

O₂ = Oxygen Molecule
What we breathe

O₃ = Ozone
Good up high!
(EPA)

ALL ABOUT AIR

Baltimore City Councilwoman Catherine Pugh invited the Baltimore Regional Transportation Board (BRTB) to hold its Bike to Work Day Rally to kick off Clean Commute Month at Baltimore City Hall Plaza on Friday morning, May 2. Councilwoman Pugh, who also chairs Clean Air Partners, accepted a check for \$5,000 from the Baltimore Bicycling Club for the City to purchase and install bike racks at a number of locations around town. Cycling produces zero pollution, and can be a healthy alternative to driving.



O = One Oxygen Atom
Atomic number = 8
8 protons
8 neutrons
8 electrons
(environmentalchemistry.com)

O₃ = Ozone
An Air Quality Code Red alert is issued when ozone concentrations are forecast to exceed 125 parts per billion.
(Clean Air Partners)

WHAT DO YOU DO ON A BAD AIR DAY?

Listen to local weather forecasts for Air Quality alerts and know what actions you can take to protect health and help reduce pollution.

AIR QUALITY	RECOMMENDED ACTIONS
CODE RED Unhealthy	<p>During CODE RED:</p> <ul style="list-style-type: none"> Children should reduce outdoor activities. Healthy individuals should limit strenuous or prolonged outdoor work or exercise. Individuals with respiratory ailments, such as emphysema, asthma, or chronic bronchitis should limit their outdoor activities. If breathing becomes difficult, move indoors. <p>Residents are strongly urged to:</p> <ul style="list-style-type: none"> Limit driving and refuel cars after dusk. Avoid mowing lawns with gas-powered mowers. Avoid any painting until later. Put off any aerosol consumer products. Don't use aerosol consumer products. Barbecue only with propane gas. <p>The following people should limit prolonged outdoor activities:</p> <ul style="list-style-type: none"> Children and adults who experience difficulty breathing outdoors. Those with respiratory ailments.
CODE ORANGE Unhealthy For Sensitive Groups	<p>All residents are urged to:</p> <ul style="list-style-type: none"> Limit driving and refuel cars after dusk. Avoid using aerosol products. Share a ride, use transit, or drive only their best maintained, most fuel-efficient vehicle.
CODE YELLOW Moderate	<p>Residents should:</p> <ul style="list-style-type: none"> Consolidate trips and errands. Limit car idling when possible. Conserve electricity and set air conditioners to 78°F.
CODE GREEN Good	<p>Residents should try to:</p> <ul style="list-style-type: none"> Carpool, use transit, bike, or walk. Keep cars and boats tuned. Use environmentally safe paints and cleaning products.

O₃ = Ozone
Bad nearby!
(EPA)

O = One Oxygen Atom
Likes to bond with other atoms to form molecules

O₃ = Ozone
Can cause coughing, chest pain and shortness of breath, even in healthy adults
(EPA)

Ozone, or O₃, is a relatively unstable, highly reactive form of the element oxygen, with three oxygen atoms per molecule. O₂, the oxygen we breathe, consists of only two atoms per molecule.

The ozone layer in the upper atmosphere, about 15 miles above the earth's surface, forms a shield that protects us from harmful ultra-violet rays from the sun. Without the ozone layer, we'd be more susceptible to skin cancer, cataracts and impaired immune systems.

At ground level, however, ozone can cause health and other problems. Ground-level ozone is a weather-driven phenomenon, and generally occurs in the Baltimore region between May and October. Volatile organic compounds (VOCs) and nitrogen oxides (NOx) from gasoline engines, household products and other sources "cook" in bright sunlight on long hot days with stagnant air. Unattached "free" oxygen atoms combine with each other or with oxygen molecules in clusters of three to form ozone.

