

# Noise and Air Quality

EES study update | September 2018







Mullum Mullum tunnel ventilation structure

Planning approvals for North East Link will be informed by an Environment Effects Statement (EES) – our state’s most stringent and transparent impact assessment process.

Noise and Air quality are 2 of 18 study areas covered in the EES, which will take around one year to complete.

Technical specialists started studies for the EES in March this year by surveying existing conditions across the project area. They’re now:

- Using modelling to assess how North East Link could change existing noise conditions and air quality – positively or negatively
- Working closely with our project engineers to refine the design to improve outcomes
- Developing a set of standards to address impacts. These standards are called Environmental Performance Requirements (EPRs) and will define the outcomes to be achieved.

Feedback from communities is helping to inform this work, particularly to ensure our studies are considering areas of community concern.

This fact sheet provides

- An update on our work so far
- Answers to some of the most frequently asked questions about noise and air quality.

The final EES reports, including detailed findings from our technical studies, will be on display for public comment early next year.

Noise monitoring at more than 60 locations across the project area has helped inform how we design and plan North East Link. Most modern sound level meters can capture noise level samples at more than 10 times a second.



## North East Link noise standard

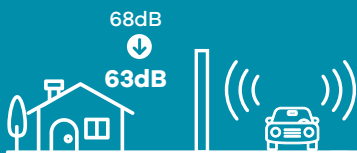
From speaking with communities we know that noise is a key priority.

In response to community feedback we'll be building high-quality noise walls to meet a noise standard of 63 dB(A).

The noise standard for North East Link is consistent with the noise standard introduced for the West Gate Tunnel Project and:



Applies to all residential areas along North East Link as well as the planned upgrades to the Eastern Freeway and M80 Ring Road



Will provide better protection from noise for residents along the Eastern Freeway where a noise standard of 68 dB(A) currently applies



Would cover open spaces along the project alignment where noise barriers are needed to protect residents or noise sensitive buildings such as schools

Other specific issues related to noise will be considered in our ongoing project design work and EES studies. More information will be available when the EES goes on display early next year.



### What we've heard so far

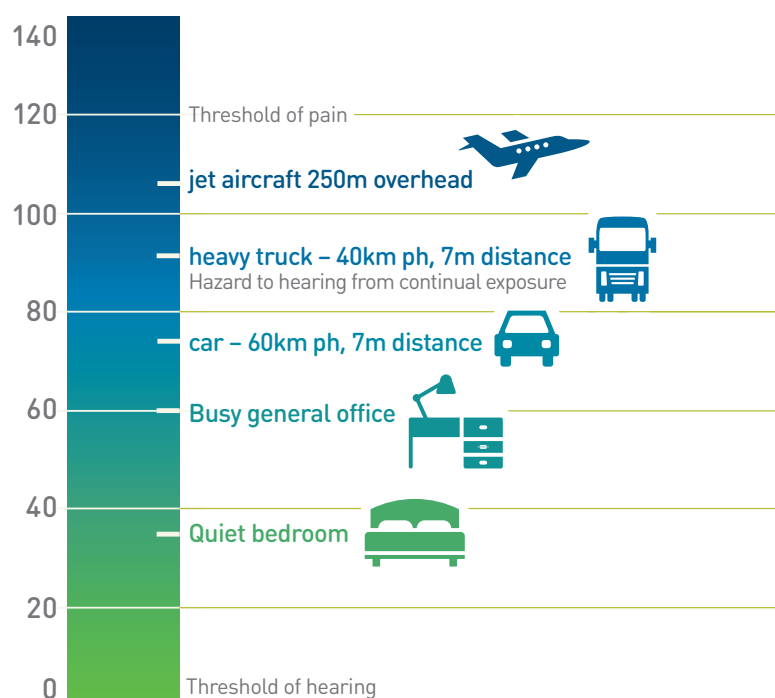
Feedback received about air and noise quality from communities so far includes:

- Noise levels in some areas, particularly along the Eastern Freeway, Greensborough Road and the M80 Ring Road, are already high
- Concerns noise will get worse
- Consider designs for noise walls that fit with local character, allow for natural light and use planting to screen views
- Consider how sound travels through parklands and other open spaces
- Consider how local topography, like creeks and valleys, influence dispersion of air pollutants
- Maintain or improve air quality around sensitive areas such as near homes, schools and sports fields
- Provide more information about the location, heights and operation of ventilation structures.

