Redesignation Request

for the

Allegheny County, PA Nonattainment Area for the 2012 $PM_{2.5}$ NAAQS

Allegheny County Health Department

Air Quality Planning and Data Assessment Program

June 26, 2025

(This page left blank for printing purposes)

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ACRONYMS AND ABBREVIATIONS

ACHD	Allegheny County Health Department
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
con	Condensable fraction of $PM_{2.5}$
CFR	Code of Federal Regulations
CSAPR	Cross-State Air Pollution Rule
EPA	United States Environmental Protection Agency
ERC	Emission Reduction Credit
FEM	Federal Equivalent Method
fil	Filterable fraction of $PM_{2.5}$
FR	Federal Register
FRM	Federal Reference Method
I/M	Inspection and Maintenance
IP	Installation Permit
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)
µg/m³	Microgram per cubic meter
NAAQS	National Ambient Air Quality Standards
NAA	Nonattainment Area
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
PADEP	Pennsylvania Department of Environmental Protection
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
SIP	State Implementation Plan
SO_2	Sulfur Dioxide
SPC	Southwestern Planning Commission
USS	United States Steel Corporation (or U. S. Steel)
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 $1/30^{th}$ 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 concentrations, while the 24-hour standard is based on 98^{th} 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 2012 $PM_{2.5}$ NAAQS, Allegheny County in southwestern PA was designated as a nonattainment area (NAA) called the Allegheny County, PA area. Since this designation, all Allegheny County Health Department (ACHD) official $PM_{2.5}$ monitors have shown monitored attainment of the NAAQS. The Allegheny County, PA area is also meeting all State Implementation Plan (SIP) obligations for nonattainment areas as required by the CAA[2] and the Code of Federal Regulations (CFR).[3]

The purpose of this document is to request redesignation to attainment for the Allegheny County, PA nonattainment area for the 2012 $PM_{2.5}$ NAAQS. This document does not constitute 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.

[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

- 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.

In 2022, ACHD finalized a Redesignation Request and Maintenance Plan for the 1997, 2006, and 2012 NAAQS (ACHD, 2022), which included the Allegheny County, PA area for the 2012 NAAQS. ACHD later partially withdrew the redesignation request portion for the 2012 NAAQS[4] due to the signing of the revised $PM_{2.5}$ NAAQS in 2024[5] and potential confusion for the public and regulated entities regarding attainment status.

Since this time, PADEP has submitted a recommendation to EPA that Allegheny County be designated as nonattainment for the 2024 NAAQS.[6] Additionally, EPA has proposed that the Redesignation Request for the 1997 and 2006 NAAQS be approved, along with the Maintenance Plan for the 1997, 2006, and 2012 NAAQS.[7] Considering these factors, and the amount of time that has passed, ACHD deems that it is now appropriate to resubmit the redesignation request for the Allegheny County, PA area for the 2012 NAAQS.

This updated Redesignation Request shows that the Allegheny County, PA area is meeting all requirements needed for redesignation of the 2012 NAAQS. This document includes more recent monitored and meteorological data since the time of the original request. The Maintenance Plan as previously submitted will provide for continued attainment of the 2012 NAAQS through 2035, and 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.

[4] https://www.alleghenycounty.us/files/assets/county/v/1/government/health/documents/air-quality/achd-pm2.5-redesignation-partial-withdrawal-docusign.pdf

[5] https://www.epa.gov/pm-pollution/final-reconsideration-national-ambient-air-quality-standards-particulate-matter-pm

[6] https://greenport.pa.gov/elibrary/GetFolder?FolderID=1377605

[7] 90 FR 14939: https://www.govinfo.gov/app/details/FR-2025-04-07/2025-05921

2. Description of the Area

EPA based the designation of the Allegheny County, PA $PM_{2.5}$ nonattainment area on several factors, including air quality concentration data, emissions and emissions-related data, meteorology, geography/topology, and jurisdictional boundaries.[8]

$PM_{2.5}$ is composed of substances that are both primary and secondary in nature[9] 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 precursors[10] 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.

For the 2012 $PM_{2.5}$ NAAQS, EPA designated all municipalities in Allegheny County as a nonattainment area. All adjacent counties in the Pittsburgh metropolitan statistical area (MSA) were showing monitored data below the NAAQS. Figure 2-1 shows a map of the Allegheny County, PA area within southwestern PA.

Reductions in $PM_{2.5}$ levels in the Allegheny County, PA 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, PA area achieved monitored attainment of the 2012 NAAQS with 2018-2020 design values. ACHD developed an attainment demonstration SIP for the Allegheny County, PA area, 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.

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

[8] EPA $PM_{2.5}$ designations: https://www.epa.gov/particle-pollution-designations

[9] 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.

[10] Precursors of $PM_{2.5}$ are sulfur dioxide (SO_2), nitrogen oxides (NO_x), volatile organic compounds (VOC), and ammonia (NH_3).

Figure 2-1. Allegheny County, PA Nonattainment Area for the 2012 $PM_{2.5}$ NAAQS

