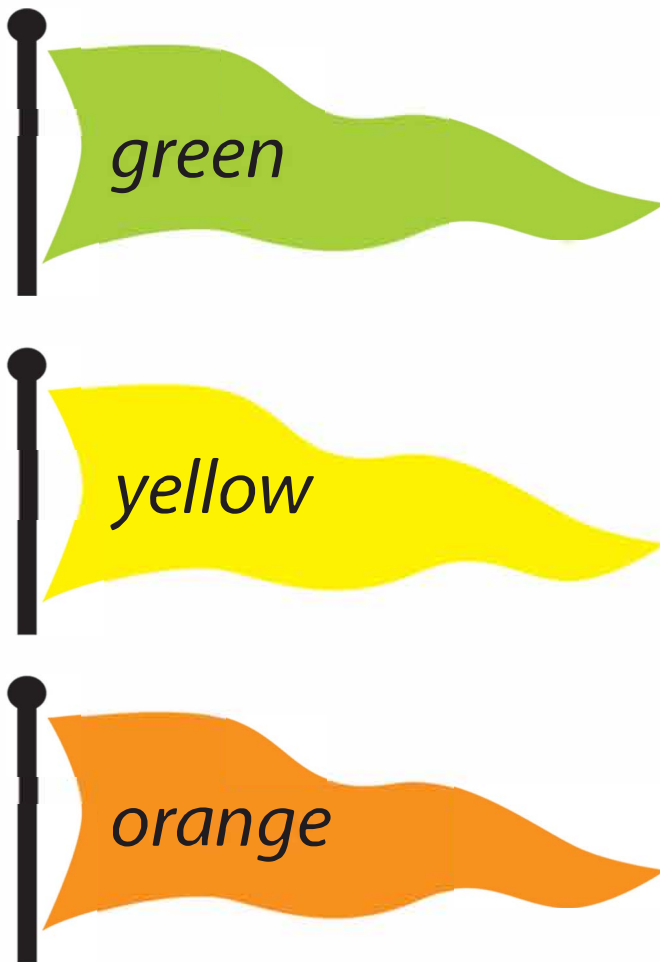


AQI FLAG PROGRAM



Broward Air Quality Index (AQI) Flag Program Coordinator Handbook



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Overview of the Broward Air Quality Index (AQI) Flag Program

The Broward Air Quality Index (AQI) Flag Program helps children, parents, the community and staff become aware of daily outdoor air quality conditions using brightly colored flags. Each day, a flag is raised in front of participating entities that signal the level of air pollution for that day. The flag colors correspond to the colors used in the Environmental Protection Agency's (EPA) Air Quality Index, which tells how clean or polluted the air is for that day. When members of the surrounding community know what the daily air quality is, they can adjust their activities to reduce their exposure to air pollution. Regular physical activity – at least 60 minutes a day – promotes health and fitness. The purpose of the flag program is to help people continue to exercise and work outside while protecting their health when the air quality is unhealthy.

Each day, communities raise a colored flag that corresponds to the local air quality forecast:

- Green flag – good air quality
- Yellow flag – moderate air quality
- Orange flag – unhealthy for sensitive groups (including all children and people with asthma)

Note: There is a fourth and fifth color – red and maroon respectively-- used in EPA's Air Quality Index. They indicate unhealthy (red) and very unhealthy (maroon) air quality. They are not included in the Broward County AQI flag program because these conditions are rare in South Florida. In the event we do experience unhealthy or very unhealthy air quality, health advisories will be issued from the Environmental Engineering and Permitting Division (EPPD) in the local media.

Air quality can become unhealthy due to pollutants such as ground-level ozone and particle pollution. Ozone is especially damaging to the lungs of children and those who work and play outside. Particle pollution - especially fine particles such as those found in smoke, haze or dust - contains microscopic solids or liquid droplets that are so small that they can get deep into the lungs and cause serious health problems. Children (including teenagers) are at greater risk from air pollution because their lungs are still developing and they breathe more air per pound of body weight than adults. People with asthma are also more likely to have symptoms when pollution is in the air. Children, including those with asthma, can continue to stay active even when air quality is unhealthy by modifying their activities or, in some cases, moving their activities indoors.

