

Mandurah Estuary Bridge Duplication



Managing dust during construction

Dust on a construction site is a common occurrence, and can be caused by various activities such as earthworks, clearing, traffic and preparation works. When the work is undertaken close to where people live, dust can become a greater issue for the community. However, there are standards which the contractor must follow and dust mitigation strategies which can be implemented to reduce the impact of dust.

Dust control methods

The impacts of dust are worse in the summer months when the weather is dry and windy, and more difficult to manage. During winter, dust is less of an issue due to rain and moisture being retained within the soil.



Water application using a water cart.

Methods used to manage dust vary for each project depending on the landscape/soil type, proximity to residents, programming of works, weather and frequency of disturbance. There is not one, simple solution to managing dust.

Options can include:

- Sealing temporary tracks and access ways.
- Water application, often using a water cart. This method is effective on cooler days with less wind.
- Reducing the speed of trucks and vehicles or restricting driving over dust-prone areas.
- Dust suppression application using hydra-mulch, polymer or lignin-based emulsion.

These products are diluted with water and then sprayed on to the surface to create a green coating. This option is only effective in areas that are not being disturbed for an extended period.

- Temporary fencing with shade cloth/mesh. This is often not suitable for very windy areas.
- Vehicle drive-through washing bays. Washing of trucks/vehicles reduces dust and mud being transferred from site onto the surrounding road network.

Although dust can be a nuisance, the limits set for this project will ensure that there is no risk to human or environmental health.

What can I do?

To protect your home during peak dust times it is recommended to cover swimming pools and spas, and any outdoor furniture where possible and ensure windows are shut.

How do we know we are meeting air quality requirements?

Before construction works began on the Mandurah Estuary Bridge Duplication project, baseline air quality readings were taken from the front yards of residential properties on all four corners of the bridge, adjacent the construction site. These readings showed the air

quality of the area before works began, allowing comparisons to be made during construction.

It is natural for dust to be present in urban environments, particularly in areas where there is a strong breeze. As Mandurah has an average wind spend of more than 20km/hour all year, dust will naturally be present.



Air quality monitor on site.

We have dust monitors on the project at all times, which are set up in areas where the team is working, and dust is being generated. The monitors can move to different locations as required depending on works being undertaken and community concerns raised.

Who determines what is safe?

We measure the air quality against the limits established by National Environment Protection Measures (NEPM), the Australian Government - Department of Climate Change, Energy, Environment, and Water, and also the Department of Environment Regulation.

To measure air quality, the National Ambient Air Quality Standards refer to the amount of particle

matter found in a cubic metre (m³). There are two different sizes of particle matter used for measuring, which are:

- PM10 – particle matter found in air is less than 10 micrometres in diameter
- PM2.5 - particle matter found in air is less than 2.5 micrometres in diameter

The maximum particle measurements for dust are:

PM₁₀

- 50ug/m³ in outdoor air averaged over a 24-hour period
- 25ug/m³ in outdoor air averaged over a year

PM_{2.5}

- 25 µg/m³ in outdoor air averaged over a 24-hour period
- 8 µg/m³ in outdoor air averaged over a year

µg = micrograms

If the project's air quality monitors indicate a high reading for more than two consecutive hours at any time of day, our Environment Team is immediately alerted by an automatic alarm. In addition, the team also check readings twice a day. If an exceedance occurs, then the Environment Team works with the Construction Team to manage the dust and implement strategies to reduce the dust levels.

Further information

The Mandurah Estuary Bridge Duplication project is delivering a second, two-lane bridge on the south side of the existing structure to provide additional traffic lanes. A new four-metre-wide shared path will also be built to help the local community better access recreational activities, including fishing. The \$136 million project is jointly funded by the Australian and Western Australian Governments.

To stay up to date with the latest project information, please visit www.mainroads.wa.gov.au/mebd, subscribe for project updates, or contact our Customer Information Centre on 138 138 or enquiries@mainroads.wa.gov.au.

The table below shows the National Air Quality standards for airborne particulates.

Pollutant	Averaging Period	Maximum concentration (parts per million or micrograms per cubic metre)
Carbon monoxide	8 hours	9.0 ppm
Nitrogen dioxide	1 hour	0.12 ppm
	1 year	0.03 ppm
Photochemical oxidants (as Ozone)	1 hour	0.10 ppm
	4 hours	0.08 ppm
Sulfur dioxide	1 hour	0.2 ppm
	1 day	0.08 ppm
	1 year	0.02 ppm
Lead	1 year	0.5 µg/m ³
Particle Matter as PM ₁₀	1 day	50 µg/m ³
	1 year	25 µg/m ³
Particulate Matter as PM _{2.5}	1 day	25 µg/m ³
	1 year	8 µg/m ³

Air Quality Fact Sheet from Department of Environment Regulation

For more information on air quality please visit:

- www.dcceew.gov.au
- www.wa.gov.au/government/publications/air-quality-monitoring-western-australia