## Measuring noise

Noise is measured on a scale of units called decibels, or dB for short. Noise measurements are usually adjusted to reflect how noise is perceived by the human ear.

This adjustment is called 'A' weighted decibels or dB(A).







## Studying noise

- Qualified specialists have recorded noise levels at homes, schools, sports fields and other sensitive locations across the project area.
- We've developed noise models to assess predicted changes due to North East Link and to determine what kind of mitigation (such as noise walls) may be needed. Our modelling work is still underway and is considering:
- Number of vehicles and speed
  - Types of vehicles (cars or trucks)
  - Gradient (steepness) of the road and engine strain
  - Road surface
  - Road height (such as lowered trench, surface or ramp)
  - The distance between the road and people likely to hear traffic noise
  - Existing noise walls and other structures (like buildings) that could shield noise
  - Surrounding terrain, like hills or valleys that could act as natural sound barriers or influence how sound travels.

More information from our noise studies will be included in the EES

# Noise walls

To meet the North East Link noise standard new noise walls would need to be built in most areas along the project alignment.

In response to community feedback we are working to keep as many of the existing textured concrete noise walls along the Eastern Freeway as possible to maintain local character.

We'll also upgrade the existing wooden noise walls along the upgrades planned for the Eastern Freeway and the M80 Ring Road to improve noise conditions for residents.

To achieve the project noise standard, some noise walls may need to be upgraded and new noise walls would need to be built in some places where there are currently none.

- An urban design strategy will provide the contractors appointed to build North East Link with guidance for the design of noise walls.
- Draft guidelines developed so far include:
- Designs that respond to local character
  - Treatments so that views of noise walls from both the road and residences are considered

- Designs that allow for natural light and minimise overshadowing of homes, parklands, waterways and paths
- Designs that allow for views of the surrounding landscape to be framed where possible
- Designs that carefully transition between existing and new noise walls
- Designs that use planting to enhance views where possible
- Designs that deter graffiti.

We still have more work to do to determine the location and heights of noise walls. This information will be included in the EES and put on display for public comment early next year.

New noise walls on the Eastern Freeway. Artist impression only. Subject to change.





# Air quality

## Existing conditions

The EES studies for North East Link will analyse and evaluate changes to air quality conditions in the vicinity of the project.

This includes an assessment of the project against EPA Victoria’s air quality requirements.

Victoria’s air quality standards for pollutants such as fine particles are consistent with World Health Organisation guidelines and are among the most stringent in the world.

Our specialists have collected information about existing air quality conditions from the EPA Victoria monitoring station at Alphington.

The Alphington monitoring station measures key air pollutants and is the closest, most representative monitoring station for the project. To establish existing air quality conditions our specialists are using data collected over the last five years.

To confirm the data collected from the Alphington monitoring station is representative of local air quality conditions, our specialists are installing monitoring equipment at locations along the North East Link project corridor.

## Future conditions

Comprehensive air quality modelling for the EES is happening now. Important inputs include:

- Number of vehicles and speed
- Types of vehicles (cars or trucks) and fuel used (petrol or diesel)
- The distance between the road and sensitive receptors
- Surrounding terrain, like hills or valleys that could influence how air is dispersed.

Our assessments are using:

- Nationally and internationally accepted methodologies for vehicle emissions estimation and modelling assessment
- A conservative approach which assumes that while the number of vehicles will increase with time there will be no reduction in vehicle emissions associated with further improvements in vehicle emission controls and the introduction of electric vehicles
- Local meteorology data (temperature and wind speed and direction) to ensure modelling is representative of local conditions.

