GREEN TEAM

Elmhurst Park District

OZONE ACTION PLAN

2013

WHAT IS OZONE? - Ozone is described by the United States Environmental Protection Agency as "A gas that results from complex chemical reactions between nitrogen dioxide and volatile organic compounds (the major component of smog.)

Ozone at the ground level is one of six "criteria" pollutants for which EPA has established **national ambient air quality standards."**

National Ambient Air Quality Standards (NAAQS):
Standards have been established by the EPA to establish the maximum allowable concentrations of six "criteria" pollutants in outdoor air. These standards have been developed to protect human health and welfare.

The six pollutants include **ozone (ground-level), carbon monoxide, particulate matter, sulfur dioxide, lead, and nitrogen dioxide.** The standards are set at a level that protects public health with an adequate margin of safety.

Of the six pollutants the one that we will focus on reducing on Ozone Action days is Ground Level Ozone or Smog.

1. Ground-level ozone (smog) is formed by a chemical reaction between Volatile Organic Compounds **(VOCs)** and Nitrogen Oxides **(NOX)** in the presence of sunlight.

A. **Volatile Organic Pollutants/Volatile Organic Compounds (VOCs)**

Carbon-containing compounds that easily go from a solid to a gaseous form at normal temperatures. Sources include household products such as paints, paint strippers, and other solvents; wood preservatives; aerosol sprays; cleansers and disinfectants; moth repellents and air fresheners; stored fuels and automotive products; hobby supplies; dry-cleaned clothing.

B. **Nitrogen Oxides (NOX)**

A family of highly reactive gases (including nitrogen) that forms when fuel is burned at high temperatures. Emitted principally from motor vehicle exhaust and stationary sources such as electric power plants and industrial boilers.

Ozone concentrations can reach unhealthy levels when the weather is hot and sunny with little or no wind. Ozone at the ground level causes adverse effects on lung function and other adverse respiratory effects.

The Five other pollutants include:

2. **Carbon Monoxide (CO):**
   A colorless, odorless, poisonous gas produced by incomplete combustion of fossil fuels; one of the six "criteria" pollutants for which EPA has set National Ambient Air Quality Standards under the Clean Air Act.

3. **Particulate Matter:**
   Particles in the air, such as dust, dirt, soot, smoke, and droplets. Small particles (PM-10 or PM-2.5) have significant effects on human health. Particulate matter is one of the six "criteria" pollutants for which EPA has established national ambient air quality standards.

4. **Sulfur Dioxide (SO_2):**
   A pungent, colorless, gaseous pollutant formed primarily by the combustion of fossil fuels. One of the six "criteria" pollutants for which EPA has set national ambient air quality standards.

5. **Lead (Not calculated in determining the AQI)**
   Lead is a soft, blue-gray metal that occurs naturally, but shows up in the environment and specifically our air supply due to its historic use in paint and gasoline and from ongoing or historic mining and commercial operations. Currently metal processing is the biggest source of atmospheric lead, highest air concentrations are found near ferrous and nonferrous smelters and battery manufacturers.

6. **Nitrogen dioxide**, A chemical that results from nitric oxide combining with oxygen in the atmosphere; a major component of photochemical smog.

How is Air Quality measured?

Air Quality Index

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. EPA calculates the AQI for **five major air pollutants regulated by the Clean Air Act: ground-level ozone, particle pollution (also known as particulate matter), carbon monoxide, sulfur dioxide, and nitrogen dioxide**. For each of these pollutants, EPA has established national air quality standards to protect public health. **Ground-level ozone and airborne particles** are the two pollutants that pose the greatest threat to human health in this country.

How Does the AQI Work?

Think of the AQI as a yardstick that runs from 0 to 500. The higher the AQI value, the greater the level of air pollution and the greater the health concern. For example, an AQI value of 50 represents good air quality with little potential to affect public health, while an AQI value over 300 represents hazardous air quality.

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 below 100 are generally thought of as satisfactory. When AQI values 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.

