AIR POLLUTION CONTROL DISTRICT

2019 ANNUAL REPORT

LOUISVILLE METRO AIR POLLUTION CONTROL DISTRICT

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GREG FISCHER
MAYOR OF LOUISVILLE

KEITH TALLEY SR.
APCD DIRECTOR

701 W. ORMSBY AVENUE, SUITE 303

LOUISVILLE, KY 40203

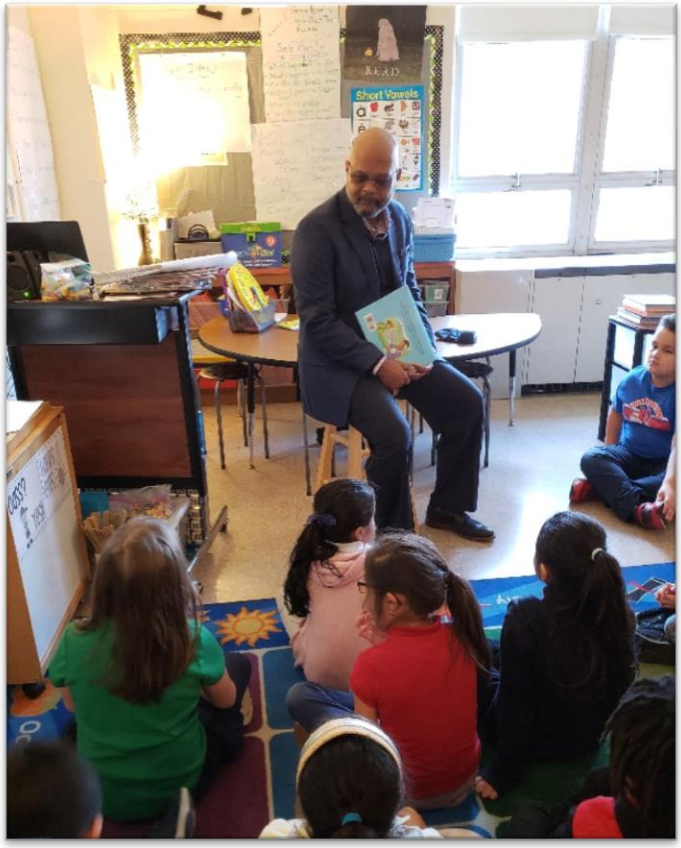
(502) 574-6000

www.louisvilleky.gov/APCD

air@louisvilleky.gov

@LouAPCD

A MESSAGE FROM THE DIRECTOR



One of the highlights for me this past year was the day I read to students at Hartstern Elementary School. It was truly an honor to meet them. It helped me connect the work we do here at the Air Pollution Control District to the people who stand to benefit the most from it – our children. Keeping the air clean and safe isn't just the law, it's simply the right thing to do. Whenever I go out into the community – to a school, a church, a public meeting, or neighborhood event – I have the privilege of hearing from Louisvillians who are benefitting from our work. And they certainly hold my feet to the fire. Our air is cleaner than it has ever been, but this community will not let us rest on our laurels. I assure you that we never will. Nonetheless, please allow me to brag a little bit about the many APCD team members who worked diligently to safeguard our local air quality in 2019. This is, in my opinion, one of the finest air quality staffs in the nation. When you read about the work they are doing, I hope you will agree.

Keith Talley Sr.

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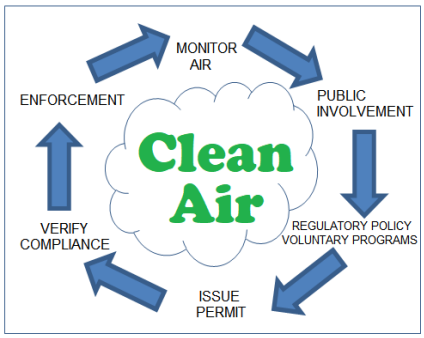
NETWORKING & PARTNERSHIPS

- U.S. Environmental Protection Agency
- Kentucky Division for Air Quality
- Indiana Department of Environmental Management
- West Jefferson County Community Task Force
- Rubbertown Community Advisory Council
- Kentuckiana Regional Planning & Development Agency
- Metropolitan Sewer District
- National Association of Clean Air Agencies
- Association of Air Pollution Control Agencies
- Metro 4/SESARM
- Kentucky Transportation Cabinet
- Indiana Department of Transportation
- Federal Highway Administration
- Jefferson County Public Schools
- Archdiocese of Louisville
- Louisville Forward
- Metro Department of Public Health & Wellness
- Metro Office of Advanced Planning & Sustainability
- Metro Office of Planning and Design
- Metro Office of Resilience & Community Services
- Metro Office of Transportation Planning
- Center for Health Equity
- National Weather Service
- Center for Neighborhoods
- American Lung Association
- Louisville Sustainability Council
- Trees Louisville
- University of Louisville Superfund Research Center
- Partnership for a Green City
- Louisville Grows
- EVolve KY
- Kentucky Clean Fuels Coalition
- The Green Heart Project
- Regional Mobility Council
- University of Louisville Envirome Institute

INTRODUCTION



The Air Pollution Control District has worked to make Louisville's air cleaner for more than 70 years. The APCD implements the federal Clean Air Act in Louisville and works in partnership with the U. S. Environmental Protection Agency, the Kentucky Division for Air Quality, and the Indiana Department of Environmental Management. The APCD is part of Louisville Metro Government. Its leadership is appointed by the mayor and oversight is provided by the Air Pollution Control Board.

In the 1940s, Louisvillians were still heating their homes with coal. At the same time, industry was expanding, partly due to World War II. Louisville's Rubbertown is a good example, as it sprang up during the war to supply synthetic rubber to the military. Prosperity increased, but so did air pollution.

Everyone could see that coal smoke was a problem, but the government had no legal authority to address it until 1945 when the Louisville Board of Aldermen passed a smoke ordinance. The ordinance also created the Louisville Smoke Commission to figure out ways to address the problem of air pollution. The Commission had no control over private residences and no jurisdiction outside the city limits at that time, including Rubbertown.

In 1952, the Kentucky Legislature passed KRS Chapter 77, authorizing the formation of county air pollution control districts. The same year, the Air Pollution Control District of Jefferson County was created and staffed with air quality professionals. It was governed by the new Air Pollution Control Board, which replaced the Louisville Smoke Commission. The Board's jurisdiction expanded air pollution regulation beyond the city limits to include all industrial plants in Jefferson County, including those in Rubbertown. During this time, the APCD measured air pollution by collecting soot in buckets hung on lampposts around the county.

In 1956, the APCD took part in a pioneering air pollution study that brought city, county, state, and federal agencies together to understand pollution in Rubbertown. The study ran for two years and produced a wealth of information, including an inventory of air pollution sources in Louisville, an air sampling program, a network to collect meteorological data, and threshold concentrations for odor nuisance. The study made several recommendations to improve air quality, including:

- Emission limits for solid particles
- Limited sulfur content for coal burned
- Controls for hydrocarbon vapors
- Odor nuisance and open burning regulations

- Consideration of air pollution in planning and zoning decisions
- An education and outreach program

In 1966, the Kentucky Air Pollution Control Commission was created and adopted a regulation requiring that all discharges of material into the air must be reported and registered with the Commission, which included emissions in Louisville. The state reaffirmed authority to control air pollution in Jefferson County to the Air Pollution Control Board in 1968.

The year 1970 was full of air pollution control milestones. Congress passed the Clean Air Act that year, and in Louisville the APCD began requiring permits for construction and operation of sources of air contaminants. Also of note, the APCD completed its first emissions inventory for Jefferson County.

Over the years, the APCD began to implement reduction strategies for sources beyond large industrial polluters. In 1970, leaf burning was banned and in 1971 the APCD began ticketing drivers for smoking vehicles.

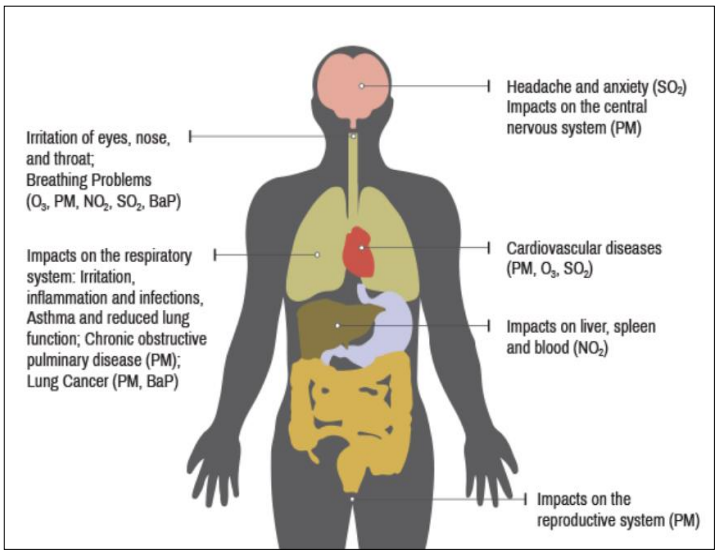
Then, in 1977, the Clean Air Act was amended. The new rules required several large-scale pollution reduction programs in Louisville, including the Vehicle Emissions Testing (VET) program, which began in 1984. The VET program required annual emissions tests from all vehicles in Louisville, except construction and farm equipment. The amendments also required the APCD to review traffic-control plans for new development in Louisville.

The Clean Air Act was amended again in 1990, bringing significant changes to the world of air pollution control. The federal government began to tighten tailpipe emission standards for vehicles and required the sale of cleaner-burning gasoline in the most-polluted cities. In 1995, Louisville gas stations were required to sell reformulated gasoline to reduce smog-forming pollution from vehicle exhaust. The 1990 amendments also created the Acid Rain program to reduce sulfur dioxide (SO_2) emissions nationwide as well as a federal program to reduce emissions of toxic pollutants.

In 2003, the VET program ended. That same year, the city and county governments merged. The APCD, which was an agency of Jefferson County government until merger, was renamed the Louisville Metro Air Pollution Control District.

State law allows the APCD to enact more stringent air quality standards than imposed by the state and federal governments. In response to growing concerns about toxic air emissions in West Louisville, the APCD in 2005 developed and implemented the Strategic Toxic Air Reduction Program (STAR). An air toxics program designed to regulate the reduction of toxic emissions by large industries, STAR was created after a monitoring study in 2000-2001 found unsafe levels of 18 toxic chemicals present in and around the Rubbertown industrial complex. Today, STAR is considered one of the most stringent local air toxics regulatory programs in the U.S.

