Air Quality

Every community member breathes clean and healthy air

Goal: Every community member breathes clean and healthy air.

Description

Clean air is a fundamental right regardless of one's neighborhood or socioeconomic status. We all have to breathe, but we seldom have a choice in the quality of the air we breathe. Where we live, where we work, and what other people do has a big impact on the quality of the air we are exposed to from day to day.

Air pollution has substantial health impacts that can lead to sickness and even early death. Multnomah County is the most urban county in Oregon and its residents are subject to high pollution exposure from fossil fuel combustion, industry, and even residential and commercial wood burning. These sources of pollution expose people to elevated levels of fine particulate matter (soot), nitrogen oxide, ozone, diesel particulate matter, and other air toxics. Smoke from wildfires, exacerbated by a heating climate, is also an emerging threat resulting in worsening air quality across the U.S. West after decades of improvements.[6]

Air quality is an environmental justice issue. Although air pollution affects everyone in Multnomah County, it puts communities of color at greater risk. Analysis has shown that Black and Latinx communities tend to live in areas with the highest concentrations of diesel particulate matter (a highly toxic soot from diesel engines) and residential wood smoke (which also produces soot and other pollutants).[7,8] Indoor air quality is also impacted from a wide variety of sources — including household cleaners, tobacco use, pets, pests, mold, gas stoves,[9] wood stoves, and dust — and is often less healthy than outdoor air. Elevated levels of carbon monoxide or radon may also pose serious health risks for indoor air quality.

How we measure impact

Indicator 1: Number of days that the Air Quality Index is 50 or above, or "moderate (yellow)" level, in Multnomah County.

Description: Think of the Air Quality Index (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. AQI is a composite measure of several air pollutants, including particulate matter, nitrogen oxide, and ozone. The desired outcome in Multnomah County is to have zero days with an AQI over 50, also known as "moderate (yellow)" level — the level at which air quality begins to become unhealthy for sensitive populations.

Current data: In recent years, there have been more days with unhealthy- to hazardous-air quality and more frequent consecutive days of poor air quality. In 2024, there were **55 days** when the AQI was 50 or above.

Data source: Environmental Protection Agency (EPA)

Indicator 2: Number of emergency department (ED) or urgent care (UC) visits for breathing-related illness per 100,000 people in Multnomah County, and associated demographic data about those seeking care.

Description: This indicator measures the number of visits to hospital emergency departments and urgent care clinics (ED/UC) made by people with non-infectious respiratory illnesses. The indicator excludes data for respiratory illness caused by communicable disease such as COVID-19 and the common cold.

Current data: After a notable decrease in 2020, ED/UC visits for asthma-like illness have returned to pre-2020 levels in Multnomah County. **In 2024 the rate was 1,732 visits per 100,000 people.** Asthma-like illness ED/UC visitors are more likely to be female, older adults (ages 45-64), and/or Black than other ED/UC patients.

Data source: Regional Climate and Health Dashboard

Strategy 1: Improve indoor air quality through public health education and by increasing access to air cleaners.

Why does this matter?

According to the Environmental Protection Agency, Americans spend about 90% of their time indoors, and some pollutants can be 2 to 5 times higher than typical outdoor concentrations.[10] Exposure to unhealthy indoor air quality is particularly harmful to those who may be more vulnerable, such as children, the elderly, and people with health conditions like asthma and heart disease. Indoor air quality is affected by a wide variety of sources — including household cleaners, tobacco use, pets, pests, mold, gas stoves, wood stoves, and dust — and is often less healthy than outdoor air.[11] Outdoor air can also worsen indoor air quality, particularly if outdoor air has high levels of pollution, like during a wildfire.

Knowing how to maintain healthy indoor air is important, particularly as wildfires and wildfire smoke become a more common occurrence. Indoor air cleaners (filters), mechanical ventilation with proper filtration, and behavior change can dramatically improve indoor air quality.

