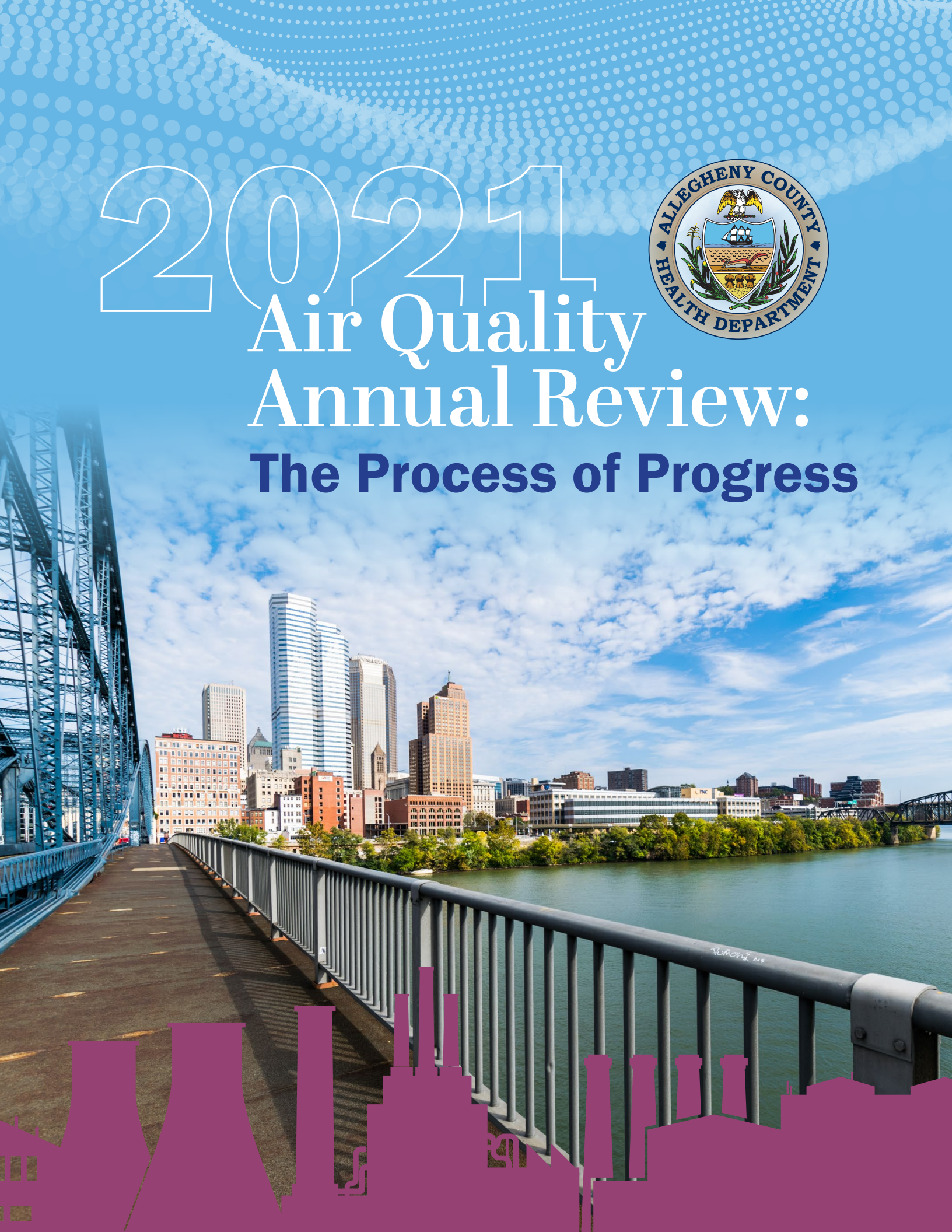


2021 Air Quality Annual Review: The Process of Progress





Letter from the ACHD Director

The Allegheny County Health Department's (ACHD) air quality efforts have improved the health and welfare of our community since the smokey industrial days of our past, but we are still dealing with the environmental impact of that history. Our region is dedicated to cleaning our air. While that dedication and work has brought great progress, there is still more work to be done.



In 2021, ACHD expanded and implemented new technology and programs and completed some long-term studies that will inform our future. These initiatives appear in this report, and here are some of the accomplishments I am particularly proud of:

- **Conducted a study to identify the sources of hydrogen sulfide after noticing increased concentrations in certain communities.** Portable hydrogen sulfide monitors were deployed around the impacted areas to provide important data.
- **Added a new section to the county's Air Pollution Control Regulations, the Mon Valley Air Pollution Episode Rule.** This regulation requires local industrial facilities to implement emission reduction plans when alerted to surface temperature inversions or any event that can cause high levels of PM_{2.5} to collect for at least 24 hours.
- **Created more accessible public hearing processes that enabled more public participation while COVID-19 restrictions were in effect.**
- **Increased the number of asbestos demolition and renovation projects evaluated for compliance.** This work has led to asbestos survey reporting being required in the City of Pittsburgh's permitting process.

This work does not happen on its own. The ACHD relies on community engagement to improve the region's air quality. We hope that you will join us in our efforts to improve the health of our current and future residents.

Additionally, I extend thanks to our staff, whose dedication, passion, and flexibility have been inspirational, particularly in the face of the unique and critical challenges we face today. The team works continuously to ensure that equipment is working efficiently, data are accurate, and that the Air Quality Program is always preparing for tomorrow's challenges, while actively addressing today's issues.

I am proud to present "2021 Air Quality Annual Review: The Process of Progress." As is clear from this inaugural report, the Air Quality Program is working diligently to address air quality challenges in our county.

Sincerely,



Dr. Debra L. Bogen
Director
Allegheny County Health Department



Jayme Graham

This annual review is dedicated to Jayme Graham, who recently retired as the Health Department's Air Quality Program Manager. The Air Quality Program would not be what it is today without her 41 years of hard work, intellect, and care.

Jayme had a groundbreaking career. In the 1980s, she was hired as one of the first full-time, female engineers at the Air Quality Program, culminating in her well-earned promotion to program manager. Her wealth of experience and deep understanding of air quality science, along with her unflappable nature and great sense of humor, made her a respected and impactful leader to the program and across the nation. The ACHD is indebted to her and we thank her for her many years of service.



Table of Contents

2	Letter from the ACHD Director
4	Dedication
6	Air Quality in Allegheny County — Then, Now, and in the Future Understanding Air Quality Air Quality Program History
12	How the Air Program Works Monitoring Planning and Data Analysis Permitting Enforcement
24	Key Results for 2021 Measured Attainment for All National Ambient Air Quality Standards (NAAQS) 2021 Exceedances of the Short-Term Federal Standards
27	Investing in Our Future – How the Work Is Funded Funding Sources Grants Received
28	How You Can Be Involved Air Quality Dashboard The Air Advisory Committee The Clean Air Fund How to Submit an Air Quality Complaint or Question Allegheny Alerts
30	Looking Ahead

AIR QUALITY

in Allegheny County – Then, Now, and in the Future



Understanding Air Quality

Air on Earth is made up of about 78% nitrogen, 21% oxygen, and 1% other gases.

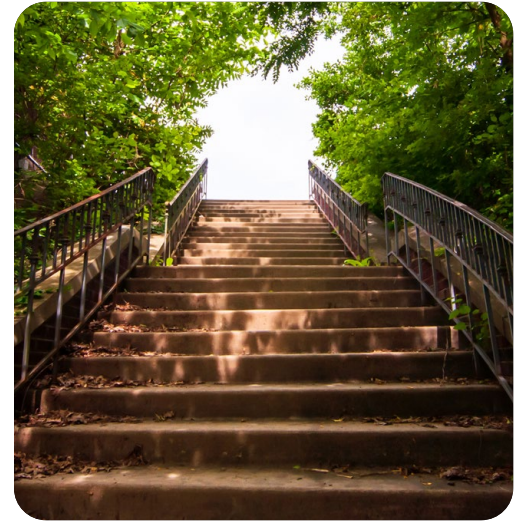
Beyond these components, other components become part of the mix, some due to natural activities, but most due to human activities like industrial production, transportation, and various forms of energy use. These activities put tiny airborne particulates and gases into our air — these are pollutants. The more air pollutants in an area, the lower the air quality.