THE HEALTH IMPACTS OF AIR POLLUTION



Air pollution affects everyone. In the short term, air pollution can make it difficult to breathe when you are trying to enjoy the outdoors. In the long term, it can damage the lungs and cause chronic disease. The most vulnerable people are senior citizens, very young children, and people who have respiratory ailments such as asthma, emphysema, and chronic obstructive pulmonary disease (COPD). All human activities add gases and particles to the air we breathe. When these gases and particles, or air pollutants, accumulate in the air in high enough concentrations, they can harm us and our environment.

In response to the identification of air pollution as a national problem that needed a comprehensive program to address it, Congress passed the Clean Air Act and the U.S. Environmental Protection Agency was established to implement it and other environmental laws. The APCD is the delegated authority to implement the Clean Air Act in Louisville/Jefferson County.

Criteria Pollutants

The Clean Air Act requires the APCD to measure the concentration of air pollutants for which the EPA has created the National Ambient Air Quality Standards (NAAQS). The pollutants, also known as "criteria pollutants," are:

- Ozone (O_3)
- Carbon Monoxide (CO)
- Sulfur Dioxide (SO_2)
- Nitrogen Dioxide (NO_2)
- Inhalable Particulates (PM 10)
- Fine Particulates (PM 2.5)
- Airborne Lead (Pb)[1]

The APCD uses sophisticated instruments to measure the amount of pollution in the air, which will be covered in more detail in the Ambient Air Monitoring section of this report.

Under the Clean Air Act, the EPA is required to review the NAAQS every five years and, using the latest health-based science, determine whether air quality standards need to be strengthened.

[1] In 2016, the EPA authorized the APCD to discontinue ambient monitoring of airborne lead (Pb) because levels are far below the NAAQS and are not expected to increase at the present time.

Current NAAQS Status in Louisville

Pollutant	Standard	Averaging Time	Attainment Status
Carbon Monoxide	9 ppm	8-hour	Attainment
	35 ppm	1-hour	Attainment
Lead	0.15 $\mu g/m^3$	Rolling 3-month Average	Attainment
Nitrogen Dioxide	53 ppb	Annual Average	Attainment
	100 ppb	1-hour	Attainment
Particulate Matter (PM10)	150 $\mu g/m^3$	24-hour	Attainment
Particulate Matter (PM2.5)	12.0 $\mu g/m^3$	Annual Average	Attainment
	35 $\mu g/m^3$	24-hour	Attainment
Ozone	0.070 ppm	8-hour	Nonattainment
Sulfur Dioxide	75 ppb	1-hour	Partial County Nonattainment

Human-generated (also called anthropogenic) sources of air pollution can be broken down into two categories:

- **Mobile sources** of air pollution include most forms of transportation such as on-road vehicles like automobiles and trucks, as well as non-road equipment including tractors, backhoes, trains, and airplanes.
- **Stationary sources** of air pollution consist of non-moving sources, such as power plants, industrial facilities, gas stations, and paint booths.

Stationary sources are further divided into two classifications: point sources and area sources.

- **Point sources** are large stationary sources of emissions that have specific locations and release pollutants in quantities above a certain emission threshold. Those facilities or activities whose individual emissions do not qualify them as point sources are called area sources.
- **Area sources** represent numerous facilities or activities that individually release small amounts of a given pollutant, but collectively can result in significant amounts of emissions. For example, dry cleaners, vehicle refinishing, gasoline dispensing facilities, and residential heating will not typically qualify as point sources, but collectively the various emissions from these sources are classified as area sources.

A community that cannot meet a standard for one or more of the NAAQS air pollutants can be placed into "non-attainment" status by the EPA. Non-attainment can have far-reaching ramifications, including more restrictive air pollution permitting requirements on local businesses, the loss of federal dollars for highways and transit, and enhanced intervention by the EPA.

But more important, non-attainment status means that the residents of our community may be exposed to higher levels of air pollution than the EPA has deemed healthful over the long term. Thus, getting those levels reduced is a top priority for the APCD.

Today, Louisville's air is much cleaner than it was when air pollution laws were first enacted. As recently as the 1980s, the city's air was visibly polluted – smokestacks belched black smoke and the

summertime sky was hazy and brown. On the roads, cars and trucks emitted far more pollution than they do today. The government worked with the citizens and the business community to reduce air pollution while still enabling the city to flourish economically.

Our biggest issue right now in Louisville is with ozone in the summer. Ozone is an air pollutant that damages your lungs. It is produced when the sun "cooks" emissions from factories, businesses, and vehicles. Summer is when we are most at-risk for poor air quality from ozone because it is more prevalent on hot, sunny days with little or no wind. Although ozone pollution has been trending downward since the 1970s, we are currently exceeding the newly strengthened federal standard for ozone pollution.

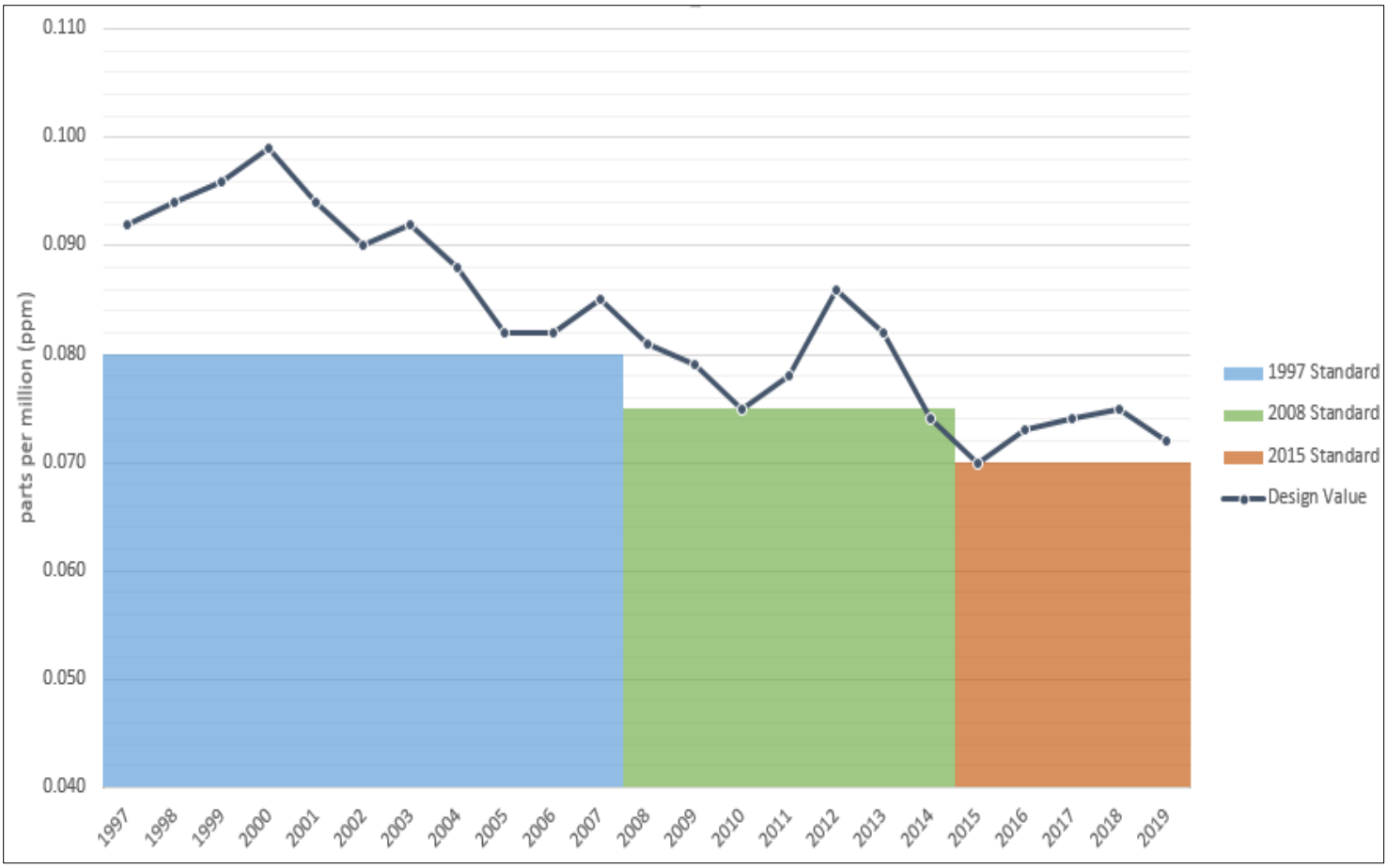
Meanwhile, Louisville is meeting federal air quality standards for particulate matter, airborne lead, oxides of nitrogen, and carbon monoxide. The APCD is also pursuing federal re-designation of "attainment" for sulfur dioxide now that current monitoring shows the community is within the NAAQS standard for that pollutant.

LOUISVILLE AIR QUALITY TRENDS

The air quality has improved greatly in Louisville over the past few decades. Louisville is currently in non-attainment for two of the six NAAQS air pollutants: Ozone (community-wide) and sulfur dioxide (in a zone around the LG&E Mill Creek Power Plant in southwest Louisville). But recent monitoring data indicates that Louisville is now meeting the standard for sulfur dioxide and will pursue a designation of "attainment."