STRATEGY CATEGORY

- ● **County Strategy**
- ○ Investment Opportunity
- ○ Community Leadership

STRATEGY TYPE

- ○ Advocate
- ● Research
- ● Convene
- ● Implement

COUNTY CAPACITY

○ Existing ● Additional ○ New

COUNTY CONTROL

COUNTY INFLUENCE

COUNTY PRIORITY

Putting this into practice

- Develop outreach materials to help households improve indoor air quality.
- Develop partnerships with providers, community organizations, child care facilities, and industries for distribution of air cleaning devices and education.
- Identify service gaps and necessary data to improve future air cleaner distribution and outreach.
- Research viability of safety labels for indoor combustion appliances.

Lead department(s)

Health Department, Environmental Health Division; Office of Sustainability

Strategy 2: Maintain a robust residential wood burning curtailment program.

Why does this matter?

Smoke from residential fires for heating and ambiance is a leading cause of particulate pollution in Multnomah County. Residential wood burning is responsible for thousands of premature deaths in the U.S. and contributes to climate change through the release of radiation absorbing carbonaceous aerosols and carbon dioxide. Burning wood is harmful to health because the smoke releases a complex mixture of toxic gases and microscopic particles that easily enter the lungs and bloodstream. The primary dangers are fine particulate matter (PM2.5) and hazardous air pollutants that can trigger both short-term respiratory issues and long-term chronic diseases.[12] Implementing the County's wood smoke ordinance is central to a broad suite of strategies that reduce harmful air pollutants. The regulations exist to protect vulnerable populations, prevent federal air quality violations, and reduce longstanding environmental health disparities. This strategy is most effective when enforcement is paired with outreach and education.

Putting this into practice

- Continue daily advisories and enforcement.
- Broaden outreach and education.
- Strengthen the ordinance over time to adapt to changing conditions and scientific knowledge.

Lead department(s)

Health Department

STRATEGY CATEGORY

● **County Strategy**
○ Investment Opportunity
○ Community Leadership

STRATEGY TYPE

○ Advocate ○ Research
○ Convene ● Implement

COUNTY CAPACITY

● Existing ○ Additional ○ New

COUNTY CONTROL

Low Med High

COUNTY INFLUENCE

Low Med High

COUNTY PRIORITY

Low Med High

Strategy 3: Develop pollution control regulations for businesses that burn wood.

Why does this matter?

Using wood to cook is as old as humanity, but burning wood produces harmful pollution, including soot, nitrogen oxide, formaldehyde, and greenhouse gases, that impacts the surrounding community.[13] Multnomah County has restrictions in place for residential wood combustion that prevent the use of wood burning on days when air quality is forecast to be unhealthy.[14] Outdoor burning is also limited by the fire marshal if wildfire danger is high.

Some businesses use wood for heat, cooking, or ambiance. A restaurant that uses wood for cooking five to seven days a week, for example, creates significant localized air pollution. Wood burning can also be used as fuel for recreational heat or ambience, such as wood fired sauna businesses. Air filters can help capture and reduce that pollution in some cases, and in other cases wood burning should be avoided altogether, especially on air stagnation days.

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STRATEGY TYPE

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COUNTY CONTROL

Low Med High

COUNTY INFLUENCE

Low Med High

COUNTY PRIORITY

Low Med High

Putting this into practice

- Study the impact of commercial wood smoke, determine the impact of that pollution on public health, investigate potential technologies to address that pollution, and propose regulations that can be implemented at the state or local level.
- Research best practices for amending the existing wood smoke ordinance.
- Conduct outreach and engagement with the restaurant industry.
- Develop pilot programs to fund pollution controls at restaurants.

Lead department(s)

Health Department, Environmental Health Division; Office of Sustainability

Strategy 4: Support community-led air quality monitoring and invest in air quality outreach and education.

Why does this matter?

Community groups, both in Multnomah County and nationally, have grown more interested in developing community-based air quality monitoring networks. While the Oregon Department of Environmental Quality maintains a reliable network of air quality sensors, that network measures background, or ambient, levels of pollution and can't always detect more localized air quality problems. Technological advances have also increased the availability of accurate, lower-cost air quality sensors. In recent years, local groups like the Blueprint Foundation have developed youth education curricula that include building and deploying low-cost air quality sensors. These types of efforts can help communities feel more connected to what is often an invisible problem and develop their own solutions. In addition, localized sensor networks can detect issues that may otherwise be overlooked.

