

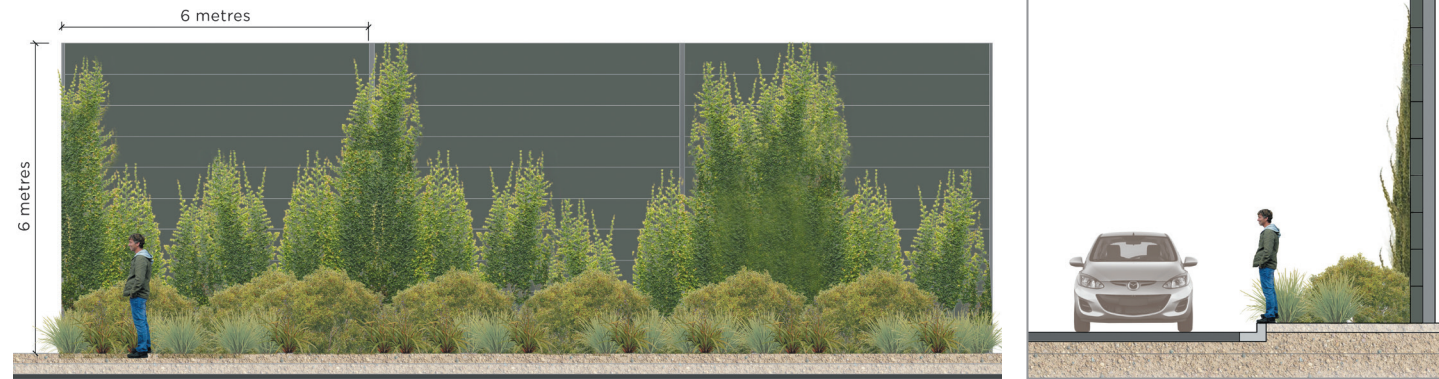
Background

Understanding noise

Noise is perceived differently from one person to the next and the level of disturbance from a noise depends on the type, timing, duration and frequency of the noise. Whether the disturbance is out of the ordinary also has an effect.

Noise is measured on a scale of units called decibels (dB). A sound or noise level in dB represents the sound pressure level, which is the amount of sound a listener receives. When a sound pressure level is 'A'-weighted, i.e. dB(A), a filter has been applied to take into account how the human ear perceives it.

The weather, topography and the presence of other physical structures can also affect noise transmission.

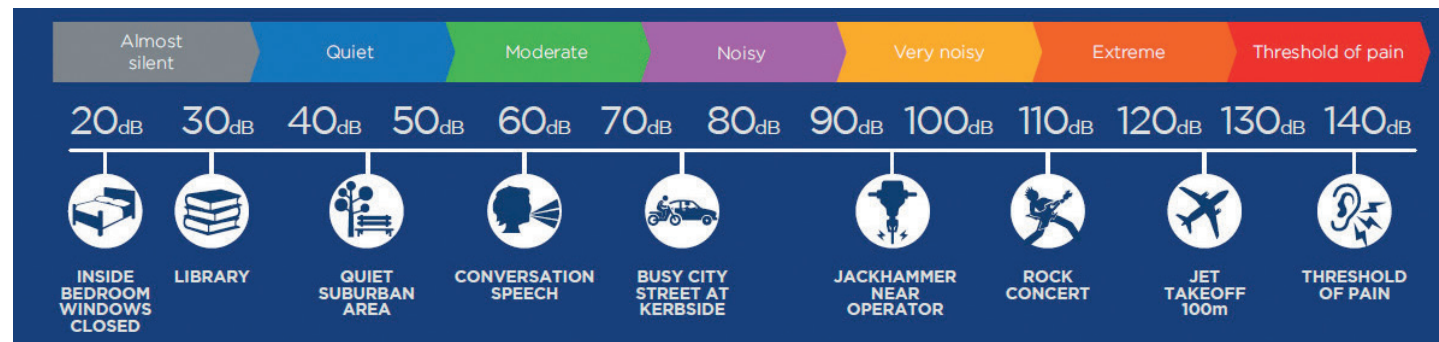


Artist's impression showing the height and approximate scale of the noise wall, which is designed to absorb / deflect the noise transmission path from the facility to nearby receivers.

Assessing operational noise

Noise emissions from an industrial type facility go up and down at different times, so the LAeq (Equivalent Continuous Level) of noise (similar to an average) is used to assess noise impacts. Typically impacts are assessed over a 15-minute period.

Short-term noise events (such as bangs or bumps) could disturb sleep, so these noise events are assessed using different descriptors.



Noise Level Comparisons: People's perception of noise is strongly influenced by their environment. A noise level that is perceived as loud in one situation may appear quiet in another.