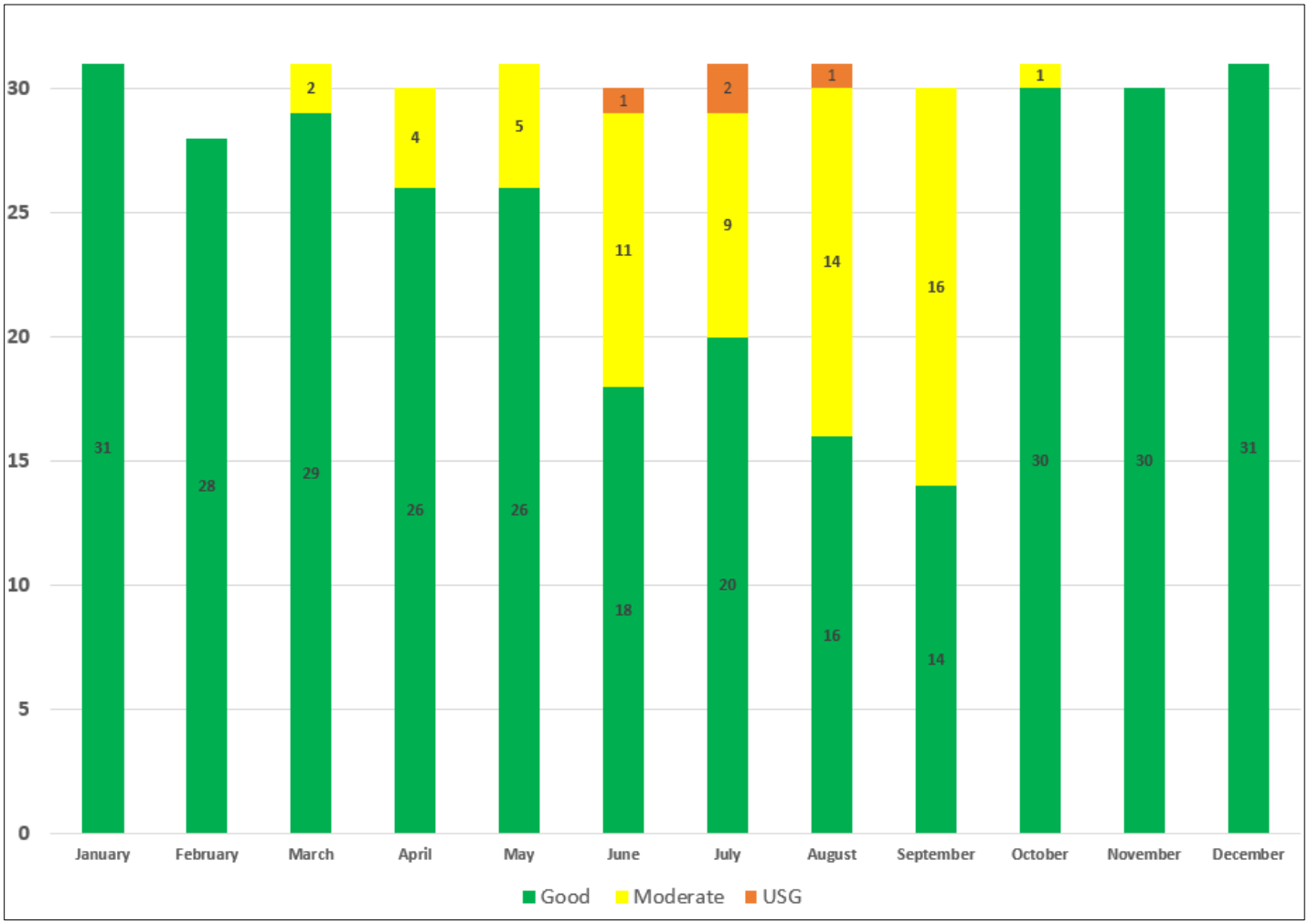
Louisville Ozone Trend

Ozone is not emitted from a smokestack or tailpipe. Rather, it is a gas created when oxides of nitrogen (a product of fossil fuel combustion) and volatile organic compounds (emitted from industrial processes like painting and chemical production, as well as vehicle tailpipes) are "cooked" by the sun on a hot, windless day. Ozone is especially harmful to senior citizens, young children, and people with heart and lung diseases such as COPD and asthma.



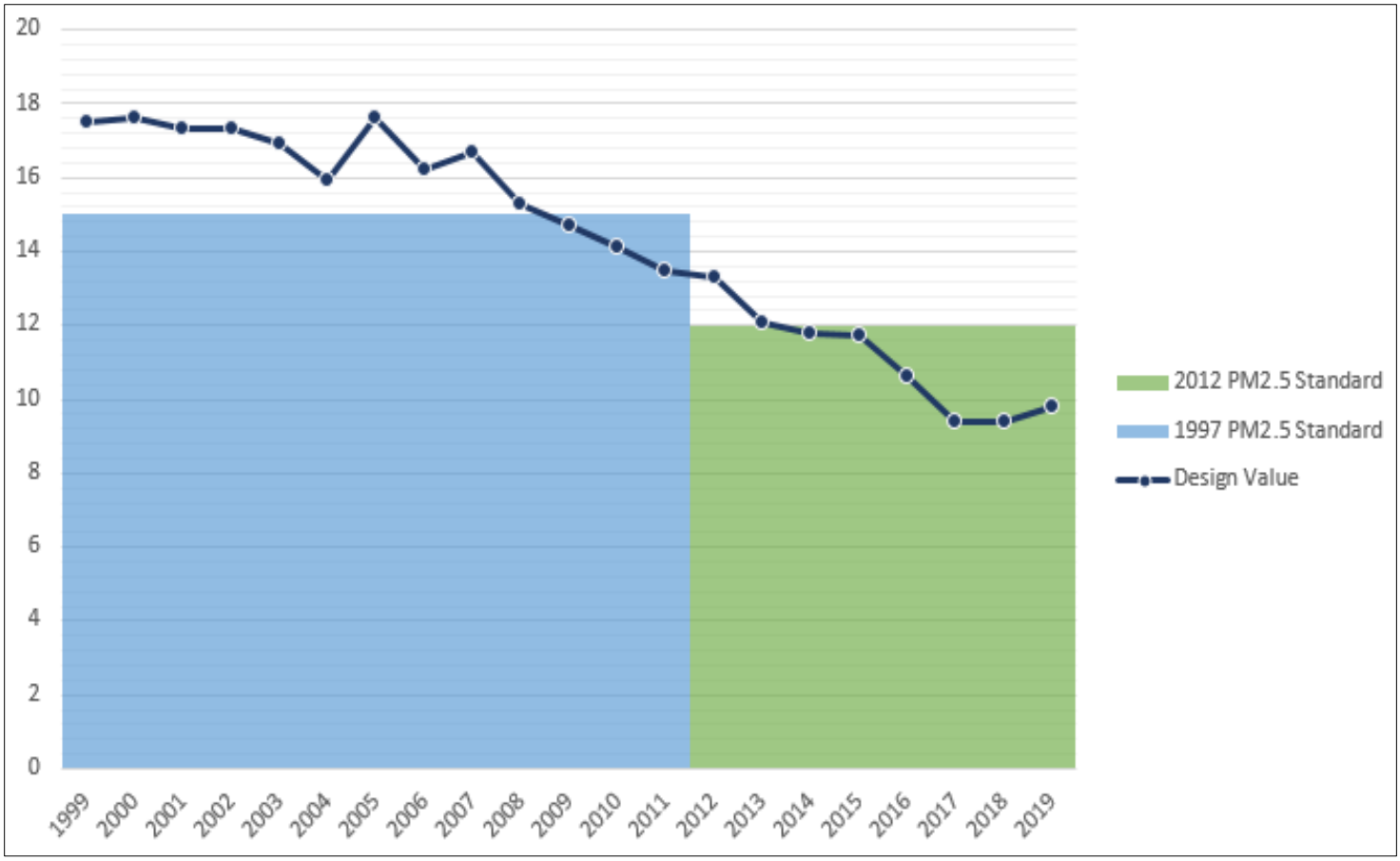
Daily Ozone Air Quality Index in 2019

Louisville's continued struggle with ozone can be seen in this chart, which shows the month-to-month air pollution trend in 2019 as conveyed via the Air Quality Index, which translates measured air pollution into an easily understood index for the public. When a NAAQS air pollutant rises above the standard for a given day, it enters the orange range (unhealthy for sensitive groups like seniors, children, and people with health issues like asthma and COPD), then the red range (unhealthy for all). In 2019, Louisville experienced four days of level-orange ozone air pollution per the AQI.



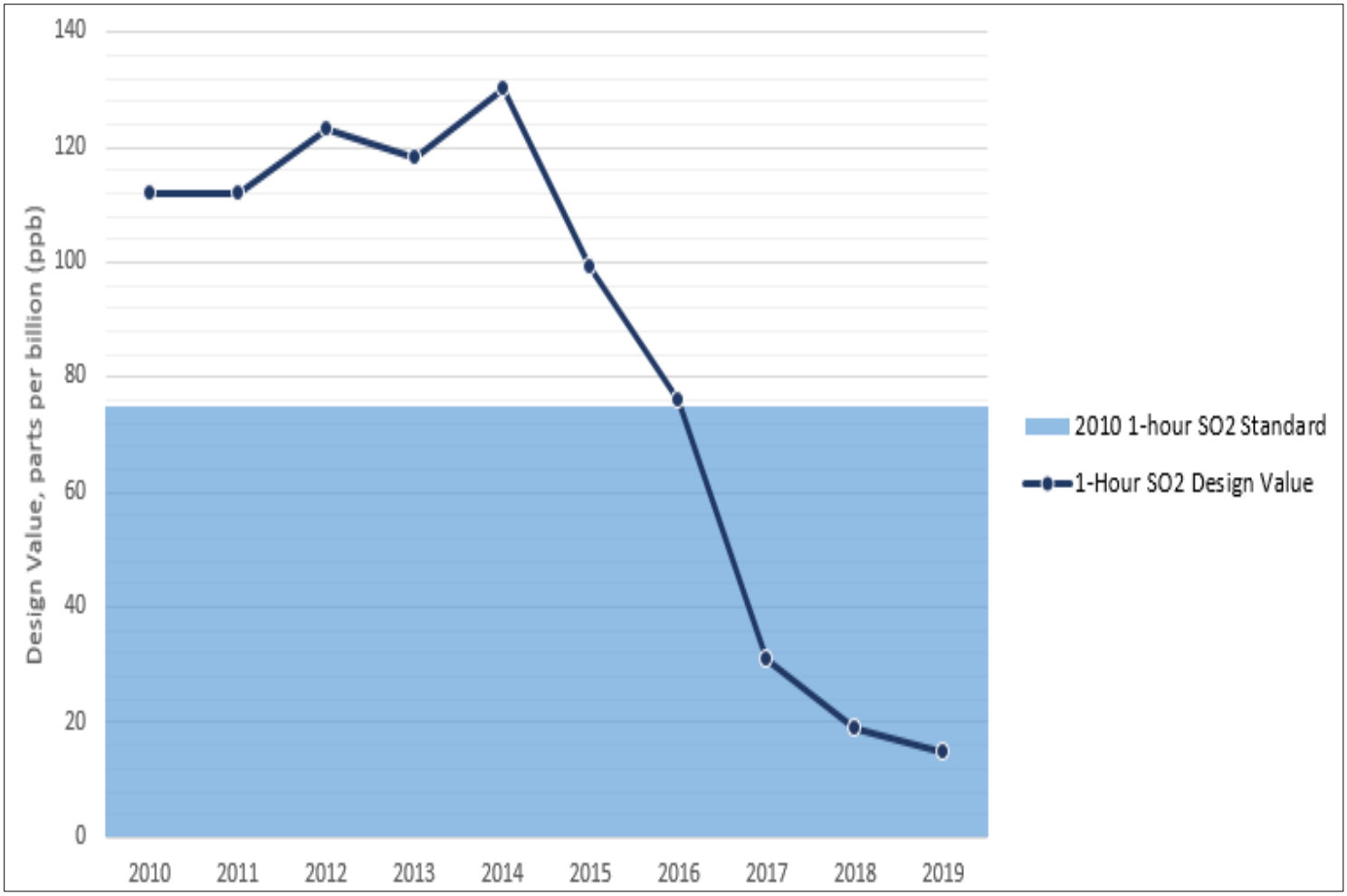
Louisville Fine Particulate Trend

Fine particulates (PM 2.5) are microscopic particles, 2.5 microns or smaller, that are emitted into the air when something is burned, be it a piece of wood, a lump of coal, or a gallon of diesel fuel. Dust and grit blown off a construction site or dusty field also contain particulate matter. These particles can be inhaled deep into the lungs and have been linked to lung disease, heart attacks, and viral/bacterial infections. Fortunately, Louisville has experienced a positive downward trend in particle pollution since the beginning of the 21st century.