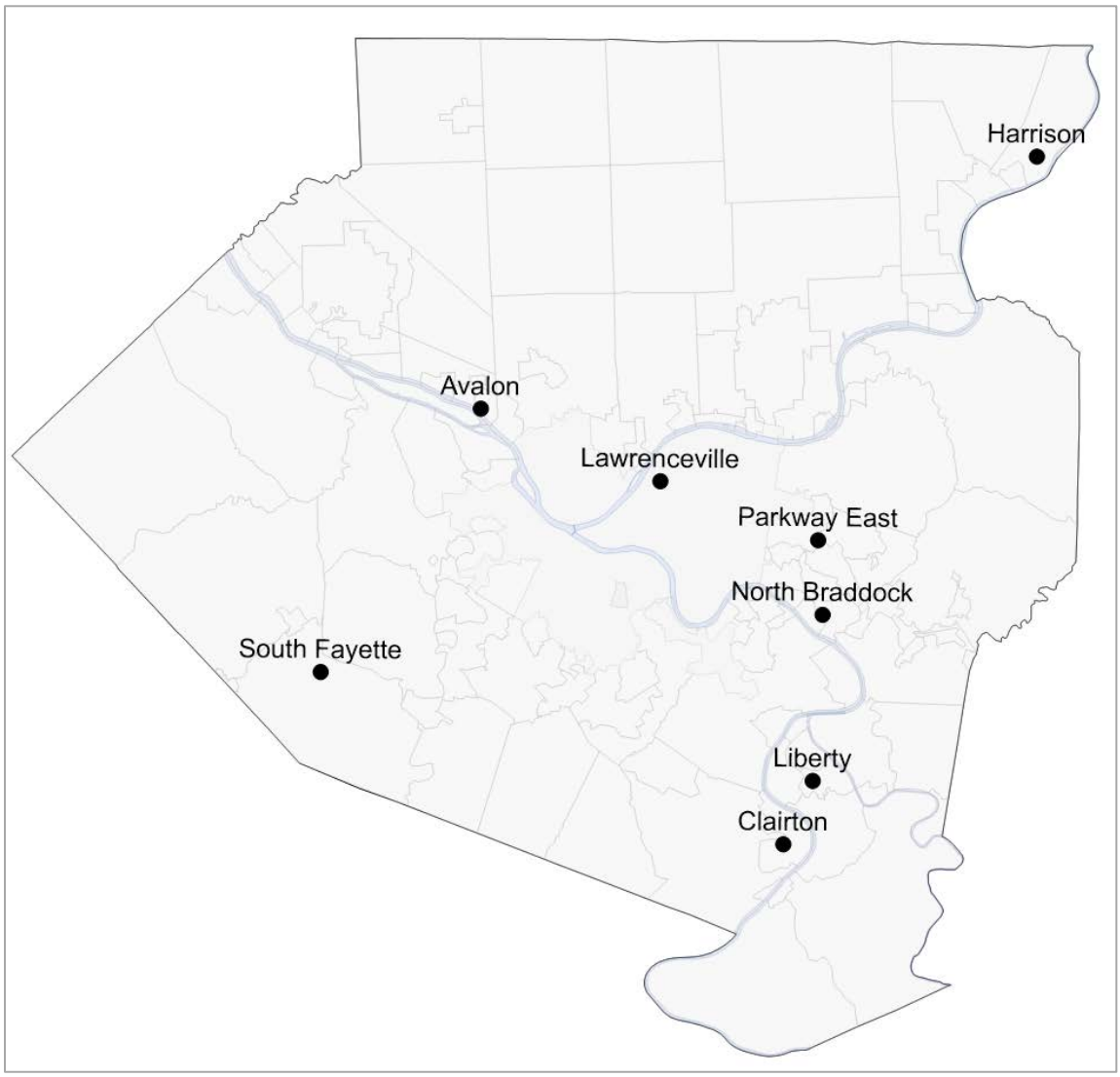
3. Attainment of the NAAQS

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 site has consistently shown the highest monitored concentrations in Allegheny County.

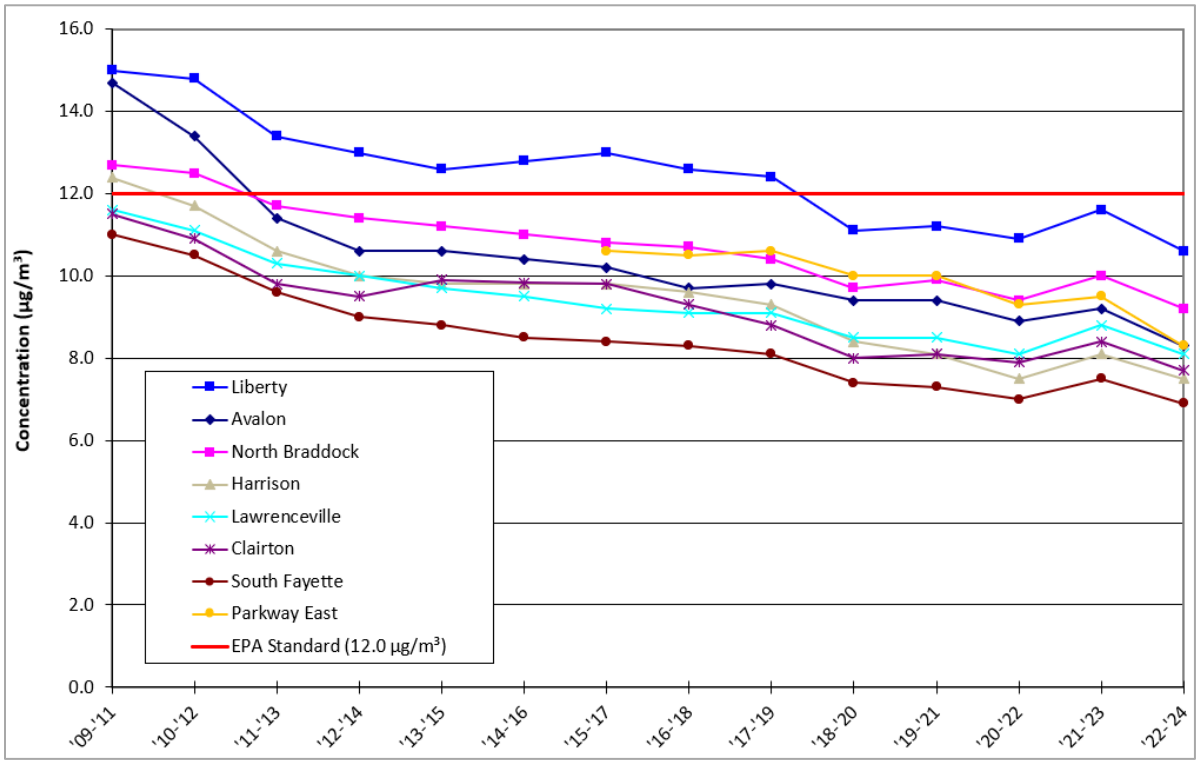
Figure 3-1. ACHD $PM_{2.5}$ Monitor Network (2025)



All $PM_{2.5}$ sites in the Allegheny County, PA 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.[11] Data from these monitors have been fully validated, quality-assured, submitted to EPA's Air Quality System (AQS),[12] 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 for the timeframe 2011-2024.[13] 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 timeframe.

