

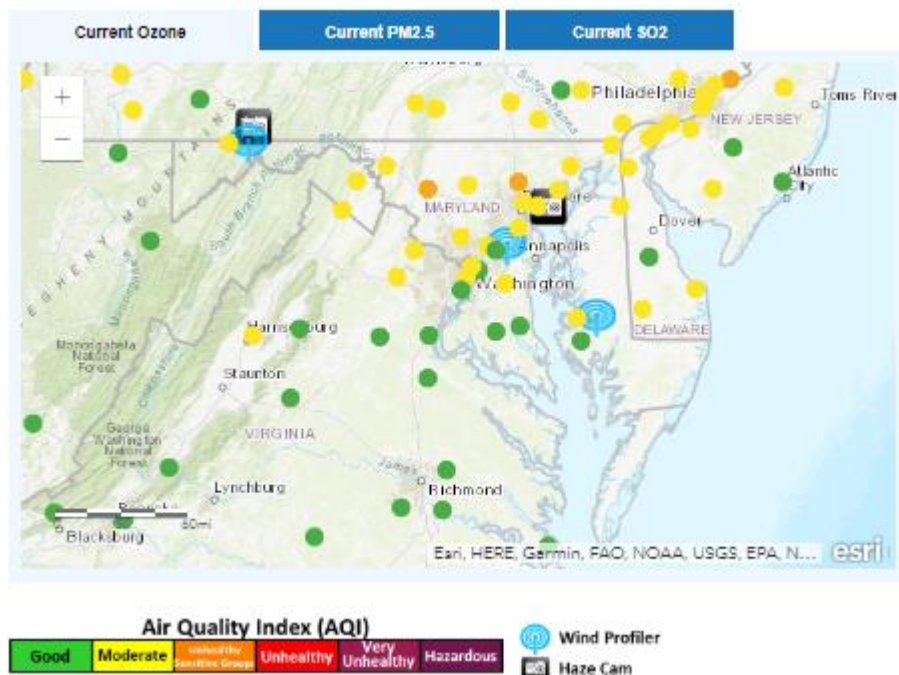


Air Quality

1. *Is air quality measured routinely in Calvert County?*

The Maryland Department of the Environment (MDE) has one routine air quality monitoring station in Calvert County, west of Prince Frederick near Barstow. The station only monitors ozone (O₃) concentration.

The U.S. Environmental Protection Agency (EPA) and MDE also monitor air quality in our multi-county region. MDE provides county-by-county air quality conditions and forecast with a discussion of air quality factors.



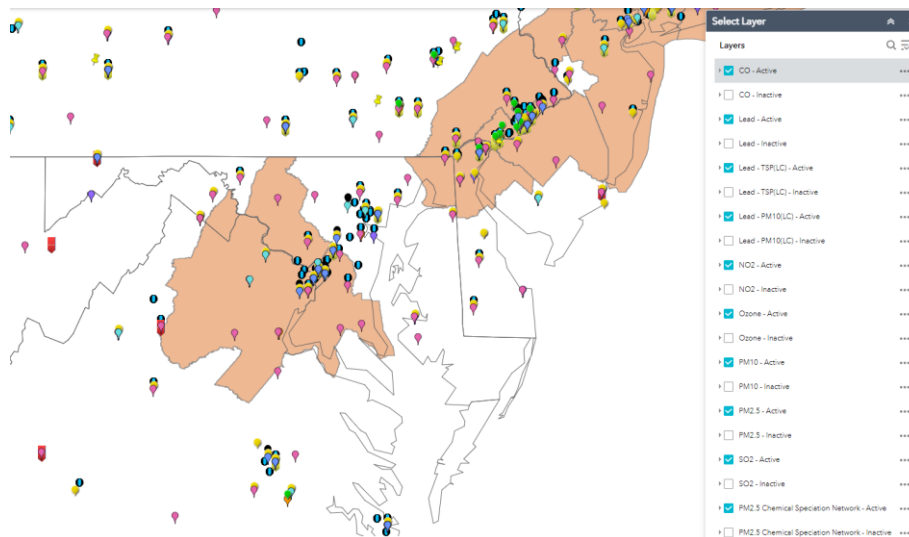
MD Dept. of the Env., "Current Air Quality Conditions" (accessed Jul. 2023), <https://mde.maryland.gov/programs/air/airqualitymonitoring/pages/index.aspx>

Similarly, the EPA allows you to look up your zip code for the current air quality and a four-day forecast along with links to air quality cameras and fire and smoke maps.



U.S. EPA Ofc. of Air Quality Planning and Standards, "Current Air Quality" (accessed Jul. 2023), <https://www.airnow.gov/?city=St%20Leonard&state=MD&country=USA>.

The EPA's AirData is a GIS map providing layers showing monitoring stations for carbon monoxide, lead, nitrogen dioxide, ozone, particulate matter 10, particulate matter 2.5, and sulfur dioxide.