More Information

Working closely and effectively with the local community is a priority for Transport for NSW and John Holland. For more information about the project please call **1800 684 490**, email projects@transport.nsw.gov.au or visit transport.nsw.gov.au/projects. For urgent enquiries or complaints regarding construction activities, please call 24 hours **1800 775 465**.



This document contains important information about public transport projects in your area. If you require the services of an interpreter, please contact the Translating and Interpreting Service on **131 450** and ask them to call Transport for NSW on **(02) 9200 0200**. The interpreter will then assist you with translation.

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New Intercity Fleet Maintenance Facility

OPERATIONAL NOISE AND VIBRATION UPDATE

We are delivering a New Intercity Fleet to replace trains carrying customers between Sydney and the Central Coast, Newcastle, the Blue Mountains and the South Coast.

The detailed design and construction of the new Maintenance Facility at Kangy Angy, which will service and maintain the New Intercity Fleet, is being delivered by John Holland on behalf of Transport for NSW.

Detailed design and construction of the Maintenance Facility has now progressed to the point where modelling can be used to forecast the facility's operational noise and vibration impacts.

Minimising operational noise through facility design

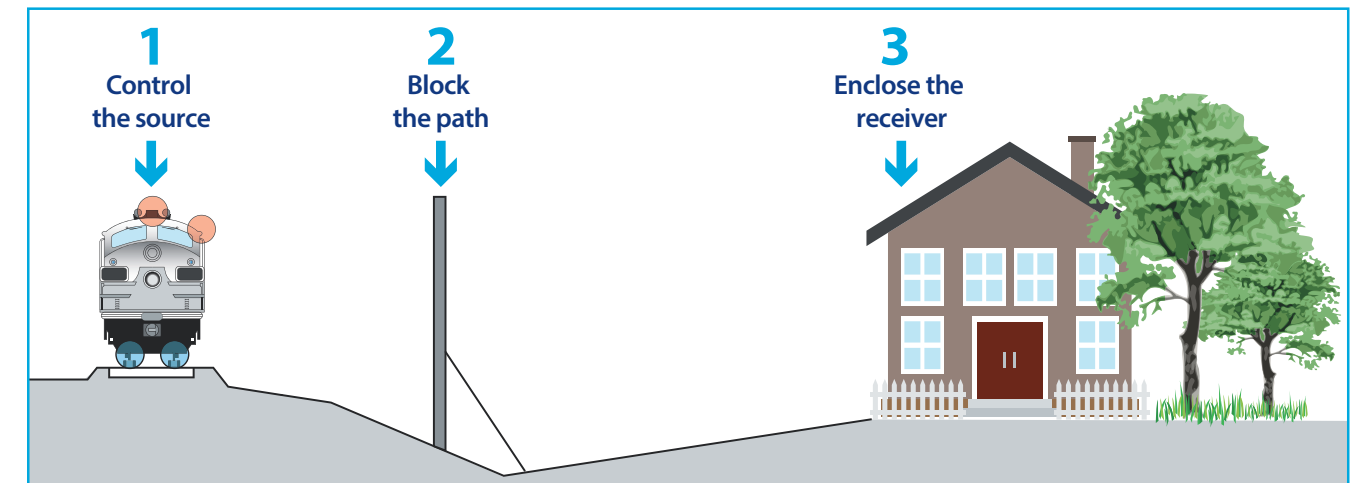
The New Intercity Fleet Maintenance Facility has been designed to reduce noise from operations as much as possible.

While the facility will operate 24 hours a day, the design ensures the bulk of maintenance will be carried out behind closed, acoustic rated doors.

The **map overleaf** provides an overview of the design features included to minimise operational noise.

Where the target noise levels cannot be achieved through the facility's design features or noise barrier, a property may be assessed for property noise treatments such as upgraded window and doors seals.