Understanding the AQI

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 six categories:

Air Quality Index (AQI) Values)	Levels of Health Concern	Colors
When the AQI is in this range:	***...air quality conditions are:***	***..as symbolized by this color:***
0-50	Good	Green
51-100	Moderate	Yellow
101-150	Unhealthy for Sensitive Groups	Orange
151 to 200	Unhealthy	Red
201 to 300	Very Unhealthy	Purple
301 to 500	Hazardous	Maroon

Each category corresponds to a different level of health concern. The six levels of health concern and what they mean are:

- "Good" AQI is 0 - 50. Air quality is considered satisfactory, and air pollution poses little or no risk.
- "Moderate" AQI is 51 - 100. Air quality is acceptable; however, for some pollutants there may be a moderate health concern for a very small number of people. For example, people who are unusually sensitive to ozone may experience respiratory symptoms.
- "Unhealthy for Sensitive Groups" AQI is 101 - 150. Although general public is not likely to be affected at this AQI range, people with lung disease, older adults and children are at a greater risk from exposure to ozone, whereas persons with heart and lung disease, older adults and children are at greater risk from the presence of particles in the air. .
- "Unhealthy" AQI is 151 - 200. Everyone may begin to experience some adverse health effects, and members of the sensitive groups may experience more serious effects. .
- "Very Unhealthy" AQI is 201 - 300. This would trigger a health alert signifying that everyone may experience more serious health effects.
- "Hazardous" AQI greater than 300. This would trigger a health warning of emergency conditions. The entire population is more likely to be affected.

AQI colors

EPA has assigned a specific 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, the color orange means that conditions are "unhealthy for sensitive groups," while red means that conditions may be "unhealthy for everyone," and so on.

Air Quality Index Levels of Health Concern	Health Effects	Who is affected?	Meaning
Good 0 to 50	GOOD	X	**Air quality is considered satisfactory, and air pollution poses little or no risk**
Moderate 51 to 100	OK	**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, for some pollutants 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 liklihood of respiratory symptoms and breathing discomfort in sensitive groups.**	**Active children and adults, and people with respiratory disease, such as asthma, should limit prolonged outdoor activity.**	**Members of sensitive groups may experience health effects. The general public is not likely to be affected.**
Unhealthy 151 to 200	**Greater liklihood of respiratory symptoms and breathing difficulty in sensitive groups.**	**Active children and adults, and people with respiratory disease, such as asthma, 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.**	**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.**	**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 warnings of emergency conditions. The entire population is more likely to be affected.**

So what is the Big Deal? Does it really affect my health?

- The level of ozone found in the air in Cities along the southeastern and western shore of Lake Michigan (Milwaukee, Chicago, and Gary) during warm weather months (May through September) **frequently exceeds standards considered safe to human health.**

- Ozone reacts with lung tissue and can cause inflammation and harmful changes in breathing passages, decreasing the lung's working ability. ***Symptoms can include shortness of breath, pain when inhaling deeply, wheezing and coughing.***

- Individuals with existing lung disease (e.g.. asthma, chronic bronchitis, and emphysema) **already suffer from reduced lung function**. Exposure to ozone may further impair the ability of these individuals to perform normal activities and **can result in increased summertime hospital admissions, emergency department visits, and even death.**

- Individuals can protect themselves ozone levels are high by avoiding physical exertion between 11:00 a.m. and 8:00 p.m., and whenever possible, by limiting all outdoor activities.

- Exercise makes us even more vulnerable to lung damage from ozone.
  We breath more air during exercise or strenuous work. We draw air more deeply into our lungs. And when we exercise heavily, we breathe mostly through the mouth, bypassing the body's first line of defense against pollution - the nose.

- People who are already especially vulnerable to ozone are even more vulnerable when exercising or engaging in strenuous work. These people include: children; asthmatics, those with heart and lung disease; and the elderly.

- Children are especially vulnerable to ozone pollution during exercise because they breathe more and faster than adults; are more likely to play outdoors during the midday when ozone levels are highest; and their lungs are still developing.

- Exposure to ozone pollution can be minimized by exercising before 11:00 a.m. or after 8 p.m. Since sunlight and time are necessary for ozone formation, the highest levels typically occur during the afternoon.

- Bicycle transportation is a great alternative to driving a car. The environment benefits because there are zero emissions from bicycles. The rider benefits from increased exercise. HOWEVER, for all of the reasons just mentioned, the benefits to riders can be significantly reduced during the afternoon on days when the ozone levels are high. See the section for the air quality hotline numbers to call when you plan to spend the midday bicycling.