Louisville Sulfur Dioxide Trend

Until a few years ago, emissions of sulfur dioxide (SO_2) from coal combustion were a major problem in Louisville due to the presence of two major Louisville Gas & Electric power plants within the city limits. One of those plants has since been retired and replaced by a plant that burns cleaner natural gas, while the other plant has installed major new air pollution controls. Around 2014, APCD air monitors began registering a precipitous drop in local SO_2 pollution due to those measures.



MULTIPOLLUTANT STAKEHOLDER GROUP

In 2019, the APCD convened the Multipollutant Stakeholder Group (MPSG) to develop strategies to reduce air pollution in Louisville.

This group is discussing current air pollution challenges and is gleaning recommendations for our community's next steps to improve local air quality and reduce health impacts from air pollution. Louisville is currently not meeting the recently strengthened 8-hour Ozone National Ambient Air Quality Standard (NAAQS). Although our community has made great progress in reducing overall air pollution, ozone continues to be a major challenge.

The Multipollutant Stakeholder Group is also looking at ways to reduce fine particulate pollution and air toxics, which may provide co-benefits to the effort to reduce ozone. This is a departure from our past stakeholder convenings, in which only a single pollutant type was examined, but is in keeping with the current state of air quality planning needs and with our community's public health goals.

The group brings together business officials from key sectors, community leaders, and representatives from government, academia, and the healthcare field. Group members have been asked to participate in stakeholder discussions and serve on at least one MPSG committee.

The MPSG is meeting – either as a whole or in subject-specific committees – in a series of meetings through early 2020.

The process began by convening three sessions of the full MPSG, where current air quality data, modelling, and regulatory requirements (in particular, the 2015 8-hour Ozone standard NAAQS requirements) were shared and discussed to develop a common baseline understanding among the stakeholders.

The MPSG will be informed by the work of five committees – Point Source, Area Source, Mobile Source, Health, and Outreach & Education. Each committee will have a few initial goals set for its work but will be encouraged to consider additional goals as needed. Examples of the expected committee work include discussion and development of recommendations for emission reduction strategies, outreach and engagement opportunities around air quality and health impacts, and additional lines of inquiry for how our community can protect public health from air pollution.

The APCD will use emission reduction recommendations in the creation of a Multipollutant Air Quality Strategy Document to guide its work in the coming years, including potential additions to the area's federally enforceable State Implementation Plan (SIP) if required. Recommendations outside of the scope of the APCD's work will be provided to other relevant entities or agencies with APCD support where possible.

THE STAR PROGRAM

The Strategic Toxic Air Reduction Program (STAR) is a local regulatory program to reduce harmful contaminants in the air we breathe, to better protect the health of our citizens, and to enhance the local quality of life.

In 2005, the Air Pollution Control District enacted STAR to reduce air emissions of toxic chemicals from local industrial facilities, especially in the Rubbertown area, where a number of large chemical manufacturing plants are located. Although existing federal and state regulations had set some limits, the public demanded stricter standards in Louisville.

The program was created in response to several studies that showed that Jefferson County had the highest health risk from air toxics of the southeastern United States. A monitoring study in 2000-01 documented that there were high concentrations of harmful air toxics, including cancer-causing chemicals, in specific neighborhoods. Since the enactment of STAR, levels of toxic emissions have steadily declined in Louisville.

Decreases in Local Air Toxics

Louisville/Jefferson County Sources	2005 Air Releases in Pounds	2018 Air Releases in Pounds	% Change
Electric Generating Utilities (EGUs)	4,703,167	799,883	-83% Decrease
Non-EGUs	3,452,807	1,164,330	-66% Decrease
Total	8,155,974	1,964,213	-76% Decrease

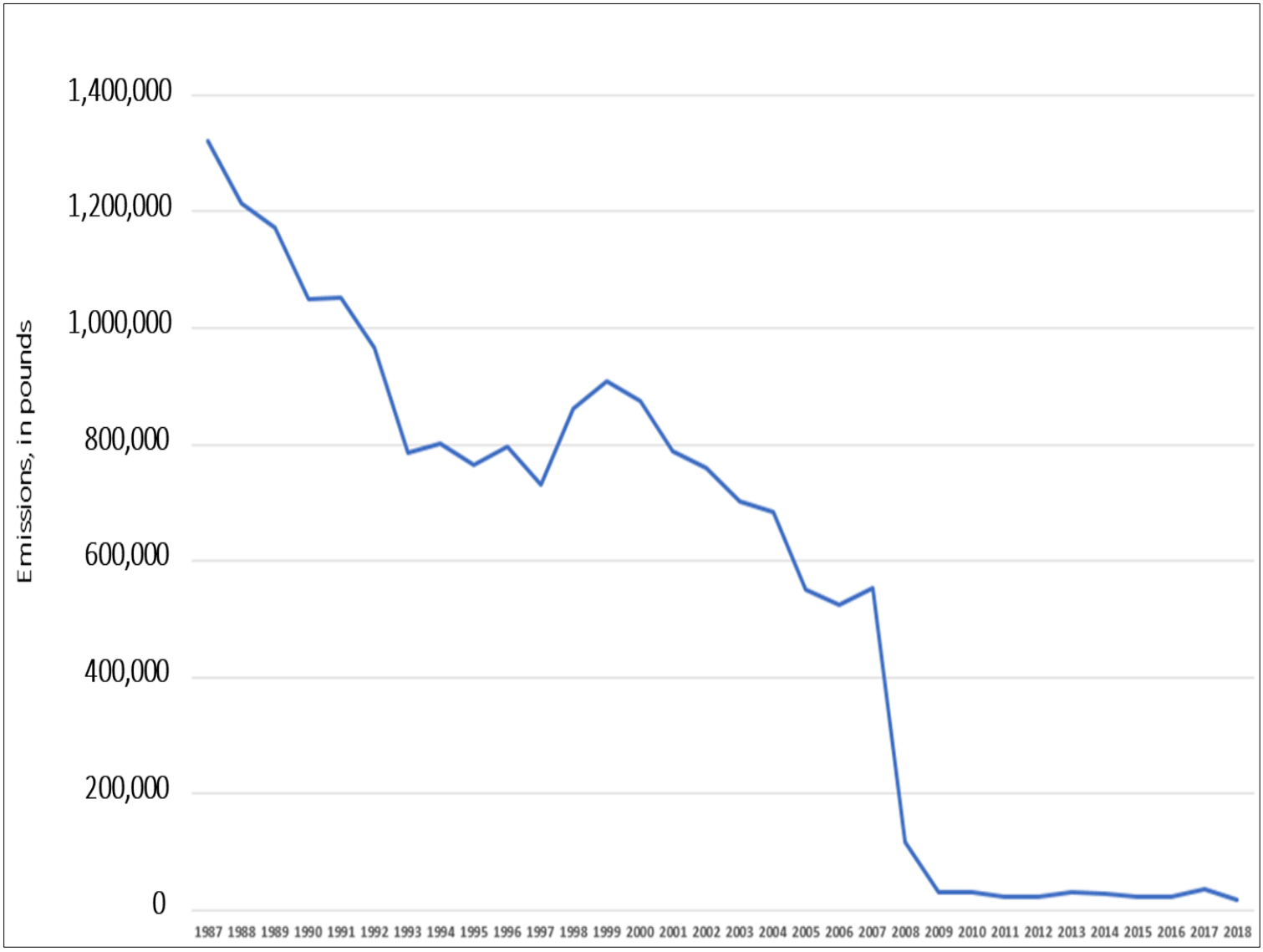
Source: EPA Toxics Release Inventory

There are three main components to STAR:

- It lists toxic air contaminants (TACs), establishes a framework for estimating risks, and generally prohibits emitting TACs in a harmful amount or duration.
- It requires companies that emit the largest amounts of chemicals to meet the health-based goals for each of the targeted chemicals.
- It requires the APCD to develop a plan of action to reduce emissions from other sources with the help of interested stakeholders in the community.

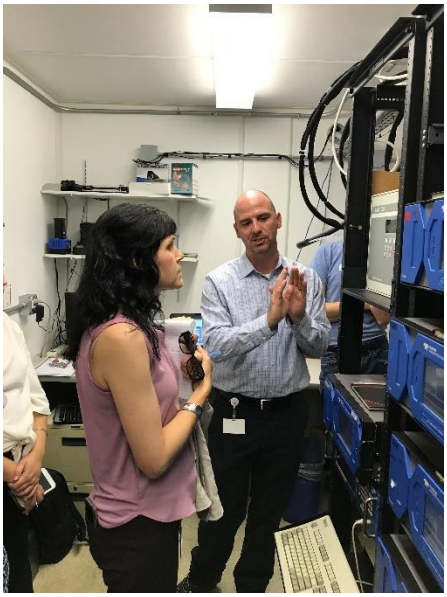
Another indicator of STAR's effectiveness is the decrease in emissions of Category 1 TACs in Louisville (measured in pounds) since the start of the 21st century. Category 1 TACs, such as acrylonitrile and 1,3-butadiene, were identified as presenting the most risk to the community.

Local Category 1 TAC Emissions, 2000-2018



The cornerstone of an air quality agency is accurate monitoring of air pollution. The APCD is responsible for ambient air pollution monitoring in Louisville/Jefferson County. Getting an cccurate representation of Louisville's air require monitors to be located at varied sites throughout the community.