That extra oxygen atom can cause O₃ to irritate the lungs and wreak havoc with plants and crops. The Environmental Protection Agency (EPA) determined that concentrations of 125 parts per billion (ppb) of ozone in the air over a one-hour period are unhealthy, even for otherwise healthy adults. There is also evidence that exposure to an average of 85 ppb over an eight-hour period may be harmful to the general population. Children, the elderly and anyone with respiratory problems are at risk of health problems at even lower concentrations.

Symptoms of ozone exposure include coughing, tightness in the chest, shortness of breath and/or difficulty breathing. The American Lung Association found a high correlation between emergency room visits for asthma and respiratory disorders, and days with high concentrations of ozone.

Because ozone too frequently reaches unhealthy levels on summer days in Baltimore, the EPA has designated our region as a severe non-attainment area for ground-level ozone. Since the early 1990s, BMC has been working closely with the Maryland Department of the Environment (MDE), Maryland Department of Transportation (MDOT), Metropolitan Washington Council of Governments (COG), Clean Air Partners, local governments and the private sector to promote voluntary actions to reduce ozone pollution.

A special team of meteorologists monitors weather conditions and issues daily ozone forecasts from May through September. When air quality is predicted to approach or exceed the EPA health-based standard, MDE issues an Air Quality Code Red or Code Orange Alert in the Baltimore region.

On Code Orange days, all residents are urged to refuel vehicles after dusk, avoid using aerosol products, and reduce driving by sharing a ride or using transit, and driving only their most fuel-efficient vehicle. Children and adults who experience difficulty breathing outdoors, and anyone with respiratory ailments, should limit prolonged outdoor activity.

On Code Red days, residents should ALSO avoid using gasoline-powered lawn and garden equipment, put off painting, and barbecue only with propane gas. All children should reduce outdoor activities. Healthy individuals should limit strenuous or prolonged outdoor activity. Individuals with respiratory ailments should limit outdoor activity, and move indoors if breathing becomes difficult.

Sources: See page 4



Clean Air Partners kicked off its Ozone Action Days program with a mid-day rally at Baltimore's City Hall Plaza on Friday, May 2. Children from Coldstream Elementary School had a lesson about air quality and ozone, saw vehicles powered by alternative fuels, and were given activity books to take back to the classroom. The celebration culminated with a Clean Air Barbeque, featuring burgers and hot dogs cooked on a propane grill.

O₃ = Ozone
Transported on air currents
Ozone from the mid-West and Washington, DC, can travel to Baltimore, while Baltimore's ozone can end up in New York, Boston or Maine.
(EPA)

O₂ = Oxygen Molecule
About 21% of Earth's atmosphere
Most of the rest is nitrogen.
(environmentalchemistry.com)

DO YOUR SHARE TO CLEAN THE AIR

Try one of more of these ways to help us all breathe easier

Leave gasoline-powered lawn and garden equipment in the garage on Ozone Action Days.

- Most lawn mowers and other tools don't have pollution controls. Running a gasoline-powered lawn mower for an hour produces the same amount of pollution as driving from Baltimore to Hartford, Connecticut.

Use environmentally-friendly paints and household products.

- Water-based latex paint and non-aerosol sprays are better for air quality on any day.

- You can also save money and save the air by using baking soda, white vinegar and other common substances for many cleaning chores. Learn more from the University of Maryland Cooperative Extension Service at <http://www.agnr.umd.edu/MCE/Publications/Publication.cfm?ID=76&cat=L>

Be car smart.

- Keep your tires properly inflated and your vehicle well-maintained to get the best possible gas mileage, and reduce polluting emissions.

- Refuel after dusk, when gasoline vapors won't have a chance to cook in the sun.

- Combine several errands into a single trip to avoid cold starts.

Try Telework.

- Work is what you do, not where you go.

- Working from home reduces traffic congestion and the pollution it creates.

- Learn more at www.teleworksmart-md.org

Try an alternative commute.

