Why do we monitor air quality in Lane County?

The Willamette Valley is bordered by the Coast Range to the west and the Cascade Mountains to the east. During fall and winter months, temperature inversions trap cold air near the valley floor with slightly warmer air aloft. The combination of cold, stagnant air and restricted ventilation causes air pollutants to build up in the valley. In colder months, temperature inversions trap fine particulates. During summer months, valley inversions trap dust from agricultural operations, vehicle exhaust and other pollutants, forming a brown haze. High summertime temperatures and low wind speeds contribute to the formation of ozone, or smog. Smoke from summer wildfires may also add to pollution problems.

The problem with particles

Particulate matter is made up of tiny specks of solid material that get into the air. Pollen, spores, dust, dirt and soot are examples of natural particles floating around in the air. In the southern Willamette valley, smoke from residential wood heating is the major contributor to winter time air pollution. Along with particulates from wood smoke, vehicle exhaust and industrial sources all contribute to poor air quality during cold winter months.

Fine particulates are measured in microns and are about 50 times smaller than the diameter of a human hair. Most of the time, they can't be seen. When inhaled, they go deep into the lungs and cause irritation. Fine particulates are harmful because they stay in the lungs. Exposure to fine particulates can cause health problems for people, especially those with pre-existing conditions.

Ozone: good up high, bad down below

While ozone in the upper atmosphere protects us from the sun's ultraviolet waves, ground level ozone is harmful to human health and the environment. Although the Eugene/Springfield area is one of the cleanest places in the country for ozone, periods of air stagnation during hot summer months can result in elevated levels of ozone. Ozone is not a directly emitted pollutant. It forms when oxides of nitrogen and volatile organic compounds are "baked" by the sun and undergo a chemical reaction to form ozone. Vehicle exhaust, vapors from refueling, the use of solvents, and industrial emissions all contribute to ozone formation.

LRAPA's monitoring network

LRAPA's air quality monitoring network consists of seven monitoring sites that measure a total of 46 parameters. The agency collects about 300,000 hours of pollutant-related data per year. At an estimated operational cost of $281,272 per year, LRAPA's network provides Lane County with comprehensive data on local air quality. Without the local program, the Lane County network could have as few as four sites, with a total of four to six sets of equipment, and a collection basis of fewer than 40,000 hours of pollutant-related data annually.

LRAPA's network includes three locations in Eugene, and one each in Springfield, Oakridge, Cottage Grove, and Saginaw.

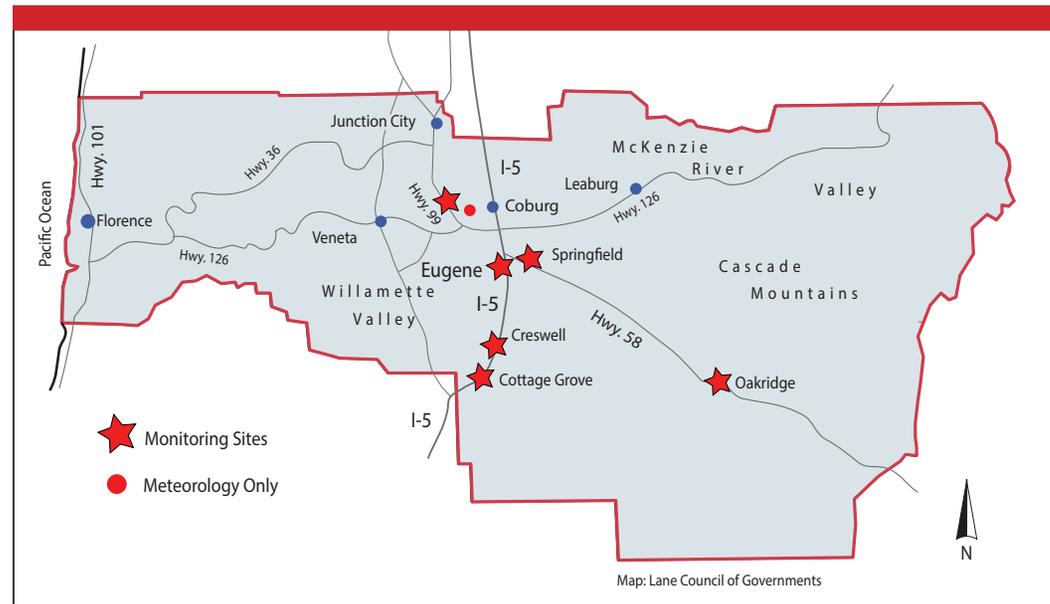**Amazon Park: Ozone, $PM_{2.5}$** (South Eugene)
Cottage Grove: $PM_{2.5}$ (City Shops)
Four Corners: PM_{10}, $PM_{2.5}$ (Highway 99)
Oakridge: PM_{10}, $PM_{2.5}$ (Community Center)
Saginaw: Ozone (Fire Station)
Santa Clara: (Meteorology only)
Springfield: $PM_{2.5}$ (Springfield City Hall)

Map: Lane Council of Governments

Scan the QR code to access a detailed monitoring site map and site photos.

Measuring Air Pollution

How do we measure air pollution?

Monitoring stations have special instruments to measure the amount of specific pollutants in the air. Using information from the monitors, it can be determined whether the air is healthy or unhealthy for people.

LRAPA measures particulate matter at five sites in Lane County: west Eugene, south Eugene, downtown Springfield, Cottage Grove and Oakridge. Particulate matter is measured using two methods. The first method uses a filter that captures particles. The filters are weighed to determine how much pollution is contained in each cubic meter of air that has been drawn into the sampler. The second method measures particles with a nephelometer, which uses a light beam and light detector. Light reflected from the particles determines the concentration of particles in the air.

LRAPA measures ozone concentrations at Amazon park in south Eugene and in Saginaw, near Cottage Grove. To determine ozone levels, a pump brings an air sample into equipment that uses ultra-violet light and a two-step process that calculates the amount of ozone in the sample.

Real-time air quality monitoring data can be accessed on the LRAPA website: http://mdas.lrapa.org/

Interested in more detailed air quality data? Scan the QR code for a summary of monitored parameters that are updated hourly.

Reporting Air Quality

How is the air today?

The United States Environmental Protection Agency (EPA) has developed an Air Quality Index (AQI) to provide the public with simple information about local air quality. EPA uses information from local monitoring stations to give daily reports about air quality and the possible health impacts on bad air days. Reports are given during television weather reports, published in daily newspapers, and displayed at lrapa.org.

The AQI has four color-coded categories that define air quality and the risk associated with each category. The colors make it easy for people to understand when air quality is good or when it is reaching unhealthy levels.

AQI — AIR QUALITY INDEX

Good	Air quality is considered satisfactory and air pollution poses little or no risk.
Moderate	Air quality is acceptable, however, at these levels there may be a moderate health risk for a very small number of people.
Unhealthy for Sensitive Groups	Certain groups of people who are particularly sensitive to the harmful effects of certain pollutants are likely to be affected at this level.
Unhealthy	The general public may begin to experience adverse health effects. Members of sensitive groups may experience more serious health effects.

Want to know more?
Visit lrapa.org or call 541-736-1056

Air Quality Monitoring in Lane County

LRAPA
Lane Regional Air Protection Agency

Community partners working together to ensure clean air for everyone