Monitoring Site	What It Monitors	Objective	Established
Cannons Lane, 2730 Cannons Lane	Ozone, PM 2.5, PM 10, SO_2, NO_2, CO, Meteorological data, PM 2.5 speciation, Radiation, NOy, PM coarse	National Core Monitoring Station (NCore), urban scale, population exposure	2009
Carrithers Middle School, 4320 Billtown Road	Ozone, PM 2.5	Population exposure	2018
Durrett Lane Near Road site, 1517 Durrett Lane	NO_2, CO, PM 2.5	Maximum concentration	2014
Firearms Training, 4201 Algonquin Parkway	SO_2, VOCs, PM 2.5, PM 10, Meteorological data	Population exposure	1978
Watson Lane Elementary, 7201 Watson Lane	Ozone, PM 2.5, PM10, SO_2, Meteorological data	Population exposure	1992



The APCD's monitoring stations are part of the Louisville Core-Based Statistical Area monitoring network along with stations operated by the Kentucky Division for Air Quality and the Indiana Department of Environmental Management.

The APCD's Cannons Lane Air Monitoring Station has been classified as an NCore (aka National Core) site by the U.S. EPA. NCore is a multi-pollutant monitoring network that integrates several advanced measurement systems for particles, pollutant gases and meteorology. There are several dozen NCore sites throughout the United States, located mostly in urban settings. The Cannons Lane Air Monitoring Station receives a portion of its power from solar panels purchased with a mixture of EPA grant dollars and funding from Louisville's Air Quality Trust Fund.

The APCD monitors and measures ambient air quality for the major criteria pollutants listed in the Clean Air Act: Carbon monoxide (CO), airborne lead, nitrogen dioxide (NO_X), particulate matter (PM), ozone, and sulfur dioxide (SO_2). The EPA no longer requires the APCD to monitor for the sixth criteria pollutant, airborne lead, because levels have dropped far below the federal standard and are not expected to rise again.

The APCD uses a variety of sophisticated monitoring techniques to tell us what's in the air and whether it's safe to breathe. A dedicated staff of air quality professionals at the APCD maintains the equipment on a daily basis to guarantee accurate measurements. The data are sent electronically to the APCD to be shared with members of the community interested in air quality and its impacts.

CASE STUDY

The APCD was an early adopter of direct nitrogen dioxide (NO_2) measurements utilizing Cavity Attenuated Phase Shift (CAPS) technology. Historically, NO_2 was estimated from measurements of nitric oxide (NO) and oxides of nitrogen (NOx). Updates to the Photochemical Assessment Monitoring Stations Program (PAMS) mandated that direct NO_2 be measured to increase understanding of ozone formation. A new group of Federal Equivalent Method (FEM) analyzers were approved for direct NO_2 measurement after testing by the U.S. Environmental Protection Agency. However, field units needed to come on-line to finalize this testing process by establishing a Method Detection Limit (MDL). MDL is, essentially, variability in an instrument's readings due to electronic signal noise at trace level concentrations. The APCD volunteered with 12 other agencies nationwide to partner with EPA's Office of Air Quality Planning Standards to perform a battery of tests to determine the MDL of this new technology. The APCD wrapped up its portion of field testing in December 2019 and is participating in MDL Workgroup discussions, while other agencies complete field testing. The APCD was well positioned to volunteer for this endeavor because of our highly trained and ambitious air monitoring staff. Additionally, our high level of NO_2 data completeness allowed us to responsibly sacrifice some ambient monitoring to promote further understanding and confidence in this new technology at the national level.

Data Collection

We collect several different categories of data. After the data are collected, analyzed, and quality assured, they are often used to determine compliance with air pollution regulations and standards. The data may also be used in policy decisions at the federal, state, and local levels.

Air Toxics

To provide more information to the community about toxic chemicals that might be in the air, the APCD has added equipment to monitor for air toxics at Firearms Training (4201 Algonquin Parkway) and is adding equipment to monitor volatile organic compounds (which could include some air toxics) at Cannons Lane (2730 Cannons Lane).

Data Analysis and Quality Assurance

All the monitoring data collected by the APCD must be analyzed and validated. To ensure the monitoring data are valid, the APCD incorporates quality assurance measures into the monitoring process. The quality assured data is reported to EPA, NAREL, and others and may be used in many ways, including:

- Determining whether Louisville is meeting national standards for air pollution.
- Forecasting air quality for the Louisville area.
- Informing federal, state, and local policymaking.

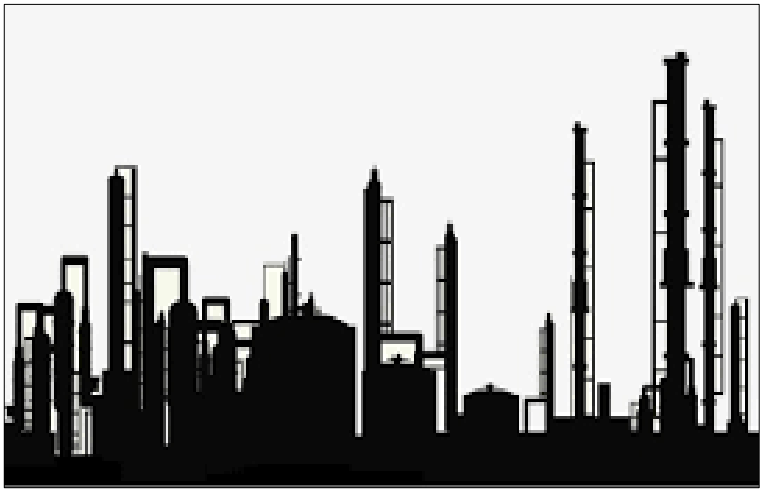
Air Quality Forecasting

APCD staff use computer models along with meteorological data to project pollution levels and communicate them with the public. These forecasts are especially important during the summer months when pollution levels are typically higher. People with asthma or other lung and heart conditions rely upon accurate forecasting through the Air Quality Index to ensure that pollution levels have less of an impact on their health during these periods.

2019 Ambient Air Monitoring Highlights

- Research and Development
    - Participated on the EPA Air Quality Exchange Steering Committee.
    - Made significant progress in evaluation and testing of gas chromatography system, VOC data management, and quality control systems.
    - Conducted comparative testing on particulate matter methodologies
    - Participated in the EPA NO_2 detection limit study.
- Data Collection and Reporting
    - Improved efficiencies in data collection and management of quality control/quality assurance data and forms.
    - Collected more than 44 million 1-minute data points.
    - Collected and verified approximately 500,000 hourly data points.

PERMITTING



A vital part of air pollution control is the operating permits that the APCD issues to local facilities that emit emissions to the air. The APCD issues three types of air pollution permits:

- Title V Permits, which are called that in reference to Title V of the Clean Air Act. They cover large facilities like power plants, chemical plants, and auto factories. These are also known as "major source" permits.
- Federally Enforceable District-Origin Operating Permits (FEDOOPs), which are issued to major sources willing to accept federally enforceable emissions limitations below those that require a Title V permit.
- Minor Source Permits, which are issued to facilities that emit air pollution but do not reach the thresholds that would require a Title V or FEDOOP permit.

More than just a few sheets of paper, an operating permit can be hundreds of pages in length and details which pollutants are being released and in what quantities, as well as the steps the facility is required to take to reduce its emissions. A permit must also include plans to measure and report the air pollution emitted. Failure to operate according to this permit can result in fines, criminal penalties, and/or shutdown.

The APCD must issue a permit to a facility if: It will meet emission limitations, it will neither cause nor worsen a violation of an air quality standard or ambient air increment; and it will not prevent the construction or operation of any other facility or facilities in the area.

The public has a right to participate in the process when a facility first applies for an air pollution permit to construct and operate, and when it seeks a renewal or change to that permit.

The APCD can only reject a permit based on federal, state, and local air pollution laws and regulations. Thus, some areas of comment cannot be considered, including:

- Items not required by law.
- Noise, traffic, lighting, hours of operation (unless necessary to meet a pollution limit), or whether the facility is sited in a proper location.
- Indoor air pollution.
- Emission sources at an existing facility that are not covered in the permit project under review.

When a permitted facility wants to change a process and/or add new equipment, it must apply for a construction permit from the APCD to ensure that the proper air pollution control devices are being installed and maintained. Permit fees collected by the APCD are used to hire trained,

knowledgeable engineers, technicians, scientists, and other air pollution professionals who help keep our air clean.

2019 Permitting Highlights

- Issued nine construction permits.
- Renewed seven Title V permits and revised three Title V permits.
- Issued 20 FEDOOP permits and revised three FEDOOP permits.
- Issued 31 minor source permits.
- Registered 20 sources.
- Exempted eight sources.
- Reviewed and coordinated the submittal of emissions inventories for 40 permitted facilities.

CASE STUDY

SLEIS

State & Local
Emissions Inventory System

Every year, the APCD is required to submit emissions data from large stationary sources of air pollution to the U.S. EPA. Historically, the APCD has utilized an in-house database to store and submit this emissions-related data to EPA's National Emission Inventory. In order to accomplish this, regulated facilities submitted data to the APCD on multiple paper and electronic forms. Because so much of the data had to be manually entered, this process was tedious for both the regulated facilities and the APCD staff. In 2018, the APCD purchased the State and Local Emission Inventory System (SLEIS), a cloud-based software system, to facilitate the collection and reporting of emissions inventory data. For the 2018 National Emission Inventory (submitted to the EPA in 2019), the APCD utilized the new database system for the first time, successfully submitting reports for 40 facilities to the EPA. Due to the success of this process for 2018, the APCD is rolling SLEIS out to the regulated community for the 2019 reporting year (due in 2020). The facilities will be entering the data, which was previously submitted on forms, directly into the new database, resulting in an immense increase in efficiency for this process. That data will then be reviewed by APCD staff for accuracy and completeness before submission to the EPA, without having to re-enter the data into a separate database. In addition, regulated facilities will be able to easily access data that the APCD submitted to the EPA in prior years, leading to greater transparency. This increase in transparency, coupled with the substantial increase in efficiency, makes this a winning solution.

INDUSTRIAL COMPLIANCE

The APCD works with companies that have air pollution permits to maintain levels of emissions as low as possible while enabling them to continue doing business in Louisville/Jefferson County. Inspections are performed on a regular basis to ensure compliance with the permit standards and record keeping requirements. APCD engineers and environmental specialists review reports submitted regularly by the companies to prevent any unnecessary or unforeseen violations of the air pollution standards.

