	2,917	1,178	6,462	3,027	17,094	24,760	1,257	50,233
2035 Maintenance Year	4,095	2,903	1,191	6,551	3,009	15,861	24,728	1,271	48,963
<i>Reduction, Attainment to Interim Year</i>	-342	-290	-52	-266	-2,006	-6,179	-623	18	-9,132
<i>Reduction, Attainment to Maintenance Year</i>	-343	-304	-39	-177	-2,024	-7,413	-655	33	-10,401

The projected inventories for both the interim year 2026 and maintenance year 2035 show lower emissions (for nearly all pollutants and for total PM_{2.5} and precursors) than the attainment year 2017 for the Allegheny County area, indicating that the area passes the maintenance test for this demonstration. Only NH₃ individually does not show a reduction in emissions in the future years. As discussed earlier, NH₃ has been determined to be an insignificant precursor for attainment in Allegheny County.

Note that a portion of the differences between attainment year and interim/maintenance year emissions of PM_{2.5} and NO_x have been set aside as transportation conformity safety margins to accommodate unanticipated growth in highway vehicles emissions. The projected emissions in Tables 6-3 through 6-8 show the projected emissions only, without incorporation of safety margins. (See more below under Section 6.2.4 of this document.)

6.2.4 Proposed MVEB for Allegheny County

Since the mobile source emissions in this maintenance plan are an update to those included in the 2012 NAAQS SIP for Allegheny County, the MVEB for transportation conformity purposes in Allegheny County can be updated accordingly. Additionally, to accommodate unanticipated growth in highway vehicle emissions, safety margins can also be derived for the future year 2026 and 2035 budgets.

From the difference between attainment year and interim/maintenance year emissions of PM_{2.5} and NO_x (see Table 6-8 above), a portion of the reductions can be allocated for use as safety margins. Table 6-9 shows the MOVES3 modeled results for years 2017, 2026, and 2035 for PM_{2.5} and NO_x onroad mobile source emissions. The proposed new MVEB levels for Allegheny County are based on the modeled emissions for 2017, 2026, and 2035, plus the addition of safety margins (calculated as 10% of the projected emissions) for the future years 2026 and 2035.

Table 6-9. Proposed MVEB for Allegheny County (tons/year)

VMT/Emissions	2017	2026	2035
Annual VMT	8,266,734,599	8,659,512,983	9,018,014,459
PM _{2.5} (Modeled)	257	161	128
PM _{2.5} Safety Margin (10%)	--	16	13
<u>Proposed PM_{2.5} MVEB</u>	<u>257</u>	<u>177</u>	<u>141</u>
NO _x (Modeled)	8,046	3,748	2,638
NO _x Safety Margin (10%)	--	375	264
<u>Proposed NO_x MVEB</u>	<u>8,046</u>	<u>4,123</u>	<u>2,902</u>

If approved by EPA, the proposed MVEB values for PM_{2.5} and NO_x in Table 6-9 would establish revised MVEB levels for 2017, 2026, and 2035 for transportation conformity purposes in Allegheny County. The proposed MVEB levels for the future years also fall below the currently approved MVEB levels (see Section 4.4 of this document).

The addition of the safety margins would increase the onroad emissions (to the proposed MVEB levels for PM_{2.5} and NO_x) for the future cases and decrease the overall reductions for Allegheny County (from Table 6-8 above). Table 6-10 shows the revised reductions once the safety margins are applied to the onroad emissions for 2026 and 2035.

Table 6-10. Allegheny County Area, Reductions After Safety Margins (tons/year)

Allegheny County Totals	PM_{2.5}	PM_{2.5} (fil)	PM_{2.5} (con)	PM₁₀	SO₂	NO_x	VOC	NH₃	Total PM_{2.5}
2017 Attainment Year	4,437	3,207	1,230	6,728	5,033	23,273	25,383	1,238	59,364
2026 Interim Year	4,111	2,934	1,178	6,478	3,027	17,469	24,760	1,257	50,624
2035 Maintenance Year	4,108	2,917	1,191	6,564	3,009	16,125	24,728	1,271	49,240
<i>Reduction, Attainment to Interim Year</i>	-326	-274	-52	-250	-2,006	-5,805	-623	18	-8,741
<i>Reduction, Attainment to Maintenance Year</i>	-329	-291	-39	-164	-2,024	-7,149	-655	33	-10,124

The revised reductions in Table 6-10 are similar to those before the safety margins were applied, with Allegheny County passing the maintenance test for PM_{2.5} and NO_x individually and for total PM_{2.5} and precursors. (Note: Since an MVEB was not required for the Liberty-Clairton area, the safety margins are not directly applicable to that area.)

6.2.5 Supporting Evidence

In addition to emissions data, several other factors support the fact that attainment of the PM_{2.5} NAAQS will be maintained in the Liberty-Clairton and Allegheny County areas. These factors include other controls that were not included as SIP controls or in the projected future case inventories.

ACHD Mon Valley Episode Regulation

On Sept. 25, 2021, ACHD finalized a new Article XXI regulation for the control of PM_{2.5} episodes in the Mon Valley. This episode regulation (§2106.06, Mon Valley Air Pollution Episode) has been designed to effectively reduce short-term PM_{2.5} emissions during worst-case meteorological conditions. This regulation has been fully adopted by ACHD and has been submitted to EPA as a previous SIP revision.³⁶

Other ACHD Regulations and Programs

In addition to the episode regulation, several regulations in ACHD’s Article XXI will remain in place for the control of PM_{2.5}, including those regarding specific industrial operations, fuel usage, visible emissions, open burning, diesel idling, and other sources of PM_{2.5}. Article XXI is regularly reviewed and revised for effectiveness of the control of air quality in Allegheny County. ACHD also maintains a Clean Air Fund that offers funding for air quality projects. Since 2011, several million dollars have been awarded to projects involving diesel retrofits, rebates for renewable energy equipment, pollution prevention activities, air quality educational

³⁶ SIP Revision 97: <https://www.alleghenycounty.us/Health-Department/Programs/Air-Quality/Regulations-and-SIPs.aspx>

efforts, specialized scientific studies, and other efforts. Expenditures from the Clean Air Fund will continue to improve air quality within the Liberty-Clairton and Allegheny County areas.

Population and Employment

The Pittsburgh MSA is unique in comparison to other U.S. metropolitan areas in the fact that population has been generally declining over the recent years. Until 2020, each U.S. decennial census survey since 1960 has shown a decrease in population for Allegheny County, including the Liberty-Clairton area. The 2020 census showed a modest increase of 2.2% in population since 2010 for Allegheny County, but the most recent 2021 census estimate (as of July 1, 2021) again shows decreases in population from the 2020 survey.³⁷ The overall declining population has led to less anthropogenic emissions from vehicles, wood burning, power consumption, and other sources of PM_{2.5} and precursors.

Population projections through 2035 for Allegheny County in SPC's Cycle 11 Forecast of Population, Households, and Employment (SPC, 2019)³⁸ show increases of about 0.4% per year since the 2020 census, which would still be a moderate increase compared to expected increases in other metropolitan areas. Additionally, population growth that has occurred in Allegheny County have mostly been in suburban areas, away from the industrial valleys.³⁹ Increases in population in the suburban areas should have minimal effect on monitored attainment in Allegheny County, most notably in the Liberty-Clairton area.

In addition to population forecasts, SPC provides forecasts for types of workplace employment in the Cycle 11 report. From 2020 through 2035, a projected increase of 2.0% is expected for the service employment sector, with decreases in the manufacturing (-0.9%), retail (-0.6%), and other (-0.6%) employment sectors. This shift in employment would likely correlate with continued decreases in emissions of PM_{2.5} and precursors from point sources.

Upcoming Federal and State Rules and Regulations

Several planned federal and state rules and regulations should lead to lesser PM_{2.5} and precursor emissions in Allegheny County from the point, area, and mobile source categories. These future rules and regulations include, but are not limited to, the following:

- On March 15, 2021, EPA further updated NO_x budget requirements for the Cross-State Air Pollution Rule (CSAPR) for the 2008 ozone NAAQS. On March 11, 2022, EPA announced a "Good Neighbor" Plan to further reduce NO_x for the 2015 ozone NAAQS.