Exposure to air pollutants can cause or exacerbate a range of health problems, especially for those with respiratory issues like asthma or chronic obstructive pulmonary disease (COPD). It also increases the risk of other health conditions, like respiratory infections, heart disease, stroke and lung cancer. Some pollutants from the air can bind to water and soil, potentially entering the food system.

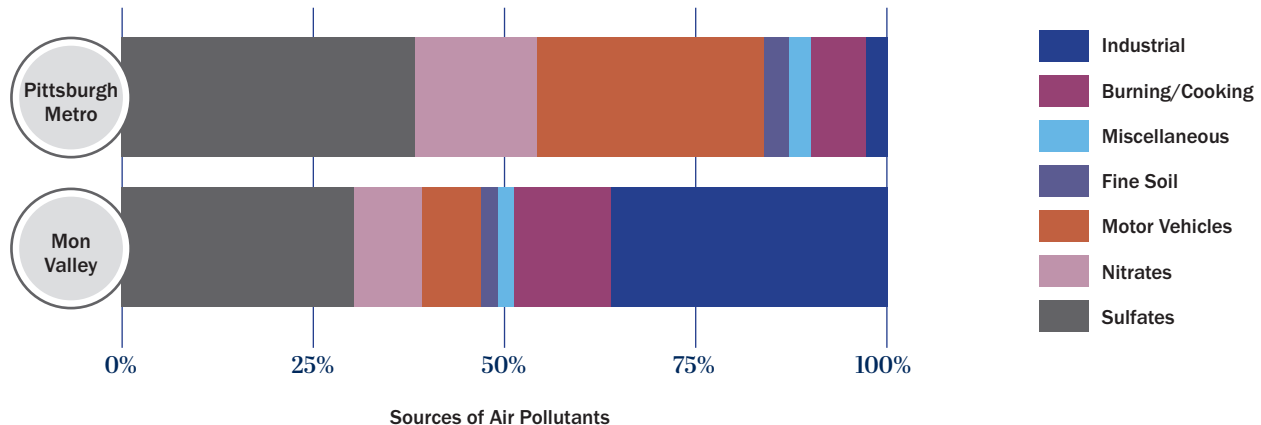


Variations in Air Quality

Air quality changes from day to day. Across the world, pollutants differ based on the amount, and kind, of human and natural activity in the area. In Allegheny County, for example, one of the most common air pollution particulates is sulfates, which are released by the burning of fossil fuels and by industrial processes. Another is nitrates, which are released by agricultural processes and car exhausts. Other common air pollution particulates in Allegheny County are emissions from motor vehicles, fine soil that enters the air, emissions from burning and cooking, and other particulates from industrial processes (including metals, chlorine, and carbon).



In Allegheny County, particulates are present in different amounts depending on the area.



Air Quality Regulation

To manage and improve air quality, regulatory agencies were established at the federal, state, and county levels. These agencies are tasked with protecting the public by regulating activities in the region that produce harmful environmental pollutants.

- **Environmental Protection Agency (EPA)** is an independent federal agency, with authority throughout the United States.
- **Pennsylvania Department of Environmental Protection (PA DEP)** is a state-level regulatory agency.
- **Allegheny County Health Department (ACHD) Air Quality Program** is a county-level regulatory agency.

ACHD and PA DEP set goals, design and implement plans for how to achieve those goals, measure and analyze air quality, and enact and enforce regulations. The EPA reviews and approves their work.

TERMS TO KNOW

Ambient Air > Any unconfined portion of the atmosphere: open air, surrounding air

Air Quality Index (AQI) > A metric developed by the EPA for understanding daily air quality in an area

Article XXI > Allegheny County Health Department Rules and Regulations for Air Pollution Control ([read Article XXI](#))

CBSA > Core Based Statistical Area; an air quality monitoring site that generally represents a metropolitan or statistical area containing a substantial population center, together with neighboring communities having frequent economic and social integration with that core

Clean Air Act > The United States' primary federal air quality law, intended to reduce and control air pollution nationwide ([read the Clean Air Act](#))

Criteria pollutants > Pollutants regulated by the federal government, including particulate matter, carbon monoxide, ozone, sulfur dioxide, nitrogen dioxide, and lead

Dispersion > How molecules and particles move throughout the air in the atmosphere

Fine Particulate Matter > $PM_{2.5}$; solid particles and liquid droplets in the air less than 2.5 micrometers that can get lodged into the lungs and cause irritation or disease

HAP (Air Toxics) > Hazardous Air Pollutants; the EPA lists 187 air toxics under this designation that have been identified as harmful to human health in designated amounts

NAAQS > National Ambient Air Quality Standards; Science and health-based regulatory standards set by the EPA for the criteria pollutants ([see the list of criteria pollutants](#))

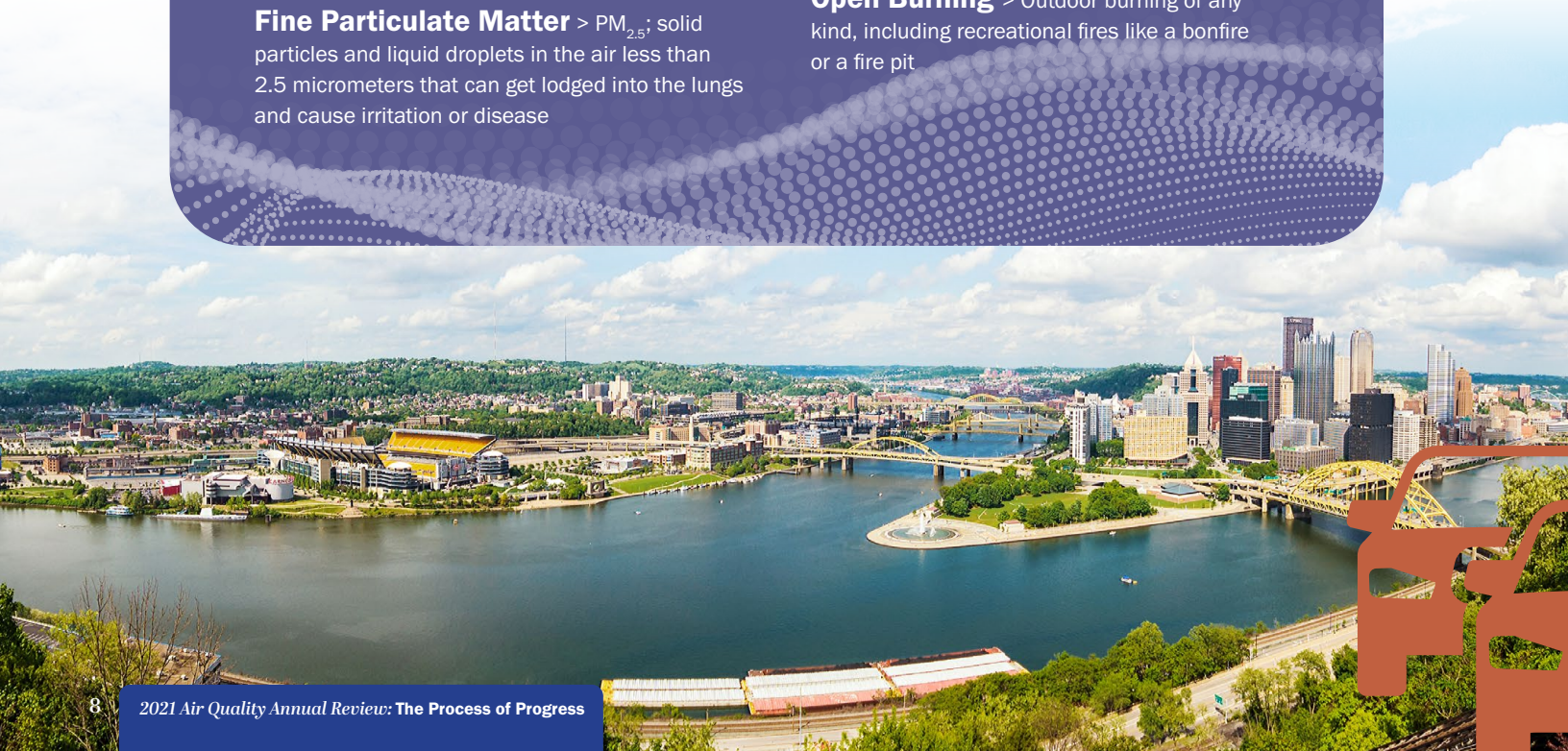
NESHAP > National Emission Standards for Hazardous Air Pollutants; stationary source standards for hazardous air pollutants (HAPs), pollutants known or suspected to cause cancer and/or other serious health effects ([read the standards](#))