Putting this into practice

- Develop partnerships with community-based organizations to pursue grant funding to deploy an air quality sensor network and conduct research on community impacts and solutions.
- Support efforts to develop community-based outreach and education tools on air quality issues, as well as opportunities to involve the community in data collection (including qualitative data) that can identify sources and solutions to localized air quality issues.

Lead department(s)

Health Department, Environmental Health Division; Office of Sustainability

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COUNTY CONTROL

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COUNTY INFLUENCE

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COUNTY PRIORITY

Low Med High

Strategy 5: Develop policy for protecting vulnerable communities from nearby sources of pollution.

Why does this matter?

Many people in Multnomah County live in areas that are close to sources of air pollution. These can include transportation corridors, industrial sites, and freight hubs, like warehouses. Proximity to persistent sources of air pollution can have a negative impact on health and lead to environmental justice disparities at the community level. While some policy tools exist for addressing these sources of pollution — like air quality permits for fixed sources of pollution and pollution control standards for new mobile sources like trucks — these policies can fall short for nearby communities.

Advocacy coalitions have proposed strategies that would protect communities from new and existing pollution sources in their neighborhoods. For example, a proposed addition of environmental justice criteria to land use and siting decisions would provide the opportunity to give more consideration to newer sources of pollution, like warehouses or data centers. Another strategy is called "indirect source rules" through which freight hubs that create excess pollution from mobile source diesel engines are required to adopt to minimize pollution. These and other strategies could add substantial public health protections for Multnomah County residents.

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COUNTY INFLUENCE

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Putting this into practice

- Investigate the use of indirect source rules and environmental justice land use screens in other jurisdictions, and evaluate the applicability in Oregon and/or Multnomah County. Estimate the pollution reduction and environmental justice benefits from applying these tools locally.
- Develop more detailed knowledge of the air quality impacts of existing pollution sources that are not currently regulated by clean air rules.
- Continue community-centered coalition work to increase the awareness of air quality issues and build toward policy solutions.

Authorizing agencies

Oregon Legislature; Oregon Environmental Quality Commission; Oregon Department of Environmental Quality

Strategy 6: Develop nitrogen oxides (NOx) emissions standards for gas appliances that are vented to the outdoors.

Why does this matter?

Natural gas — which is mostly methane, a strong greenhouse gas — produces a variety of pollutants when combusted.* Combustion pollutants include nitrogen oxides (NOx), carbon monoxide (CO), carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), volatile organic compounds (VOCs), trace amounts of sulfur dioxide (SO_2), and particulate matter (PM).[15] According to 2020 National Emissions Inventory data for Multnomah County, natural gas contributes approximately 1,197 tons of the anthropogenic NOx pollution in Multnomah County annually (8.6% of the total). Most of those emissions are attributed to residential and commercial space heating, along with water heating and industrial processes, with residential use making up nearly half of the total. Together, use of natural gas represents the third-largest source of NOx in Multnomah County, with the majority coming from on- and off-road diesel equipment and passenger vehicles. Emissions from these other sources are being addressed through pollution control requirements for new vehicles, registration requirements for the tri-county region, and electrification.

In California, the South Coast Air Quality Management District adopted Rule 1146.2 that requires new and existing residential and commercial buildings to transition to zero-emission water heaters. The rule applies to natural gas-fired pool heaters, larger water heaters, small commercial water heaters, boilers, and process heaters, requiring zero-emission NOx standards when the equipment is replaced. Also in California, the Bay Area Air Quality Management District adopted Rules 9-4 and 9-6 that restrict the sale of gas furnaces, water heaters, and boilers. Both air districts anticipate substantial pollution reductions. As with any new regulations, it's important to ensure they are matched with sufficient time, technical assistance, flexibility, and incentives to allow regulated entities to successfully comply.

*Uncombusted gas leaks also pose serious health and safety concerns.

Putting this into practice

- Study the applicability of similar rules in California to Oregon and Multnomah County.
- Promote non-emitting alternatives for space and water heating.

Authorizing agencies

Oregon Legislature; Oregon Environmental Quality Commission; Oregon Department of Environmental Quality

Lead department(s)

Office of Sustainability

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