Figure 3-2. $PM_{2.5}$ Annual Design Values (in µg/m³), by 3-Year Period, 2011 to 2024

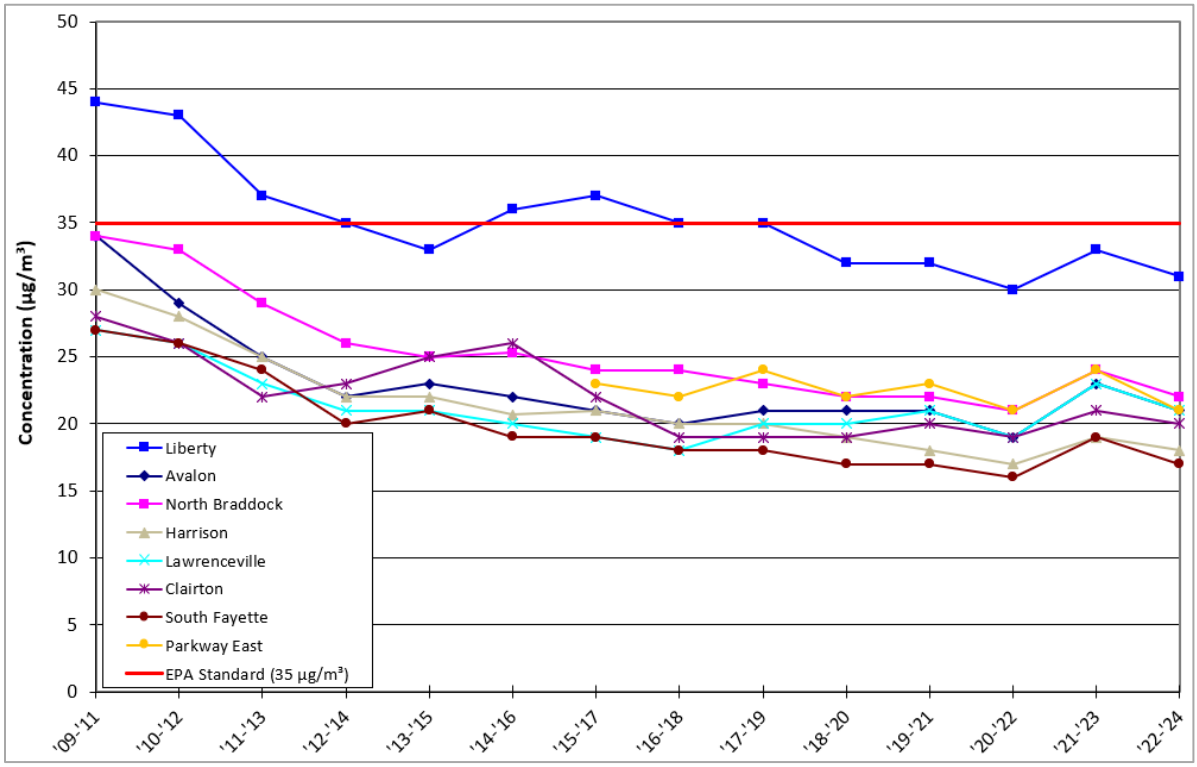


[11] More information on EPA monitor network requirements is available at the following web site: https://www.epa.gov/amtic/amtic-ambient-air-monitoring-networks

[12] EPA's AQS web site: https://www.epa.gov/aqs

[13] 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, 2011 to 2024



Attainment is determined by annual and 24-hour design values that are below the corresponding NAAQS levels. 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.)

There have been eight additional sites within Allegheny County 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 the Appendix of this document for tables of monitored data for 2011 through 2024.)

3.2 Modeled Results

Modeling included in the attainment demonstration 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 2012 annual NAAQS and 2006 24-hour NAAQS. The modeling was performed using the Comprehensive Air quality Model with extensions (CAMx[14]) for regional primary and secondary $PM_{2.5}$ impacts, along with the American Meteorological

[14] http://www.camx.com/

Society/Environmental Protection Agency Regulatory Model (AERMOD[15]) 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 showed 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 would not affect attainment of the NAAQS.

[15] 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 Allegheny County, PA area is meeting all SIP requirements for the 2012 NAAQS.

4.1 SIP Approvals for the Allegheny County Area

On September 12, 2019, ACHD finalized an attainment demonstration SIP for the Allegheny County, PA 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, PA 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).[16] Monitored data showed attainment of the 2012 NAAQS with 2018-2020 design values, and EPA made a clean data determination for the Allegheny County, PA area on March 16, 2022 (U.S. EPA, 2022).[17] The area also achieved attainment by the attainment date of December 31, 2021, and EPA made a corresponding determination of attainment by the attainment date on May 19, 2023 (U.S. EPA, 2023).[18]

The clean data determination suspended 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 subsequently permanently discharged the requirement for contingency measures for the attainment demonstration for the 2012 NAAQS. Note that contingency provisions are still required for an approvable maintenance plan, which is required for redesignation to attainment (see more in Section 6 of this document).

ACHD will retain the approved SIP elements for the Allegheny County, PA 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 (RACM/RACT) demonstration, an air

[16] 86 FR 26388: https://www.govinfo.gov/content/pkg/FR-2021-05-14/pdf/2021-09565.pdf
[17] 87 FR 14799: https://www.govinfo.gov/content/pkg/FR-2022-03-16/pdf/2022-05446.pdf
[18] 88 FR 32117: https://www.govinfo.gov/content/pkg/FR-2023-05-19/pdf/2023-10728.pdf

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.

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.[19]

4.2 Base Year Emissions Inventory

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 SO_2, NO_x, VOC, and NH_3. EPA Emissions Inventory Guidance for $PM_{2.5}$ (U.S. EPA, 2017) also specifies that PM_{10} should be included because PM_{10} emissions are often used as the basis for calculating $PM_{2.5}$.

Emissions inventories are compiled by ACHD and PADEP according to EPA Air Emissions Reporting Requirements (AERR)[20] 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 inventories 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 inventory also matched those used in the modeling for the attainment demonstration for the 2012 $PM_{2.5}$ NAAQS (ACHD, 2019b).

Data categories used for the emissions inventory are described below. The attainment demonstration SIP submittal for the 2012 NAAQS included more specific information on the emissions inventory for the base year 2011.

