

CHANGES IN AIR QUALITY

Outcome: Improve Air Quality

Countywide Planning Policy Rationale

"All jurisdictions, in coordination with Puget Sound Air Pollution Control Agency* and the Puget Sound Regional Council, shall develop policies, methodologies and standards that promote regional air quality, consistent with the Countywide Policy Plan." (CA-14)

*Now the Puget Sound Clean Air Agency

About This Indicator:

Air quality is measured for its short, medium and long-term impacts on health and the climate. To monitor daily air quality, the U.S. Environmental Protection Agency (EPA) developed the **Air Quality Index (AQI)**, which establishes national air quality standards. However, the AQI does not measure potentially harmful air toxics and greenhouse gases, which lack national standards for measuring and reporting. Consequently, medium-term health impacts of pollution are evaluated through the measurement of **air toxics**, including over 400 additional pollutants suspected of causing significant health problems such as cancer and respiratory disease. **Greenhouse gases** are monitored due to their long-term effect on climate change.

Air Quality Index The AQI measures levels of six criteria pollutants-- fine particulate matter, ground-level ozone, carbon monoxide, sulfur dioxide, nitrogen dioxide and lead. Of these, particulate matter-- tiny particles in the air such as soot, smoke and dust-- represents the most important air pollutant challenge in the Puget Sound region. Exposure to this particulate matter aggravates asthma and is linked with respiratory infections. In the winter, most particulate matter comes from wood burning stoves and fireplaces; in the summer, vehicle exhaust and outdoor burning contribute most to levels of particulate matter.

The AQI indicates that air quality in King County improved steadily between 1980 and 1999, when the EPA applied stricter standards and added a category for sensitive groups. As shown in figure 10.1, King County experienced fewer "good" air quality days in 2005 than in 1999. However, only five days were categorized as "unhealthy for sensitive groups" and none were considered "unhealthy" in 2005.

Figure 10.1

Number of Days Per Year in Each Air Quality Category: King County

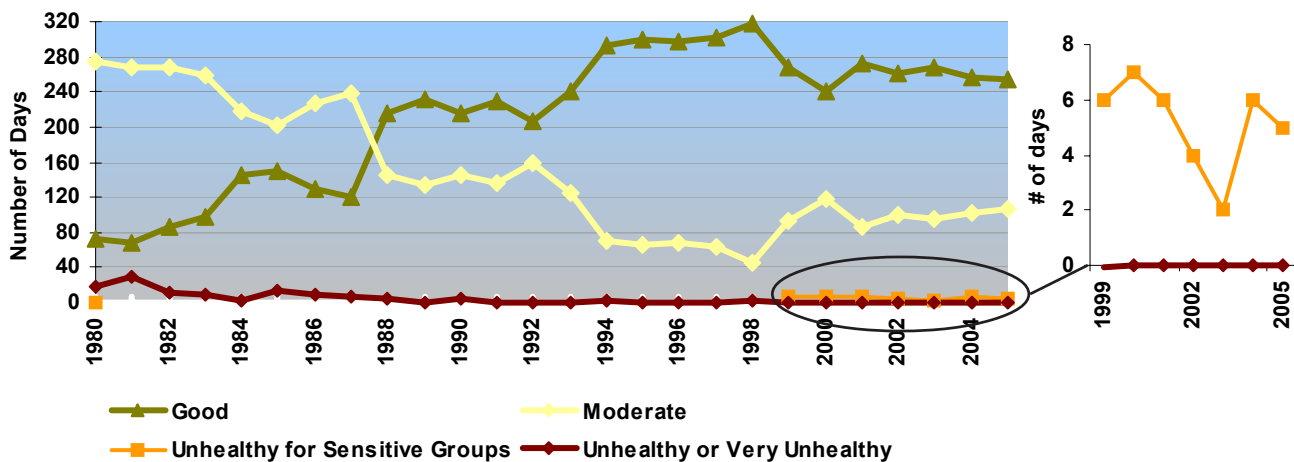
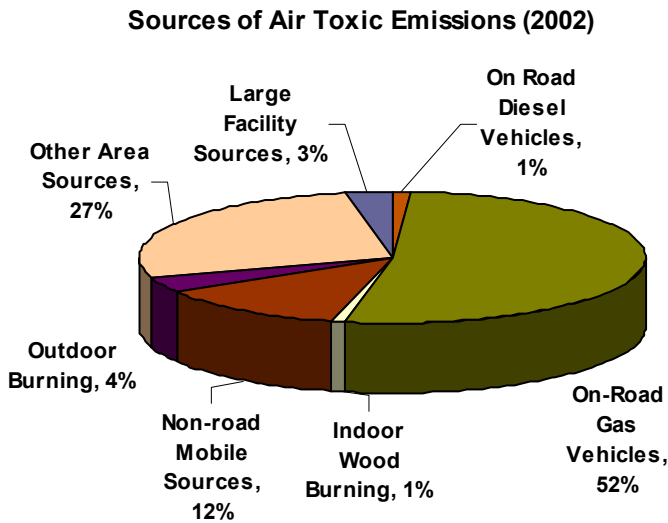