³⁷ U.S. Census Bureau information for Allegheny County and its municipalities:

<https://www.census.gov/quickfacts/alleghenycountypennsylvania>

<https://www.census.gov/data/tables/time-series/demo/popest/2010s-counties-total.html>

<https://www.census.gov/data/tables/time-series/demo/popest/2010s-total-cities-and-towns.html>

³⁸ SPC Cycle 11 Forecast: <https://www.spcregion.org/resources-tools/regional-data-center/prebuilt-tables/>

³⁹ Pennsylvania State Data Center (PaSDC) information for PA population: <https://pasdc.hbg.psu.edu/>

These updated regulations should lead to additional control of NO_x as a precursor to PM_{2.5} in future years.

- On March 18, 2022, EPA’s Clean Air Scientific Advisory Committee (CASAC)⁴⁰ finalized its review of the reconsideration of the 2019 Integrated Science Assessment (ISA) for PM. The review panel recommended that a revised annual NAAQS in the range of 8-11 µg/m³ and a revised 24-hour NAAQS in the range of 25-35 µg/m³ would be appropriate for public health. If Allegheny County were designated nonattainment for future NAAQS as such, attainment for these NAAQS would inherently require continued attainment of the 1997, 2006, and 2012 NAAQS.
- On September 1, 2021, the Commonwealth of Pennsylvania approved a rulemaking to establish participation with the Regional Greenhouse Gas Initiative (RGGI).⁴¹ The RGGI is a cooperative effort among several eastern U.S. states to cap and reduce carbon dioxide (CO₂) emissions from power plants. The effort would apply to PA power plants equal to or greater than 25 MW in capacity, and PA DEP expects ancillary emission reductions (or co-benefits) of SO₂ and NO_x reductions along with the CO₂ reductions.
- In August 2021, PA DEP proposed a rulemaking to establish additional presumptive NO_x and VOC RACT requirements and emission limitations for certain major stationary sources as part of the Commonwealth’s demonstration to fulfill the RACT requirements for the 2015 8-hour ozone NAAQS. (This is also known as “RACT III.”) These updated requirements should lead to additional control of NO_x and VOC as precursors to PM_{2.5} in the next several years.
- In 2021, PA DEP began the development of proposed amendments to the Pennsylvania Clean Vehicles Program that would establish a requirement for automakers to offer for sale a percentage of zero emissions vehicles (ZEV) program-eligible light duty vehicles as part of their model offerings. The availability of more ZEV vehicles as replacements to existing gasoline-powered or diesel-powered light-duty vehicles would lead to continued reductions of PM_{2.5} and precursors. The rule is expected to be finalized in 2023.

6.3 Monitor Network

EPA guidance (U.S. EPA, 1992) specifies that once an area has been redesignated, the state/local agency should continue to operate an appropriate air quality monitoring network in accordance with 40 CFR Part 58 to verify the attainment status of the area. The maintenance plan should also contain provisions for continued operation of air quality monitors that will provide such verification.

ACHD will continue to operate its PM_{2.5} air monitoring network in accordance with 40 CFR Part 58 to verify the attainment status of the Liberty-Clairton area for the 1997 and 2006 NAAQS and

⁴⁰ <https://casac.epa.gov/ords/sab/f?p=113:1:4950041238299>

⁴¹ <https://www.rggi.org/>

the Allegheny County area for the 2012 NAAQS. No reductions in the number of sites from those in the existing network will be made unless pre-approved by EPA. The monitoring network is reviewed on an annual basis, along with a monitoring network assessment compiled every five years. As described in Section 3 of this document, the monitor network also provides for surveillance within or adjacent to EJ areas.

6.4 Verification of Continued Attainment

EPA guidance (U.S. EPA, 1992) further specifies that the state/local agency can utilize monitored air quality concentrations, source emissions data, and/or modeling to track the attainment and maintenance of the NAAQS for the area(s). These factors would be used as follows:

- Monitored data would verify continued monitored attainment of the NAAQS.
- Updated emissions inventories would verify that contemporary emissions that are lower than the attainment emissions inventory.
- Modeling assumptions would be examined to verify the adequacy of modeled projections.

As mentioned in Section 6.3 above, ACHD will continue to operate the PM_{2.5} air monitoring network in accordance with 40 CFR Part 58 to verify the attainment status of the areas, with no changes to the existing network unless pre-approved by EPA. Monitored concentrations will be the primary mechanism for verification of continued attainment for the area and will also serve as the triggering indicators for contingency measures (see more in Section 6.5 of this document).

Periodic emissions inventories (developed annually by ACHD for point sources and triennially by PA DEP for area and mobile sources) will be examined for comparison to the attainment inventory for each area (given in Section 6.1 of this document). As shown in the maintenance demonstration in Section 6.2 of this document, ACHD expects that future conditions will reflect emissions levels that will remain below the levels of the attainment inventories.

If periodic emissions inventories (or portions thereof) should exceed the levels given in the attainment inventories, ACHD will conduct a study to determine if the emissions increases have potentially led to increased monitored concentrations in the areas. ACHD may consider whether any further emission control measures should be implemented and/or if supplemental information for this maintenance plan should be provided to EPA.

Note that emissions data will not be relied upon as triggering indicators for contingency measures for two reasons. First, increases in emissions data, especially for precursors, may not necessarily have an influence on monitored concentrations. Levels of both primary and secondary PM_{2.5} can also be affected by meteorological conditions, especially in the Mon Valley. Second, the reporting of emissions inventories involves considerably more time (up to one year following each calendar year) than the reporting of monitored data (within three months following each calendar quarter). The use of emissions data as triggers would not allow for a prompt response to exceedances or violations of the NAAQS.

Since modeling was not performed for this maintenance demonstration, and since assumptions from the SIP modeling for the 2012 NAAQS (ACHD, 2019b) are expected to remain valid, a review of modeling assumptions will not be conducted unless significant changes to modeling methodologies are developed by EPA during the maintenance timeframe.

Last, under ACHD's new source review (NSR) program, major new sources and modifications that affect PM_{2.5} emissions must demonstrate via a modeling demonstration for the new or modified source and nearby background sources that emission changes will not cause or contribute to a violation of the PM_{2.5} NAAQS and increments. New minor sources of PM_{2.5} sources would also be evaluated to ensure maintenance of the area. ACHD will not approve modifications that would lead to modeled values greater than the NAAQS.

6.5 Contingency Provisions

Section 175A of the CAA requires a maintenance plan to contain contingency provisions so that any violation of the standards which occurs after redesignation will be promptly corrected. These provisions should include measures that will lead to additional emission reductions, beyond those included in the SIP that were needed for attainment of the area. The provisions should also require that all measures contained in the attainment plan SIPs will continue to be implemented.

From EPA guidance (U.S. EPA, 1992), contingency provisions for a maintenance area are not required to include fully adopted contingency measures. However, the contingency provisions are an enforceable part of the maintenance plan and should ensure that contingency measures are adopted expeditiously if needed to maintain attainment. Furthermore, contingency provisions should clearly identify the measures to be adopted, a schedule and procedures for adoption and implementation, and specific indicators (or triggers) which will be used to determine the need for contingency measures. The contingency provisions can also identify levels of response that might allow for early action to be taken in order to quickly correct a violation after it occurs.

ACHD will continue to implement all applicable requirements that were included in the attainment demonstration SIPs for the Liberty-Clairton and Allegheny County nonattainment areas, even after redesignation of the areas. The contingency measures identified here are measures that have not been used previously to meet SIP requirements or any other air quality planning purpose.

6.5.1 Triggering Indicators

For this maintenance plan, contingency provisions are applicable to the following NAAQS and areas:

- For the 2006 24-hour PM_{2.5} NAAQS: the Liberty-Clairton area.
- For the 2012 annual PM_{2.5} NAAQS: the Allegheny County area.

As described earlier in Section 2.1 of this document, the maintenance plan for the Pittsburgh-Beaver Valley area⁴² contains contingency provisions for the 1997 and 2006 NAAQS for the multi-county region surrounding the Liberty-Clairton area, including all other municipalities in Allegheny County. Therefore, the triggers in this section for the 2006 24-hour NAAQS are applicable specifically to the Liberty-Clairton area. However, triggers for the 2012 annual NAAQS are inherently applicable to both areas, since Allegheny County encompasses the Liberty-Clairton area. (Accordingly, no triggers for the Liberty-Clairton area for the 1997 NAAQS are needed since the 1997 annual NAAQS has been superseded by the 2012 annual NAAQS.)