This handbook describes the four steps a Flag Program Coordinator needs to take to implement a successful flag program:

1. Contact the Environmental Engineering and Permitting Division (EPPD) at airoutreach@broward.org to obtain the flags
2. Educate and inform the community at the start of the program
3. Find out the daily air quality forecast and fly the corresponding flag
4. Know what actions to take when the air quality is unhealthy for sensitive groups

The Flag Program can be a great way to teach the community about their local air quality, how air pollution impacts our health, and what actions we can take to protect ourselves. You'll find more information about the Flag Program, the AQI, ground-level ozone and particle pollution, and the health effects of air pollution in the Background Information and Resources sections of this handbook.

How does the Broward AQI Flag Program work?

- Once confirmation is received, EEPD will register your school on [EPA's flag website](#).
- EPA will add your organization to the online table of participating businesses and will send you an official participation certificate for display.
- EEPD will provide your organization with all the materials needed to implement the program, including Green, Yellow and Orange flags, an Air Quality Information Board, and other informational material. All materials are FREE of charge.
- The program will require each participant to:
 - Select a Flag Program Coordinator
 - Have the Flag Program Coordinator work closely with EEPD staff to help establish the program
 - Check the air quality each morning via one of the following options:
 - ✓ Opening the [Broward County AQI Flag Program](#) webpage
 - ✓ Viewing the [AirNow](#) website
 - ✓ Subscribing to [EnviroFlash](#) which allows anyone to get the daily air quality forecast sent to your email, cell phone or Twitter
 - ✓ Using the Air Now Mobile Application (available on the Android and Apple)
 - ✓ Receiving notifications from EEPD staff when the AQI goes out of the good (green) range.
 - Coordinate with their staff to hang the corresponding flag that represents that particular day's air quality early each morning.
 - Include an air quality message about the outdoor air quality to staff.
 - Post the Air Quality Information Board, provided by EEPD, either in some high traffic area to educate the community and staff about the Broward AQI Flag Program.

Why is participating in the Broward AQI Flag Program so important?

The Flag Program creates public awareness of outdoor air quality conditions. Everyone can continue to get plenty of physical activity, while still protecting their health from poor air quality. Children (including teenagers) are at greater risk from air pollution because their lungs are still developing and they breathe more air per pound of body weight than adults. Children are particularly susceptible to air pollution, which can harm their lungs and trigger asthma attacks. When air quality is unhealthy for sensitive groups, it is important to modify outdoor activities which could include shortening exercise or moving exercise indoors when necessary to protect the health of our community.

Where can I get more information on the Broward AQI Flag Program?

Visit the [Broward County AQI Flag Program](#) webpage.

Steps for a Successful Flag Program

Step 1: Contact EEPD to obtain the flags

You can email airoutreach@broward.org letting EEPD know of your interest in participating in the program. If approved, you will receive three flags: green, yellow, orange. The red and purple flags are not provided because Broward historically has rarely reached those air pollution levels. The flags are rectangle style and the dimensions are 2'x 3'.

Step 2: Educate and inform your staff and the community at the start of the program

Choose a date to begin flying your flags, and then educate and inform your staff and the surrounding community. EEPD will register your program on [EPA's flag website](#) under "Flag Program Registration Form". EPA will add your organization to the online table of participants and will send you an official participation certificate for display. Train staff about the Air Quality Index and the Flag Program so they can help administer the program and teach the community. You can request help with this training from EEPD by calling 954-519-1278. Encourage teachers to take advantage of the many resources available on the [Broward Air Quality Flag Program website](#). Make announcements to the community through newsletters, emails, and flyers posted throughout the building.

Email Template to Introduce the New Flag Program

Subject: NEW -- Air Quality Flag Program

How much pollution is in the air outside today? Soon, our entire [organization] will have a simple way to find out . . . just look up at the flag pole [or other means of displaying flags]! We have joined the Broward Air Quality Flag Program, and starting [insert date] we will be displaying a brightly colored flag that shows how clean or polluted the air is each day.