- 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

[19] 85 FR 36161: https://www.govinfo.gov/content/pkg/FR-2020-06-15/pdf/2020-10693.pdf

[20] EPA AERR: https://www.epa.gov/air-emissions-inventories/air-emissions-reporting-requirements-aerr

pollutant.[21] Note: Point source inventories can also include airport and helipad emissions, as developed by EPA for the triennial National Emissions Inventory (NEI).[22]

- Stationary nonpoint (or "area") sources are industrial, commercial, and residential sources that are too small or too numerous to be inventoried individually. Examples 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). PADEP 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. PADEP 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)[23] model is used to generate emissions based on traffic counts, vehicle speeds, vehicle population growth, and other factors. PADEP 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 FIRES[24] inventory. Biogenic (non-anthropogenic) emissions from vegetation and soils are estimated by the Biogenic Emission Inventory System (BEIS)[25] model.

The approved 2011 base year emissions inventory for the Allegheny County, PA area for the 2012 NAAQS is shown below in Table 4-1, with emissions given by pollutant and data category, in tons/year.

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

[22] EPA NEI: https://www.epa.gov/air-emissions-inventories/national-emissions-inventory-nei

[23] https://www.epa.gov/moves

[24] https://www3.epa.gov/ttn/chief/ap42/ch13/related/firerept.pdf

[25] https://www.epa.gov/air-emissions-modeling/biogenic-emission-inventory-system-beis

Table 4-1. Allegheny County 2011 Base Year Emissions Inventory (tons/year)

Allegheny County (2011)	$PM_{2.5}$	$PM_{2.5}$ (fil)	$PM_{2.5}$ (con)	PM_{10}	SO_2	NO_x	VOC	NH_3
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:

- Amounts for the filterable and condensable portions of $PM_{2.5}$ have been given in addition to total primary $PM_{2.5}$ according to AERR requirements. Mobile, fire, and biogenic sources are reported only in terms of filterable $PM_{2.5}$.
- Emissions for area and mobile sources are allocated to the county level.
- The sum of different data categories may not match the totals for the area due to rounding to whole numbers in the table.

4.3 Transportation Conformity

Section 176(c)(4) of the CAA requires each state to establish a transportation conformity process. PADEP 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.

For the Allegheny County, PA 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 4-2, with emissions shown in tons/year along with vehicle miles traveled (VMT) for each scenario.

Table 4-2. 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
$PM_{2.5}$ MVEB	*266*	*266*	*266*	*266*	*266*
$PM_{2.5}$ Build	247	207	196	133	119
NO_x MVEB	*5,708*	*5,708*	*5,708*	*5,708*	*5,708*
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 attainment demonstration SIP for the 2012 NAAQS.

4.4 Other CAA Requirements

The Allegheny County, PA area is 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.

4.4.1 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.

4.4.2 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 the Allegheny County, PA area, 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.

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 (U.S. EPA, 2020) to include VOC and NH_3 as precursors and to revise the significant impact levels (SILs) for $PM_{2.5}$.

4.4.3 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 Control[26] addresses all required provisions for the permitting of sources in nonattainment areas, including NNSR.

4.4.4 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 2012 $PM_{2.5}$ NAAQS have met the applicable dates required for the SIP submittals. Additionally, the ACHD 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.

[26] https://www.alleghenycounty.us/files/assets/county/v/1/government/health/documents/air-quality/enforcement/regulations/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 along with estimates of the emissions reductions for the Allegheny County, PA area.

5.1 $PM_{2.5}$ NAAQS Timeframe

Below is a timeline of attainment of the 2012 $PM_{2.5}$ NAAQS, including the designation and clean data design value periods. The Liberty site has been the determining site for attainment in the Allegheny County, PA area.

- The Allegheny County, PA area was designated a nonattainment area based on 2011-2013 monitored design values.
- The area achieved clean data based on 2018-2020 monitored design values. Therefore, the attainment timeframe is 2011-2020.
- The attainment timeframe corresponded with a reduction in monitored annual design values at the Liberty site from 13.4 µg/m³ to 11.1 µg/m³ from 2011 to 2020.
- Year 2017 is being used as the most appropriate "control" year over the timeframe of 2011-2020 (see more in Section 5.3 of this document).

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 conduct 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 PADEP's ERC registry.[27] 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 below have been previously discussed in detail in the attainment demonstration SIP submittal (ACHD, 2019b).

5.2.1 Mon Valley Source Controls

Several point source controls have been implemented in the Mon Valley at the United States Steel Corporation (U. S. Steel, or USS) Mon Valley Works (MVW) Clairton Plant during the timeframe of 2011-2017. These controls contributed to $PM_{2.5}$ and precursor emissions reductions for the Allegheny County, PA area for the 2012 NAAQS.

Some of these controls were required by consent orders and agreements entered into between ACHD and USS and in 2007 and in 2008 (with the latter amended in 2010 and 2011). These consent orders 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 included the following:

- 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.

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

Note that the installation of the new C Coke Battery in 2012 led to an increase in emissions at the USS Clairton Plant after the shutdown of Coke Batteries 7-9 occurred in 2009. However, the overall result since the nonattainment designation for the 2012 NAAQS has been a gradual decrease in long-term emissions in the area (see more in 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 modifications are applicable to the control of $PM_{2.5}$ and precursor emissions throughout Allegheny County. Controls at major sources included the following during the timeframe of 2011-2017:

- 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 permanently ceased operations.)

- 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). (Note: This source has now permanently ceased operations.)