So how can we make a difference?

Elmhurst Park District

The Elmhurst Park District utilizes EnviroFlash, an email notification system that is supported by the EPA and AirNow.gov. EnviroFlash automatically notifies Parks, Enterprise Services, and Golf Course staff of the current and forecasted Air Quality Index (AQI). Then, based on the AQI value, staff will adjust their maintenance schedule according to the standards listed below.

PARKS DIVISION

On days that are deemed:
"Unhealthy for Sensitive Groups" or "Unhealthy"

1. Mowing crews will mow only until 11:00 am
2. Use of 2 cycle engines will be used on a limited basis before 11:00 am
3. Crew members may be sent home if there is a lack of useful work to complete.
4. Fueling of vehicles will be completed before 7:30 am
5. Trash collection will be done by parking the vehicle and dragging bags back to the truck to ensure no idling.

On days that are deemed:
"Very Unhealthy" or "Hazardous"

1. Mowing crews will not mow unless it is essential for a special event or a permitted activity and then only before 11 am
2. Use of 2 cycle engines will be avoided.
3. Crew members may be sent home if there is a lack of useful work to complete.
4. Fueling of vehicles will be completed before 7:30 am
5. Trash Collection will be done by parking the vehicle and dragging bags back to the truck to ensure no idling.

SUGAR CREEK GOLF COURSE

On days that are deemed:
"Unhealthy for Sensitive Groups" or "Unhealthy"

1. Heavy equipment and mower use will be limited or curtailed after 11:00 am.
2. 2-cycle engines may be used on a limited basis before 11:00 am.
3. Fueling of vehicles will be done before 7:30 am.
4. Crew will focus on scheduled tasks that can be performed without power tools

On days that are deemed:

"Very Unhealthy" or "Hazardous"

1. Only essential mowing will be performed before 11:00 am.
2. Use of 2-cycle engines will be avoided.
3. Fueling of vehicles will be done before 7:30 am.
4. Crew will focus on scheduled tasks that can be performed without power tools.

ENTERPRISE SERVICES

On days that are deemed:

"Unhealthy for Sensitive Groups" or "Unhealthy"

1. Gas powered power washer will only be used until 11:00 a.m.
2. Use of 2 cycle engines will be used on a limited basis before 11:00 a.m.
3. Fueling of vehicles will be completed before 7:30 a.m.
4. Golf cart will be used mainly before 11:00 a.m. and limited in use after 11:00 a.m.
5. Staff will focus on tasks that can be performed without power tools or vehicles.

On days that are deemed:

"Very Unhealthy" or "Hazardous"

1. Gas powered power washer will not be used, unless needed for special event or excessive clean up.
2. Use of 2 cycle engines will be avoided all day.
3. Vehicles will not be fueled unless imperative.
4. Use of the golf cart will be limited for the entire day.
5. Staff will focus on tasks that can be performed without power tools or vehicles.

What can individuals do at home?

1. Defer mowing your lawn until late evening or the next day.
2. Avoid using other gasoline-powered garden equipment.
3. Postpone the use of oil-based paints, solvents, or varnishes.
4. Use an electric starter or charcoal chimney rather than lighter fluid.
5. Defer use of household consumer products that release fumes or evaporate easily.
6. Conserve energy to reduce energy needs from power plants.
7. Avoid physical exertion between 11:00 a.m. and 8:00 p.m.
8. Limit driving. Defer errands or share a ride. For short trips, walk or ride a bike.
9. If you drive, avoid excessive idling or jack-rabbit starts.
10. Take public transit when available. Ride the bus or train to work, school, or shopping.
11. Avoid refueling on an Ozone Action Day. If you must refuel, do so after 7 pm.
12. Avoid using gasoline powered equipment, such as outboard motors and off-road vehicles
13. Keep Your Auto Well-Maintained: Have your engine and emissions control equipment inspected annually, keep your auto tuned up, and the tires properly inflated.
14. Drive Carefully: Avoid excess idling, accelerate slowly.
15. Drive Less. Combine trips, walk, bike, share a ride, or use public transit. Call (312) 793-RIDE for rideshare information.
16. Refuel Thoughtfully: Refuel after 7 p.m. Don't top off the gas tank.