The air quality modelling will make predictions of ground level concentrations of pollutants at sensitive receptors such as schools near the project.

These predictions will inform a human health assessment that is also being undertaken as part of the EES.

The findings from the EES studies and an EPA Works Approval Application will be put on public display for comment early next year.

**Did you know?**  
Improvements in vehicle technology and tighter regulations mean that even with more people living in Melbourne and more cars and trucks on the road, traffic pollution is expected to significantly decrease by 2030.







Ventilation structures next to Simpson Barracks, Yallambie



Ventilation structures next to Bulleen Road, Bulleen

Artist impression only and subject to change. The contractors appointed to build North East Link will develop design concepts for the tunnel ventilation structures and be guided by an Urban Design Strategy we are developing for the project

# Tunnel ventilation

Tunnels can help reduce air pollution along road corridors by moving traffic off surface roads near where people live and work and putting traffic underground where emissions can be collected and dispersed more effectively high above ground level.

The tunnel ventilation systems for North East Link will be designed to:

- Meet EPA Victoria's air quality requirements
- Ensure air quality is maintained at safe levels inside the tunnel.

Well designed ventilation outlets are proven to be very effective at safely dispersing vehicle emissions from tunnels high into the atmosphere.

They work by drawing fresh air from the tunnel entry, which is then pushed through the tunnel by the movement of vehicles (piston effect) and jet fans.

Before the tunnel exit, air is pushed out of the tunnel and up into ventilation structures and dispersed high into the atmosphere where it mixes with fresh air which dilutes pollutants to very low levels.

Ventilation structures are generally located within 100 metres of a tunnel portal.

Based on the current project design and EES studies so far, the North East Link tunnels will need two ventilation structures.

- One structure on what is currently Simpson Barracks land at the northern tunnel portal
- One structure next to Bulleen Road at the southern tunnel portal.

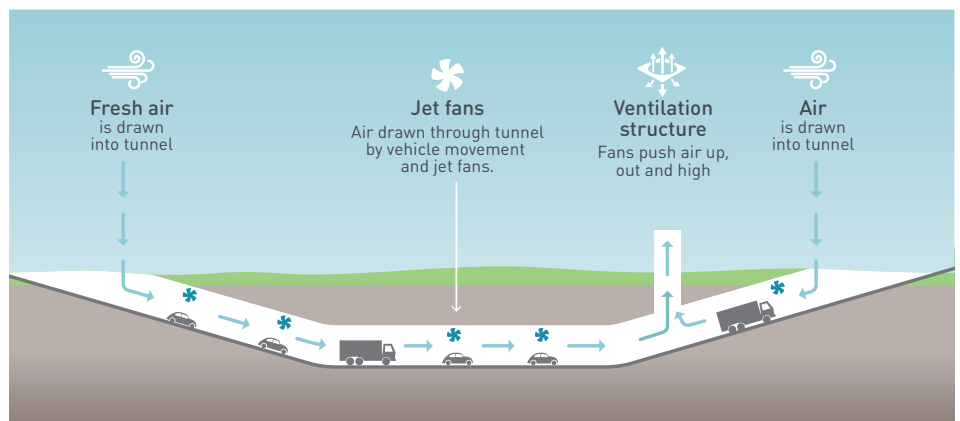
The structures are expected to be around 40 metres high and would be designed to fit in with the local landscape.

The exact location of the ventilation structures will be confirmed during the detailed design stage of the project based on the selected contractor's design.

The contractors invited to develop a detailed design for North East Link and submit a bid to build it will also be responsible for developing design concepts for the ventilation structures.

They will be guided by an Urban Design Strategy we are developing for the project which will be submitted for public review as part of the EES process.

An EPA Works Approval for the tunnel ventilation will be on display for public review early next year with the EES.



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## Translation service

for languages other than English, please call 9679 9896.

Please contact us if you would like this information in an accessible format.

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