Air Pollution Overview

Air quality affects human health as well as soil and water quality, vegetation and ecosystem health, visibility, property, and agricultural productivity. Air quality is managed under a variety federal, state, regional, and local government initiatives.

Air Quality Management Programs Applicable to Rockville

- Under the Clean Air Act, the U.S. Environmental Protection Agency (EPA) sets National Ambient Air Quality Standards (NAAQS) to limit the concentrations of six criteria pollutants: carbon monoxide, lead, nitrogen dioxide, ground-level ozone, particulate matter and sulfur dioxide. Regions that do not meet a NAAQS for a given pollutant are said to be in "non-attainment" for that pollutant. When an area is in nonattainment of these standards, State Implementation Plans (SIPs) must be prepared to attain and maintain national standards.
- The Metropolitan Washington Air Quality Committee (MWAQC) Region, which includes Montgomery County and the City of Rockville, is in non-attainment for ground-level ozone and particulate matter (PM2.5).
- The Maryland Department of the Environment (MDE) administers air pollution monitoring, planning, and control programs; including the State's air quality regulations (COMAR 26.11) and the Maryland Healthy Air Act.
- The nearest state air monitoring station to Rockville is located at the Lathrop E. Smith Environmental Education Center in Montgomery County.
- Rockville is a member of the Metropolitan Washington Air Quality Committee (MWAQC), which has developed SIPs for the Washington, DC-MD-VA nonattainment area for fine particles (PM2.5) and ground level ozone.
- Montgomery County's Air Quality Control requirements (Chapter 3 of the Montgomery County Code) apply in the City of Rockville to protect ambient air quality and facilitate improvement of indoor air quality.

Air Pollutants of Concern to Rockville

Ground-Level Ozone (O_3)

While ozone in the upper atmosphere shields harmful ultraviolet rays, ground-level ozone is a harmful pollutant and the primary constituent of smog. Unhealthy ozone levels typically occur during the summer and can harm respiratory systems. Ground-level ozone is not directly emitted; instead, it is generated when heat and sunlight react with volatile organize compounds (VOCs) and nitrogen oxides (NOx). Sources of chemicals needed to produce ground-level ozone include motor vehicles, power plants, chemical plants, industrial facilities, fueling stations and consumer products like paint, paint thinners, dry cleaning solvents and treated wood. Ozone requires light to be produced and there are higher levels during the hot summer months.

Breathing ozone can trigger a variety of health problems including chest pain, coughing, throat irritation, and congestion. It can worsen bronchitis, emphysema and asthma. Ground-level ozone also can reduce lung function and inflame the linings of the lungs. Repeated exposure may permanently scar lung tissue. In addition, ground-level ozone can damage vegetation and ecosystems.

Particulate Matter

"Particulate Matter," or PM2.5, is the term for a mixture of solid particles and liquid droplets found in the air. These particles come in many sizes and shapes and can be made up of hundreds of different chemicals. PM2.5 includes only fine particles with diameters that are 2.5 micrometers and smaller. Sources of PM2.5 include power plants, industrial facilities, wood stoves, motor vehicles — especially older model diesel vehicles and equipment with two-stroke engines like some lawn mowers, weed whackers and chainsaws, because they burn oil.

Particle pollution such as PM2.5 can get deep into the lungs and cause serious health problems including:

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

In addition, particle pollution can have adverse environmental effects when it settles causing acidification of ponds and streams, changes to the nutrient balance in large river basins, depletion of the nutrients in soil and damage to sensitive forests and farm crops.

Clean Air Tips

According to the Clean Air Partners program, everyone can make small changes to their lifestyle at home, work and on the road to make a difference.

- Check the air quality forecast and modify your plans if unhealthy air quality is predicted.
- Instead of driving, share a ride, take public transportation, walk or bike.
- If you must drive, keep your car well maintained to limit excess emissions, avoid excessive idling or jack-rabbit starts, and try to consolidate errands. Choose to refill your car after 7 pm.
- Wait to mow your lawn or use gas powered garden equipment until late evening or the next day.
- Use latex paints instead of oil-based paints, solvents, or varnishes that produce fumes.
- If you are barbecuing, use an electric starter instead of charcoal lighter fluid.
- Conserve energy at home and use electricity generated from clean renewables.