Particulate Matter > PM_{10} ; coarse particles between 10 and 2.5 micrometers that can get lodged in the nose, throat, and lungs and cause irritation or disease

Smog > A mixture of pollutants mostly made of ground level Ozone (O_3)

VOC > Volatile Organic Compound; emitted as gases from certain solids or liquids. VOCs include a variety of chemicals, some of which may have short- and long-term adverse health effects

Open Burning > Outdoor burning of any kind, including recreational fires like a bonfire or a fire pit



Air Quality Program

The ACHD Air Quality Program is responsible for monitoring air quality, issuing permits for activities outlined in Article XXI of the ACHD’s Rules and Regulations: Air Pollution Control and enforcing air quality regulations within Allegheny County.

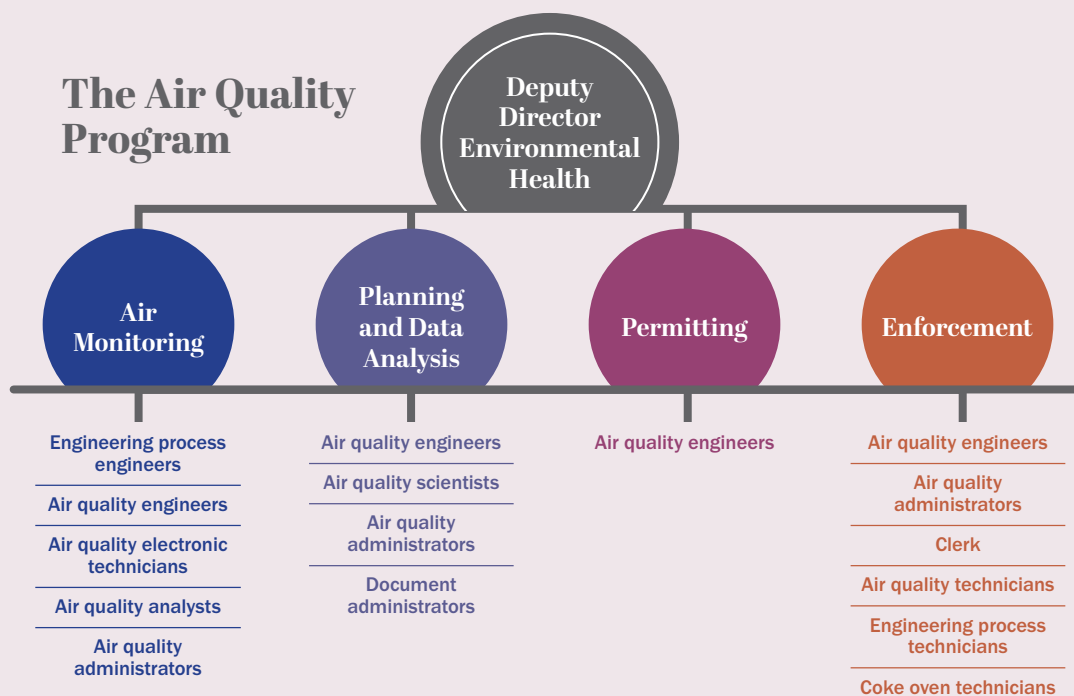
The program follows and enforces these regulations established in Article XXI, along with regulations from the EPA and the PA DEP.

Each regulation must be approved by the Board of Health, voted on by County Council and signed by the County Executive. The Air Quality Program’s actions cannot exceed the scope of its regulatory ability.

The program has four sections:

- Monitoring
- Planning and Data Analysis
- Permitting
- Enforcement

- The **Monitoring** section collects data and maintains the permanent and temporary monitors across the county.
- The **Planning and Data Analysis** section takes the monitored data and prepares it for EPA review, studies the data to determine pollution patterns, writes regulations, and applies for grants based on the needs of the county determined from the data.
- The **Permitting** section reviews permit applications, plans, and operational information for ongoing operations and new installations to determine if each applicant is within compliance to move forward with operation or installation and to outline how facilities will demonstrate compliance with the air regulations.
- The **Enforcement** section inspects facilities and reviews reported data from all stationary polluting sources — such as chemical and steel plants, asbestos remediation, and more — to determine compliance with regulations.



History

1957

ACHD was founded and took over the duties of the Pittsburgh Smoke Control Bureau, assuming responsibility for air pollution control throughout the county.

1960

ACHD established Article XIII, the strongest air pollution control regulation in the nation.

1970

Clean Air Act was passed by the U.S. Congress and signed into law by President Nixon, requiring states to enforce federal clean air standards. Pennsylvania granted regulatory authority to the Department of Environmental Resources, Allegheny County Health Department, and Philadelphia County Health Department.



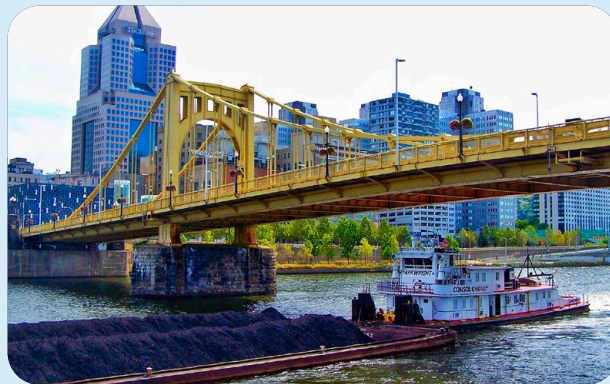
Air pollution control engineers using monitoring equipment on roof of Air Quality building in Lawrenceville

1982

ACHD requested and was granted the authority to regulate the asbestos and mercury National Emissions Standards for Hazardous Air Pollutants (NESHAP) in Allegheny County. Additional asbestos restrictions were incorporated into the Air Quality Program regulations.

1997

EPA set a new standard for Ozone (O_3) and created standards for $PM_{2.5}$. This revised Ozone standard and new $PM_{2.5}$ regulation took Allegheny County out of measured attainment. State Implementation Plans were created for both pollutants.



Coal barge on the Monongahela River

2003

Allegheny County was redesignated in attainment for Carbon Monoxide (CO). The county has remained in compliance since.

2006

EPA tightened the $PM_{2.5}$ standard, retaining the annual standard of $15 \mu\text{g}/\text{m}^3$ and changing the 24-hour standard from $65 \mu\text{g}/\text{m}^3$ to $35 \mu\text{g}/\text{m}^3$.

2008

Current lead (Pb) standards were set. Allegheny County was certified in attainment for the new standard.

2010

Current nitrous oxide (NO_x) standards were set. Allegheny County was certified in attainment for the new standard.

Current sulfur dioxide (SO_2) standards were set. Allegheny County did not meet the new standard and submitted a State Implementation Plan.

2012

Current PM_{2.5} standards were set. The annual standard was set to 12 µg/m³ and the 24-hour standard remained at 35 µg/m³.

2015

Allegheny County was designated by EPA as a “Non-attainment area” for 2012 PM_{2.5} standards. A State Implementation Plan was submitted.

Current ozone (O₃) standards were set. Allegheny County met the new standards.

2018

US Steel Clairton Coke Works Christmas Eve fire occurred. Numerous exceedances of pollutants were measured by ACHD monitors located near the facility. On January 8, 2019 ACHD issued a formal public health alert, an unprecedented action until this point. The director provided daily updates to the public on the situation until mid-February 2019. ACHD increased monitoring and surveillance.