The flags correspond to the colors of the Air Quality Index (www.airnow.gov). The AQI is an index that tells you how clean or polluted the air is, and what health effects might be a concern for you at that level. The Air Quality Flag Program will help us continue to promote exercise while protecting health.

Every business day we will fly a flag with one of the AQI colors:

- Green – good air quality
- Yellow – moderate air quality
- Orange – unhealthy for sensitive groups, including children and teens, people with heart or lung issues, older adults, and people who are active outdoors

On green and yellow days, we encourage people to be outside and moving. When air quality is orange or red it is still okay for most people to exercise and work outside, but we encourage you to take breaks and do activities that are not as strenuous, like walking instead of running. If the air quality falls below those levels, you might consider staying inside that day.

The flag program is used in many U.S. cities and we're proud to adopt it. Thanks to the Broward Environmental Engineering and Permitting Division for providing us with the flags! In addition to the new flags, we will have the chance to learn more about air pollution, how it affects our health, and what we can do to make the air cleaner.

For more information on the flag program, go to www.airnow.gov/flag.

We will post more information about this exciting new program and our [date] flag displaying event on our website.

Step 3: Find out the daily air quality forecast and fly the corresponding flag

Like the weather, air quality changes from day to day. Your local or state air quality agency makes a daily air quality forecast that predicts the AQI color for both ozone and particle pollution. The forecast appears in the early afternoon and predicts the air quality for the next day.

In many cities you can get the daily air quality forecast sent to you by email if you subscribe to [EnviroFlash](#). Be sure to sign up your organization. This provides alerts when there are unusual air quality events such as wildfires.

You can also check the air quality each morning via one of the following options:

- Opening the [Broward County AQI Flag Program](#) webpage
- Viewing the [AirNow website](#)
- Using the Air Now Mobile Application (available on the Android and Apple)
- Receiving notifications from EEPD staff when the AQI goes out of the good (green) range.

Each morning, assign someone at your organization to display the flag that shows the current day's AQI color. It is a good idea for the assigned person to check the air quality forecast in the morning before the flag is displayed. Some state and local air quality agencies will update the current day's forecast to a different color if pollution is worse than originally expected. If you subscribe to [EnviroFlash](#) emails, you can choose to be notified via email of forecast updates. Such updates will also be posted on [airnow.gov](#).

Fly only the flag showing the current day's forecast. For example, if you receive tomorrow's forecast in the late afternoon, do not change the flag to show tomorrow's color.

Some ideas to involve staff and the community in the flag program:

- Encourage everyone with an email account to sign up for [EnviroFlash](#).
- Establish teams to be in charge of checking the forecast and displaying the flag each morning.
- Add a message about the day's air quality color to the daily announcements.
- Get the current AQI forecast added to your organization's website. You can do this by providing the following link to the person responsible for your school's website: www.airupdate.info

Step 4: Know what actions to take when the air quality is unhealthy

General Actions When Ozone or Particle Pollution Levels are Unhealthy

Ozone and particle pollution are the most widespread air pollutants. When either ozone or particle pollution is at an unhealthy level, the chances of being affected increase the longer a person is active outdoors and the more strenuous the activity. Since exercise is good for your health, it's important to stay active and know when to make changes.

EPA considers certain groups to be "sensitive" because they have more health effects at lower pollution levels. "Sensitive groups" include children, and teenagers, older adults, people with heart or lung disease (such as asthma), and people who are active outdoors.

Actions:

- As either ozone or particle pollution levels become unhealthy, the general advice is to reduce:
 - (1) how hard you work or exercise outdoors, and/or
 - (2) the length of time you work or exercise outdoors

For example, on code orange days, it is still permissible for children to play outside, but they should reduce activities that involve running and take more frequent breaks

- When pollution is present in the air, people with asthma are more likely to have symptoms such as coughing or shortness of breath. Be alert for symptoms and follow the person's asthma action plan. If the person has a quick relief inhaler, be sure it is always handy. Note that even people who do not have asthma could experience symptoms when exposed to unhealthy levels of air pollution.

