Clean Air & Your Health

We all use our common sense to judge the quality of the air we breathe: we literally rely on what our senses tell us. If we see soot coming from buses and trucks, smell rush hour traffic fumes, find ourselves behind the tailpipe of an idling car, or see smog on the horizon, our breathing is a bit harder and we know there's a problem.

Air quality is determined by a combination of weather conditions and what's emitted and dispersed into the air from a variety of sources - industry, power plants, motor vehicles and consumer products like paints. These pollutants combine to form ground-level ozone, the primary ingredient in smog.

Air quality in Massachusetts is pretty good most of the time, and it has been getting better as industry, business, and consumers work together to reduce obvious pollution sources. But every summer, air pollution drives thousands of people - especially children and the elderly, but many healthy adults, too - indoors and into hospital emergency rooms.

Sources of Air Pollution

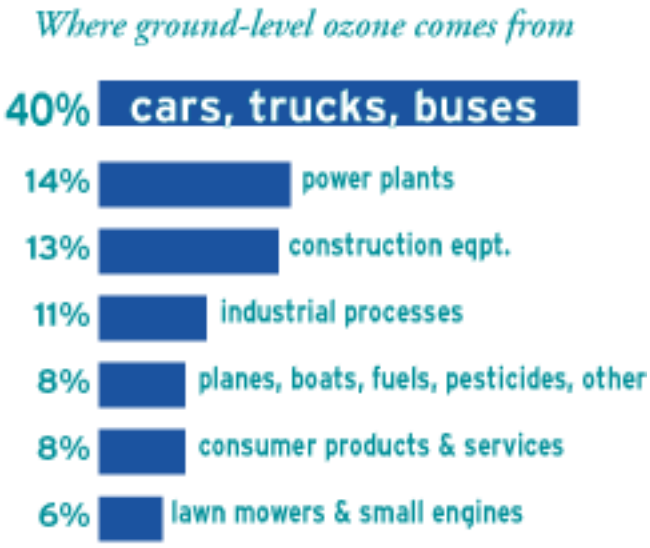
There are a number of sources of air pollution. But in urban areas throughout our state, motor vehicle emissions account for up to 40 percent of the pollutants that are toxic or noxious to people. Most of these pollutants come from cars, buses and trucks that aren't operating efficiently. Here are some vehicle pollutants and their effect on our health:

- Carbon monoxide (CO) displaces oxygen in the bloodstream, aggravates heart disease, and impairs alertness. It is especially dangerous to unborn and newborn children.
- Particulate Matter (PM) are microscopic particles and tiny droplets of liquid that can cause chronic wheezing and exacerbate such lung diseases as bronchitis, emphysema, asthma, and lung cancer. A significant source of particulate matter is diesel exhaust.
- Nitrogen Oxide (NOx) impairs breathing, aggravates lung and sinus infections, exacerbates lung disease, and contributes to fluid in the lungs. Vehicles are the largest source of NOx.
- Hydrocarbons are volatile organic compounds emitted primarily through fuel combustion from motor vehicles. They are toxic to human health, and readily combine with other pollutants to form ozone.
- Ground-level ozone is produced when emissions from motor vehicles and industry combine with sunlight on hot days. Ozone irritates eyes, nose, and throat, aggravates heart and lung diseases, and decreases lung function. Unlike the ozone in the upper atmosphere which protects the earth from the sun's harmful ultraviolet rays, ground-level ozone has no beneficial effects.

MassDEP measures air pollutants through a network of monitoring stations across the state and predicts air quality on a scale of good, moderate or unhealthy, with accompanying health advisories (see the chart below). The agency provides a Daily Air Quality Forecast and maintains an Air Quality Hotline at 1-800-882-1497. Many newspapers and electronic media outlets include this air quality information in their weather reports.

On the Road to Cleaner Air

The 4.2 million cars and about 600,000 diesel trucks and buses on Massachusetts are major contributors to air pollution. They generate about 40 percent of the hydrocarbons and nitrogen oxides that react with sunlight on hot days to produce ground-level ozone, the main ingredient in smog.



The good news is that vehicles offer the best opportunity to make a dramatic, immediate improvement in air quality. Not only have vehicle manufacturers been responding to the demand for cleaner cars, but with reformulated gasoline and vapor-recovery nozzles on gas pumps across the state, fewer pollutants are getting into the air.

Massachusetts Vehicle Check (formerly known as the Massachusetts Enhanced Emissions & Safety Test), introduced in 1999, is an improved inspection and maintenance program that tells us whether buses, trucks and cars are running as cleanly as designed. Making sure that vehicles are running efficiently is the single most important thing we can do for cleaner air.