5.2.3 Allegheny County Source Shutdowns

The following major point source facilities in Allegheny County have been permanently retired during the timeframe of 2011-2017, with their permits terminated or expired. These permanent shutdowns led to reduced $PM_{2.5}$ and precursor emissions in Allegheny County. 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 reductions of $PM_{2.5}$ and precursors during the timeframe of 2011-2017. These rules and regulations have led to reduced emissions from many source sectors regionally, in addition to the reductions at the stationary

point sources mentioned above. These rules and regulations include, but are not limited to, the following:

- Greenhouse Gas Emissions and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles (Phase 1)[28]
- Final Rule for Model Year 2012-2016 Light-Duty Vehicle Greenhouse Gas Emission Standards and Corporate Average Fuel Economy Standards[29]
- Standards of Performance for New Residential Wood Heaters, New Residential Hydronic Heaters and Forced-Air Furnaces[30]
- National Emission Standards for Hazardous Air Pollutants for Area Sources: Industrial, Commercial, and Institutional Boilers[31]
- National Emission Standards for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines; New Source Performance Standards for Stationary Internal Combustion Engines[32]
- Commercial and Industrial Solid Waste Incineration Units: Reconsideration and Final Amendments[33]
- Control of Air Pollution From Motor Vehicles: Tier 3 Motor Vehicle Emission and Fuel Standards[34]
- Cross-State Air Pollution Rule (CSAPR) Allowance Allocations (Groups 1 and 2)[35]
- PA Adhesives and Sealants Rule[36]
- PA Fuel Oil Sulfur Limits in Rule[37]

[28] 76 FR 57106: https://www.govinfo.gov/content/pkg/FR-2011-09-15/pdf/2011-20740.pdf
[29] 75 FR 25324: https://www.govinfo.gov/content/pkg/FR-2010-05-07/pdf/2010-8159.pdf
[30] 80 FR 13672: https://www.govinfo.gov/content/pkg/FR-2015-03-16/pdf/2015-03733.pdf
[31] 74 FR 7488: https://www.govinfo.gov/content/pkg/FR-2013-02-01/pdf/2012-31645.pdf
[32] 78 FR 6674: https://www.govinfo.gov/content/pkg/FR-2013-01-30/pdf/2013-01288.pdf
[33] 78 FR 9112: https://www.govinfo.gov/content/pkg/FR-2013-02-07/pdf/2012-31632.pdf
[34] 79 FR 23414: https://www.govinfo.gov/content/pkg/FR-2014-04-28/pdf/2014-06954.pdf
[35] EPA CSAPR: https://www.epa.gov/Cross-State-Air-Pollution/csapr-allowance-allocations
[36] 77 FR 59090: https://www.govinfo.gov/content/pkg/FR-2012-09-26/pdf/2012-23568.pdf
[37] 79 FR 39330: https://www.govinfo.gov/content/pkg/FR-2014-07-10/pdf/2014-16087.pdf

5.3 Emissions Reductions

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

The Allegheny County area achieved clean data for 2012 NAAQS based on 2018-2020 monitored design values, but as discussed in the Maintenance Plan (ACHD, 2022), 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. Emissions for the 2017 control year were taken from 2017 NEI and MOVES3 output, with corrections to NEI as noted in the Maintenance Plan (ACHD, 2022).

Table 5-1 shows the total emissions reductions by pollutant from the 2011 base year inventory to the 2017 control year inventory for the Allegheny County, PA area, shown as negative values in tons/year. The percent changes from base year to control year are also given.

Table 5-1. Allegheny County Emissions Reductions, 2012 NAAQS (tons/year)

Allegheny County Totals (2012 NAAQS)	**$PM_{2.5}$**	**$PM_{2.5}$ (fil)**	**$PM_{2.5}$ (con)**	**PM_{10}**	**SO_2**	**NO_x**	**VOC**	**NH_3**
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
Reduction, Base to Control Year	*-1,392*	*-978*	*-414*	*-2,333*	*-10,047*	*-12,187*	*-4,589*	*97*
Percent Change	*-24%*	*-23%*	*-25%*	*-26%*	*-67%*	*-34%*	*-15%*	*9%*

The Allegheny County area showed considerable reductions during the 2012 NAAQS base-to-control timeframe for all pollutants except NH_3. In the attainment demonstration SIP for the 2012 NAAQS (ACHD, 2019b), NH_3 was found to be an insignificant precursor in Allegheny County.

5.4 Conditions During Attainment

Emissions reductions that led to monitored attainment for the Allegheny County, PA area for the 2012 $PM_{2.5}$ NAAQS were not a result of temporary economic conditions or unusually favorable meteorology during the attainment timeframe of 2011-2020 and more recent years.

5.4.1 Emissions

Except for two years since the base year 2011, emissions levels have remained fairly consistent in the Allegheny County area during the timeframe of attainment and more recent years.

Year 2020 was a low year for emissions due to the COVID-19 pandemic, with lower region-wide emissions from nearly all data categories, most notably from mobile sources. Monitored data for 2020 were included in the 2018-2020 design values that showed attainment for Allegheny County, PA area. However, analysis included in the attainment demonstration 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 later years 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 2020 were not the cause of monitored attainment for 2012 NAAQS, the conditions in 2020 provided 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 Plan (ACHD, 2022), in which projected emissions were used to demonstrate attainment to an interim year 2026 and a maintenance year 2035.

On the contrary, year 2023 was an atypically high year for $PM_{2.5}$ concentrations due to the presence of transported smoke from Canadian wildfires during May through August. In fact, all sites in Allegheny County recorded record-high monitor concentrations in June 2023. Allegheny County nonetheless maintained attainment of the 2012 NAAQS, even with these higher concentrations.[38] Continued attainment during 2023 is additional proof that Allegheny County has safely achieved permanent attainment of the 2012 NAAQS even during extreme unforeseen conditions.

5.4.2 Meteorology

Attainment of the 2012 NAAQS for the Allegheny County, PA area 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 2011-2024, there was some variation in meteorology for the Allegheny County,[39] including years with both above and below normal statistics for these parameters.

Table 5-2 shows the yearly frequency of surface temperature inversions, average temperature, total precipitation, and the Liberty annual weighted mean and 98th percentile concentrations over

[38] At the time of this document, no Allegheny County sites have been approved for exceptional event exclusion from comparison to the NAAQS.

[39] Temperature and precipitation statistics for Allegheny County were downloaded from NOAA National Centers for Environmental Information, Climate at a Glance: County Time Series, published May 2025, retrieved on May 22, 2025, from: https://www.ncei.noaa.gov/access/monitoring/climate-at-a-glance/county/time-series

Inversion statistics for the Pittsburgh NWS location were taken from the University of Wyoming website: 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.

the period of 2011-2024. The Liberty site has been the highest-concentration $PM_{2.5}$ site in Allegheny County every year since 2011.