Specific Actions When Ozone Pollution is at an Unhealthy Level

Ozone is formed when pollutants emitted by industrial facilities and power plants, motor vehicle exhaust, and other sources react in the presence of heat and sunlight. Since heat and sunlight drive ozone formation, warm sunny days have more ozone than cool or cloudy days. Ozone levels are generally much lower in the mornings.

Actions:

- When unhealthy levels of ozone are expected, you can reduce exposure by playing and exercising outdoors before noon.

Specific Actions to Reduce Exposure to Particle Pollution

In some locations (such as the western United States) where wood is burned for heat, particle pollution levels can be especially high. In south Florida, we see higher levels of particle pollution when there are wildfires and when there is burning of sugarcane fields to our north.

Actions:

- Choose areas away from busy streets for children to walk, exercise and work.
- Avoid standing or working near vehicles that are idling.
- Implement policies and education programs to limit idling by school buses and personal vehicles
- If it looks or smells smoky outside, it is better not to exercise or work outside.

Use Your Judgment

You should always use your judgement when deciding how to modify outdoor activities when air quality is unhealthy. There are three Activity Guidelines that summarize the actions to take. One is for ozone, particle pollution, and schools. The guidelines can be found here: www.airnow.gov/index.cfm?action=flag_program.outdoorguid

Background Information

What is Ozone?

Ozone is a colorless gas found in the air we breathe. Naturally occurring ozone high above the earth's surface protects our planet from solar radiation. When ozone is created near the ground it is unhealthy to breathe and can also damage trees and crops.

Ozone is created at ground level by chemical reactions between oxides of nitrogen (NO_x) and volatile organic compounds (VOC) in the presence of sunlight. Emissions from industrial facilities and power plants, motor vehicle exhaust, gasoline vapors, and chemical solvents are some of the major sources of NO_x and VOC. Because ground-level ozone needs sunlight to form, it is usually highest during the hot, sunny days of summer, spring, and fall.

Health Effects of Ground-level Ozone

- Constriction of airways forcing the respiratory system to work harder to provide oxygen
- Coughing, pain when taking a deep breath, wheezing and inflammation of the airways including the deep portions of the lungs
- Increased fatigue
- Reduced athletic performance
- Aggravated lung disease

People with lung disease, children, older adults, and people who are active outdoors are considered sensitive and therefore at greater risk.

What is Particle Pollution?

Particles in the air are a mixture of solids and liquid droplets that vary in size and are often referred to as “particulate matter.” Some particles - those less than 10 micrometers in diameter - pose the greatest health concern because they can pass through the nose and throat and get deep into the lungs. Ten micrometers in diameter is just a fraction of the diameter of a single human hair. Particles larger than 10 micrometers do not usually reach your lungs, but they can irritate your eyes, nose and throat. Particle pollution, unlike ground-level ozone, can occur year-round.

Very small particles with diameters less than 2.5 micrometers are called “fine” particles. They are produced any time fuels such as coal, oil, diesel or wood are burned. Fine particles come from fuel used in everything from power plants to motor vehicles (e.g., cars, trucks, buses and marine engines). These particles are even produced by construction equipment, agricultural burning, trash and brush burning, and forest fires. In fact, forest fires (wildfires) are responsible for some of the worst particle pollution events.

“Coarse” dust particles range in size from 2.5 to 10 micrometers in diameter. Particles of this size are produced during crushing or grinding and from vehicles traveling on paved or unpaved roads.

Health Effects of Particle Pollution

- Increased respiratory symptoms, such as irritation of the airways, coughing, or difficulty breathing
- Decreased lung function
- Aggravated asthma
- Development of chronic bronchitis
- Irregular heartbeat
- Heart attacks
- Premature death in people with heart or lung disease

People with heart or lung disease, older adults, and children are considered sensitive and therefore at greater risk.

What is the Air Quality Index (AQI)?

The Air Quality Index (AQI) is an index for reporting daily air quality. It tells you how clean or polluted your air is, and what associated health effects might be a concern for you. The AQI focuses on health effects you may experience within a few hours or days after breathing polluted air.