The official PM_{2.5} monitored data in Allegheny County will serve as the indicators for the triggering of contingency measures. The monitored data used for the indicators will be based on fully validated and quality-assured results from all EPA-approved PM_{2.5} monitors operated and maintained by ACHD.⁴³ Responses to the triggers are also identified in terms of warning or action levels as described below. As mentioned earlier in Section 6.4 of this document, in regard to verification of continued attainment, periodic emissions inventories will be reviewed for comparison to the attainment inventories but will not be used as indicators of attainment.

Warning Level Responses

A first-level warning will be prompted if one or both of the following occur:

- A 24-hour 98th percentile PM_{2.5} concentration⁴⁴ exceeds 35.5 µg/m³ at any monitor site in the Liberty-Clairton area in a single calendar year.
- An annual weighted mean PM_{2.5} concentration exceeds 12.5 µg/m³ at any ACHD monitor site in a single calendar year.

A first-level warning response will consist of an ACHD study to determine whether the triggers described above indicate a trend toward higher PM_{2.5} levels in the area(s). If there appears to be an increasing trend in PM_{2.5} levels, the study will evaluate whether the trend is likely to continue and, if so, the necessary and appropriate control measures that may reverse the trend. ACHD may then consider the early adoption of measures so that the measures can be implemented as expeditiously as practicable in the event of a violation.

A second-level warning will be prompted if one or both of the following occur:

⁴² Available at: <http://www.depgreenport.state.pa.us/elibrary/GetFolder?FolderID=4154>

⁴³ Monitored data will be based on the combined site records of FRM and FEM data at each site. Data may or may not be fully certified at the time of the triggering, due to the time required for certification. Additionally, the data would not include any samples for which exceptional event exclusion has been requested.

⁴⁴ For the warning level triggers, concentrations will be rounded to one decimal place for both annual and 24-hour values.

- A two-year average of consecutive 24-hour 98th percentile PM_{2.5} concentrations exceeds 35.0 µg/m³ at any monitor site in the Liberty-Clairton area.
- A two-year average of consecutive annual weighted mean PM_{2.5} concentrations exceeds 12.0 µg/m³ at any ACHD monitor site.

For a second-level warning response, ACHD will evaluate the probability of a violation of the NAAQS to occur and the need for additional control measures to be implemented. ACHD will analyze the conditions leading to the PM_{2.5} levels and evaluate what measures might be most effective in correcting the PM_{2.5} levels. ACHD will also analyze the potential effects of federal, state, and other local measures that may have been adopted but not yet implemented at the time the second-level response is triggered. ACHD may then begin the process of adopting measures that are necessary and appropriate so that the measures can be implemented as expeditiously as practicable in the event of a violation.

Action Level Response

An action level will be prompted if one or both of the following occur:

- A 24-hour design value, based on the average of three consecutive years of 24-hour 98th percentile PM_{2.5} concentrations, violates the 2006 24-hour NAAQS (35 µg/m³, rounded to a whole number) at any monitor site in the Liberty-Clairton area.
- An annual design value, based on the average of three consecutive years of annual weighted mean PM_{2.5} concentrations, violates the 2012 annual NAAQS (12.0 µg/m³, rounded to one decimal place) at any ACHD monitor site.

For an action-level response following a violation in the area(s), ACHD will adopt and implement additional control measures, as necessary and appropriate, in order to correct the violation as expeditiously as practicable in accordance with the implementation schedule given below. If regulatory measures are selected for implementation, ACHD will follow all requirements and procedures of the CAA, the Pennsylvania Air Pollution Control Act, the Pennsylvania Local Health Administration Law and the Allegheny County Home Rule Charter, the Allegheny County Council, the Allegheny County Board of Health, and the ACHD Article XXI Rules and Regulations for the adoption and implementation of the measures.

6.5.2 Implementation Schedule

If triggered as an action-level response following a violation of the NAAQS, ACHD will select, adopt, and implement contingency measures according to the following schedules for non-regulatory and regulatory measures (with the durations given from the time of ACHD's determination of a violation of the NAAQS, based on fully validated and quality-assured monitored data). The implementation of either non-regulatory or regulatory measures would be expected for completion within one year following a violation of the NAAQS.

For non-regulatory measures:

- Within one month, ACHD will select one or more measures to be implemented and will obtain approval to initiate the process for the new non-regulatory measures for Allegheny County.
- Within three months, ACHD will develop a program for the non-regulatory measures, including sources of funding, agreements with third parties, and other components.
- Within five months, ACHD will present the program to all stakeholders involved for review and approval. The program may be refined as necessary based on stakeholder and public participation.
- Within seven months, ACHD will forward the final non-regulatory measures to be approved for implementation via executive action by the Allegheny County Executive.

For regulatory measures:

- Within one month, ACHD will select one or more measures to be implemented and will obtain approval to initiate the process for a new regulatory action (or set of actions) for Allegheny County.
- Within three months, ACHD will develop and present the proposed regulatory action(s) to the ACHD Air Advisory Committee and its subcommittees for review.
- Within five months, after review and recommendations from the Air Advisory Committee and subcommittees, ACHD will hold a public comment period for the proposed regulatory action(s).
- Within seven months, following public comment, ACHD will present the final regulatory action(s) for approval by the Air Advisory Committee.
- Within eight months, if approved by the Air Advisory Committee, ACHD will present to the regulatory action(s) to the Allegheny County Board of Health for adoption.
- Within nine months, if adopted by the Board of Health, ACHD will present to the regulatory action(s) to the Allegheny County Council for enactment.
- Within ten months, if adopted by County Council, ACHD will forward the regulatory action(s) to be approved for implementation via executive action by the Allegheny County Executive.

If triggered as a first-level or second-level warning response, contingency measures could be selected and adopted at any time prior to an actual violation. The procedures for adoption would be similar to those given above for an action-level response. However, the measures would only need to be ready to be implemented, and full implementation would not be required until after a violation of the NAAQS occurs. In this case, a timeframe of 30 to 90 days, depending on the nature of the measures, would be incorporated into the measures for full implementation to occur following a violation.

6.5.3 Contingency Measures Selection

The selection of the contingency measures to be adopted and implemented in the event of a violation of the NAAQS would be based on the following criteria:

- Air quality analysis indicating nature of violation (causes, locations, sources).

- The degree of the violation (amount above the NAAQS).
- Emission reduction potential, including the extent from specific sources or source types.
- Timeliness of implementation in terms of the potential to return the area to attainment as expeditiously as practicable.
- Costs and cost-effectiveness.

ACHD has identified several potential non-regulatory and regulatory contingency measures for this maintenance plan, listed below and grouped as countywide measures and USS Mon Valley Works measures. Depending on the nature of the violation(s), measures could be selected individually or in combination, in complete or partial fashion, countywide and/or at the USS Mon Valley Works. Different measures or combinations of measures could be also be implemented at different times during the maintenance period.

The measures identified here are not exclusive to the potential use as contingency measures for PM_{2.5} maintenance. Additionally, if ACHD chooses to adopt one or more of the above measures without the triggering of contingency measures for this maintenance plan, those same measures would then be inapplicable for use as future contingency measures.

It should also be noted that the Mon Valley Episode Regulation (discussed in Section 6.2.5 above), while designed as a regulatory control for short-term PM_{2.5} emissions during worst-case meteorological conditions, does not require permanent implementation of measures for the intent of maintenance of the PM_{2.5} NAAQS. Therefore, the episode regulation has not been included in this section as a contingency measure.

Countywide Measures

These measures would be applicable to the entire county and could be appropriate for the control of both long-term and short-term PM_{2.5} levels. Depending on the nature of the violation(s), measures could be selected individually or in combination with one another and/or with USS Mon Valley Works measures.

- Non-regulatory measures:
 - New woodstove changeout, fireplace conversion, or other wood burning-related programs.
 - Additional voluntary diesel projects, such as the following:
 - Diesel retrofits (including replacement, repowering, or alternative fuel use) for public or private local onroad or off-road fleets.
 - Replacement of selected diesel terminal trucks (or “hostlers”) with electric ones.
 - Idling reduction technologies or strategies for locomotives, trucks, warehouses, and other freight-handling activities.
 - A new clean vehicle rebate program, applicable to the purchase of zero-emission passenger motor vehicles.
 - Enhancement of the Air Quality Action Day program that would require action days to be in effect during lower levels of PM_{2.5} concentrations. This

enhancement could also include new components, such as the promotion of ridesharing, remote working, or other measures.