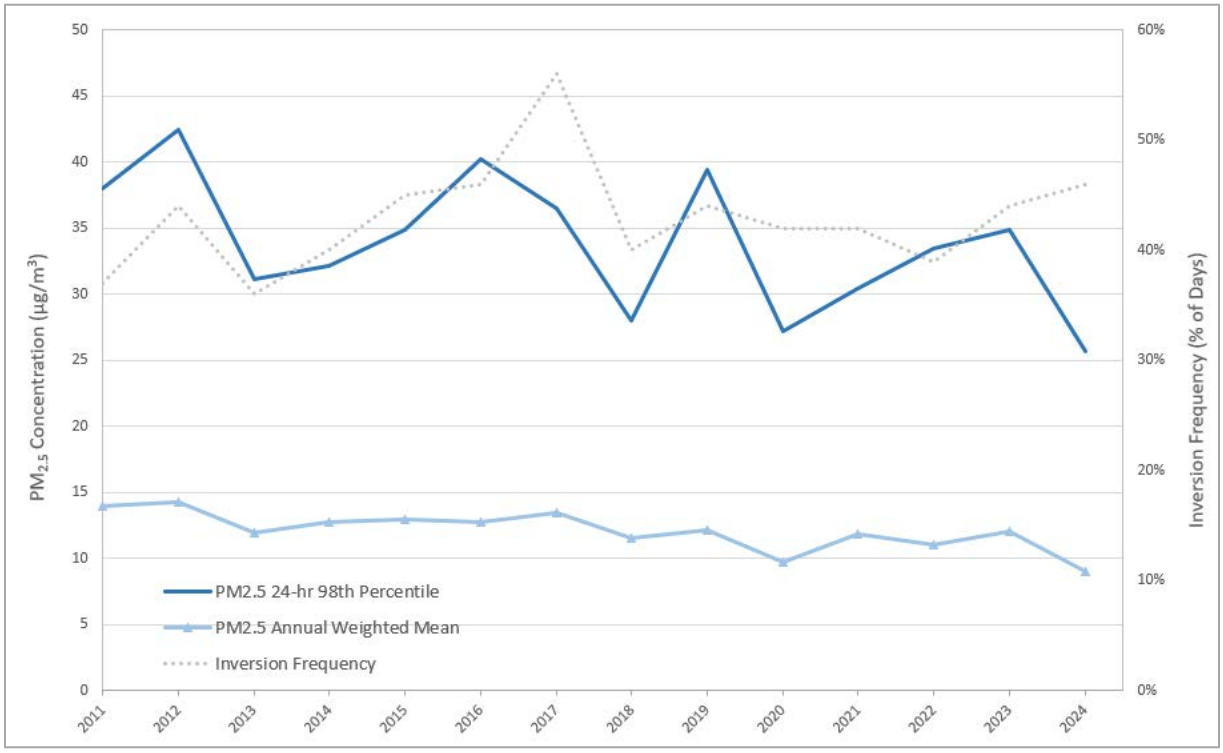
Table 5-2. Yearly Meteorological Parameters and Liberty Concentrations, 2011 to 2024

Year	Frequency of Inversions (%)	Average Temperature (°F)	Total Precipitation (inches)	Liberty Annual Weighted Mean (µg/m³)	Liberty 24-hour 98th Percentile (µg/m³)
2011	37%	52.7	48.6	14.0	38.0
2012	44%	54.1	42.1	14.3	42.5
2013	36%	51.2	41.8	12.0	31.1
2014	40%	49.7	38.4	12.7	32.2
2015	45%	51.8	43.5	12.9	34.9
2016	46%	53.5	39.1	12.8	40.2
2017	56%	53.1	47.7	13.4	36.5
2018	40%	52.0	61.3	11.5	28.0
2019	44%	52.3	52.6	12.2	39.4
2020	42%	53.2	39.7	9.8	27.2
2021	42%	53.3	44.0	11.8	30.4
2022	39%	51.8	42.5	11.0	33.5
2023	44%	53.8	35.1	12.0	34.9
2024	46%	55.3	42.5	9.0	25.7

As discussed in the meteorological analysis provided in the attainment demonstration 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 $PM_{2.5}$.

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 2011-2024.

Figure 5-1. Yearly Inversion Frequencies and Liberty $PM_{2.5}$ Concentrations, 2011 to 2024

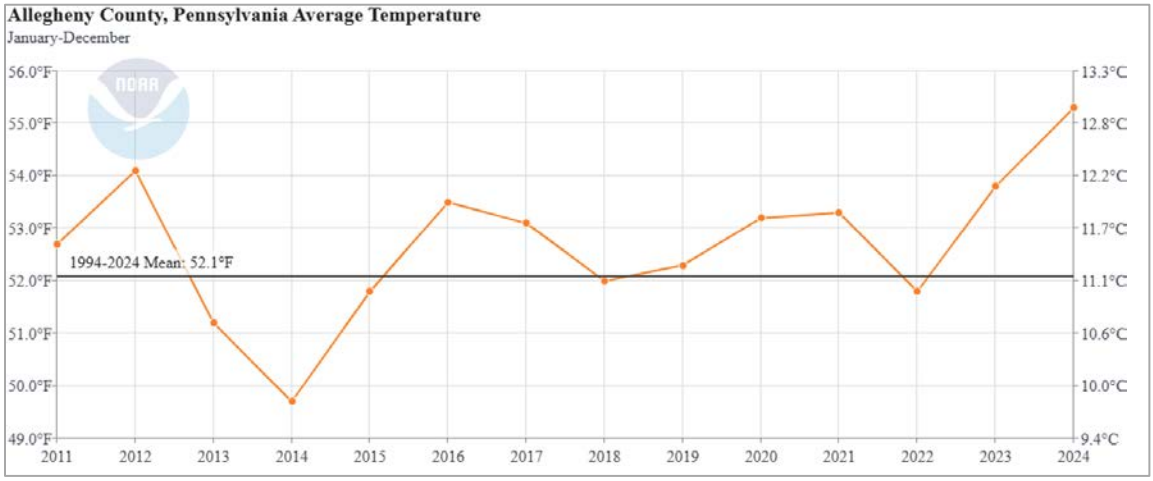


The average frequency of inversions has remained about the same throughout the period of 2011-2024. While the variations in short-term concentrations correlate with inversion frequencies from year to year, Liberty long-term concentrations have declined throughout the timeframe due to emissions controls and not due to unusually favorable meteorology due to temperature inversions.

