

November 2022



Despite there being more cars and trucks on the road, vehicle emissions have fallen over the past 20 years, as a result of improved fuel quality and engine designs, such as hybrid and electric vehicles.



Cars built after 2013 emit **97% less** oxides of nitrogen than vehicles built in 1976.



By 2036 there will be a **48% decrease** in PM2.5 vehicle emissions since 2003.



Diesel trucks built after 2013 emit **92% less** particles of matter than trucks built in 1996.

We know that air quality is important to you. That's why our tunnels will be built and operated to meet strict air quality standards using modern ventilation and tunnel design. All ventilation systems will be built and operated to strictly comply with any conditions specified in the Department of Planning and Environment's (DPE) planning approval, and relevant Environment Protection Licence (EPL) to be issued by the NSW Environment Protection Authority (EPA).

Where are the Western Harbour Tunnel outlets located?

Ventilation facilities for Western Harbour Tunnel (WHT) are located at the following locations:

- City West Link, Rozelle (approved as part of the WestConnex M4–M5 Link, and already built as part of the Rozelle Interchange)
- Warringah Freeway corridor to the north of Ernest Street, Cammeray (yet to be built)

Tunnel ventilation systems are most effective when the ventilation outlet is positioned near the exit ramp. This is why the ventilation outlets for modern tunnels are located near the tunnel exit ramps.

Tunnel design and monitoring

Modern tunnels are designed to achieve:

- in-tunnel air quality
- no emissions from portals
- emissions from ventilation outlets indistinguishable from background air quality.

In-tunnel air quality

The tunnels must meet strict in-tunnel air quality requirements determined by DPE. These requirements are addressed by ensuring sufficient air flow through the tunnel to prevent the build-up of vehicle emissions. This air flow is achieved through a combination of:

- **traffic flow:** the turbulence created by traffic flow naturally draws air into the tunnel
- **tunnel size:** larger diameter tunnels enable more air to be drawn in by both traffic and fans
- **ventilation design:** fans are used to draw in additional air when the traffic slows down.

Impacts to surrounding air quality

Our studies have shown emissions will have a negligible impact on the surrounding air quality and will be generally undetectable. The ventilation outlets will be continuously monitored while the EPA regulates the ventilation emissions for all current and future operating motorway tunnels to ensure they meet air quality limits.

For more information please refer to Chapter 12: Air quality in the Environmental Impact Statement.

How do ventilation outlets work?

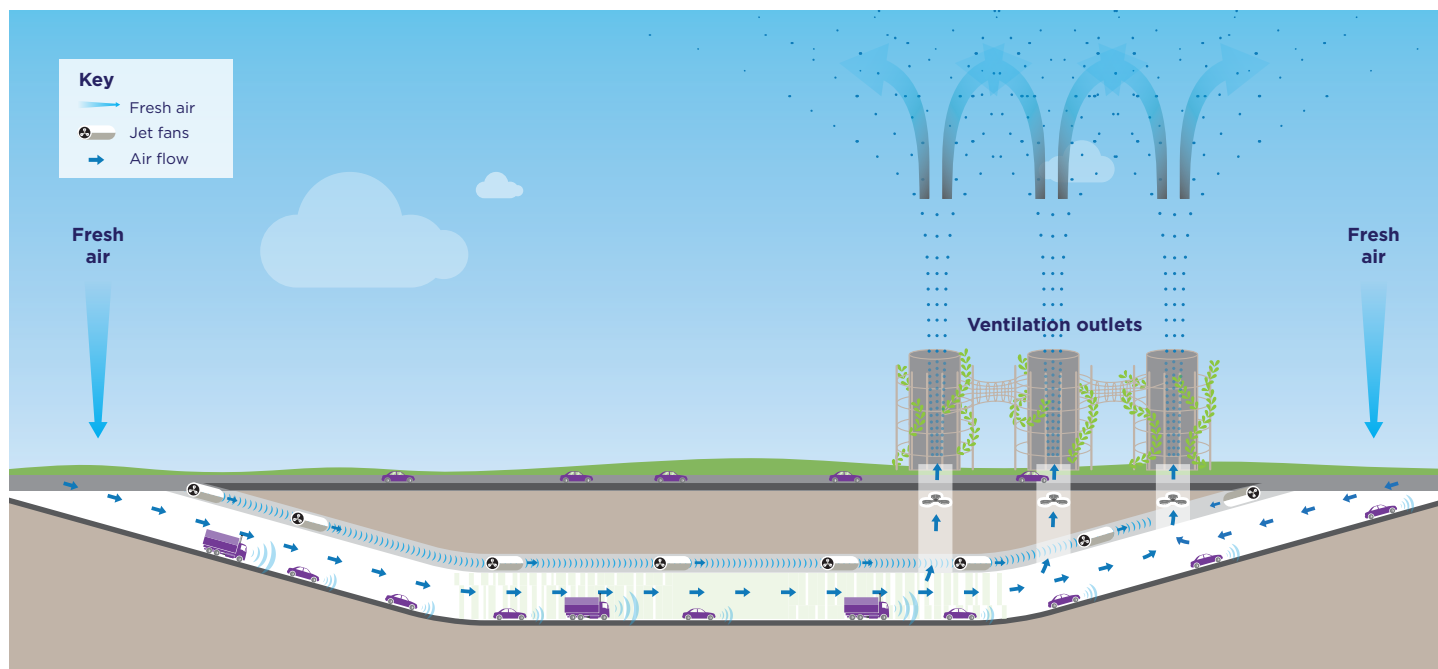
Elevated ventilation outlets, like those in the Rozelle Parklands are very effective at ejecting tunnel air high into the atmosphere through a combination of buoyancy and speed. This occurs by the warmer tunnel air (heated by vehicles using the tunnel) being ejected upwards at speed through the outlet by axial fans. This warm air continues to rise high into the atmosphere through natural buoyancy as it is warmer than the surrounding air.

Once in the atmosphere, the ejected tunnel air dilutes hundreds of times as it mixes with the surrounding air and becomes indistinguishable from background levels. The effectiveness of a ventilation outlet design in dispersing tunnel air under all operating and weather conditions is assessed through specialised computer modelling using actual hour-by-hour weather data for a full year.

When we are open to traffic

You will experience an improvement in air quality along the Western Distributor, Sydney Harbour Bridge and Warringah Freeway as the result of more vehicles using the Western Harbour Tunnel, reducing traffic on these roads.

Overall, traffic emissions in Sydney are predicted to be reduced by up to 50 per cent by 2027 and up to 65 per cent by 2037, when compared to 2016. Surface air quality in Sydney has improved over the last few decades due to initiatives which have reduced emissions from industry, motor vehicles, businesses and residences. Motor vehicle emissions are predicted to decrease significantly as a result of improvements in emission control and vehicle engine technology.



Contact us

If you have any questions or would like more information please contact our project team:



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