Community meeting in Clairton with Allegheny County Health Department and local elected officials one month after the fire at the Clairton Coke Works

2019

The first Community Benefit Trust was created. In an enforcement agreement, US Steel Clairton Coke Works agreed to pay 90% of a penalty fine into a Community Benefit Trust to benefit adjacent communities (Clairton, Glassport, Liberty, Lincoln, and Port Vue). The remaining 10% of the fine was paid to the Clean Air Fund.

2019 – 2021

Allegheny County measured in attainment for all NAAQS.

TERMS TO KNOW

Attainment > When a geographic area's level of a criteria pollutant meets the EPA health-based standard. An area, like Allegheny County, can meet the standard for some pollutants and not others at the same time.

Monitored Attainment > Values from a monitor or multiple monitors for a criteria pollutant that are within the EPA standards, but have not yet been reviewed and approved by the EPA.

Monitored Design Values > A statistic that describes the air quality status of a criteria pollutant and its location compared to the EPA standard

Non-attainment > A geographic area where the level of a criteria pollutant is higher than the federal standard.

SIP > State Implementation Plan; a plan states must have approved by the EPA when a new criteria pollutant standard is set or specific plan mandated by the EPA when a state is not meeting the National Ambient Air Quality Standards.

How the Air Program

WORKS



PM_{2.5} monitor being checked to see that it is reporting live.

Monitoring

The Monitoring section includes air quality technicians, analysts, and engineers. It is primarily responsible for the upkeep of ACHD's network of air monitoring stations, including the daily maintenance of equipment, installation of new equipment, verification of monitored data, initial data analysis, and oversight of specialized monitoring studies.

TERMS TO KNOW

NATTS > National Air Toxics Trend Station; a station that monitors hazardous air pollutants long term and tracks trends in ambient air toxics levels to measure progress in emissions and risk reduction goals

NCore > National Core Station; a monitoring station with several advanced systems to measure particle pollutants, meteorology, and polluting gases

PAMS > Photochemical Assessment Monitoring Station; a station that develops a database of ozone indicators and meteorological measurements to track trends in order to better predict when ozone concentrations will be high

Sampling > Physical collection of air particles, metals, or compounds that represent the area where it is being collected over a specified amount of time

Air Monitoring Network

Air is monitored from nine permanent stations and 12 temporary sites throughout the county. The locations are selected to ensure that data can be gathered to measure and model pollutants of greatest concern.



New Equipment

In 2021, ACHD updated and installed new devices and systems to improve monitoring, identification, and tracking of particulates and overall air quality.

Equipment/Service	Use	Program	Importance
Passive VOC Monitors and Lab Analysis (CAMSCO)	Air toxics sampling for BTEX (benzene, toluene, ethylbenzene, and xylene(s))	Mon Valley Air Toxics Study	Determine community exposure to air toxics
Portable H₂S Analyzers (Acrulog)	Measures hydrogen sulfide concentrations	Mon Valley Air Toxics Study	Determine community exposure to air toxics and nuisance odors
Portable mass flow meters (Alicat & Mesa Labs)	Audit and calibrate air toxics samplers	National Air Toxics Trends Stations and Special Studies	Quantify data quality to NIST standards
Nasal Rangers	Measures odor strength in ambient air	Enforcement	Quantify odor detection & strength
CAS Automated-Gas Chromatograph (auto-GC)	Measures continuous volatile organic compound (VOC) concentrations	Photochemical Assessment Monitoring Station (PAMS)	Measure ozone-forming species during PAMS season (June – August)
True NO₂ Analyzer (Teledyne N500)	Measures True Nitrogen Dioxide and other Nitrogen Compounds	ACHD Air Monitoring Network, PAMS	Determine NO ₂ concentrations by direct measurement to meet regulatory standards
ATEC 8000 Air Toxics Sampler	Air toxics sampling for carbonyls (formaldehyde, etc.)	Photochemical Assessment Monitoring Station (PAMS)	Measure ozone-forming species during PAMS season (June – August)
PANDORA Spectrometer	Measures trace level gases in the atmosphere using spectroscopy	EPA/NASA Research	Satellite measurement of air quality in Allegheny County
PM_{2.5} Analyzer (Teledyne T640 series)	Measures continuous PM _{2.5} concentrations	ACHD Air Monitoring Network	Real time air quality data of particle pollution

PANDORA spectrometer

In September 2021, the Air Quality Program was selected by NASA and the EPA to install a new monitor as part of the Pandora Global Network. This monitor is one of just over 100 fixed locations globally observing concentrations of trace gases, such as nitrogen dioxide (NO₂), ozone (O₃), and volatile organic compounds (VOCs). Our monitor helps collect daily data about the behavior of these gases in the atmosphere.

The sensor uses spectroscopy — the measurement of light on the electromagnetic spectrum — to study ultraviolet (UV) and visible light to determine the structure of the atmosphere and its interactions with the environment. This monitor, along with the others around the world, connects with the new Pandora satellite to enhance understanding of emissions, chemistry, and meteorology dynamics.

Find out more at [NASA's PANDORA Project website](#).



Special Projects

Photochemical Assessment Monitoring Station (PAMS)

In 2021, Allegheny County joined the EPA's PAMS network, which monitors the pollutants that form ozone, at stations across the country operated by state and local agencies. This program is designed to develop a database of ozone precursors — pollutants that form ozone — and of other meteorological measurements. This database will be used to create ozone models and track the concentrations of ozone precursors.

A PAMS monitoring site takes both meteorological and chemical measurements: volatile organic compounds, carbonyls, true NO₂, hourly mixing height in the atmosphere, UV and solar radiation, humidity, precipitation, atmospheric pressure, wind speed and direction, and temperature.

The Air Quality monitoring site in Lawrenceville collects all these data points and therefore meets the requirements for a PAMS location, one of only 43 in the nation. It was added to the network on June 1, 2021 — a critical time because June through August is when ozone is highest.

Lawrenceville Metals Study

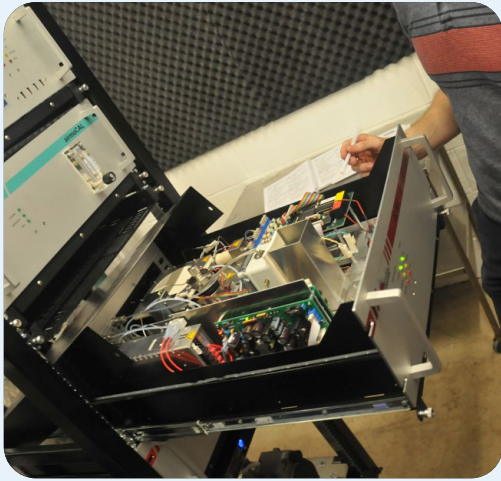
In 2011, a special study was initiated in response to public concern, to look at local exposure to toxic metals potentially being released by a foundry in the Lawrenceville community. This industrial site operates an electric arc furnace and a steel foundry that casts railcar couplings. Throughout the study, ACHD conducted air sampling on plant property with a PM₁₀ sampler and high purity quartz filters.

The 10-year study concluded in January 2021. Annual average metals concentrations were found to not exceed health standards.

Swissvale Metals Study

As a follow-up to a study conducted by the EPA in 2017, a special study was conducted in Swissvale to evaluate levels of metal hazardous air pollutants (HAPs) at Kopp Glass and other art glass manufacturers in the country. Despite the EPA finding that the emissions from the plant do not exceed its cancer risk limit, the ACHD wanted to act on the report. Over the next few years, ACHD worked with Kopp Glass to reduce their toxicity output. The ACHD study collected air samples from June 14, 2020, through June 15, 2021, to determine if relative risk levels to the community had improved.

After one year of sampling, health risk assessments showed that there is negligible risk to the community. The [full report](#) is available on the ACHD website.



Inside a PAMS gas chromatograph, a machine that measures the amounts of different VOC's in the air.

Continuing Studies

Hydrogen Sulfide

Hydrogen Sulfide (H_2S) has a strong odor like rotting eggs, even at incredibly low concentrations. The ACHD receives many complaints from residents in neighborhoods near industrial facilities that release H_2S .