Inspections

To assure and determine compliance by stationary and area sources with the APCD's regulations, the Industrial Compliance staff periodically inspect the permitted facilities. The two main phases of the inspection process generally begin with a plant tour, during which the equipment and monitoring techniques used by the company are observed to ensure that emissions are minimized by proper and efficient operations. Recordkeeping reviews are the next phase of the inspection process. Recordkeeping requirements of the permits are usually to be maintained by the company for five years and are used to provide proof of compliance to the standards and monitoring described in the permits.

CASE STUDY

In September 2019, a resident complained that a local manufacturing facility was producing excess dust emissions. The Community Compliance Section investigated the complaint and observed large plumes of dust billowing from a stack and leaving the property line. Quick cooperation between the Community Compliance Section, the Industrial Compliance Section, and the facility operators resulted in the discovery of damaged equipment that was critical controlling particulate emissions at the facility. The resulting enforcement case prompted facility to implement a new compliance inspection schedule for its equipment. The APCD settled and closed the case three months after the event occurred.

The APCD has established an inspection frequency and process suitable for each pollution source. Minor sources and FEDOOPs are scheduled for at least every five years, regular Title V sources at least every two years, and "mega-sources" at least every three years. Inspection may be done more frequently than the required cycles, at the discretion and availability of the compliance team.

Each inspection is documented in an inspection report that is maintained on file and is available to the public by open records request. If the inspection reveals that the source may be in violation, then a notice of violation likely will be issued, beginning an enforcement process to return the source to compliance.

Reporting

Annual, semi-annual, and quarterly reports are often stipulated in the permits issued by the APCD. These reports are used to ensure that the proper records are being maintained by the companies. The records are directly tied to the monitoring that the company is required to perform on their equipment. This section is also responsible for permitting and compliance for several common activities, including gasoline dispensing (Stage I/Stage II), removal of asbestos-containing material, and open burning.

Small Business Environmental Assistance Program

This program provides free confidential non-regulatory assistance with permit applications and recordkeeping; regulatory advice; mediation; and advocacy. The regulated community benefits from SBEAP educational outreach services such as the development of pollution-prevention strategies, webinars, workshops, fact sheets, guidebooks, and more.

2019 Industrial Compliance Highlights

- Performed inspections at 32 percent of Risk Management Plan (RMP) facilities.
    - 66 percent of audited companies are in the Chemical Accident Risk Reduction focus sectors that are part of the National Compliance Initiatives.
- Issued 433 Asbestos Abatement Permits and 87 Gas Vapor Recovery Permits.
- Met Compliance Monitoring Strategy (CMS) commitment to the U.S. EPA.
- Maintained up-to-date reporting to ICIS-Air system.
- The Small Business Environmental Assistance Program completed:
    - Eight technical or pollution prevention assistance site visits to regulated facilities.
    - 15 permit assistance requests.
    - Two bulk mailings to facilities regarding regulatory requirements.
    - 83 other assistance activities (phone calls, email, etc.).

CASE STUDY

Industrial Compliance collaborated with the U.S. EPA and its contractor to utilize a Video Imaging Spectro-Radiometer (VISR), which uses infrared to remotely analyze and determine flare destruction efficiency in near real time. Flare destruction efficiency, though required to be greater than 90 percent, in many instances has been shown to vary widely, in some cases as low as 50 percent. Timely, accurate, and affordable compliance monitoring will be greatly enhanced by this new technology. The VISR can be deployed both by companies, to quickly correct excess emissions, and by regulatory agencies like the APCD, to determine whether a violation exists. This technology is currently in the process of being certified as an alternative compliance monitoring method for open flares.

COMMUNITY COMPLIANCE

The APCD Community Compliance Section investigates complaints from Louisville residents about air pollution. The most common complaints are about foul odors and outdoor burning. Compliance staffers are sworn peace officers with the power to enter and inspect premises for suspected violations of air quality laws.

2019 Community Compliance Highlights

- Investigated 582 service requests.
- Updated and implemented new standard operating procedures for investigating odors.
- Began sending warning letters to violators of the ban on open burning.

CASE STUDY

During 2019, the Community Compliance Section began writing and sending warning letters to residents for first-offense violations of the Control of Open Burning Regulation (1.11). This had previously been a task that the Enforcement Section accomplished, but the compliance team was able to take this burden from that section and instead write these letters from a firsthand perspective. This new method began in October 2019, and since then 11 warning letters have been sent. Warning letters serve as a very useful tool for compliance officers, as their workday often coincides with those who they investigate. These letters allow the compliance officers to make more efficient use of their time. Rather than making repeated visits to an address with potential ongoing violations, hoping to catch someone at home or convince them to come outside their home to discuss the violation (as is sometimes the case), the compliance officers are able to mail a letter to the address where the violation occurred and to the landlord, if one exists, and proceed directly to enforcement the next time a violation occurs at that location.

ENFORCEMENT

When an air pollution violation cannot be resolved, or when a company repeatedly violates air pollution regulations and standards, the case is referred to the APCD Enforcement Section for further action. In 2019, the APCD collected $252,150 in air pollution penalties.

Category	Notices of Violation	% of NOVs
Title V	6	37.5%
Other Industrial	4	25%
Community Compliance	6	37.5%
Total	16	100%

PROGRAM PLANNING

The APCD Program Planning Section provides air quality planning services, assists with policy development, develops and coordinates agency programs, and provides fiscal and administrative management. Staffers provide policy research and analysis, coordination of stakeholder groups, transportation and dispersion modeling, development review to lessen the impacts of air pollution, community engagement, budget and grant management, IT project management/support, and regulatory development. Program Planning staff work with a wide variety of stakeholders, including other APCD staff, other government agencies, local businesses, community groups, and the general public.

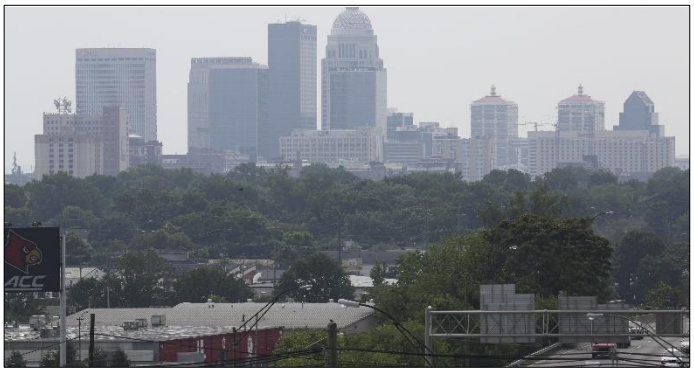
2019 Program Planning Highlights

- Delivered 10 Clearing The Air Workshops at the Louisville Free Public Library and one technical workshop (Exploring Local Online Resources).
    - Included seven guest speakers from peer agencies and the University of Louisville
    - Was awarded a 2019 Best Practices Award from Association of Air Pollution Control Agencies.
- Collaborated with community partners in support of air quality-related events:
    - WJCCTF/NAACP Environmental Justice Conference.
    - Louisville Sustainability Council's Sustainability Summit.
    - EvolveKY Drive Electric Week.
- Developed 12 regulation revisions approved by Air Pollution Control Board.
- Chaired the Regional Mobility Council and partnered with TARC to plan the annual Transportation Summit.
- Shared APCD materials at over a dozen events throughout Jefferson County, including

- Portland Family Spring Fling
- Louisville Zoo Earth Day Celebration
- New Directions Family Festival in Russell
- Shawnee Neighborhood Association CommUNITY Festival
- Western Library Block Party
- Bates Memorial Extravaganza
- Southern Transportation and Air Quality Summit
- EVolve KY Drive Electric Week Ride-n-Drive
- Russell Fall Festival
- Louisville Sustainability Council Sustainability Summit
- West Jefferson County Community Task Force/NAACP Environmental Justice Summit
- One West Community Conversation
- Various Metro Council District Community Meetings

- Served on the University of Louisville Superfund Research Center Community Advisory Board, the Louisville Sustainability Council Board and Summit Planning Committee, and the Kentucky Clean Fuels Coalition Board.
- Co-chaired the National Association of Clean Air Agencies Resilience and Sustainability Committee

CASE STUDY



In 2018, the U.S. EPA designated Louisville in marginal nonattainment for the 2015 ozone NAAQS of 70 ppb. To better understand this problem, the APCD hired Ramboll U.S. Corporation to conduct a study of ozone formation in the area. The Ramboll modelling team was hired via a Metro "request for proposals" developed by Regulatory Coordinator Byron Gary and the Program Planning staff in consultation with the EPA, other air quality agencies, and the APCD's monitoring and modelling experts. Ramboll developed an ozone precursor emissions inventory that was used in a photochemical model to assess the extent to which areas and periods of elevated ozone in Louisville are NO_X-limited or VOC-limited. A final report on the findings, created by Ramboll with feedback from the APCD, was presented to the Air Pollution Control Board and to the Multipollutant Stakeholder Group (MPSG) in November 2019. In general, the study showed that reductions of NO_X had a more significant effect on ozone concentrations in 2016 than reductions of VOCs. However, benefits from cutting VOC emissions are also evident on some days with elevated ozone. This information will help the community develop voluntary ozone reductions as it works to attain compliance with the ozone NAAQS by the August 3, 2021, deadline.

- Led the Metro Government's Drive Clean Louisville Team and advised Fleets & Facilities on idle reduction policies, training, and emission reduction calculations.
- Participated in Louisville Metro Government's Climate Adaption Plan Strategy Team
- Continued the Lawn Care for Cleaner Air Rebate program in its 17th year. Promoted the program through equipment donations to Drive Electric Week and to Louisville Grows.

- Achieved almost 3,000 followers for the Grow More Mow Less Facebook page.
- Staff participated in the Environmental Leadership Program (ELP) National Fellowship Program and Louisville Metro Government's Executive Fellows Program.
- Implemented a new permitting, compliance, and enforcement data system (Accela) as part of a city-wide transition, migrating thousands of records from the old system Hansen 8.
- Deployed a cloud-based electronic document management system (OnBase) and migrated around 9,000 documents to it from the old system eB.
- Deployed an online emission inventory reporting system (SLEIS).
- Completed Phase 1 of an improved, more user-friendly online air quality map (Louisville Air Watch 2.0) and continued work toward Phase 2, which will make it faster and provide an option to view older data.