How Does the AQI Work?

The higher the AQI value, the greater the level of air pollution and the greater the health concerns. For example, an AQI level of 40 represents good air quality with little potential to affect public health, while an AQI value over 201 represents very unhealthy air quality.

An AQI value of 100 generally corresponds to the National Ambient Air Quality Standard (NAAQS) for the pollutant, which is the level EPA has set to protect public health. AQI values below 100 are generally thought of as satisfactory. When AQI levels are above 100, air quality is considered to be unhealthy – at first for certain sensitive groups of people, then for everyone as AQI values get higher.

The purpose of the AQI is to help you understand what local air quality means to your health. To make it easier to understand, the AQI is divided into categories. Each category corresponds to a different level of health concern. The levels of health concern and what they mean are:

AIR QUALITY INDEX			
	HEALTH CATEGORIES	OZONE	FINE PARTICLES
300	VERY UNHEALTHY	Active children and adults, and people with respiratory disease such as asthma, should avoid all outdoor exertion; everyone else, especially children, should limit outdoor exertion.	People with respiratory or heart disease, the elderly and children should avoid any outdoor activity; everyone else should avoid prolonged exertion.
200			
150	UNHEALTHY	Active children and adults, and people with respiratory disease such as asthma, should avoid prolonged outdoor exertion; everyone else, especially children, should limit prolonged outdoor exertion.	People with respiratory or heart disease, the elderly and children should avoid prolonged exertion; everyone else should limit prolonged exertion.
100	UNHEALTHY FOR SENSITIVE GROUPS	Active children and adults, and people with respiratory disease such as asthma, should limit prolonged outdoor exertion.	People with respiratory or heart disease, the elderly and children should limit prolonged exertion.
50	MODERATE	Unusually sensitive people should consider limiting prolonged outdoor exertion.	None
	GOOD	None	None

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Questions and Answers

How long can people stay outside when the air quality is unhealthy?

There is no exact amount of time. The worse the air quality, the more important it is to take breaks, do less intense activities, and watch for symptoms. Remember that people with asthma will be more sensitive to unhealthy air.

Why should people take breaks and do less intense activities when air quality is unhealthy?

People breathe harder when they are active for a longer period of time or when they do more intense activities. More pollution enters the lungs when a person is breathing harder. It helps to:

- reduce the amount of time people are breathing hard (e.g., take breaks; rotate players frequently)
- reduce the intensity of activities so people are not breathing so hard (e.g., walk instead of run)

Are there times when air pollution is expected to be worse?

- **Ozone pollution** is often worse on hot sunny days, especially during the afternoon and early evening. Plan outdoor activities in the morning, when air quality is better and it is not as hot.
- **Particle pollution** can be high any time of day. Since vehicle exhaust contains particle pollution, limit activity near idling cars and buses and near busy roads, especially during rush hours. Also, limit outdoor activity when there is smoke in the air.

How can I find out the daily air quality?

Go to the [AirNow](#) website. Many cities have an Air Quality Index *forecast* that tells you what the local air quality will be later today or tomorrow, and a *current* AQI that tells you what the local air quality is now. The AirNow website also tells you whether the pollutant of concern is ozone or particle pollution. Sign up for emails, download the free AirNow app, or install the free AirNow widget on your website. You can local information at the [Broward AQI School Flag Program](#).

If people stay inside because of unhealthy outdoor air quality, can they still be active?

It depends on which pollutant is causing the problem:

- **Ozone pollution:** If windows are closed, the amount of ozone should be much lower indoors, so it is OK to keep moving.
- **Particle pollution:** If the building has a forced air heating or cooling system that filters out particles then the amount of particle pollution should be lower indoors, and it is OK to keep moving. It is important that the particle filtration system is installed properly and well maintained.

What is an asthma action plan?

An asthma action plan is a written plan developed with a person's doctor for daily management of asthma. It includes medication plans, control of triggers, and how to recognize and manage worsening asthma symptoms. See the [Centers for Disease Control & Prevention](#) for a link to sample asthma action plans. When asthma is well managed and well controlled, people should be able to participate fully in all activities.