EPA, "AirData Air Quality Monitors" (accessed Jul. 2023), <https://epa.maps.arcgis.com/apps/webappviewer/index.html?id=5f239fd3e72f424f98ef3d5def547eb5&extent=-146.2334,13.1913,-46.3896,56.5319>

2. *What routine air quality measurements are made?*

Routine air monitoring stations in Maryland measure ground-level concentrations of criteria pollutants, air toxics, meteorological conditions, visibility, and other research data. The six criteria air pollutants, designated by the EPA, are ground-level ozone, particulate matter, carbon monoxide, lead, sulfur dioxide, and nitrogen dioxide. These criteria air pollutants are compared to National Ambient Air Quality Standards, as part of the federal Clean Air Act. More information can be found on the EPA's website (<https://www.epa.gov/criteria-air-pollutants>).

3. *What is ozone?*

Ozone is a colorless gas composed of three atoms of oxygen (O₃). Ozone occurs naturally in the Earth's upper atmosphere ("good" ozone), where it forms a protective layer that shields us from the sun's harmful ultraviolet rays. Ground-level or "bad" ozone is not emitted directly into the air but is created by chemical reactions between nitrogen oxides (NO_x) and volatile organic compounds (VOCs). This reaction occurs when pollutants emitted by cars, trucks, power plants, industrial boilers, refineries, chemical plants, and other sources react chemically in the presence of sunlight. Ozone is most likely to reach unhealthy levels on hot sunny days. (See <https://www.epa.gov/ground-level-ozone-pollution/ground-level-ozone-basics>.)

4. *What are the human health effects of ozone?*

Ozone is a powerful oxidant that can cause a number of health problems, including coughing, breathing difficulty, and lung damage. Exposure to ozone can make the lungs more susceptible to infection, aggravate existing lung diseases, increase the frequency of asthma attacks, and increase the risks of early death from heart or lung disease. Healthy adults can experience ozone's harmful effects, but people with asthma, children, older adults, and people who work outdoors are at greater risk.

5. *What are the effects of ozone pollution on the environment?*

Ozone can affect sensitive plants by reducing photosynthesis; slowing plant growth; and increasing risks of plants to disease, insect damage, severe weather events, and other pollutants. The adverse effects of ozone on individual plants can then have negative impacts on ecosystems through a loss of species diversity, changes in the species composition of plants in a forest, changes in habitat quality for animals, and changes to water and nutrient cycles. See EPA's [Ground-level Ozone Basics](#).

6. *What Air Quality Index (AQI) values for are safe and unsafe?*

AQI Basics for Ozone and Particle Pollution

| Daily AQI Color | Levels of Concern | Values of Index | Description of Air Quality |
|-----------------|--------------------------------|-----------------|---|
| Green | Good | 0 to 50 | Air quality is satisfactory, and air pollution poses little or no risk. |
| Yellow | Moderate | 51 to 100 | Air quality is acceptable. However, there may be a risk for some people, particularly those who are unusually sensitive to air pollution. |
| Orange | Unhealthy for Sensitive Groups | 101 to 150 | Members of sensitive groups may experience health effects. The general public is less likely to be affected. |
| Red | Unhealthy | 151 to 200 | Some members of the general public may experience health effects; members of sensitive groups may experience more serious health effects. |
| Purple | Very Unhealthy | 201 to 300 | Health alert: The risk of health effects is increased for everyone. |
| Maroon | Hazardous | 301 and higher | Health warning of emergency conditions: everyone is more likely to be affected. |

Source: U.S. EPA Ofc of Air Quality Planning and Standards, Air Quality Index (AQI) Basics (AirNow, accessed Jul. 2023), <https://www.airnow.gov/aqi/aqi-basics/>.

7. *How does air quality in Calvert County compare to other counties in Maryland?*

Because ozone is the only air pollutant routinely measured in Calvert County, comparisons with other counties can only be made for this pollutant. The current Clean Air Act standard for ozone is a maximum of 70 parts per billion (ppb), which if exceeded, indicates "non-attainment" for these

standards under the Clean Air Act. Ozone levels have decreased in Maryland, including Calvert County, during the last two decades. Nevertheless, ground-level ozone levels still remain very close to exceeding the federal standard of 70 ppb.

In 2016, Calvert County exceeded that ozone standard on six days, with concentrations between 70 and 85 ppb. Several other MD counties north and west of the DC region—including Cecil, Baltimore Harford, and Prince Georges counties—also exceeded the ozone standards and for more days: between 10 and 20 in 2016.

Annual reports on ground-level ozone in Calvert County, and at-risk populations (COPD, lung cancer etc.) are in the American Lung Association's [State of the Air](#) reports.

8. *Where can I find more information about air quality in Calvert County and Maryland?*

More information can be found on MDE's [Current Air Quality Conditions](#) website.

Reviewed: July 2023