ADMINISTRATION

The backbone of a strong organization is its administrative support team. The APCD's Administration Section provides the support services to keep the agency's daily operations running. From purchasing and payroll to information technology (IT) support and records management, this section's work is integral to all agency functions. Key functions include payroll and Human Resource (HR) policy implementation; intake and processing of agency receipts; equipment and supply purchasing; fleet management; hiring and new employee onboarding; safety plan oversight; IT and audio-visual equipment and user support; meeting support and minutes across agency and Air Pollution Control Board functions; uploading, assigning, and filing of submittals from regulated entities; physical and electronic file management, both onsite and in coordination with Metro Archives; fulfilment of open records requests; internal communications; and many other functions that keep our agency operational and able to meet our mission to this community.

2019 Administration Highlights

- Managed the APCD's fleet of 23 vehicles, bringing all up to date with necessary preventative maintenance.
- Led the APCD's Charitable Campaign and headed up the Office Social Committee, planning employee morale and team-building events throughout the year.
- Facilitated HR and benefits trainings and bi-monthly APCD staff meetings.
- Coordinated hiring of four employees and initiated two additional hires with position vacancy postings.
- Coordinated a multi-agency, building-wide fire drill with hands-on fire extinguisher training.
- Updated office safety plan, including renewed First Aid and CPR certifications.
- Served as liaison between the the APCD and Louisville Metro Government administrative and support agencies, including HR, Fleets & Facilities, Risk Management, and Civic Innovation & Technology.
- Served as the APCD's Racial Equity Liaison, including participation in the Talent & Retention Sub Committee.
- Provided direction to all front desk activity, including thousands of phone calls, walk-ins, deliveries, and office visitors.

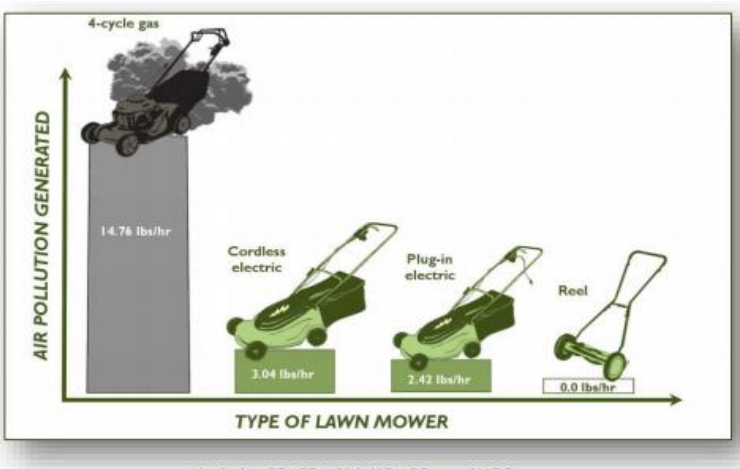
- Prepared administrative reports for the APCD Director and Executive Administrator, including the department's LouieStat Performance Book.
- Maintained and updated the APCD's inventory of software, hardware, network addresses, security codes, and related equipment, ensuring resources met user functionality needs.
- Logged and assigned over a thousand applications, reports, emission inventories, and other submittals to proper staff for review and processing.
- Supported implementation and ongoing administration of the new APCD electronic document management system.
- Uploaded 4,975 documents to the APCD document management systems.
- Completed more than 250 hours of training and professional development.
- Developed multiple agency-specific reports needed to facilitate data retrieval from the city's new permitting, compliance, and enforcement data system (Accela).
- Produced minutes of all Air Pollution Control Board and Committee meetings, providing a permanent record of the Board's regulatory functions.
- Created and distributed "The Air Monitor," the APCD's monthly internal newsletter.
- Completed 101 open records requests:
    - 57 Environmental Site Assessments.
    - 39 general file inquiries.
    - Five news media requests.

CASE STUDY

Many of the open records requests received by the APCD are for Phase I Environmental Site Assessments (ESAs). These are requests for records, both current and historical, in order to learn about or mitigate the risk of purchasing land that might have an environmental hazard or concern. When property is purchased in Louisville, the purchaser becomes responsible for any environmental liabilities on that land. While any real estate purchase can spur an ESA, most are completed for commercial or industrial property purchases. According to ESA standard practices, the assessment should "… stretch back to the property's first developed use, or back to 1940, whichever is earlier," a search that involves numerous legacy databases and systems at the APCD, some still run in the old MS-DOS computer language. The records that are searched range from asbestos files to Notices of Violations to gasoline permits and others. A single address will be searched in seven different databases to ensure all the relevant information is gathered. While many of these searches take less than an hour, some requests are for projects with hundreds of street addresses that need to be individually checked, increasing the response time to several days. ESAs are recognized as Commercial Purpose requests per KRS 61.870(4)(a) and need a notarized certification form. Providing records for an Environmental Site Assessment is an important objective for the APCD's Administration Section.

LAWN CARE FOR CLEANER AIR

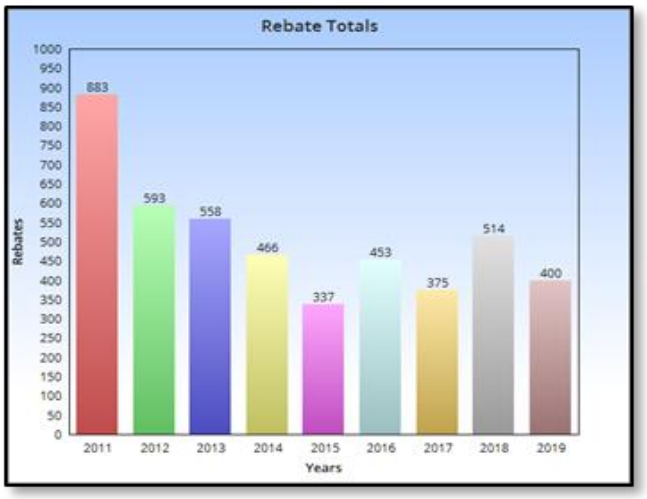
In order to reduce lawn care-related air pollution, the APCD created the Lawn Care for Cleaner Air program in 2003. LCCA gives rebates to Louisville residents on electric-powered and non-motorized reel lawn equipment, and double rebates to those who recycle their old lawn equipment.



Includes CO, CO_2, PM, NO_x, SO_2, and VOCs

Electric lawn equipment can make a difference. It emits less than one-fifth of the pollution of gas-powered equipment. Without electric lawn equipment, Louisville would have 2.6 million more pounds of air pollution every year, including 1 million pounds of carbon monoxide, oxides of nitrogen, and volatile organic compounds. Eliminating this air pollution helps Louisville meet the National Ambient Air Quality Standards.

In 2019, Lawn Care for Cleaner Air issued 400 rebates on new, electric- and human-powered lawn equipment. Those numbers are down from 2018 but still represent a good showing compared to recent years. The program also issued 75 rebates in our Professional program. These are higher-dollar rebates on more powerful equipment aimed at lawn care professional and homeowners with large yards. This number too is slightly down from 2018, but still greater than our totals in 2016 (39) and 2017 (48).



2019 Lawn Care for Cleaner Air Highlights

- Issued 400 rebates on lower-pollution lawn equipment.
- Earth Day at the Louisville Zoo.
- Earth Day at the J. Graham Brown School.
- University of Louisville Sustainability Fair.
- Louisville Sustainability Council Annual Summit.
- Russell Fall Fest.
- EVolve KY Drive Electric Week.
- Appeared on "Metro Matters" on WLOU-AM.

CASE STUDY

Lawn Care for Cleaner Air has issued more than 10,000 rebates on electric- and human-powered lawn equipment since it began in 2003. The program advertises with local partners such as The Courier-Journal, LEO Weekly, and Louisville Public Media, and attends multiple public events throughout the year to talk with people about making the switch to cleaner lawn equipment. Sometimes, though, we find that people must hold the equipment in their hands and use it before they're ready to make the switch. That is why the program partners with other like-minded organizations to do equipment giveaways. In 2019, LCCA partnered with EVolveKY to give away an electric lawn mower at its Louisville Drive Electric Week event. LCCA also donated electric lawn equipment to Louisville Grows. Community partners can borrow it to maintain community gardens and abandoned lots, giving them hands-on experience with cleaner, air-friendly equipment. LCCA is confident that the more people try this type of equpiment, the more will ditch their old, dirty gas-powered gear.

KENTUCKIANA AIR EDUCATION

As the APCD's largest outreach and education program, Kentuckiana Air Education (KAIRE) works with local schools, businesses, and non-profit groups to encourage the public to take steps in their daily lives to improve air quality.

KAIRE is funded with federal dollars from the Congestion Mitigation & Air Quality Program (CMAQ) via the state of Kentucky and the state of Indiana. Unlike the APCD, which works inside Louisville/Jefferson County, KAIRE conducts outreach and education in Jefferson, Bullitt, and Oldham counties in Kentucky and Clark and Floyd counties in Indiana.

KAIRE encourages people to reduce the amount of air pollution they produce in a variety of ways, such as choosing more fuel-efficient vehicles, taking mass transit, car- or van-pooling to work, walking and biking rather than driving, and trip-planning to reduce unnecessary driving.

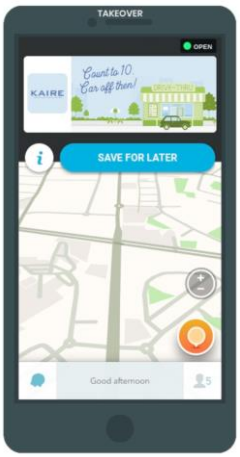
In 2010, KAIRE launched Idle Free Louisville to tell the public about the benefits of idle reduction and to encourage local motorists to shut off their engines when their vehicles aren't moving. Unnecessary idling contributes to air pollution, which makes life difficult for thousands of local children and adults with breathing problems.

And the message is getting through: Survey data indicates that a majority of drivers in Kentuckiana correctly understood that idling longer than 10 seconds uses more gas than restarting your vehicle's engine, while 62 percent are aware that the fastest way to warm up a vehicle is to drive it.

2019 Kentuckiana Air Education Highlights

- Appeared in Metro TV video about KAIRE and air quality in Louisville.
- Partnered with KIPDA Every Commute Counts at WFPK's Waterfront Wednesday.
- Served as resource for JCPS Aspen Challenge teams.
- Grew Twitter following to 791.
- Worked with Asthma Coalition on replacement for Healthy Hoops.
- Memorial Day Hike, Bike, and Paddle.
- Labor Day Hike, Bike, and Paddle.
- Louisville Sustainability Council Annual Summit.

- Kentucky Science Center Fun To Be 4 Thunder Over Louisville Party.
- Foxhollow Farms Sunset Concert Series.
- Full schedule of Green Convenes, summits, employee health fairs, and business expos.