How operational noise is controlled



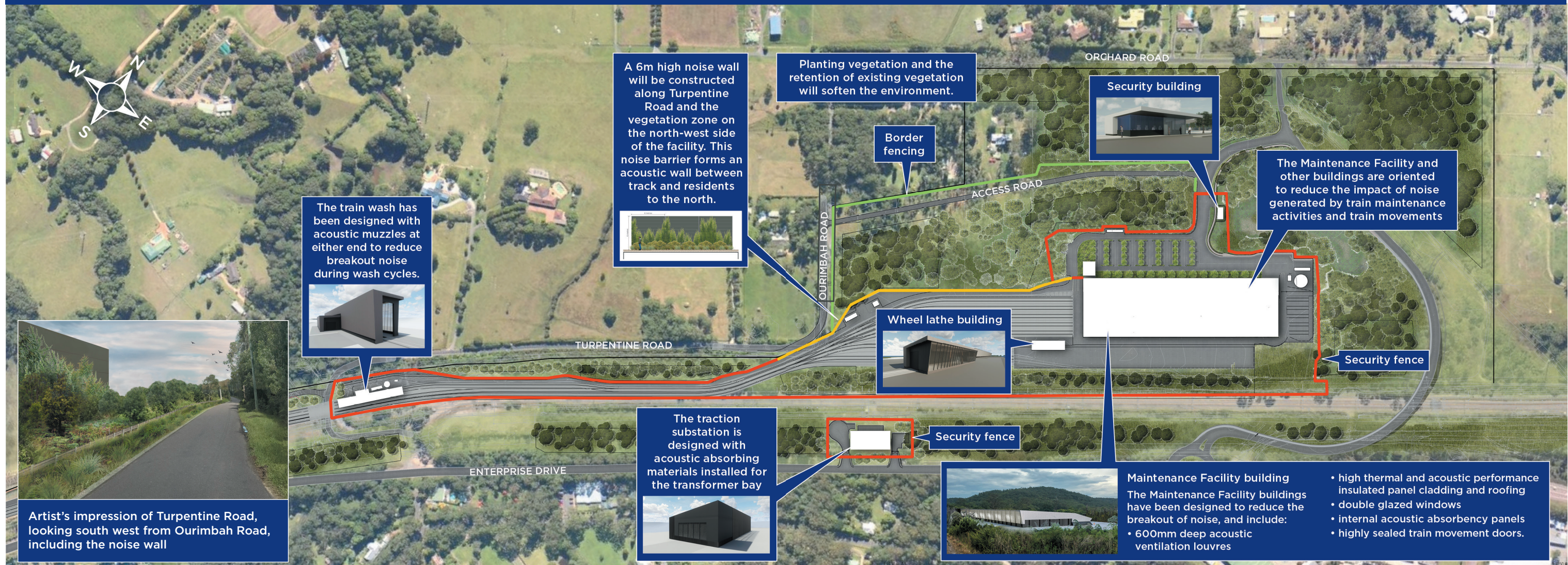
1 **Control the source**
It is generally more effective and provides greater overall benefits to reduce noise and vibration at or near the source, rather than at the receiver. The facility's architecture, equipment selection, engineering controls and management practices aid in reducing at-source noise emissions.

2 **Block the path**
Barriers and design features of the facility are used to alter or control the noise transmission path - to reduce noise reaching receivers. This is achieved by absorbing and/or deflecting the sound, or containing the noise inside the facility.

3 **Enclose the receiver**
Where target noise levels cannot be achieved through at-source or noise barrier measures, the need for assessment for property noise treatments is identified.

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Overview of the design features to minimise operational noise



Artist's impression. Indicative only. Design plans are subject to changes that may occur during detailed design.

Assessing the Maintenance Facility operational noise

A specialist noise and vibration consultant has conducted an assessment of the facility and advised on how to best mitigate the operational noise.

The assessment involved developing a model to predict the expected operational noise and vibration impacts from the facility.

To develop these models, noise monitoring was carried out at similar facilities to predict future noise levels at the Maintenance Facility. Noise data was also taken from the design of the new intercity trains.

Background noise levels were based on noise levels monitored at residential locations around the project site to account for the existing environment without the Maintenance Facility. Other noise sensitive receivers, such as schools, were also considered.

The noise modelling considered:

- a three-dimensional model of the site, including surrounding terrain, buildings and noise sensitive locations
- the change in noise reproduction due to different nearby ground surfaces and prevailing weather conditions
- reasonable worst-case Maintenance Facility operations and activities considering locations, heights and types of noise emission.

The noise and vibration modelling has been done in accordance with Transport for NSW requirements and NSW Environment Protection Authority (EPA) noise and vibration guidelines and policies. These provide guidance in relation to the prediction and assessment of noise and vibration from industrial type facilities. The guidelines and policies ensure noise and vibration impacts associated with the Maintenance Facility are evaluated in a consistent and transparent manner.

Property treatment

The noise and vibration modelling has been used to identify properties in the vicinity of the Maintenance Facility project which are eligible for assessment for property noise treatment.

Owners of eligible properties will be contacted directly by the Maintenance Facility project team in the coming months to arrange a property assessment.

Operational vibration

Due to the distance between the Maintenance Facility and nearby residences, the modelling indicates that operational vibration levels will be insignificant.

Post-construction noise review

Once the Maintenance Facility is operational, we will assess if the modelled noise and vibration levels match the actual levels, and if additional mitigation measures are needed.



Artist's impression of the Maintenance Facility looking west from the access bridge