Figures 5-2 and 5-3 graphically show the yearly variation in average temperature and total precipitation, respectively, for Allegheny County over the period 2011-2024. This period has seen extremes in average temperature.[40]

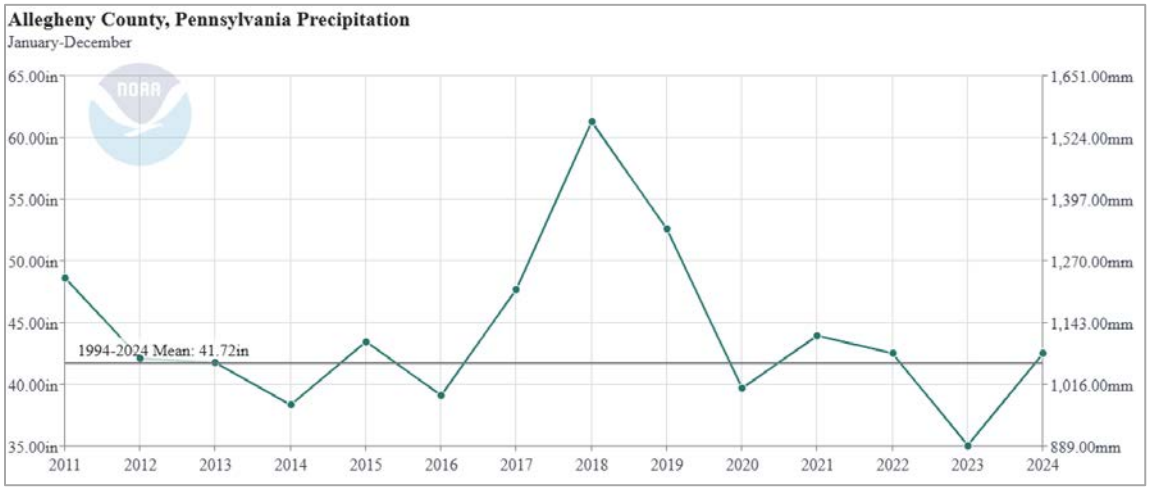
[40] NOAA National Centers for Environmental information, Climate at a Glance: County Haywood, published May 2025, retrieved on May 22, 2025 from https://www.ncei.noaa.gov/access/monitoring/climate-at-a-glance/county/haywood

Figure 5-2. Yearly Average Temperature for Allegheny County, 2011 to 2024



Higher temperatures are typically associated with higher concentrations of $PM_{2.5}$ since higher temperatures can be favorable for $PM_{2.5}$ precursors such as sulfate and volatile organic compounds (VOCs). From historical data to 1895, the warmest year ever recorded in Allegheny County was 2024. with 2012 and 2023 also in the top five warmest. However, both the short-term and long-term $PM_{2.5}$ concentrations decreased over the 2011-2024 timeframe. These results indicate that the measured decrease in $PM_{2.5}$ was not due to favorable temperatures.

Figure 5-3. Yearly Total Precipitation for Allegheny County, 2011 to 2024



Increased precipitation is typically associated with a decrease in $PM_{2.5}$ concentration via wet deposition. Although 2018 and 2019 might have seen a reduction in $PM_{2.5}$ due to wet deposition, the measured overall decrease in $PM_{2.5}$ over 2011-2024 was not likely due to particularly favorable precipitation.

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

The Maintenance Plan for the Allegheny County, PA area for the 2012 $PM_{2.5}$ NAAQS was submitted as Section 6 of the original Redesignation Request and Maintenance Plan for the 1997, 2006, and 2012 NAAQS (ACHD, 2022). The Maintenance Plan has been proposed for approval by EPA (U.S. EPA, 2025) at the time of this document. If the Maintenance Plan receives final approval from EPA, this current Redesignation Request for the 2012 NAAQS can then be eligible for approval by EPA.

References

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/Services/Health-Department/Air-Quality/Enforcement-Regulations-and-Compliance/Regulations-and-SIPs)

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/Services/Health-Department/Air-Quality/Enforcement-Regulations-and-Compliance/Regulations-and-SIPs)

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/Services/Health-Department/Air-Quality/Enforcement-Regulations-and-Compliance/Regulations-and-SIPs)

ACHD, 2022. 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. (SIP Revision 100.) Allegheny County Health Department, Pittsburgh, PA. September 22. (https://www.alleghenycounty.us/Services/Health-Department/Air-Quality/Enforcement-Regulations-and-Compliance/Regulations-and-SIPs)

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 PM_{10} 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/aqmguide/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, 2020. 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, 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)

U.S. EPA, 2023. 40 CFR Part 52; Determination of Attainment by the Attainment Date for the 2012 Annual Fine Particulate Matter Standard; Pennsylvania; Allegheny County Nonattainment Area. Final rule. *Federal Register* 88 (97), pages 32117-32120. U.S. Environmental Protection Agency, Region III. May 19. (https://www.govinfo.gov/content/pkg/FR-2023-05-19/pdf/2023-10728.pdf)

U.S. EPA, 2025. 40 CFR Parts 52 and 81; Air Plan Approval; Pennsylvania; Redesignation Request and Associated Maintenance Plan for the Liberty-Clairton Area for the 1997

Annual and 2006 24-Hour Fine Particulate Matter Standard and Maintenance Plan for the Allegheny County Area for the 2012 Annual Fine Particulate Matter Standard. Proposed rule. *Federal Register* 90 (65), pages 14939-14954. U.S. Environmental Protection Agency, Region III. April 7. (https://www.govinfo.gov/app/details/FR-2025-04-07/2025-05921)

Appendix

Monitored Data

This appendix includes monitored $PM_{2.5}$ data for currently active $PM_{2.5}$ sites in Allegheny County. Data are based on the combined site records of FRM and FEM monitors at each site, as reported to EPA's AQS official database[41] of $PM_{2.5}$ records. Data can also be downloaded from EPA's Air Data[42] and Design Value[43] websites.

EPA certification of 2024 data was requested by ACHD on April 29, 2025. (Note: All previous years from 2011-2023 have been certified or requested for certification.)

Monitored concentrations are given in the tables below as follows, in µg/m³:

- A-1. Annual weighted mean concentrations, 2011-2024
- A-2. 24-hour 98th percentile concentrations, 2011-2024
- A-3. Annual design value concentrations, 2011-2024
- A-4. 24-hour design value concentrations, 2011-2024

Note: Annual design values are rounded to one decimal place while the 24-hour design values are rounded to whole numbers, according to NAAQS conventions.