CASE STUDY

KAIRE coordinator Dee Lynch recently collaborated with other outreach coordinators across the country on a conference call about anti-idling strategies hosted by the National Association of Clean Air Agencies (NACAA). In particular, she presented KAIRE's cutting-edge use of Waze, a navigation app for smartphones, to deliver Idle Free messaging. To drive the point home about idling (and for safety reasons), the messages are only on-screen when GPS confirms that the vehicle is not moving. Dee also shared KAIRE's use of the Weather Channel app as part of a successful campaign to deliver air quality messages in meaningful way to local consumers. Because KAIRE is so far ahead of the curve on adopting these strategies, clean air agencies across the country were excited to learn how to adapt them to their programs and will be following up with Dee to learn more.

PUBLIC INFORMATION

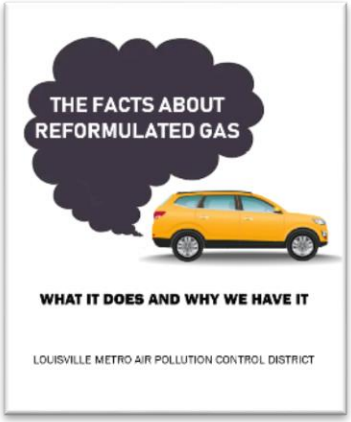
Good communication is essential to the mission of a government agency such as the APCD. When the public is informed about our work, it is more likely to support the overall effort to keep the air clean and safe. At the same time, a good public information strategy requires communication to be a two-way street. The APCD is dedicated to listening to the community via participation in public meetings, social media interactions, and outreach at neighborhood events.

The APCD communications specialist is a resource for the local news media and is often called upon to discuss the District's actions and policies on local television and radio, and in newspapers and websites. The communications specialist also serves as a liaison to the Mayor's Office and other Metro departments and oversees the APCD's Kentuckiana Air Education outreach program.

A major responsibility of the Public Information Section is to issue Air Quality Alerts when air pollution is forecast to be in the unhealthy range. In 2019, the APCD issued four alerts via press releases, email/text messages, social media posts, and National Weather Service bulletins.

CASE STUDY

Although reformulated gasoline (RFG) is a key part of Louisville's ongoing strategy to reduce ozone pollution, it can increase the cost of gas at the pump. Over the years, the APCD has frequently addressed this concern in the news media, but a major push against RFG by state and local lawmakers prompted a more detailed response. Communications Specialist Thomas Nord was tasked with developing a brochure to explain what RFG is and why it is used here in Kentuckiana. In a very short turnaround, and with the assistance of several APCD colleagues, he created "The Facts About Reformulated Gas: What It Does and Why We Have It." The four-page brochure laid out the facts in a rational and non-argumentative manner, including an explanation of the regulatory process required for communities that want to phase out RFG. Since it was first deployed in the fall of 2019, the brochure has been very effective in clearing up misconceptions about the RFG requirement among lawmakers, the news media, and local motorists.



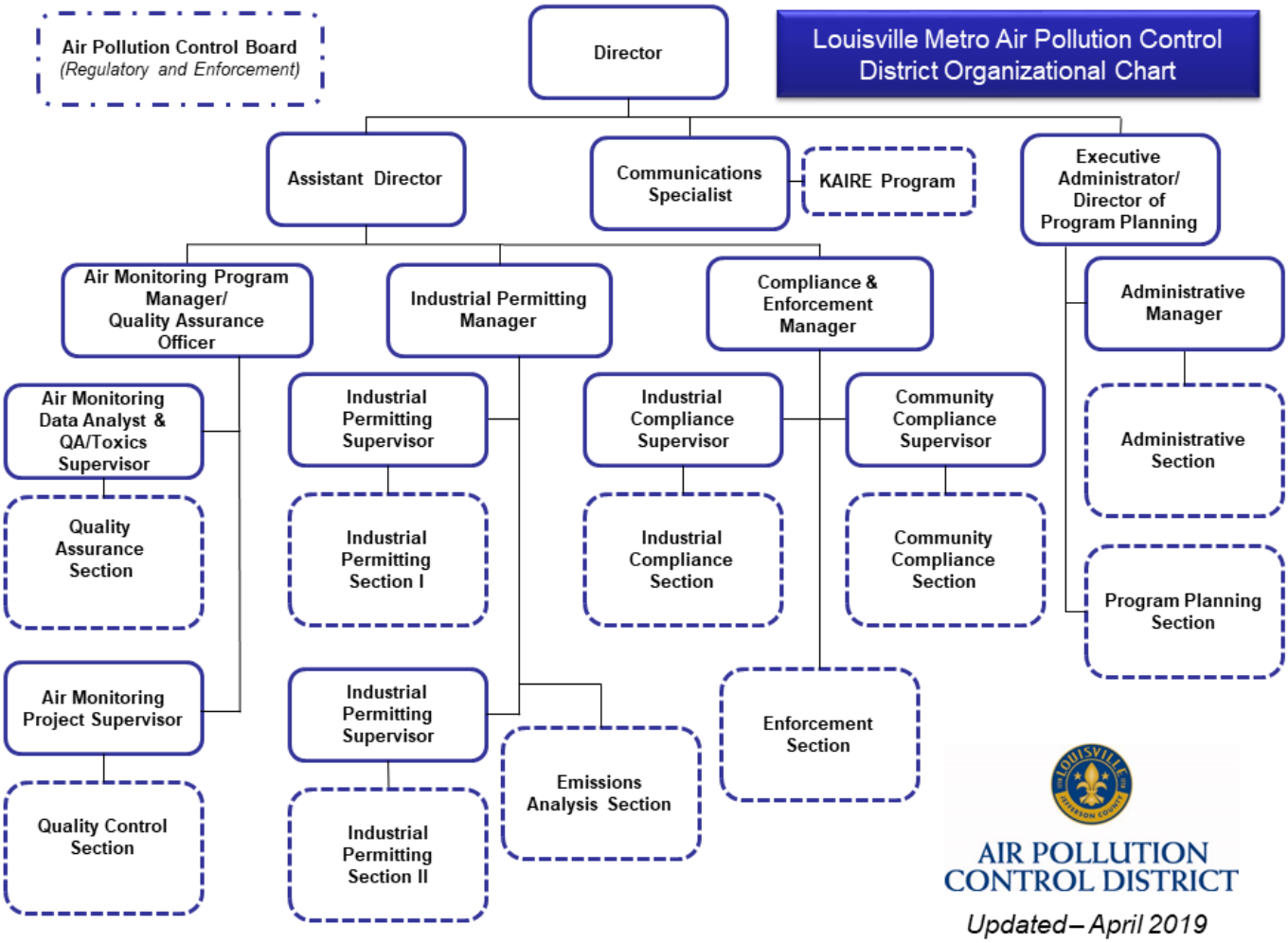
2019 Public Information Highlights

- Facilitated APCD staff appearances on WFPL-FM, WLOU-AM, WFPK-FM, and other media outlets.
- Responded to information and interview requests from local news media.
- Created new brochures and other printed materials to inform and educate the public.

- Provided information to the community about the impacts of air pollution.
- Produced the APCD Annual Report.
- Assisted with Louisville Air Watch website upgrades.
- Produced social media posts for Facebook and Twitter.
- Assisted the APCD staff in hosting public hearings and meetings.
- Developed a promotional strategy for Clearing The Air workshop series, including a Louisville Public Media ad campaign.
- Helped produce presentations for the community and Air Pollution Control Board.
- Created and updated content for the APCD website.
- Assisted numerous high school and college students on clean air projects.
- Produced the Daily News Summary media briefing for the Mayor and city leadership.

APPENDICES

APPENDIX A:
APCD ORGANIZATIONAL CHART



APPENDIX B:
AIR QUALITY GLOSSARY

Clean Air Act – a federal law created to control air pollution on a national level. Among other things, the Clean Air Act sets air pollution standards that every community in the country must meet. (See "NAAQS," below.)

National Ambient Air Quality Standards (NAAQS) – the Clean Air Act requires the EPA to set NAAQS for air pollutants considered harmful to public health and the environment. Communities like Louisville are responsible for "attaining" these standards.

Air Quality Index (AQI) – the level of air pollution in your area at any given moment based on air monitoring data. Ranges from green ("good") to maroon ("hazardous").

Volatile Organic Compounds (VOCs) - compounds that contribute to formation of ozone. They can be both human-made and naturally occurring.

Nitrogen Oxides (NO_X) – highly reactive gases emitted when vehicles, factories, power plants, and off-road equipment burn fuel. NOx also contributes to ozone formation.

Ozone (O_3) – an air pollutant formed when the sun "cooks" VOCs and NOx emitted from industry, vehicles, commercial activity, and organic sources.

Particulate Matter (PM) - a mixture of solid particles and liquid droplets in the air. Some particles like smoke can be seen with the naked eye, while others can only be detected with a microscope.

Sulfur Dioxide (SO_2) - a heavy, pungent, colorless air pollutant formed primarily by the combustion of fossil fuels. It is a respiratory irritant, especially for asthmatics.

Air Toxic - any air pollutant for which a national ambient air quality standard does not exist (i.e., excluding ozone, carbon monoxide, PM10, sulfur dioxide, and nitrogen dioxide) that may reasonably be anticipated to cause cancer, developmental effects, reproductive dysfunctions, neurological disorders, heritable gene mutations or other serious or irreversible chronic or acute health effects in humans.

Pollution Source – can be "point" (large factories, power plants), "area" (dry cleaners, gas stations), and "mobile" (on-road and non-road vehicles).

Vehicle Emissions – divided between "on-road" (cars and trucks) and "non-road" (construction, lawn care, farm vehicles, locomotives, airport ground support, and commercial marine vessels.)

APPENDIX C:
NATIONAL AMBIENT AIR QUALITY STANDARDS

Standard	Averaging Time	Attainment Status
Carbon Monoxide		
9 ppm	8-hour	Attainment
35 ppm	1-hour	Attainment
Lead		
0.15 $\mu g/m^3$	Rolling 3-Mo Average	Attainment
Nitrogen Dioxide		
0.053 ppm	Annual Average	Attainment
0.10 ppm	1-hour	Attainment
Ozone		
0.070 ppm	8-hour	Nonattainment
Particulate Matter (PM_{10})		
150 $\mu g/m^3$	24-hour	Attainment
Particulate Matter ($PM_{2.5}$)		
12.0 $\mu g/m^3$	Annual Average	Attainment
35 $\mu g/m^3$	24-hour	Attainment
Sulfur Dioxide		
0.75 ppm	1-hour	Partial Nonattainment
0.5 ppm	3-hour	Attainment