The Liberty and North Braddock air monitoring sites continuously measure H_2S . When a trend of H_2S exceedances at the Liberty air monitoring site was found, a study was conducted to identify the H_2S source or sources.

Portable hydrogen sulfide analyzers are placed in and around the Mon Valley, at locations based on previous data and known sources of H_2S . This study will conclude in 2022.

Mon Valley Air Toxics and Odors Study

In 2021, the Monitoring section initiated a study to assess VOCs, PM_{10} metals, and H_2S in the Mon Valley. The goals of this ambient air study are to:

1. Determine the spatial patterns and trends of select air toxics emissions and odors in the Mon Valley.
2. Characterize community air toxic concentrations to assist in analyzing their effects on health and develop strategies to reduce risk to the community.

The ambient air monitoring combines active and passive sampling methods, to measure pollutants that we already know are of concern and identify any others whose impact was not previously known.



Northwest view from the air quality program building roof in Lawrenceville where a large collection of monitoring equipment collects air samples.

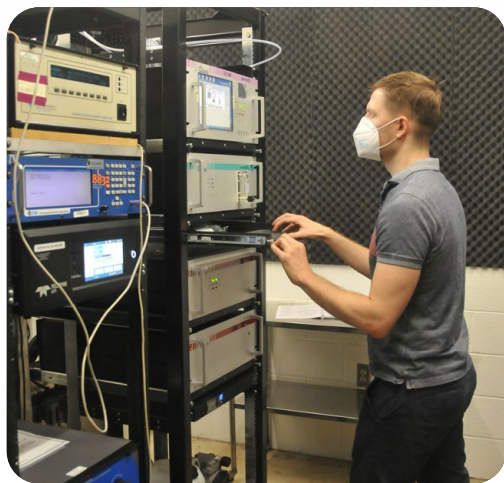


Planning and Data Analysis

Planning and Data Analysis is staffed mainly by air quality control engineers, scientists, and atmospheric modelers.

They review and validate monitored air quality data, analyze data for trends and sources, model air quality, and develop control strategies. In addition, Planning and Data Analysis staff prepare State Implementation Plans (SIPs), detailed plans for how Allegheny County can reach and maintain new and existing air quality standards.

Emissions Inventory is a small section within the Planning and Data Analysis section. The staff verifies emissions from permitted sources in the county to determine if a facility is in compliance with regulations.



Reading live graphs from the gas chromatographer.

Special Projects Studies

Computational Fluid Dynamics Study

In 2021, Carnegie Mellon University (CMU) completed a research project to develop a computational fluid dynamics (CFD) model to predict how pollution spreads through the air in the Mon Valley, particularly SO₂ from the US Steel Clairton Plant. CMU also trained ACHD staff to understand and use the model. The project was funded by ACHD.

Radiosonde Testing

For the third consecutive year, Millersville University was contracted to conduct radiosonde testing at the US Steel Clairton plant. The testing was performed to verify measurements from ACHD's sound detection and ranging (Sodar) and radio acoustic sounding system (RASS), located at the plant. The Sodar/RASS measures real-time atmospheric conditions in the Mon Valley and can help indicate when weather conditions may lead to pollutants being unable to move from the valley. This is especially helpful when detecting the presence of temperature inversions.

New Regulations in 2021

Mon Valley Air Pollution Episode Rule

In September 2021, a new addition to Article XXI – Air Pollution Control Regulations was passed by County Council and signed by the County Executive. The new section of the regulation, the “[Mon Valley Air Pollution Episode Rule](#),” was added to respond to days with high levels of particulate matter pollution (PM_{2.5}) that usually happen due to surface temperature inversions in the Mon Valley.

The Health Department and PA Department of Environmental Protection (PA DEP) monitor weather forecasts for conditions that may lead to a surface temperature inversion; when weather conditions are likely to keep pollution from moving and therefore exceed acceptable levels of PM_{2.5} in the Mon Valley over a 24-hour period. When these conditions are forecasted, the Health Department calls a Watch. If acceptable levels of PM_{2.5} were exceeded and are expected to remain that way for an extended period, the Health Department calls a Warning. The new regulation requires that industrial facilities implement emission reduction plans – Mon Valley Air Pollution Warning Plans – during the 24 hours of a Warning, to minimize the impact on public health and attempt to end the episode early. Open burning is banned when either a Watch or Warning are in effect, apart from permitted commercial food service. The open burn ban is enforceable by local law enforcement.

Thirty-one municipalities are covered by this regulation, some of which are EPA designated Environmental Justice communities. The Mon Valley is and has historically been a highly industrial area. For example, Andrew Carnegie’s first steel plant was the Edgar Thomson facility, which is still running in Braddock, over 150 years since its opening.

Within the covered area, 16 facilities are subject to the rule, all of which now have plans that were approved by ACHD to reduce their emissions when an episode watch or warning is called.

Permit Fees Regulation

The DEP updated their air quality permit fee structure in 2020 for the first time since 2005, and the Health Department then amended sections of Article XXI related to all air quality permit fees, also for the first time since 2005. This regulation and new fee structure were approved by the Board of Health and passed by the Allegheny County Council. The new structure took effect on January 1, 2022.

These changes updated all fees and replaced the annual operating permit administration fee with an annual operating permit maintenance fee. Additionally, fees were added for Requests for Determination, Installation Permit Risk Assessment Fee, Installation/Operating General Permit user fees, Extension to Installation Permit (for construction and other delays), and Modifications of an Installation Permit Application requiring certain reviews. The [new fees are published on the ACHD website](#).



TERMS TO KNOW

Watch > When the Air Quality Index is forecasted to go above 100 for a 24-hour period in the Mon Valley

Warning > When the Air Quality Index goes above 100 and is expected to stay at that level for 24 hours in the Mon Valley

Inversion > The meteorological condition of a layer of cooler air being trapped near the ground by a layer of warmer air above. When the air at ground level cannot rise, pollution in the air is also trapped and can collect, leading to higher concentrations of particle pollution. Inversions in Allegheny County usually end by mid-day and pollution will disperse.

State Implementation Plans

A State Implementation Plan (SIP) is a collection of regulations and documents used by a state to implement, maintain, and enforce the National Ambient Air Quality Standards (NAAQS) and to fulfill other requirements of the Clean Air Act. These are mandated and approved by the EPA to states and territories when an air quality standard changes or if a criteria pollutant in an area is not meeting federal standards. These plans are used to demonstrate that a state can fulfill the EPA standards.

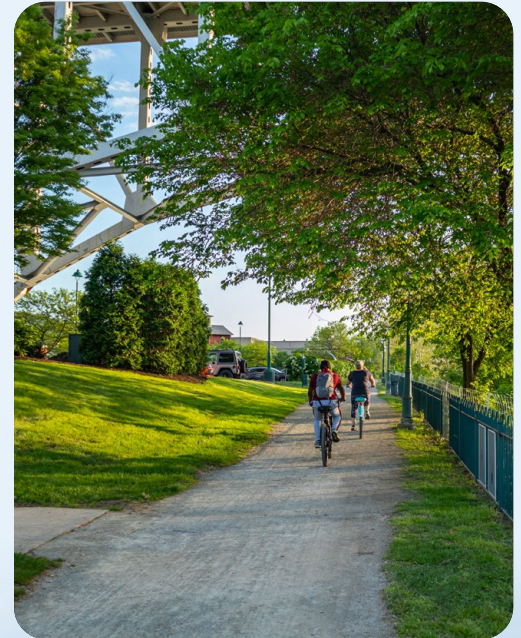
ACHD worked on two SIPs in 2021.

PM_{2.5} SIP

In 2019, ACHD demonstrated it was within the 2012 EPA standards for the PM_{2.5} SIP in Allegheny County. Most elements of the SIP were fully approved by the EPA in 2021. ACHD PM_{2.5} monitors showed attainment of the standards with 2018-2020 and 2019-2021 monitored design values. The EPA proposed a Clean Data Determination for the county in September 2021, which was finalized in April 2022. The Clean Data Determination suspends the SIP, and ACHD is preparing a redesignation request and maintenance plan for the EPA in 2022.