- Paving of selected unpaved roads and/or parking lots countywide.
- Additional promotion of accelerated turnover of lawn and garden equipment, especially commercial equipment.
- Additional promotion of alternative fuels for fleets, home heating, and agricultural use.
- Regulatory measures:
 - Adoption of an ordinance to restrict sale and use of heavy fuel oil and/or waste derived liquid fuel (WDLF) in Allegheny County;
- Other non-regulatory or regulatory measures not identified at this time, based on the selection criteria listed above.

USS Mon Valley Works Measures


These measures would be applicable to the USS Mon Valley Works and associated sources. Like the countywide measures, these measures could be appropriate for the control of both long-term and short-term PM_{2.5} levels. However, a violation of the 2006 24-hour PM_{2.5} NAAQS would likely require one or more of these measures to be implemented, since the USS Mon Valley Works Clairton Plant is the largest source of emissions in the Liberty-Clairton area. Depending on the nature of the violation(s), measures could be selected individually or in combination with one another and/or with countywide measures.

- Non-regulatory measures:
 - Paving of selected unpaved road and/or parking lots at the USS Mon Valley Works plants.
 - Repowering or replacement of one or more tugboats and/or locomotives utilized by the U. S. Steel Mon Valley Works plants or the McKeesport switchyard with new, cleaner-burning equipment meeting the most recent standards or with electric ones.
- Regulatory measures:
 - Increased times for the hood of the Pushing Emission Control (PEC) system to be held in place during the pushing process of one or more of the coke batteries at the USS Mon Valley Works Clairton Plant. This has been used as a contingency measure for PM₁₀ and has never been implemented; this measure could be revised for applicability to PM_{2.5}.
 - Increased air flow to the baghouses of the PEC system of one or more of the coke batteries at the USS Mon Valley Works Clairton Plant, leading to capture efficiencies greater than the current capture efficiencies.
 - Increased baffle washing for one or more of the USS Mon Valley Works Clairton Plant quench towers. Current permit conditions require baffle washing once per day for each tower, pending ambient temperature conditions.
- Other non-regulatory or regulatory measures not identified at this time, based on the selection criteria listed above.

7. Legal Documents

7.1 Notice of Public Hearing and Comment Period

Pittsburgh Post-Gazette Classifieds

 > Legal Notices

NOTICE OF PUBLIC HEARING AND P...

NOTICE OF PUBLIC HEARING AND PUBLIC COMMENT PERIOD
FOR THE PROPOSED REDESIGNATION REQUEST AND MAINTENANCE PLAN FOR THE LIBERTY-CLAIRTON AND ALLEGHENY COUNTY PM2.5 NONATTAINMENT AREAS FOR THE 1997/2006/2012 NAAQS

The Allegheny County Health Department will hold a public hearing on Thursday, September 8, 2022, at 5:00 PM, in the First Floor Conference Room in Building #7 of the Clack Health Center, 301 39th Street, Pittsburgh, PA 15201, to take testimony on the proposed Redesignation Request and Maintenance Plan for the Liberty-Clairton, PA and Allegheny County, PA PM2.5 Nonattainment Areas for the 1997/2006/2012 National Ambient Air Quality Standards (NAAQS).



The Redesignation Request and Maintenance Plan will be submitted to the U.S. Environmental Protection Agency (EPA) as a revision to Allegheny County's portion of the Pennsylvania State Implementation Plan (SIP) for the Attainment and Maintenance of the PM2.5 NAAQS.

The proposed Redesignation Request and Maintenance Plan is available on the Allegheny County Health Department (ACHD) Air Quality web site at www.alleghenycounty.us/regs-sips. Written copies may be obtained by calling 412-578-8103.

- Persons wishing to present testimony at the hearing must register by going to the ACHD's Air Quality website at www.alleghenycounty.us/regs-sips. Persons who do not have access to the internet may register by calling 412-578-8103.
- You must register to present testimony no less than 24 hours in advance of the hearing.
- Testimony is limited to 3 minutes. Witnesses are requested to submit written copies of the testimony by email to aqcomments@alleghenycounty.us.

The Department will also accept written comments, beginning on Tuesday, August 9, 2022, and concluding on Friday, September 9, 2022, at 4:00 PM, by mail to ACHD Air Quality, 301 39th Street, Bldg. #7, Pittsburgh, PA 15201-1811, or by email to aqcomments@alleghenycounty.us.

Please call 412-578-8103, if you have any questions or if you have any difficulty registering for the hearing.

 Viewed 14 times  Posted August 07, 2022

7.2 Transmittals of Public Hearing Notice to PA DEP and EPA Region 3



August 8, 2022

Mr. Mark Hammond, Director
Bureau of Air Quality
Department of Environmental Protection
Rachel Carson Building
400 Market Street
P O Box 8468
Harrisburg, PA 17105-8468

Dear Mr. Hammond:

Attached is a Notice of Public Hearing for a proposed Redesignation Request and Maintenance Plan for the Liberty-Clairton, PA and Allegheny County, PA PM_{2.5} Nonattainment Areas for the 1997/2006/2012 National Ambient Air Quality Standards (NAAQS). This Redesignation Request and Maintenance Plan will be submitted as a revision to Allegheny County's portion of the Pennsylvania State Implementation Plan under our Revision Tracking Number 100.

The Notice of Public Hearing was published in the *Pittsburgh Post-Gazette* on August 7, 2022. The public comment period begins on August 9, 2022, and concludes on September 9, 2022, at 4:00 PM. The public hearing will be held on September 8, 2022, at 5:00 PM. Your comments are welcome. More information regarding the proposed SIP revision may be found on the ACHD website at: www.alleghenycounty.us/regs-sips.

Sincerely,

Dean DeLuca, Manager
Air Quality Planning and Data Analysis Program

cc: Kirit Dalal (PA DEP)
Steve Hepler (PA DEP)

Attachments:

- Public Hearing Notice
- Proposed Redesignation Request and Maintenance Plan

ALLEGHENY COUNTY HEALTH DEPARTMENT • AIR QUALITY
301 39TH STREET BUILDING #7 • PITTSBURGH, PA 15201-1811
PHONE (412) 578-8103 • FAX (412) 578-8144

COUNTY OF



ALLEGHENY

RICH FITZGERALD
COUNTY EXECUTIVE

August 8, 2022

Ms. Christina Fernandez, Director
Air Protection Division
Region III (3AP00)
U.S. Environmental Protection Agency
1650 Arch Street
Philadelphia, PA 19103-2029

Dear Ms. Fernandez:

Attached is a Notice of Public Hearing for a proposed Redesignation Request and Maintenance Plan for the Liberty-Clairton, PA and Allegheny County, PA PM_{2.5} Nonattainment Areas for the 1997/2006/2012 National Ambient Air Quality Standards (NAAQS). This Redesignation Request and Maintenance Plan will be submitted as a revision to Allegheny County's portion of the Pennsylvania State Implementation Plan under our Revision Tracking Number 100.

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Sincerely,

Dean DeLuca, Manager
Air Quality Planning and Data Analysis Program

cc: Michael Gordon (EPA)
Brian Rehn (EPA)

Attachments:

- Public Hearing Notice
- Proposed Redesignation Request and Maintenance Plan

ALLEGHENY COUNTY HEALTH DEPARTMENT • AIR QUALITY
301 39TH STREET BUILDING #7 • PITTSBURGH, PA 15201-1811
PHONE (412) 578-8103 • FAX (412) 578-8144

7.3 Proof of Publication of Notice

Proof of Publication of Notice in Pittsburgh Post-Gazette

Under Act No 587, Approved May 16, 1929, PL 1784, as last amended by Act No 409 of September 29, 1951

Commonwealth of Pennsylvania, County of Allegheny, ss T. Kopyar, being duly sworn, deposes and says that the Pittsburgh Post-Gazette, a newspaper of general circulation published in the City of Pittsburgh, County and Commonwealth aforesaid, was established in 1993 by the merging of the Pittsburgh Post-Gazette and Sun-Telegraph and The Pittsburgh Press and the Pittsburgh Post-Gazette and Sun-Telegraph was established in 1960 and the Pittsburgh Post-Gazette was established in 1927 by the merging of the Pittsburgh Gazette established in 1786 and the Pittsburgh Post, established in 1842, since which date the said Pittsburgh Post-Gazette has been regularly issued in said County and that a copy of said printed notice or publication is attached hereto exactly as the same was printed and published in the regular editions and issues of the said Pittsburgh Post-Gazette a newspaper of general circulation on the following dates, viz:

07 of August, 2022

Affiant further deposes that he/she is an agent for the PG Publishing Company, a corporation and publisher of the Pittsburgh Post-Gazette, that, as such agent, affiant is duly authorized to verify the foregoing statement under oath, that affiant is not interested in the subject matter of the afore said notice or publication, and that all allegations in the foregoing statement as to time, place and character of publication are true.


