

Title: AIR QUALITY ADVISORY ACTION PLAN

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AIR QUALITY ADVISORY ACTION PLAN

1.0 INTRODUCTION

Air Quality Advisories are issued by the [Southwest Ohio Air Quality Agency](#) when concentrations of one or more of the six criteria pollutants (ozone, particulate matter, carbon monoxide, sulfur dioxide, lead, and nitrogen dioxide) is expected to exceed health-based standards in Hamilton County. In our region, Ozone is the pollutant most likely to cause an Air Quality Advisory. The Air Quality Advisory is a public information message that encourages at-risk individuals (those with asthma, cardiovascular disease, other chronic medical conditions, young children and older adults) to avoid strenuous outdoor activity until air quality improves. It also encourages voluntary action to reduce the emission of pollutants. The City of Cincinnati (City) Air Quality Advisory Action Plan establishes citywide pollutant mitigation and employee health protection measures. Although this plan was prepared for City operations, one of its intentions is to be adopted by other organizations within the City.

2.0 BACKGROUND

Comparison of Air Quality in Cincinnati to other Ohio Cities

How does Cincinnati's air quality compare with other cities in Ohio? Environment Ohio listed the number of days air quality in each Ohio city met one of the following Air Quality Index levels in 2015:

- **Moderate:** Air quality is acceptable, however, there may be a moderate health concern for a very small number of people who are unusually sensitive to air pollution. **Cincinnati had the highest frequency: 79 days.**
- **Unhealthy for sensitive groups:** People with lung and cardiovascular disease, older adults and children are at increased risk. The general public is not likely to be affected. **Cincinnati had the second highest frequency: 8 days.**

- **Unhealthy:** Everyone may begin to experience adverse health effects, and members of the sensitive groups may experience more serious effects. **Cincinnati had the highest frequency: 1 day.**

2018 Green Cincinnati Plan – Air Quality Action Plan Recommendation

The 2018 Green Cincinnati Plan (adopted May 2018) recommended the implementation of an Air Quality Action Plan. “The City of Cincinnati will work with outside organizations to develop an Air Quality Action Plan to reduce emissions of pollutants on Air Quality Advisory Days and throughout the year. The goal will be to reduce harms associated with air pollution, especially to people with special sensitivities as well as working to lower the asthma rate throughout Cincinnati.”

3.0 AIR QUALITY INDEX

The Air Quality Index (AQI) tells how clean or unhealthy local air is, and what the associated health effects might be. The AQI focuses on health effects that people may experience within a few hours or days after breathing unhealthy air. The AQI is calculated for four major air pollutants regulated by the Clean Air Act: ground level ozone, particle pollution, carbon monoxide, and sulfur dioxide.

The AQI is a numeric system that ranges from 0 to 500. An AQI value of 100 generally corresponds to the national air quality standard for the pollutant, which is the level EPA has set to protect public health. AQI values at or below 100 are generally thought of as satisfactory. When AQI values are above 100, air quality is considered unhealthy—at first for certain sensitive groups of people, then for everyone as AQI values increase.

EPA has assigned a color to each AQI category to make it easier for people to understand quickly whether air pollution is reaching unhealthy levels in their communities. For example, orange means that conditions are "unhealthy for sensitive groups," while red means that conditions may be "unhealthy for everyone." The chart below provides a summary of the AQI level and expected health concerns.

AQI Level and Health Concerns Chart

Air Quality Index	Health Effects	Who is affected?	Meaning
Good 0 to 50	None	No one is expected to be affected.	Air quality is considered satisfactory, and air pollution poses little or no risk.
Moderate 51 to 100	Minimal	May be a moderate health concern for a very small number of people who are unusually sensitive to air pollution.	Air quality is acceptable, however, there may be a moderate health concern for a very small number of people who are unusually sensitive to air pollution.
Unhealthy for Sensitive Groups 101 - 150	Increased likelihood of respiratory symptoms and breathing discomfort in sensitive groups.	Children, older adults, and people with respiratory disease should limit prolonged outdoor activity.	Members of sensitive groups may experience health effects. The general public is not likely to be affected.

Air Quality Index	Health Effects	Who is affected?	Meaning
Unhealthy 151 to 200	Greater likelihood of respiratory symptoms and breathing difficulty in sensitive groups.	Children, older adults, and people with respiratory disease should avoid heavy outdoor exertion; everyone else, especially children, should limit heavy outdoor exertion.	Everyone may begin to experience health effects; members of sensitive groups may experience more serious health effects.
Very Unhealthy 201 to 300	Increasingly severe symptoms and impaired breathing likely in sensitive groups.	Children, older adults, and people with respiratory disease should avoid all outdoor exertion; everyone else, especially children, should limit outdoor exertion.	Health alert: everyone may experience more serious health effects.
Hazardous 301 to 500	Severe respiratory effects and impaired breathing likely in sensitive groups.	Everyone should avoid all outdoor exertion.	Health warning of emergency conditions. The entire population is more likely to be affected.