SO₂ SIP

In 2017, ACHD finalized the SIP to get the county on track to achieve the 2010 SO₂ standard. This plan was fully approved by EPA in 2020. With 2019-2021 monitored design values, the area is now showing monitored attainment for the first time since the standard was updated in 2010.



Permitting

The Permitting Team is made up of air pollution control engineers who issue operating and installation permits for major and minor sources of air pollution within Allegheny County.

Industrial sources that emit more than a set level of air pollutants must get an operating permit and have it renewed every five years. Significant changes to facilities or the installation of new equipment require separate installation permits. Permits detail what the expected emissions of each facility will be and can impose limits on pollution production and other activities if necessary.



Permitting Status

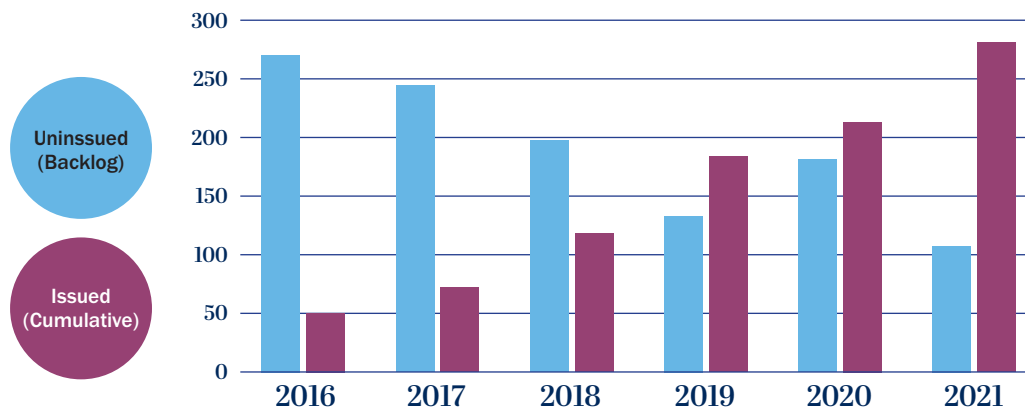
Major Sources

Operating permits are renewed every five years and incorporate all requirements from older operating permits and any installation permits as well as any new air regulations. The program continues to improve the permitting process to reduce backlog; four major source operating permits were issued or amended and 12 installation permits were issued or amended.

Minor and Synthetic Minor Source Permits

A minor source is any stationary source that does not have the capacity to output more than 100 tons/year of any combination of air pollutants. A synthetic minor source has the ability to create these outputs but agrees to operate within the limits of a minor source. The number of previously unissued permits was reduced by 40% in 2021. Sixty-eight minor/synthetic minor source operating permits were issued in 2021 of which 51 were renewals or initial issuances. Twenty-nine installation permits were issued or amended.

Minor Source Permit Status



Highlight of 2021: Invenergy Permitting Process

On October 5, 2021, ACHD issued the installation permit for Allegheny Energy (Invenergy) after a long period of exploration and public comment. This permit allows for the installation of a new natural gas power plant. It was the first New Source Review permit in the County since 2010 and the first new major source (Title V) permit since 1999.

Three Environmental Justice areas in Westmoreland County could be affected by the new plant. ACHD worked closely with the PA DEP and local advocacy groups to identify these Environmental Justice areas outside of Allegheny County and address permitting issues of concern to them.

There was significant public interest in this permit, so a public hearing was held. Due to COVID-19 pandemic, the public hearing was held virtually on June 8, 2021. Additional accommodations were needed for people in the Environmental Justice communities who do not have easy internet access. ACHD worked with the Mountain Watershed Association to set up a safe, socially distanced meeting location with internet access to allow residents who otherwise could not attend virtually to give testimony.

The lessons learned from the Invenergy permitting process will help ACHD in the future to address access issues and work with other agencies and public interest groups to ensure the permitting process is accessible to all.

TERMS TO KNOW

Environmental Justice Community >

A neighborhood or community composed predominantly of persons of color or a substantial proportion of persons below the poverty line that is subjected to a disproportionate burden of environmental hazards or that experiences a significantly reduced quality of life relative to surrounding or comparative communities

Environmental Justice >

The fair treatment of people of all races, cultures, incomes, and educational levels with respect to the development and enforcement of environmental laws, regulations, and policies

Installation Permit >

A permit required by Article XXI to install, modify, replace, reconstruct, or reactivate any source or air pollution control equipment

Operating Permit > A permit good for five years that includes all air requirements for that facility, and that defines how the facility will demonstrate compliance with those requirements

Title V > An operating permit required by the 1990 Clean Air Act amendments for all major sources of pollution

Enforcement

The Enforcement section is made up of field inspectors as well as air pollution control engineers.

The main goal of the Enforcement staff is to ensure that facilities are complying with regulations and responds to complaints. Using information collected during investigations and data provided by other sections, Enforcement can levy fines and order specific actions be completed to address compliance issues, such as failing to submit required reports or emitting beyond their permit.

Within Enforcement, the Asbestos and Abrasive Blasting section has inspectors dedicated to regulating asbestos abatement and abrasive blasting projects, to reduce public exposure during removal and demolition activities. The Abrasive Blasting program aims to reduce exposure to dust and contaminants through a permitting and inspection program.



Enhanced Asbestos Surveillance and Enforcement

The name “asbestos” covers a group of six regulated fibrous materials that are flexible, resistant to fire and corrosion, durable and insulating. These are ideal characteristics for construction materials, but when asbestos materials are disturbed during renovation or demolition, the small fibers can be inhaled. Exposure to asbestos fibers can lead to lung diseases and cancers like mesothelioma. Allegheny County has higher than average rates of asbestos-related diseases than both Pennsylvania and the nation. As asbestos exposure is a significant health risk for citizens in Allegheny county, Enforcement seeks to decrease exposure to asbestos by completing surveillance and inspection activities.

In late 2020, the Air Quality Enforcement’s asbestos team began an asbestos surveillance letter campaign for commercial building permit applicants and holders in the City of Pittsburgh. This campaign was intended to evaluate renovation and demolition projects and determine the rate of compliance with Allegheny County Asbestos regulations.

Before 2021, staff had to rely on public complaints or by chance happening to notice renovation and demolition activities to identify which projects to investigate. The asbestos surveillance letter campaign requested an asbestos survey for commercial permit renovation and demolition projects, which increased the number of projects evaluated by Enforcement.

In 2021, this initiative was expanded to the entire Air Quality technician team. The letters requested a copy of the asbestos survey for each building permit's work area from the contractor who applied for the permit. Air quality technicians evaluated 1,902 permit applications to determine if each project was regulated and requested a copy of the survey when one was needed.

Overall, 67% of the projects evaluated provided a survey or completed permitted asbestos abatement projects.

The campaign also led the City of Pittsburgh to add a field in their commercial building permit application requesting the submission of the projects' asbestos survey. This change educated contractors and developers on the need for an asbestos survey prior to starting the project. Developers began planning asbestos surveys into their projects and knowledge of asbestos requirements was increased throughout the regulated community.

Enforcement Actions

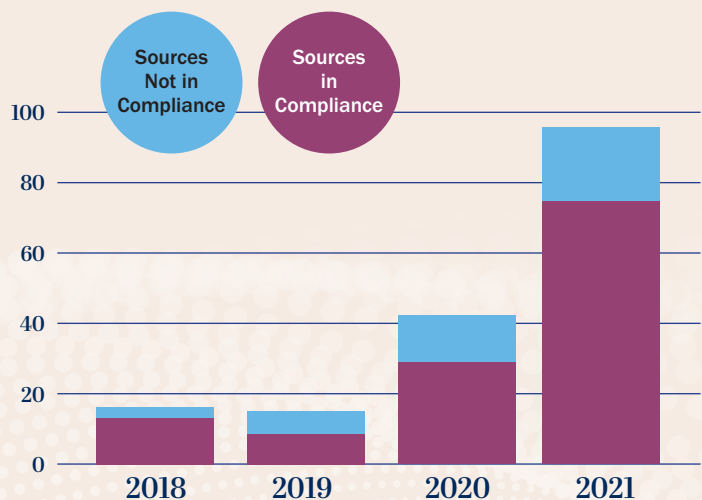
In January 1, 2021 Air Quality Enforcement has issued:

- 11 enforcement orders
- 9 administrative field orders
- 6 notices of violation
- 3 stipulated penalty demand letters
- 2 warning letters



Number of Title V Sources in Compliance

Sources are inspected on varied schedules. The majority of sources in Allegheny County pass their inspections, meaning they are in compliance. ACHD works with sources that are out of compliance to improve their processes and bring them into compliance.