PG Publishing Company

Sworn to and subscribed before me this day of:
August 08, 2022



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Allegheny County
My commission expires November 16, 2024
Commission number 1386128
Member, Pennsylvania Association of Notaries

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I hereby certify that the foregoing is the original Proof of Publication and receipt for the Advertising costs in the subject matter of said notice.

Attorney For

COPY OF NOTICE OR PUBLICATION

NOTICE OF PUBLIC HEARING AND PUBLIC COMMENT PERIOD FOR THE PROPOSED REDESIGNATION REQUEST AND MAINTENANCE PLAN FOR THE LIBERTY-CLAIRTON AND ALLEGHENY COUNTY PM2.5 NONATTAINMENT AREAS FOR THE 1997/2006/2012 NAAQS

The Allegheny County Health Department will hold a public hearing on Thursday, September 8, 2022, at 5:00 PM, in the First Floor Conference Room in Building #7 of the Clock Health Center, 301 39th Street, Pittsburgh, PA 15201, to take testimony on the proposed Redesignation Request and Maintenance Plan for the Liberty-Clairton, PA and Allegheny County, PA PM2.5 Nonattainment Areas for the 1997/2006/2012 National Ambient Air Quality Standards (NAAQS). The Redesignation Request and Maintenance Plan will be submitted to the U.S. Environmental Protection Agency (EPA) as a revision to Allegheny County's portion of the Pennsylvania State Implementation Plan (SIP) for the Attainment and Maintenance of the PM2.5 NAAQS.

The proposed Redesignation Request and Maintenance Plan is available on the Allegheny County Health Department (ACHD) Air Quality web site at www.alleghenycounty.us/regs-sips. Written copies may be obtained by calling 412-578-8103.

- Persons wishing to present testimony at the hearing must register by going to the ACHD's Air Quality website at www.alleghenycounty.us/regs-sips. Persons who do not have access to the Internet may register by calling 412-578-8103.

- You must register to present testimony no less than 24 hours in advance of the hearing.

- Testimony is limited to 3 minutes. Witnesses are requested to submit written copies of the testimony by email to accomments@alleghenycountypa.us.

The Department will also accept written comments, beginning on Tuesday, August 9, 2022, and concluding on Friday, September 9, 2022, at 4:00 PM, by mail to ACHD Air Quality, 301 39th Street, Bldg. #7, Pittsburgh, PA 15201-1811, or by email to accomments@alleghenycountypa.us.

Please call 412-578-8103, if you have any questions, or if you have any difficulty registering for the hearing.


7.4 Certification of Public Hearing

Revision 100

Redesignation Request and Maintenance Plan for the Liberty-Clairton, PA and Allegheny County, PA PM_{2.5} Nonattainment Areas for the 1997/2006/2012 NAAQS

Certification of Hearing

Jason Maranche deposes and says that he is an Air Quality Engineer in the Air Quality Planning and Data Analysis Program of the Allegheny County Health Department and hereby certifies that a Public Hearing was held on September 8, 2022 on a proposed Redesignation Request and Maintenance Plan for the Liberty-Clairton, PA and Allegheny County, PA PM_{2.5} Nonattainment Areas for the 1997/2006/2012 National Ambient Air Quality Standards (NAAQS); that the Redesignation Request and Maintenance Plan will be incorporated as a revision to Allegheny County's portion of the Pennsylvania State Implementation Plan (SIP) for the Attainment and Maintenance of the PM_{2.5} NAAQS; that the opportunity for written comments was given in accordance with the requirements of 40 CFR 51.102; that notice of such hearing was given by publication in a newspaper of general circulation on August 7, 2022; and, to the best of his knowledge, belief, and understanding, such proceedings were in full compliance with all applicable state and federal laws, regulations, and other requirements.



9/9/2022
Date

Jason Maranche
Air Quality Engineer III
Air Quality Planning and Data Analysis Program
Allegheny County Health Department

7.5 Summary of Comments and Responses

Notice of the opportunity for public comment appeared in the legal section of the Pittsburgh Post-Gazette on August 7, 2022. The public comment period started on August 9, 2022 and ended on September 9, 2022, with a public hearing held on September 8, 2022.

General

Comments related to the Redesignation Request and Maintenance Plan in general.

- 1. Comment:** Redesignation will be an open invitation to industry to relax progress on meaningful pollution controls. Industry has repeatedly demonstrated that they do not care about exceeding air quality standards, exceed allowances, and then fighting fines in court.

Response: Upon approval of this Redesignation Request and Maintenance Plan by EPA, the Liberty-Clairton and Allegheny County areas would become maintenance areas for the PM_{2.5} 1997/2006 and 2012 NAAQS, respectively. These areas will have to meet requirements according to the Maintenance Plan provided in this document, including contingency provisions for a 10-year period.

- 2. Comment:** Clairton has some of the highest asthma and cancer rates in Allegheny County. Even the standards that EPA have set today are not good enough. The U. S. Steel mill has been the cause of this, and they are not in compliance.

Response: This Redesignation Request and Maintenance Plan is designed for the specific purposes of designation and maintenance of the Liberty-Clairton and Allegheny County areas for the 1997, 2006, and 2012 NAAQS. ACHD prioritizes air quality within its overall public strategy and will continue to require all permitted facilities in the county to comply with all applicable requirements and regulations.

- 3. Comment:** The Allegheny County Health Department (ACHD) should abandon the plan because it perpetuates the environmental injustices from preventable PM_{2.5} air pollution that burdens the health of residents. Any redesignation request should be postponed until the Environmental Protection Agency (EPA) has updated its standards for PM_{2.5}. It doesn't make any sense to make a request for a redesignation under a standard that will change soon and become more protective of public health. It would be better to spend time determining how the county can attain new standards than pursue a redesignation under old standards.

Response: This Redesignation Request and Maintenance plan is specific to the 1997, 2006, and 2012 PM_{2.5} NAAQS. Any designation for Allegheny County (or partial or multi-county areas) for future NAAQS would be a separate process, for which all SIP obligations would apply under that NAAQS designation. Furthermore, an approved Maintenance Plan would likely allow for more effort to be devoted to future NAAQS, since the Plan would provide a timely mechanism for continued attainment of the current/previous NAAQS, including contingency provisions with triggering indicators, schedules for implementation, and identified controls.

Attainment Conditions

Comments related to conditions that occurred during attainment of the NAAQS.

- 4. Comment:** Even though ACHD obtained a Clean Data Determination from EPA, the data are not sufficient to form a basis for a redesignation, which requires "permanent and enforceable reductions in emissions." According to a guidance document from the Environmental Protection Agency in 1992, "[a]ttainment resulting from temporary reductions in emission rates (e.g., reduced production or shutdown due to temporary adverse economic conditions) or unusually favorable meteorology would not qualify as an air quality improvement due to permanent and enforceable emission reductions."

The redesignation request is relying on monitoring data from recent years that were atypical due to weather conditions (excessive rainfall) in 2018-2019, which falls into the class of unusually favorable meteorology. The 2018-2019 PM_{2.5} data are lower overall than what would be expected. Weather is not considered a valid control strategy from redesignation purposes. The remedy is to continue to collect data and maintain the current SIP requirements to assure that pollution reductions can be explained by control strategies resulting in sustainable pollution reductions in meeting the standards.

Response: The cumulative effects of meteorological factors on PM_{2.5} concentrations are complex and can vary from year to year. As stated in Section 5.4 of the document, inversions show a stronger apparent effect on concentrations than other meteorological parameters such as precipitation. For example, Table 5-4 indicates that year 2004 had very high precipitation, similar to year 2018, but concentrations increased from the previous year 2003 which had considerably less precipitation.