4.0 U.S. EPA AIRNOW RESOURCE

The U.S. EPA and local agencies developed the AIRNow website to provide the public with access to air quality information. The website offers daily AQI forecasts and real-time AQI conditions for over 300 cities across the U.S. including Cincinnati.

Here's how to get the AQI forecast:

Southwest Ohio Air Quality Agency: publishes the AQI forecast daily on their website [Air Quality Index](#) and Twitter feed [@SWOhioAir](#). Air quality advisories are issued by the Agency between 2 p.m. and 3 p.m. the day before high ozone and/or high particulate matter levels are anticipated.

Email. Sign up to get the daily air quality forecast and special alerts sent to you by email. Go to [EnviroFlash](#).

Smart phone. Download the AirNow app, available for iPhone and Android.

Widget. Add a line of code to your department's website to have the AQI always appear on your home page. Available at [AirNow Widget](#).

Newspaper and TV. Many weather pages and weathercasts have the AQI forecast.

AirNow.gov. The AirNow website has the AQI for hundreds of cities. [AirNow](#).

Each afternoon, assign a department representative to announce the next day's AQI color.

Some ideas to involve your department's employees:

- Encourage everyone to sign up for EnviroFlash emails.
- Designate one person to be in charge of checking the forecast and announcement each afternoon.
- Add a message about the day's air quality color to any daily announcements.
- Tell employees about the app and the widget to have the AQI on their phone or website. Both are available at [AirNow](#).

5.0 AIR POLLUTANT INFORMATION

Ground level ozone (aka smog) and “particulate matter smaller than 2.5 microns” (PM2.5) are two pollutants of concern in Cincinnati. The Southwest Ohio Air Quality Agency collects ground-level ozone data from March 1 through October 31 each year, when the pollutant is most likely to form, and PM2.5 data year-round. Air quality professionals examine concentrations of the pollutants and weather conditions to issue air quality forecasts.

Ground level ozone is not emitted directly into the air but forms from a chemical reaction between volatile organic compounds (VOCs) and nitrogen oxides (NOx)—known as ozone precursors—in the presence of heat and sunlight. PM2.5 is emitted directly in smoke and forms from chemical reactions of nitrogen oxides and sulfur dioxides in the atmosphere. PM2.5 also comes from activities that stir up tiny airborne dust, as well as natural events such as wildfires.

Ozone, ozone precursors, and PM2.5 can be carried to the area by the wind from hundreds of miles away or generated locally. Locally, motor vehicles are a major source of ozone precursors. Ground-level ozone causes respiratory problems. Sensitive groups such as young children, the elderly, and people with respiratory conditions can be particularly vulnerable to exposure. Individuals who suffer from asthma, chronic bronchitis, emphysema or other lung disease will generally experience more serious health effects. Because PM2.5 is extremely small, the particles can deposit deep in lungs and are difficult to exhale. For comparison, a human hair is 75 microns wide, 30 times the size of a 2.5 micron particle. Being exposed to PM2.5 may cause coughing and difficulty in breathing. Exposure over several days may increase the chance of these symptoms. Health risks are greater for individuals with heart or lung diseases such as coronary artery disease, congestive heart failure, asthma, chronic obstructive pulmonary disease (COPD) and diabetes. Health professionals advise limiting physical exertion outdoors to reduce the chance for ill health effects from poor air quality.

Typical conditions for ozone alerts are: high temperatures approaching 80 degrees Fahrenheit or above, clear skies, dry atmosphere, and calm to light winds.

6.0 LIMITING EMPLOYEE EXPOSURE

On Air Quality Alert days, when the AQI is forecasted to be above 100 (8-12 days in an average year), employees doing outdoor jobs involving prolonged exertion or heavy exertion should be provided: access to drinking water; more frequent breaks; and access to air conditioning during breaks. Employees should be monitored for signs of respiratory problems. Such work should be scheduled before noon or after 7:00 p.m. when feasible. Employees experiencing respiratory problems or other health effects should be allowed to stop work and move to an air-conditioned location.

When the AQI is forecasted to be above 150 (on average, once every 3 to 5 years), outdoor jobs involving prolonged exertion or heavy exertion should be postponed if possible.

