

## Air Quality in Yarra

### What is Air Quality?

Yarra residents have stated that air quality is one of their greatest concerns. Air pollution or poor air quality directly impacts on our quality of life and our health. It can also have negative impacts on our natural environment, such as the health of the different plants and animals in our local parks and gardens.

Everyone has the right to clean air and everyone has a role to play in improving air quality. We need to know the causes of poor air quality and the ways we can help to reduce our impact on the environment.

### How clean is the air over Yarra?

Air pollution is a problem that no major city has successfully avoided. The air over Melbourne is a lot cleaner than it was 20 years ago, largely due to programs and standards that have been put into place to regulate air emissions. But with increases in population, private transport and businesses in Yarra, there is still the need to be vigilant and further reduce the pollutants that we emit into the air.

Air quality in the City of Yarra is influenced by the Melbourne-Geelong Airshed, a body of air that tends to be held within and over the greater city area.

### Measuring air quality

The EPA measures the air emissions in the Melbourne- Geelong Airshed at its numerous monitoring stations. The EPA has a network of nine air monitoring stations in Melbourne, two in the Latrobe Valley, and three in the Geelong region. These are supplemented by industry owned air-monitoring stations.

You can see the results of all these measurements updated every hour on:

<http://www.epa.vic.gov.au/Air/Bulletins/aqbhour.asp>

Day to day air quality is reported on:

[http://www.epa.vic.gov.au/Air/Bulletins/bulletin\\_t.asp](http://www.epa.vic.gov.au/Air/Bulletins/bulletin_t.asp) and in The Age and The Herald Sun.

The quality of air is measured according to the pollutants emitted into ambient air, the concentration of the pollutant, and the likely effects that amount of pollutant will have on an area's biodiversity and on human health.

### Common air pollutants

Common air pollutants include Carbon Monoxide, Ozone, Small Particles, Nitrogen Oxides, Sulfur Dioxide, and Lead. When these are directly emitted they are referred to as Primary Pollutants. Secondary pollutants are formed as a result of chemical and/or photochemical reactions in the atmosphere. All of these pollutants are usually referred to as Class 1 indicators and are of concern at a regional level due to the vast number of pollution sources.

### Hazardous air pollutants

Hazardous air pollutants are referred to as Class 2 and Class 3 indicators, and are present in low concentrations in our environment. They are of concern at a local level due to their toxicity. Hazardous Air Pollutants include:

- organic compounds such as styrene, formaldehyde, benzene and polycyclic aromatic hydrocarbons
- mineral and organic fibres like asbestos
- organic gases such as chlorine, hydrogen fluoride and ammonia
- Metals such as arsenic, chromium and mercury.

**The pollutants that are measured within the Melbourne area include:**

**Ozone  
O<sub>3</sub>**

Ozone is the main constituent of photochemical smog: a complex combination of pollutants that have reacted in the light and heat of the sun. These pollutants come predominantly from motor vehicles and industry. (At low altitudes ozone is a problem. At high altitudes, in the earth's stratosphere, ozone naturally forms a protective layer. The so-called 'Ozone Layer' is essential to human health as it filters out harmful ultra violet rays).

**Nitrogen Oxides  
NO<sub>x</sub>**

Nitrogen oxides (NO<sub>x</sub>), is the term used to describe the sum of NO, NO<sub>2</sub> and other oxides of nitrogen. These play a major role in the formation of ozone. The major source of NO<sub>x</sub> emissions are the burning of fossil fuels for energy production and motor vehicle use.

**Carbon Monoxide  
CO**

Carbon monoxide (CO) is a colourless, odourless, poisonous gas. It is a product of incomplete burning of hydrocarbon-based fuels and motor vehicles account for about 80% of carbon monoxide released in Melbourne.

**Lead  
Pb**

Lead is a heavy metal and a cumulative poison. The main source of lead has been reduced since the maximum lead content of leaded petrol in both NSW and Victoria was lowered to 0.2 grams/litre in 1995.

**Sulfur Dioxide  
SO<sub>2</sub>**

Fossil fuel combustion accounts for 75%- 85% of the world's human caused sulfur dioxide emissions. The main sources are the combustion of coal, oil and gas from coal burning power stations, oil refineries, and mineral-smelting areas. Acid rain, to which sulfur compounds are the greatest contributors, can significantly affect terrestrial and aquatic ecosystems. Partly due to the relatively low sulphur content of fossil fuels in Australia, national sulfur dioxide emissions are significantly lower than in Europe and America.

**Small Particles  
PM<sub>2.5</sub> and PM<sub>10</sub>**

Particles are a complex mix of organic and inorganic substances and come from a wide range of sources, such as industrial processes, motor vehicles, domestic wood fires, windblown dust and cigarette smoke. PM stands for Particulate Matter, while the 10 means that the matter is less than 10 microns in size. On still days, we see small particles as smog, or haze.

**Protecting air quality**

Victoria's legal framework for protecting air quality is provided by the *Environment Protection Act 1970*, which provides for the development of State environment protection policies (SEPPs). SEPPs establish a statutory policy framework for protecting the environment. They identify the beneficial uses of the environment we want to protect, set out a program of actions to ensure that those beneficial uses are protected, and identify how we will assess they are being protected.

Those SEPPs relating to Air include:

- State Environment Protection Policy (Ambient Air Quality)
- State Environment Protection Policy (Air Quality Management)

The Ambient Air Quality SEPP sets objectives to protect our air environment including health-based regional air quality objectives for several common pollutants. This SEPP also specifies how pollutants are to be monitored and reported, and sets goals for compliance.

The Air Quality Management SEPP provides a framework for managing emissions into the air environment to ensure that the state air quality and national greenhouse objectives are met. This mainly involves changes in industry such as regulation, incentives and licenses, but everyone has a role to play in minimising emissions. The small actions we can all take to reduce our impact on air pollution will hopefully help us to live longer, healthier lives.