Factsheet: Transport Noise Corridor Remodelling Project

Stage 1: State-controlled roads

The Department of Transport and Main Roads is currently developing new models to predict the extent of land impacted by noise from state-controlled roads (SCRs) and railways in Queensland. The Transport Noise Corridor (TNC) Remodelling Project (the Project) is being undertaken in four stages. Stage 1 of the Project is complete and new draft TNCs for SCRs have been produced. Information about the new TNCs for SCRs is provided below.

Why have the TNCs been remodelled?

The current TNCs are based on pre-2010 data. Road conditions have changed since that time, for example, new SCRs have been declared, traffic volumes have increased or decreased or road works have changed the road environment.

The current model also did not take into account other factors known to affect the extent of land impacted by noise from SCRs such as terrain and noise barriers.

It is timely to update the TNC models with the most current information using the latest information available.

What are the benefits of remodelling the TNCs?

Remodelling the TNCs using updated road condition data and terrain and noise barrier data means that the new TNCs more accurately depict areas of land likely to be adversely affected by noise impacts from SCRs.

The new TNCs reduce the number of residential properties subject to *Queensland Development Code Mandatory Part 4.4 – Buildings in Transport Noise Corridors* by 16%. There is also a significant reduction in the number of properties located in categories three (-35%) and four (-65%) which attract the highest costs of compliance for home owners and developers.

What data was used to model the new TNCs?

Data from the TMR data repository (2015) was used to remodel the TNCs for SCRs. This included SCRs, traffic volume and growth rate, sign-post speed, pavement surface type, traffic composition (for example, percentage heavy vehicles) and existing noise barriers.

Digital ground terrain models were produced using Light Detection and Ranging (LiDAR) data (2014) for east coast local government areas and Shuttle Radar Topography Mission (SRTM) (2000) for central and western local government areas.

How were the new TNCs modelled?

The new TNCs were modelled using acoustic software called SoundPLAN 7.4 which implements the Calculation of Road Traffic Noise (CoRTN) 1989 method for predicting noise impacts. Noise categories were derived by processing the noise contours produced in SoundPLAN as rasters using geographical information system software called ArcMAP.

What year do the new TNCs represent?

The new TNCs represent the level of noise impact likely in the year 2025. This is based on 10 year predictions of traffic volumes.

How accurate is the modelling for the new TNCS?

The new TNCs are significantly more accurate than the current TNCs, as terrain and noise barriers have been included in the model.

The new TNCs are based on the latest (2015) input data available at the time of modelling which may include minor inaccuracies.

Reasonable assumptions have been applied where necessary in preparing data for modelling.

The new TNCs are representative of a typical ground floor receptor of a dwelling constructed with

a floor level just above the local ground level. They are not representative of noise levels at the lower storey of a dwelling built on posts or an upper storey of a building.

While the new TNCs are considered to be a good representation of noise impacts in most instances, localised noise modelling including valid site specific information and noise measurements will provide the most accurate results.

What criteria were used to determine which SCRs have Mandatory TNCs?

The criteria for determining which SCRs have mandatory TNCs were derived based on an analysis of the key factors known to affect the amount of noise nearby residents are exposed to including traffic volumes, speed environment, pavement type and heavy vehicle traffic. As a result, SCRs meeting one of the following criteria are considered to have significant noise impacts on surrounding residents and therefore their TNCs are mandatory:

- where the speed environment is 100km/hr or greater and the Average Annual Daily Traffic (AADT) exceeds 1000 vehicles

- where the speed environment is 80km/hr or greater and the AADT exceeds 2000 vehicles

- where the speed environment is 60km/hr or greater and the AADT exceeds 3000 vehicles

- where the road pavement type is concrete or chip seal and/or the percentage of heavy vehicles is greater than 20%.

Why has the noise category for a property decreased as a result of the new modelling?

A decrease in noise category means the noise category number is lower than previous, for example, Category 4 to Category 3.

Terrain and noise barriers were included in the model for the new TNCs. Both of these factors affect the extent of land affected by noise from SCRs. Noise barriers have the effect of blocking noise, therefore, the noise category for a property behind a noise barrier is likely to decrease. Similarly, terrain can have the effect of blocking noise, for example, where a hill is between a SCR and a property, or land slopes steeply away from a SCR. In such cases the noise category may also decrease.

Why has the noise category for a property increased as a result of the new noise modelling?

An increase in noise category means the noise category number is higher than previous, for example, Category 2 to Category 3,

In some cases the noise category may have increased for a property because the surrounding terrain does not block any of the noise from a SCR or actually exacerbates the noise impact. This is particularly true when a property is located on a steep slope overlooking a SCR. In such cases the noise category may increase as a result of the new modelling.

Further information

Further information about the Project and the new TNCs for SCRs is available from the Department of Transport and Main Roads by email planningpolicyandlegislation@tmr.qld.gov.au.