Key Results for 2021

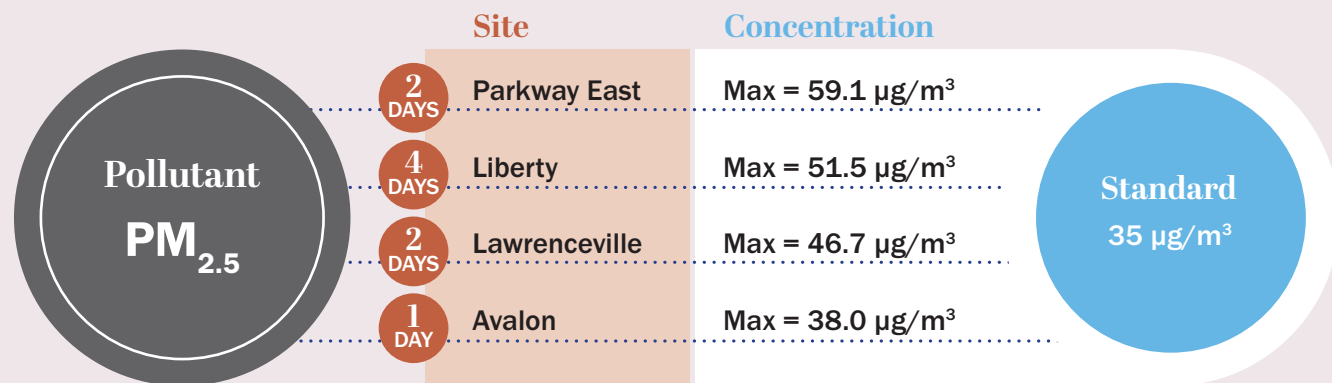
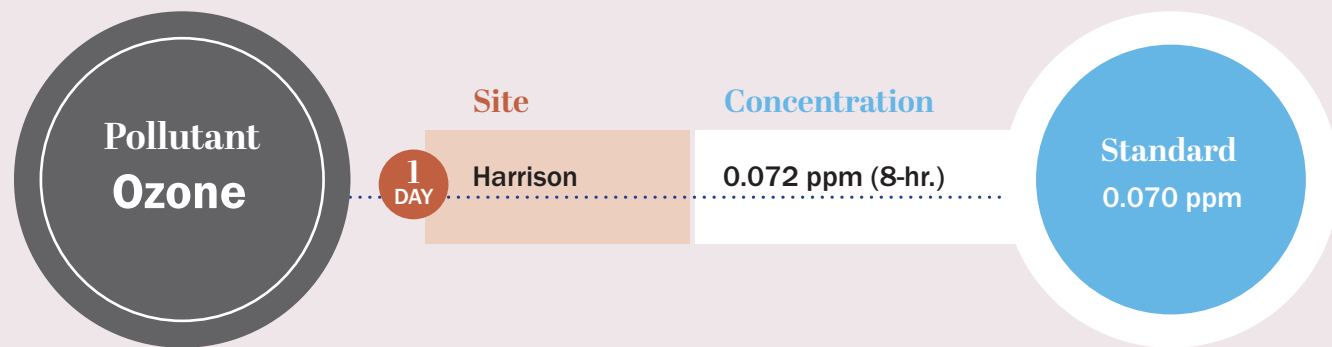
Measured Attainment for All National Ambient Air Quality Standards (NAAQS)

In 2021, Allegheny County measured attainment for all NAAQS. This means data show that the amounts of criteria pollutants in Allegheny County were within EPA required standards throughout the year. This is a significant achievement, one that shows that the programs and policies the county has put in place have had the desired effect in improving these critical metrics of air quality.

Air Pollutant	Status	NAAQS
Ozone (O ₃)	In measured attainment of the current 8-hour ozone standard at all sites for 3 consecutive years	8 hour: 0.070 ppm
Fine Particulate Matter (PM _{2.5})	In measured attainment county-wide for 3 consecutive years	35 µg/m ³ 24-hour standard 12.0 µg/m ³ annually
Particulate Matter (PM ₁₀)	In measured attainment for 26 years	150 µg/m ³ 24-hour standard
Lead (Pb)	In measured attainment in 2015, 2016, and 2017	0.15 µg/m ³ rolling 3-month average
Carbon Monoxide (CO)	In measured attainment for 34 consecutive years Redesignated to attainment in 2003	1 hour period: 35 ppm 8 hour period: 9 ppm
Sulfur Dioxide (SO ₂)	In measured attainment for the 24-hour SO ₂ standard for 2021	1 hour: 75 ppb
Nitrogen Dioxide (NO ₂)	In attainment since the announcement of the 1-hour standard In measured attainment for over 35 consecutive years for annual standard	1 hour: 100 ppb Annual standard 53 ppb

2021 Exceedances of the Short-Term Federal Standards

Throughout 2021, nearly all criteria pollutants in Allegheny County were below the annual and short-term federal standards. Exceedance is the amount by which a pollutant is measured to be greater than a limit or standard.



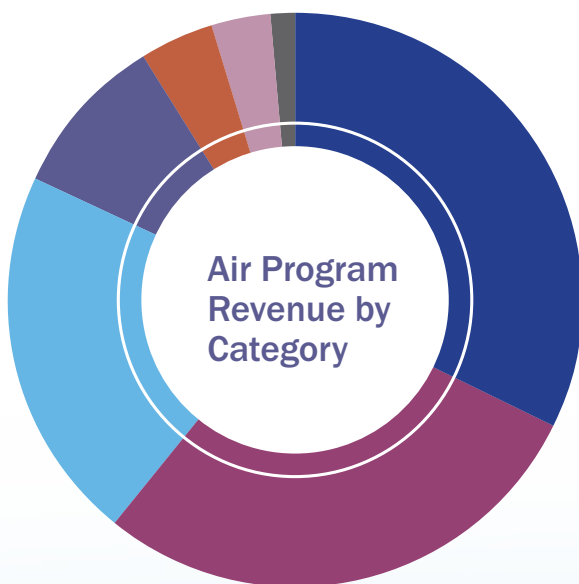









Investing in Our FUTURE

How the Work Is Funded

Funding for the Air Quality Program comes from a number of sources. The largest source is fees charged to businesses and others that generate pollutants. Grants from the EPA provide a significant amount of funds as well.

Funding Sources



28.26%		EPA Grant
24.90%		Title V Fees
18.35%		Permit Fees
8.18%		Operating Transfers In
3.56%		Penalties/Fines
2.84%		Interest
1.12%		PA Dept of Labor Asbestos

Grants Received

In September 2021, ACHD finalized a contract with the Port Authority of Allegheny County to replace seven 60-foot diesel buses with zero tailpipe emission battery-electric buses and add one charging station. This was possible through a \$5.6 million Targeted Airshed Grant from the EPA. The buses will operate in Pittsburgh's Downtown – Uptown – Oakland – East End Bus Rapid Transit (BRT) corridor in the City of Pittsburgh and Wilkinsburg Borough.