As part of comment for the PM_{2.5} attainment demonstration SIP for the 2012 NAAQS (ACHD, 2019b), EPA provided analysis that showed a statistically significant trend of declining PM_{2.5} concentrations at the Liberty site over the period of 1999-2017 (see Appendix M). EPA also recognized the impact of inversions on PM_{2.5} concentrations while finding little correlation between daily temperatures and precipitation and quarterly Liberty PM_{2.5} concentrations. The trend of declining concentrations would therefore be expected to continue in 2018 and beyond, as the actual monitored concentrations have shown. Furthermore, as mentioned in Section 3.2, modeling for the PM_{2.5} SIP for the 2012 NAAQS showed attainment by year 2021. The modeling used year 2011 meteorological data, which featured lower precipitation than in 2018 and 2019. The future case modeling predicted attainment for a design value period of 2019-2021 with lower precipitation conditions.

ACHD contends that monitored attainment has been achieved as the result of emissions reductions over the NAAQS timeframes and that attainment of the 2012 NAAQS would have been expected with total precipitation levels that were closer to normal in 2018-2019.

- 5. Comment:** Weather data also indicate that 2020 had lower numbers of temperature inversions than in typical years. For redesignation purposes it is better to collect data for an additional year or two to ensure standards are met sustainably and reliably.

Response: The frequency of inversions in 2020 was 42%, which is just below the average of 44% of the 2001-2020 timeframe.

- 6. Comment:** Following EPA guidance, ACHD should not rely on concentrations at the Liberty monitor from 2020 to the present, because they have been affected by a decline in industrial production and economic conditions arising out of a pandemic in which over one million Americans have lost their lives. Data from the year 2020 reflect unusual circumstances that are unique to the pandemic and do not reflect pollution decreases based on reliable control measures. Production data from US Steel indicate emissions reductions are attributable to reduced production at the plants that comprise the US Steel Mon Valley Works. This includes significant reductions in coke production as well as blast furnace shutdowns. EPA regulations specify that production shutdowns due to economic circumstances cannot be counted as control strategies for pollution reductions in terms of regional, permanent, attainment designation. ACHD should wait for an additional year or two of data to see if pollution reduction trends hold under the current SIP specifications.

Response: As mentioned in the response to comment 4, there is a downward trend in long-term Liberty PM_{2.5} concentrations that has been found to be statistically significant, and modeling under conditions that would have been expected without the pandemic showed results of attainment by 2021.

Based on the averages of annual weighted means in 2018-2019 at sites other than Liberty (see Appendix A), ACHD estimates that anthropogenic conditions during the COVID pandemic contributed to an average county-wide reduction of about 1.3 µg/m³ in annual PM_{2.5} levels in 2020. Based on the average of the annual weighted means in 2018-2019 at Liberty, excluding PM_{2.5} exceedances in Feb. 2019 that occurred during the extended equipment breakdown at USS Clairton, low production may have contributed to an additional reduction of 0.6 µg/m³ in annual PM_{2.5} levels in 2020 at Liberty. Using these estimates, an expected annual weighted mean for Liberty may have been about 11.7 µg/m³ in 2020 under more normal conditions, which would have led to an annual design value of 11.8 µg/m³ for 2018-2020. The Liberty annual weighted mean in 2021 remained below the level of the annual NAAQS, and preliminary Liberty quarterly averages in 2022 are also below the NAAQS (see more below in the response to comment 8).

ACHD contends that, even without the COVID pandemic, Allegheny County would have achieved monitored attainment of the NAAQS. Concentrations are expected to decrease further in 2023 and during of the maintenance timeframe through 2035.

Monitored Data

Comments related to monitored data given in the Redesignation Request.

- 7. Comment:** The trend of annual means at the Liberty monitor from 2013 to 2017 is actually upward, not downward, and they exceeded the standard in 2017. The fact that concentrations were even higher before 2013 does not undermine the fact that there is a clear upward trend from 2013 to 2017. Concentrations before 2013 are not representative of trends because that

was before the installation of a new battery C at the Clairton Coke works. This is a clear five-year upward trend that ACHD has not explained or even acknowledged.

Response: As mentioned in the responses to comments 4 and 5, there is a downward trend in long-term Liberty PM_{2.5} concentrations that has been found to be statistically significant, and years 2013 and 2017 were atypical years for inversion frequencies (low and high, respectively). The resulting design values do not follow the general downward trend based on these atypical inversion frequencies. Additionally, although the C Battery was a new source of emissions from the USS Clairton Plant during this timeframe, there were additional reductions at the plant and from other sources throughout the county that have contributed to decreases in concentrations.

- 8. Comment:** A rough averaging of the data for the POC 3 sensor at the Liberty monitor for the year 2022 (to September 1) suggests that the annual mean for the current year 2022 would be approximately 12.2 ug/m³, which is even higher than the rebounded 2021 annual mean of 11.8 and much greater than the 2020 annual mean of 9.8.

Response: Based on the preliminary combined site records of FRM and FEM data for Liberty in 2022, the first quarter average is 11.5 µg/m³ and the second quarter average is 9.6 µg/m³, both of which are below the level of the annual NAAQS. Complete 3rd quarter combined site records are not available at the time of this document.

- 9. Comment:** ACHD's focus on design value trends (which involves a determination of a three-year average every year) tends to obscure the reality of year-to-year changes, and thereby distort actual trends. Comparing the annual means (for the annual standard) and the 98th percentile each year (for the 24-hour standard) from one year to another allows for a trend that is more reflective of reality.

Response: ACHD examines trends for both yearly and 3-year periods for data analysis purposes. However, attainment of the NAAQS is determined officially from the 3-year design values according to CFR conventions, which are the procedures that ACHD must follow for this process. Therefore, the focus of the monitored data for this Redesignation Request and Maintenance Plan was on the design values rather than the yearly concentrations.

Controls

Comments related to future controls included in the Maintenance Plan.

- 10. Comment:** ACHD should revise its draft maintenance plan to include emissions from batteries 1, 2, and 3 at the Clairton Coke Works in the relevant emissions inventories. Although the company has issued a statement of intention to permanently shut down these batteries, this has not been memorialized in a revision of the state implementation plan or an air permit that would constitute a permanent and enforceable reduction. ACHD asserts that this is planned as part of a settlement agreement between the ACHD and U.S. Steel in 2019, but there does not appear to be anything in the Settlement Agreement dated June 26, 2019 that requires or even contemplates the shutdown of these batteries.

Response: The shutdown of Batteries 1-3 is being used as an alternative control project according to the 2019 settlement agreement as amended on Feb. 5, 2020 (first amendment). Upon shutdown, ACHD would verify that Batteries 1-3 have ceased operations via official correspondence with USS and site inspections. As stated in the Maintenance Plan, the shutdown of the Batteries 1-3 would be reflected in a future Title V operating permit for the USS Clairton Plant, which would constitute a federally enforceable condition.

Environmental Justice

Comments related to environmental justice concerns.

11. Comment: EPA Region 3 is submitting comments to provide information and tools to assist the Allegheny County Health Department (ACHD) in their decision-making process for the redesignation request regarding the consideration of environmental justice (EJ) concerns for vulnerable communities in the PM_{2.5} nonattainment areas. President Biden has called on federal agencies, including EPA, to pursue a comprehensive approach to advancing equity for all, including communities which have been historically underserved, marginalized, and adversely affected by persistent poverty and inequality.

To further that goal, EPA has, among other actions, issued EPA Legal Tools to advance Environmental Justice (Legal Tools), which outlines the EPA's position regarding legal authorities under environmental and civil rights statutes that inform the EPA's efforts to advance EJ and equity. Additionally, the Commonwealth of Pennsylvania's Department of Environmental Protection (PADEP) is in the process of revising its Environmental Justice Public Participation Policy, having issued a draft revised policy in 2021. Allegheny County also has its own EJ analysis tools at its disposal, having created an EJ Index to highlight populations that are more vulnerable to health issues based on who they are or where they live. ACHD, in partnership with local stakeholders, created the Environmental Justice Index to expand upon existing efforts by the state defined areas of environmental inequity by race and poverty alone. ACHD's index is based on a series of ten community-identified metrics falling under the umbrella of socio-demographic issues, such as race, income, and proximity to high density commercial, industrial, or traffic areas.