- Try transit. Take MARC, the bus, light rail or metro. Find schedules at www.mtmaryland.com

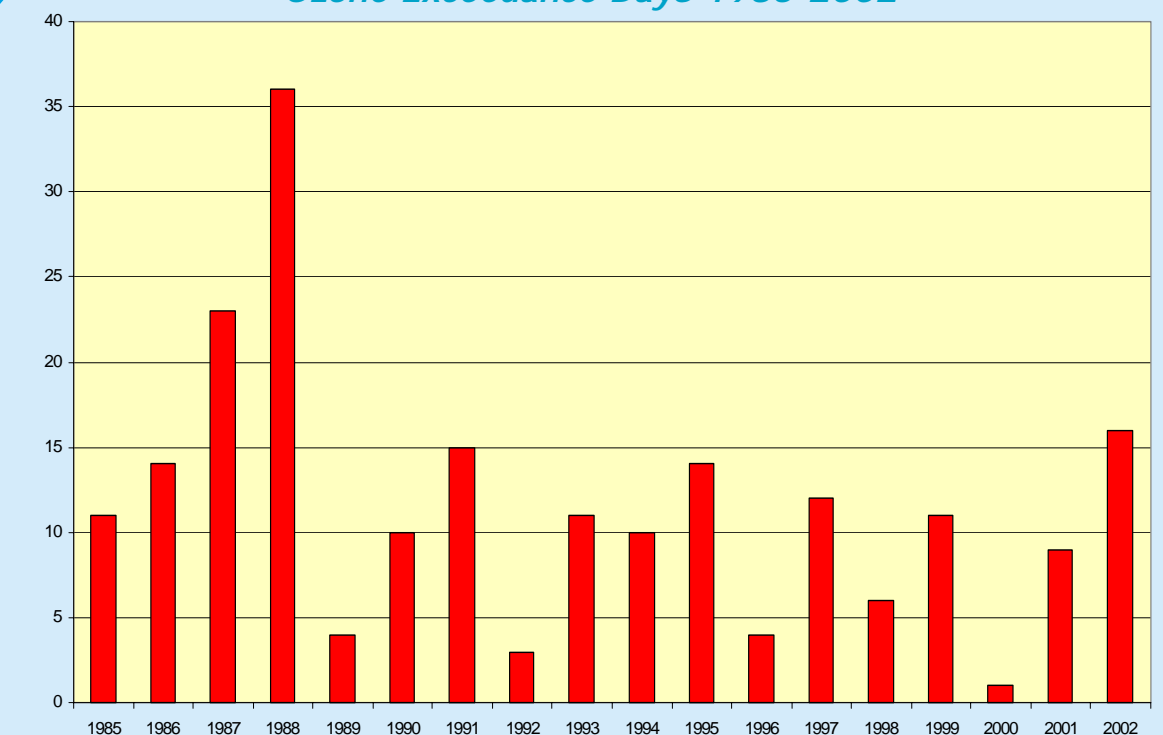
- Rideshare to save time, save money and save your sanity. Register online at www.metrorideshare.com

- Combine your commute with a workout as you bike to work. Find helpful tips at www.baltobikeclub.org

O = One Oxygen Atom
Discovered in 1774 by Joseph Priestly and Carl Wilhelm Scheele
(environmentalchemistry.com)

O₂ = Oxygen Molecule
Needed to support life and combustion
(environmentalchemistry.com)

We're Getting Better! Ozone Exceedance Days 1985-2002



Our air quality has improved over the last fifteen to twenty years, thanks in large part to regulations on industry, cleaner fuels and more fuel-efficient vehicles. The weather in the summer of 1988 was very similar to the weather in the summer of 2002. In 1988 the Baltimore region experienced 36 exceedances of the health-based standard for ground-level ozone. In 2002 there were only 16 exceedances. Reducing the use of gasoline engines in vehicles, boats, and lawn and garden equipment can help even more. So can using environmentally-friendly products, such as water-based latex paints and non-aerosol sprays.