Official AQS reports or data for inactive sites are available upon request to ACHD.

[41] https://www.epa.gov/aqs

[42] https://www.epa.gov/outdoor-air-quality-data/monitor-values-report

[43] https://www.epa.gov/air-trends/air-quality-design-values

Table A-1. Annual Weighted Mean $PM_{2.5}$ Concentrations, 2011-2024

Site Name	AQS Code	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Avalon	420030002	13.1	10.9	10.2	10.7	10.9	9.7	10.0	9.6	9.9	8.6	9.8	8.2	9.6	7.0
Lawrenceville	420030008	11.1	10.1	9.8	10.1	9.4	9.0	9.2	9.0	9.0	7.7	9.0	7.6	9.7	7.2
Liberty	420030064	14.0	14.3	12.0	12.7	12.9	12.8	13.4	11.5	12.2	9.8	11.8	11.0	12.0	9.0
South Fayette	420030067	10.6	9.2	8.9	9.1	8.5	8.0	8.7	8.1	7.7	6.6	7.8	6.5	8.3	6.0
Harrison	420031008	11.6	10.5	9.6	10.0	9.8	9.5	10.0	9.3	8.6	7.3	8.2	7.1	8.9	6.6
North Braddock	420031301	12.3	11.5	11.2	11.5	10.7	10.8	11.0	10.2	9.9	9.0	10.7	8.5	10.7	8.4
Parkway East	420031376	--	--	--	--	--	10.6	10.6	10.3	10.8	9.0	10.4	8.5	9.6	6.9
Clairton	420033007	10.7	9.4	9.4	9.8	10.4	9.3	9.8	8.8	7.9	7.3	9.2	7.1	9.0	7.0

Table A-2. 24-Hour 98th Percentile $PM_{2.5}$ Concentrations, 2011-2024

Site Name	AQS Code	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
Avalon	420030002	29.8	20.9	23.2	22.6	23.5	19.5	20.2	21.0	21.3	19.4	21.2	17.6	29.6	15.9
Lawrenceville	420030008	27.3	20.4	20.8	20.7	22.4	18.3	17.7	19.2	21.7	18.1	22.9	16.8	28.9	16.3
Liberty	420030064	38.0	42.5	31.1	32.2	34.9	40.2	36.5	28.0	39.4	27.2	30.4	33.5	34.9	25.7
South Fayette	420030067	30.6	18.1	23.5	18.9	20.6	17.6	19.4	17.9	16.5	15.7	17.8	14.7	24.7	13.0
Harrison	420031008	29.8	20.7	24.2	19.9	22.0	19.6	21.0	19.3	20.6	16.4	17.6	15.6	24.7	13.7
North Braddock	420031301	33.7	26.8	26.1	24.4	24.1	25.9	23.0	24.5	21.8	20.5	24.8	19.1	27.1	20.4
Parkway East	420031376	--	--	--	--	--	22.0	23.4	21.5	25.7	20.2	24.4	18.3	28.8	15.9
Clairton	420033007	30.3	19.2	17.1	31.2	25.8	19.6	19.1	17.5	20.1	18.9	19.5	18.5	24.6	16.7

Table A-3. Annual $PM_{2.5}$ Design Value Concentrations, 2011-2024 (3-Year Periods)

Site Name	AQS Code	2009-2011	2010-2012	2011-2013	2012-2014	2013-2015	2014-2016	2015-2017	2016-2018	2017-2019	2018-2020	2019-2021	2020-2022	2021-2023	2022-2024
Avalon	420030002	14.7	13.4	11.4	10.6	10.6	10.4	10.2	9.7	9.8	9.4	9.4	8.9	9.2	8.3
Lawrenceville	420030008	11.6	11.1	10.3	10.0	9.7	9.5	9.2	9.1	9.1	8.5	8.5	8.1	8.7	8.1
Liberty	420030064	15.0	14.8	13.4	13.0	12.6	12.8	13.0	12.6	12.4	11.1	11.2	10.9	11.6	10.6
South Fayette	420030067	11.0	10.5	9.6	9.0	8.8	8.5	8.4	8.3	8.1	7.4	7.3	7.0	7.5	6.9
Harrison	420031008	12.4	11.7	10.6	10.0	9.8	9.8	9.8	9.6	9.3	8.4	8.1	7.5	8.1	7.5
North Braddock	420031301	12.7	12.5	11.7	11.4	11.2	11.0	10.8	10.7	10.4	9.7	9.9	9.4	10.0	9.2
Parkway East	420031376	--	--	--	--	--	10.6	10.6	10.5	10.6	10.0	10.0	9.3	9.5	8.3
Clairton	420033007	11.5	10.9	9.8	9.5	9.9	9.8	9.8	9.3	8.8	8.0	8.1	7.9	8.4	7.7

Table A-4. 24-Hour $PM_{2.5}$ Design Value Concentrations, 2011-2024 (3-Year Periods)

Site Name	AQS Code	2009-2011	2010-2012	2011-2013	2012-2014	2013-2015	2014-2016	2015-2017	2016-2018	2017-2019	2018-2020	2019-2021	2020-2022	2021-2023	2022-2024
Avalon	420030002	34	29	25	22	23	22	21	20	21	21	21	19	23	21
Lawrenceville	420030008	27	26	23	21	21	20	19	18	20	20	21	19	23	21
Liberty	420030064	44	43	37	35	33	36	37	35	35	32	32	30	33	31
South Fayette	420030067	27	26	24	20	21	19	19	18	18	17	17	16	19	17
Harrison	420031008	30	28	25	22	22	21	21	20	20	19	18	17	19	18
North Braddock	420031301	34	33	29	26	25	25	24	24	23	22	22	21	24	22
Parkway East	420031376	--	--	--	--	--	22	23	22	24	22	23	21	24	21
Clairton	420033007	28	26	22	23	25	26	22	19	19	19	20	19	21	20

Prepared by:

Jason Maranche
Adam Clayton
Grace Van Patter

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. Iulia Vann, Director

Bureau of Environmental Health
Geoff Rabinowitz, Deputy Director