The Clean Air Act (CAA) provides that EPA may not promulgate a redesignation of a nonattainment area to attainment unless five criteria, listed in CAA §107(d)(3)(E), are met. Beyond this limitation, the redesignation provisions of the CAA grant EPA broad discretion to determine the timing and basis for initiating changes to promulgated designations. Considerations that EPA has historically relied upon to redesignate areas include climate and topography, meteorology, state and local jurisdictional boundaries, and contributions to air quality problems. Even with the specific prerequisites for redesignation of nonattainment areas to attainment, the CAA provides EPA with discretion to determine whether redesignation is appropriate. The CAA's expansive language under §107(d)(3)(A) suggests that EPA has authority to consider disproportionate air quality impacts on communities with environmental justice concerns in determining whether and when to initiate a redesignation of an attainment area to nonattainment.

EPA encourages ACHD to consider PADEP's Environmental Justice Public Participation Policy with respect to its proposed redesignation request and maintenance plan for the Liberty-Clairton and Allegheny County PM_{2.5} nonattainment areas. Further, EPA suggests ACHD review EPA's EJ resources and perspective as outlined in the Legal Tools. Other data sources include the US Census, the Center for Disease Prevention and Control's (CDC) interactive web tool on health endpoints, EPA's Environmental Benefits and Mapping Analysis Program (BenMAP) that is used to support EPA's promulgation of the PM_{2.5} and Ozone NAAQS, and EPA's AirToxScreen to assess the risks from air toxic compounds and the sources of those compounds.

Region 3 staff can work with ACHD staff to identify appropriate data, benchmarks, and comparators for a robust analysis of disproportionate impacts on vulnerable or underserved communities.

Response: ACHD acknowledges the importance of environmental justice (EJ) concerns within Allegheny County. ACHD has reviewed its internal EJ policies, the EPA Legal Tools, and other resources for identification and assessment of EJ areas. As noted in the comment, ACHD has conducted studies to examine the impacts of air pollution on vulnerable communities⁴⁵ and is committed to continued studies. ACHD's public participation process is designed to encourage and educate EJ communities on the effects of air pollution, including hearings that are often held within these communities.

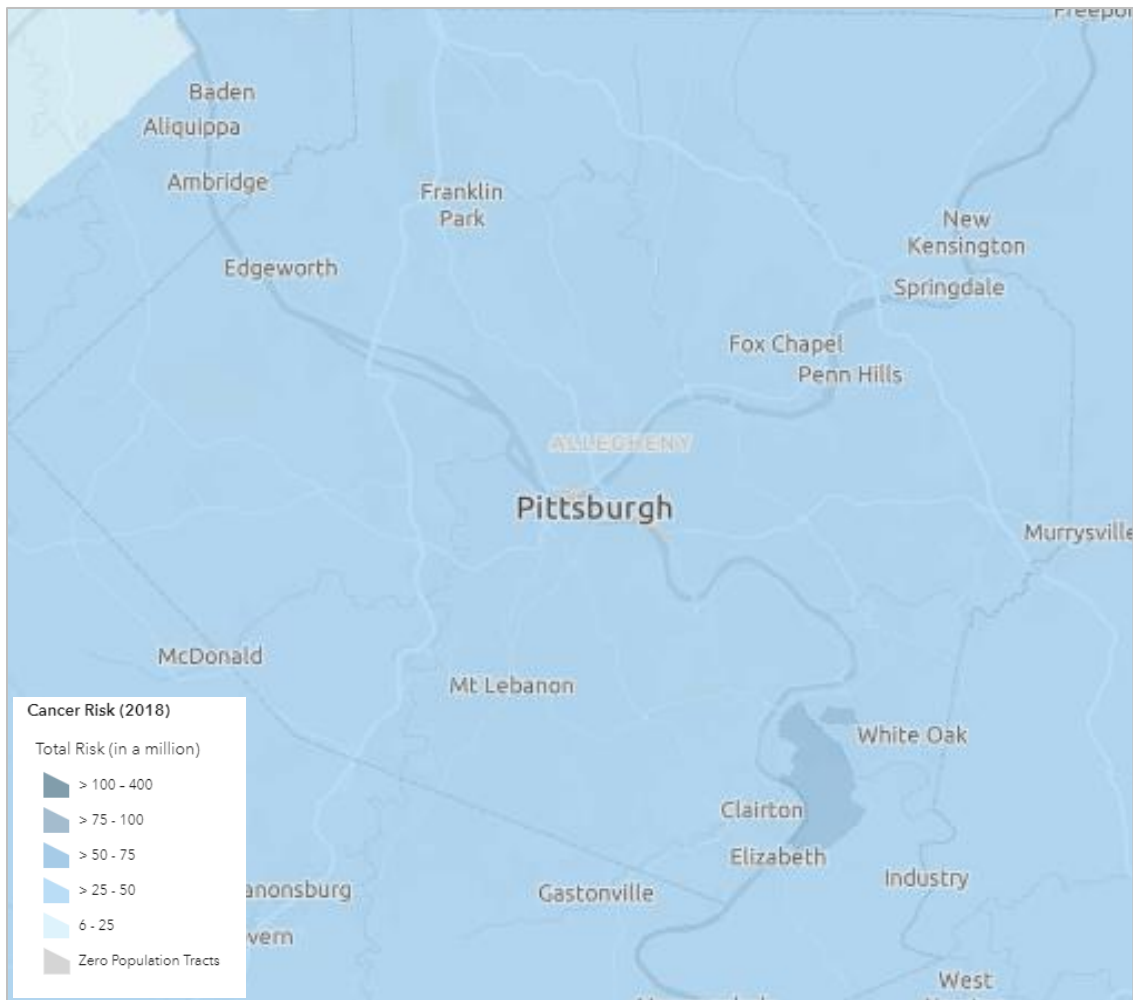
The ACHD monitoring network has been designed to provide enhanced surveillance in vulnerable communities. Annual Network Plans and Five-Year Network Assessments are regularly review the site locations for adequate exposure of monitors. Of the eight PM_{2.5} sites currently in operation, five sites are located within EJ communities, and two additional sites are located adjacent to or downwind of EJ communities. ACHD is in the process of adding continuous FEM monitoring equipment at all PM_{2.5} sites. ACHD has also undertaken special studies in EJ areas to address concerns of other pollutants such as hydrogen sulfide (H₂S) and air toxics.

An additional analysis that has already been included in the PM_{2.5} attainment demonstration SIP for the 2012 NAAQS (ACHD, 2019b) is the unmonitored area analysis (UAA). This analysis found that there were not any potentially high PM_{2.5} areas in Allegheny County that were not already served by the current PM_{2.5} monitor network.

One of the resources provided in the comment, the EPA's AirToxScreen⁴⁶ web site, is relevant for expected controls that have been included in the Maintenance Plan. From the mapping tool for 2018 emissions, the areas of highest cancer risk in Allegheny County are located in the Mon Valley area, as shown by the figure below.

⁴⁵ ACHD reports related to environmental justice can be found at: <https://www.alleghenycounty.us/Health-Department/Resources/Data-and-Reporting/Chronic-Disease-Epidemiology/Resources,-Reports,-and-Publications.aspx>

⁴⁶ <https://www.epa.gov/AirToxScreen>



The Mon Valley area contains substantial emissions reductions, expected in early 2023. These reductions have been included in the emissions projections for the future case 2026 and 2035 years in the Maintenance Plan.

Additional language has been added to sections of the Redesignation Request and Maintenance Plan to emphasize ACHD’s focus on environmental justice within Allegheny County.

Commenters:

A summary of the individuals, organizations, or agencies that provided comments during the public comment period is given below. Copies of the submitted comments, including the transcript of proceedings at the public hearing, are available upon request.