Figure 10.2

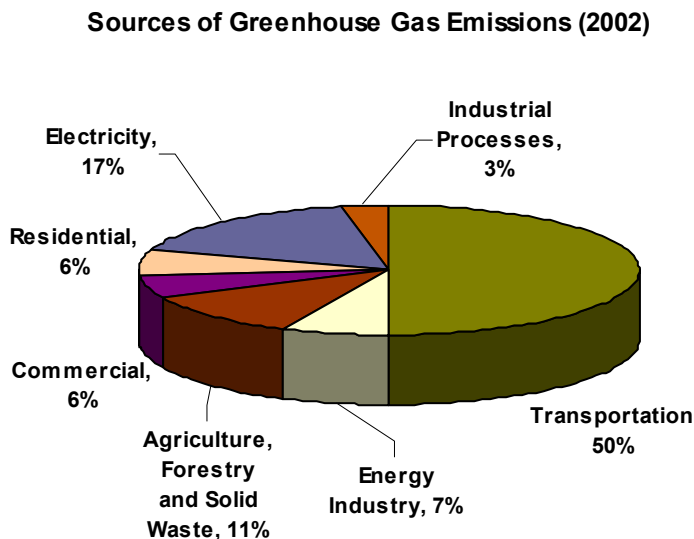


Air Toxics The Washington State Department of Ecology has monitored air toxics in the Puget Sound region since 2000 but trends in air toxics are not yet available. However, consistent with most major metropolitan areas, the U.S. EPA placed the Puget Sound region in the top five percent of the nation for potential cancer risk from air toxics. Diesel particulate matter—pollution from diesel-fueled trucks, cars, buses, construction equipment, rail, marine and port activities—poses the highest potential cancer risk in the region. The sources of diesel particulate matter and other air toxics are linked with land use and growth and shown in figure 10.2.

Greenhouse Gases While both naturally occurring and synthetic gases have been increasing in concentration for centuries, attention is drawn to the effects of global population growth and industrialization on greenhouse gas concentrations resulting specifically from human activity. In the State of Washington, carbon dioxide (CO₂) emissions are the largest source of greenhouse gas emissions.

As shown in Figure 10.3, the transportation sector—including on-road vehicles, ships, trains and planes—contribute fully one-half of the greenhouse gases emitted in the Puget Sound region. In 2006, the Washington State Department of Community, Trade and Economic Development found that increased freight movement on Washington’s roadways has accounted for an increasing share of on-road transportation carbon dioxide emissions over the last two decades. Despite improved fuel efficiency in passenger cars, the increased use of less-efficient light-duty trucks, SUVs and heavy-duty trucks has contributed to elevated carbon dioxide emissions.

Figure 10.3



From 1999 to 2003, greenhouse gas emissions in King County increased from 21.4 million metric tons of CO₂ equivalents (MTCO₂e) to about 23 million MTCO₂e. King County’s 2003 per capita emissions of 12.7 MTCO₂e were lower than the national average of 20.2 MTCO₂e per person, which may be due to the absence of coal-fired power plants and relatively little heavy industry in King County.

As with air toxics, motor vehicles contribute the vast majority of greenhouse gas emissions in our region. As discussed in Indicator 12, vehicle miles traveled (VMT) have risen steadily in the past decade, contributing to the rise in greenhouse gas emissions.