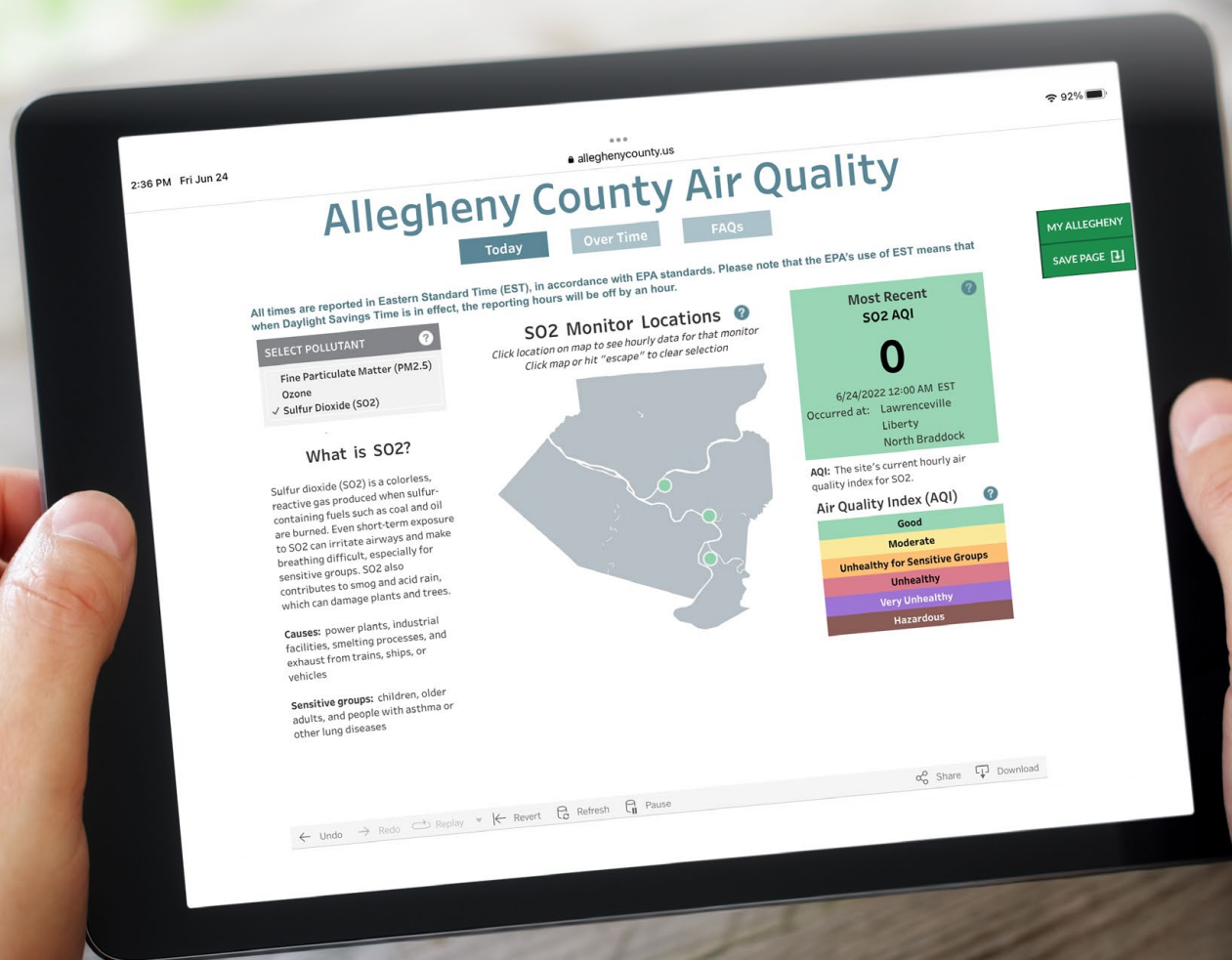
In October 2021, EPA notified the ACHD it was selected for two additional Targeted Airshed Grant projects.

- **The first project award provides \$2.8 million** to replace five diesel-powered City of Pittsburgh municipal recycle-refuse trucks with five battery-electric recycle-refuse trucks and to install new charging infrastructure.
- **The second project award provides \$944,000** to fund the incremental costs of replacing three diesel-powered school buses for a local school bus company with battery-electric powered school buses. It also provides for three electric charging stations.

How You Can Be INVOLVED

Air Quality Dashboard

The Air Quality Program publishes an [air quality dashboard on the ACHD website](#), showing hourly air quality readings throughout Allegheny County. It shows the AQI at select monitoring locations for fine particulate matter (PM_{2.5}), ozone (O₃), and sulfur dioxide (SO₂). The dashboard is interactive, with available information for the current day and over time for each pollutant and location back to 2016.



The Air Advisory Committee

The Air Pollution Control Advisory Committee, established in Article XXI, makes recommendations to the Board of Health regarding additions and/or changes to the air quality rules and regulations for Allegheny County. The committee also advises both the Health Department and the Board of Health on the management of air quality in Allegheny County.

The 15-member committee was formed in 1970 and has members from a broad array of background and expertise. Members are appointed by the County Executive with the approval of the County Council.

Meetings of the Air Advisory Committee and its subcommittees are open to the public and may be held virtually and/or in person. If you would like to attend, please see the schedule of upcoming meetings on the [Allegheny County website](#).

The Clean Air Fund

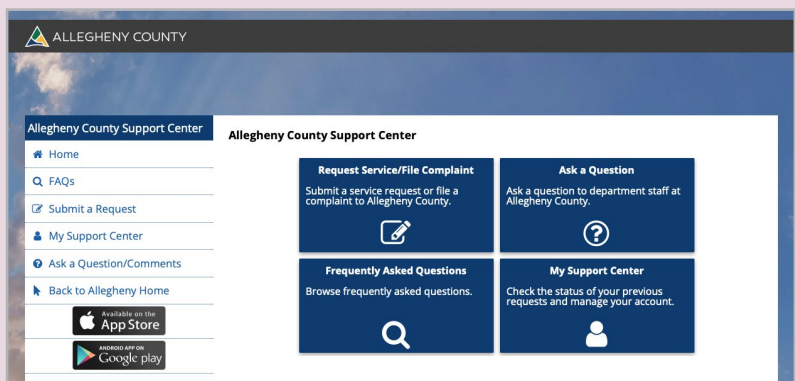
Allegheny County collects penalties, fines, and interest when companies and others violate the county's air regulations and deposits the money into the Clean Air Fund (CAF). In addition to supporting a portion of the operations of the Air Quality Program, these funds support a variety of activities to improve air quality, research the impact of air pollution, and engage residents in activities to better understand and promote air quality.

Some significant Clean Air Fund projects that were active or completed in 2021:

- Air toxics and H₂S monitoring project (\$340,554 request)
- Air Ambassador project (\$200,000 request)
- Etna Borough tree project (\$50,000 request)

How to Submit an Air Quality Complaint or Question

The Air Quality Program relies on the engagement of volunteers and community members to further our mission to improve the region's air quality. The central hub for filing an air quality complaint or asking a question about air quality is the [Allegheny County Support Center](#). At that portal, you can also review answers to frequently asked questions, and check the status of any requests you submit.



Allegheny Alerts

You can receive notifications for air quality updates and health alerts through Allegheny County's community notification system, Allegheny Alerts. This is a free service. You can choose to receive alerts by email, text, and phone call. The alerts and how you receive them can be changed at any time.

Air quality notifications include Air Quality Action Day Alerts, Air Quality Burn Ban Day, and Mon Valley Air Pollution Episodes. You can also receive notifications about Board of Health meetings and other public meetings, new and amended regulations, and more.

To find out more and sign up, visit the [Allegheny Alerts website](#).

Looking AHEAD

The Air Quality Program aims to continuously improve and adapt to new science, policies, and information. While we are proud of the accomplishments of the past, and of 2021 in particular, we look forward to achieving more in the future.


Some of the new projects and milestones we are looking forward to are:

- Continuing measured attainment for all NAAQS and receiving the designation of Attainment Area from the EPA.
- Continuing to add environmental justice metrics into our work.
- Resuming more in-person programming with our communities.
- Improving public access to information online.
- Increasing our recommendations of new Clean Air Fund projects to the Board of Health.
- Implementing the Targeted Airshed Grant with the City of Pittsburgh and local school bus service.
- Phasing in the use of a new regulated entities portal, which will streamline all billing and reporting interactions, and will store data and contacts in a centralized place.
- Continuing to enforce regulations and work with our permitted sources to be fully compliant.
- Following tighter air quality standards across the state and the country and implementing changes here in response.


Questions and Complaints:

 [Allegheny County Support Center](#)

Notifications and Alerts:

 [Allegheny Alerts](#)

Administrative Offices:

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