Prolonged exertion means any outdoor activity that you’ll be doing intermittently for several hours and that makes you breathe slightly harder than normal. An example of this is landscaping work for part of a day. Heavy exertion means intense outdoor activities that cause you to breathe hard.

7.0 TRAINING

- Staff that perform ozone-generating activities, including but not limited to driving, fueling vehicles, operating equipment with small gasoline engines, and using volatile chemicals, must

complete 1 hour of Air Quality Alert Day awareness training, and must complete a 5-minute refresher annually at the start of the ozone season (April or May). Managers and supervisors of staff that require training require the same training. The Southwest Ohio Air Quality Agency provides off site awareness training. Coordination of training should be made directly with the agency.

- The City's Office of Environment and Sustainability provides onsite and offsite awareness training. Coordination of training should be made directly with the Office of Environment and Sustainability.
- [AirNow](#) has a full range of online educational resources. Some examples include 1) [AQI Basics](#), 2) [Using AQI](#), 3) [What You Can Do](#) and 4) [Publications Library](#).
- Many brief awareness videos are available online such as at [YouTube](#). Some examples include 1) [AQI and Air Pollution Advisories](#), 2) [Air Quality Awareness](#), and 3) [What is Ozone?](#)

8.0 OPERATIONAL LIMITS

Two levels of operational limits will be implemented:

Level 1) The following policies will be implemented to reduce the generation of ozone, ozone precursors, and PM 2.5 on air quality alert days. On average, air quality alerts are issued 8-12 times per year.

- Use of equipment with small internal combustion engines (including mowers, chain saws, string trimmers, outboard motors, and golf carts) will be minimized or limited to early morning hours, to the extent practical, consistent with each Department's essential functions.

- Fueling of vehicles will be conducted before 8:00 a.m. or postponed until after 6:00 p.m., to the extent practical, consistent with each Department's essential functions.

- Use of motor vehicles will be minimized, to the extent practical, consistent with each Department's essential functions.

- Use of volatile chemicals (including solvent based paints, paint thinners, degreasers, cleansers, and aerosol cans marked flammable) will be minimized, to the extent practical, consistent with each Department's essential functions.

Level 2) The following additional steps will be taken on days when the AQI is forecasted to exceed 150, which based on past data may occur locally at a frequency of about 1 day every three to five years:

- No open fires are permitted on City property or associated with City programs or activities, including cooking fires and campfires, unless approval is granted by the Department Director.

- No equipment with small internal combustion engines will be used, unless approval is granted by the Department Director.

-No fueling of vehicles will be conducted between 8:00 a.m. and 6:00 p.m. Emergency fueling during this time period will require approval from the Department Director.

- Use of volatile chemicals is prohibited, unless approval is granted by the Department Director.

9.0 RESPONSIBILITY:

Department Directors

- Ensure that the Action Plan is distributed internally to all personnel.
- Ensure awareness training is completed as needed.
- Ensure that all employees that are responsible for specific actions understand their responsibilities.
- Ensure that notification and communication of air quality alert procedures reaches all employees within the Department.
- Ensure that Exposure Limits and Operational Limits called for by this policy are implemented.

Supervisors

- Ensure that the Action Plan has been distributed to all of your personnel.
- Ensure awareness training is completed as needed.
- Ensure that employees that are responsible for specific actions understand their responsibilities.
- Ensure that notification and communication of air quality alert procedures reaches all of your employees.
- Monitor employees for compliance with the exposure limits and operational limits on Air Quality Alert days.

Employees

- Review the Action Plan and understand responsibilities as applicable.
- Complete awareness training as needed.
- Comply with the exposure limits and operational limits on Air Quality Alert Days.

10.0 RECOMMENDATIONS FOR EMPLOYEES DURING OFF-HOURS ON AIR QUALITY ALERT DAYS

- Inform family, friends, and neighbors of the Air Quality Alert Day.
- Defer mowing lawns until late evening or the next day.
- Avoid using small gasoline engines such as garden equipment, outboard motors, and off-road vehicles.
- Postpone the use of oil-based paints, solvents, or varnishes.
- Avoid use of open fires. If you must, use an electric starter or charcoal chimney rather than lighter fluid in grills.
- Defer use of household consumer products that release fumes or evaporate easily.
- Conserve energy to reduce energy needs from power plants.
- Limit driving. Defer errands or share a ride. For short trips, walk or ride a bike.
- If you drive, avoid excessive idling or quick starts.
- Take public transit when available. Ride the bus to work, school, or shopping.
- Avoid refueling. If you must refuel, do so after 7 pm.
- Keep your personal auto well-maintained.