- Residents of Allegheny County
 - 27 commenters (submitting identical or similar comments)

- Clean Air Council, Environmental Integrity Project, and Citizens for Pennsylvania’s Future (PennFuture), collectively, submitted by the individuals below:
 - Joseph Otis Minott, Esq., and Christopher D. Ahlers, Esq., Clean Air Council
 - Nily Dan, Ph.D, Engineering Volunteer Consultant
 - Philip Sebasco, Staff Attorney, Environmental Integrity Project
 - Angela M. Kilbert, Staff Attorney, PennFuture
- Matthew Mehalik, Ph.D., Executive Director, Breathe Project
- U.S. Environmental Protection Agency (EPA), Region 3, submitted by Cristina Fernandez, Director, Air Protection Division

Oral testimony was given at the public hearing by the following individuals:

- David Bertenthal, resident of Greenfield, City of Pittsburgh
- Jay Walker, on behalf of Clean Air Council
- Kim Meachum, resident of City of Clairton
- Matthew Mehalik, on behalf of Breath Project

References

- ACHD, 2011. Revision to the Allegheny County Portion of the Pennsylvania State Implementation Plan. Attainment Demonstration for the Liberty-Clairton PM_{2.5} Nonattainment Area. (SIP Revision 67.) Allegheny County Health Department, Pittsburgh, PA. April (partially withdrawn on November 18, 2013). (<https://www.alleghenycounty.us/Health-Department/Programs/Air-Quality/Regulations-and-SIPs.aspx>)
- ACHD, 2012. Revision to Allegheny County's Portion of the Pennsylvania State Implementation Plan for the Attainment and Maintenance of the National Ambient Air Quality Standards. Amendment to Definition of Major Source and the New Source Review Regulations. (SIP Revision 66.) Allegheny County Health Department, Pittsburgh, PA. April 30. (<https://www.alleghenycounty.us/Health-Department/Programs/Air-Quality/Regulations-and-SIPs.aspx>)
- ACHD, 2013. Proposed Revision to the Allegheny County Portion of the Pennsylvania State Implementation Plan. Attainment Demonstration for the Liberty-Clairton PM_{2.5} Nonattainment Area 2006 Standards. (SIP Revision 75.) Allegheny County Health Department, Pittsburgh, PA. May 10 (partially withdrawn on September 24, 2015). (<https://www.alleghenycounty.us/Health-Department/Programs/Air-Quality/Regulations-and-SIPs.aspx>)
- ACHD, 2014. Revision to the Allegheny County Portion of the Pennsylvania State Implementation Plan. Supplement to the Attainment Demonstration for the Liberty-Clairton PM_{2.5} Nonattainment Area 2006 Standards. (SIP Revision 75.) Allegheny County Health Department, Pittsburgh, PA. May 13 (partially withdrawn on September 24, 2015). (<https://www.alleghenycounty.us/Health-Department/Programs/Air-Quality/Regulations-and-SIPs.aspx>)
- ACHD, 2019a. Revision to Allegheny County's Portion of the Pennsylvania State Implementation Plan for the Attainment and Maintenance of the National Ambient Air Quality Standards. Allegheny County Health Department Rules and Regulations Article XXI, Air Pollution Control; §2102.06, Major Sources Locating in or Impacting a Nonattainment Area, and §2101.20, Definitions. (SIP Revision 90A.) Allegheny County Health Department, Pittsburgh, PA. March 3. (<https://www.alleghenycounty.us/Health-Department/Programs/Air-Quality/Regulations-and-SIPs.aspx>)
- ACHD, 2019b. Revision to the Allegheny County Portion of the Pennsylvania State Implementation Plan. Attainment Demonstration for the Allegheny County, PA PM_{2.5} Nonattainment Area, 2012 NAAQS. (SIP Revision 90.) Allegheny County Health Department, Pittsburgh, PA. September 12. (<https://www.alleghenycounty.us/Health-Department/Programs/Air-Quality/Regulations-and-SIPs.aspx>)

- ACHD, 2020. Revision to the Allegheny County Portion of the Pennsylvania State Implementation Plan. Motor Vehicle Emissions Budget for the Allegheny County, PA PM_{2.5} Nonattainment Area, 2012 NAAQS. (SIP Revision 90B.) Allegheny County Health Department, Pittsburgh, PA. September 2. (<https://www.alleghenycounty.us/Health-Department/Programs/Air-Quality/Regulations-and-SIPs.aspx>)
- SPC, 2019. Cycle 11 Forecast of Population, Households, and Employment. Southwestern Pennsylvania Commission, Pittsburgh, PA. June 24. (<https://www.spcregion.org/wp-content/uploads/2020/03/Cycle-11-by-munic-2015-2045.pdf>)
- SPC, 2020. Air Quality Conformity Determination, Pittsburgh Transportation Management Area for the 8-Hour Ozone Air Quality Standards, PM_{2.5} Air Quality Standards, CO and PM₁₀ Air Quality Standards. Companion Document to SmartMoves for a Changing Region and 2021-2024 Transportation Improvement Program. Southwestern Pennsylvania Commission, Pittsburgh, PA. For Public Review and Comment. May. (https://www.spcregion.org/wp-content/uploads/2020/05/2021_2024_TIP_AQReport.pdf)
- U.S. EPA, 1992. Memorandum from John Calcagni, Director, Office of Air Quality Planning and Standards Air Quality Management Division, to Regional Air Directors; Subject: “Procedures for Processing Requests to Redesignate Areas to Attainment.” U.S. Environmental Protection Agency, September 4. (https://www3.epa.gov/ttn/naaqs/aqmguidance/collection/cp2/19920904_calcagni_process_redesignation_guidance.pdf)
- U.S. EPA, 2016. 40 CFR Parts 50, 51, and 93; Fine Particulate Matter National Ambient Air Quality Standards: State Implementation Plan Requirements. Final Rule. *Federal Register* 81 (164), pages 58010-58162. U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards. August 24. (<https://www.govinfo.gov/content/pkg/FR-2016-08-24/pdf/2016-18768.pdf>)
- U.S. EPA, 2017. Emissions Inventory Guidance for Implementation of Ozone and Particulate Matter National Ambient Air Quality Standards (NAAQS) and Regional Haze Regulations. U.S. Environmental Protection Agency, Research Triangle Park, NC. (EPA-454/B-17-003.) July. (https://www.epa.gov/sites/production/files/2017-07/documents/ei_guidance_may_2017_final_rev.pdf)
- U.S. EPA, 2020a. 40 CFR Part 52; Approval and Promulgation of Air Quality Implementation Plans; Pennsylvania; Regulatory Updates to Allegheny County Nonattainment New Source Review (NNSR) Permitting Requirements for 2012 Annual Fine Particulate Matter (PM_{2.5}) National Ambient Air Quality Standard (NAAQS). Final rule. *Federal Register* 85 (115), pages 36161-36164. U.S. Environmental Protection Agency, Region III. June 15. (<https://www.govinfo.gov/content/pkg/FR-2020-06-15/pdf/2020-10693.pdf>)

- U.S. EPA, 2020b. MOVES3 Technical Guidance: Using MOVES to Prepare Emission Inventories for State Implementation Plans and Transportation Conformity. U.S. Environmental Protection Agency, Office of Transportation and Air Quality. November. (<https://www.epa.gov/sites/default/files/2020-11/documents/420b20052.pdf>)
- U.S. EPA, 2021a. 2017 National Emission Inventory (NEI) Data. U.S. Environmental Protection Agency. January 2021 version. (<https://www.epa.gov/air-emissions-inventories/2017-national-emissions-inventory-nei-data#tab-3>)
- U.S. EPA, 2021b. 40 CFR Part 52; Air Plan Approval; Pennsylvania; Allegheny County Area Attainment Plan for the 2012 Fine Particulate Matter National Ambient Air Quality Standard. Final rule. *Federal Register* 86 (92), pages 26388-26401. U.S. Environmental Protection Agency, Region III. May 14. (<https://www.govinfo.gov/content/pkg/FR-2021-05-14/pdf/2021-09565.pdf>)
- U.S. EPA, 2022. 40 CFR Part 52; Air Plan Approval; Pennsylvania; Allegheny County Area Fine Particulate Matter Clean Data Determination. Final rule. *Federal Register* 87 (51), pages 14799-14802. U.S. Environmental Protection Agency, Region III. March 16. (<https://www.govinfo.gov/content/pkg/FR-2022-03-16/pdf/2022-05446.pdf>)

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Prepared by:

Jason Maranche
Shaun Vozar
Tom Lattner

Allegheny County Health Department
Bureau of Environmental Health
Air Quality Planning and Data Analysis Program
301 39th Street, Building 7
Pittsburgh, PA 15201
412-687-ACHD
<https://www.alleghenycounty.us/healthdepartment>



Allegheny County Health Department
Dr. Debra Bogen, Director

Bureau of Environmental Health
Geoff Rabinowitz, Deputy Director

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