DELIVERING FOR QUEENSLAND

Technical Note 211

Transport Noise Management Code of Practice Volume 1 Supplementary Information

November 2025

Queensland Government

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1 Purpose

This document provides a series of clarifications and methodologies to supplement the information and assessment process detailed in the *Transport Noise Management Code of Practice Volume 1: Road Traffic Noise*, herein referred to as 'the Code'. Effective from this document's date of publication, all new projects (at any phase) requiring the use of the Code must also incorporate the requirements outlined in this document.

These clarifications and methodologies include:

- consideration of concrete crash barriers in noise modelling
- consideration of all roads in noise assessments
- post construction noise assessment methodology
- new road criterion determination methodology
- approved unbuilt development assessment methodology
- noise mitigation optioning
- the no measurable increase requirement
- traffic count requirements
- noise descriptor corrections, and
- the 3dBA increase test.

As the clarifications and methodologies are specific to their relevant Code sections, they are detailed in the below sections individually.

2 Consideration of concrete crash barriers in noise modelling

The following text aims to provide clarity surrounding concrete crash barriers in the context of Section 4.2 of the Code, which states the data requirements for a 3D noise model.

Concrete crash barriers can be either included or not included within the noise model. Should the concrete crash barriers be included within the noise model, the risk of under designing noise abatement should be considered in the assessment. For example, if a concrete crash barrier is included in the model the consideration of any potential impacts to the post construction compliance assessment should be made.

Consideration of the following is recommended in the assessment:

- The verification of the noise model and level of overprediction at verification (is the verification exact with measurements, or slightly overpredicting?), and
- The overall noise levels at receivers and their relative level compared to the relevant criterion (are noise levels right at the criterion or several dB below?).

Inclusion of concrete safety barriers in noise modelling shall be clearly identified in the assessment report when discussing the model inputs, including location, length and height (typically 1.1 m). The concrete crash barriers included in the noise model shall also be included in the relevant maps for the noise assessment report for clarity. Concrete crash barriers cannot be considered as a noise mitigation option or reported as such. Noise mitigation in the form of a noise barrier must meet the requirements of Section 6.3 of the Code.

3 Consideration of all roads in noise assessments

Section 4.2 of the Code provides guidance on setting the assessment area for a road traffic noise assessment. The Code also provides guidance for New Roads in Section 3.2 to determine the affected / benefited noise sensitive receivers, including those on nearby state-controlled roads, across the whole affected area. Neither section provides guidance on how to manage noise abatement surrounding potential impacts beyond the immediate areas of works. This document provides clarity on assessment scenarios for Existing Roads, No Roadworks, New Roads and Upgrading Existing Road projects whilst achieving the principal requirement in Sections 3.2 and Section 4.2 of the Code.

3.1 Project Roads and non-project roads

'Project Roads' constitutes the following:

- all new roads (state-controlled or local) to the limits of the design (which meet the new roads definition as per the Code), and
- all upgrades to existing roads (state-controlled or local) to the limits of design (which meet the upgrading existing roads definition as per the Code).

For clarity, any local roads altered by the project need to be considered against the new and upgrade road definitions and assessed accordingly.

'Non-Project Roads' are any other state-controlled roads within 300 m of the new road design extents which are not new roads or upgraded roads. The Non-Project roads to be assessed include:

- Any other state-controlled roads ‘non-project roads’ within a minimum of 300 m of new road design extents which are not new roads or being upgraded. Where the 300 m minimum distance is not considered appropriate by the assessing RPEQ, approval from the Transport and Main Roads Project Manager prior to assessment is required for alternative distances.

Further extensions to the Project and Non-Project roads are to be included to allow for adequate noise contribution and barrier rationalisation beyond the limits of the design extents. Note that any existing state-controlled roads which interlink or may influence the project mitigation design in conjunction with the upgraded roads should also be included in the noise assessment, for example, an interchange project, perpendicular state-controlled roads or nearby parallel state-controlled roads.

3.2 Assessment scenarios for the 10-year horizon

There are 3 types of assessments which require different roads to be assessed, the most complex being a new road project.

3.2.1 Existing Roads – no roadworks, as part of the Regional Road Traffic Noise Management Strategy

The 'Existing Road - No Roadworks' is the only assessment scenario. All state-controlled roads are considered Project Roads for the Regional Road Traffic Noise Management Strategy.

3.2.2 Upgrading existing road scenario

The upgrade to an existing road assessment considers the following assessment scenario:

- Upgrade to an existing road: all Project Roads; including any local roads altered by the project.

3.2.3 New road scenario

To add clarity to the various scenarios required for new road projects a series of figures have been created. An overall project area for a complex new road project is shown in Figure 3.3(a).

New road projects will typically require the following assessment scenarios:

- New Roads: new roads only (state-controlled and local), refer to Figure 3.3(b)
- Upgrade to an existing road: all Project Roads (that is, new roads and upgraded existing roads, both state-controlled or local), Refer to Figure 3.3(c), and
- Existing Road - No Roadworks: all Project and Non-Project Roads, refer to Figure 3.3(d).

3.3 New road assessments: exceedances near non-project roads

In the construction of a new road, assessment is required to check for exceedances of departmental criterion near Non-Project roads, Figure 3.3(e) provides the process to review the need for noise abatement against the Existing roads – no roadworks criteria.

Figure 3.3(a) – Project area

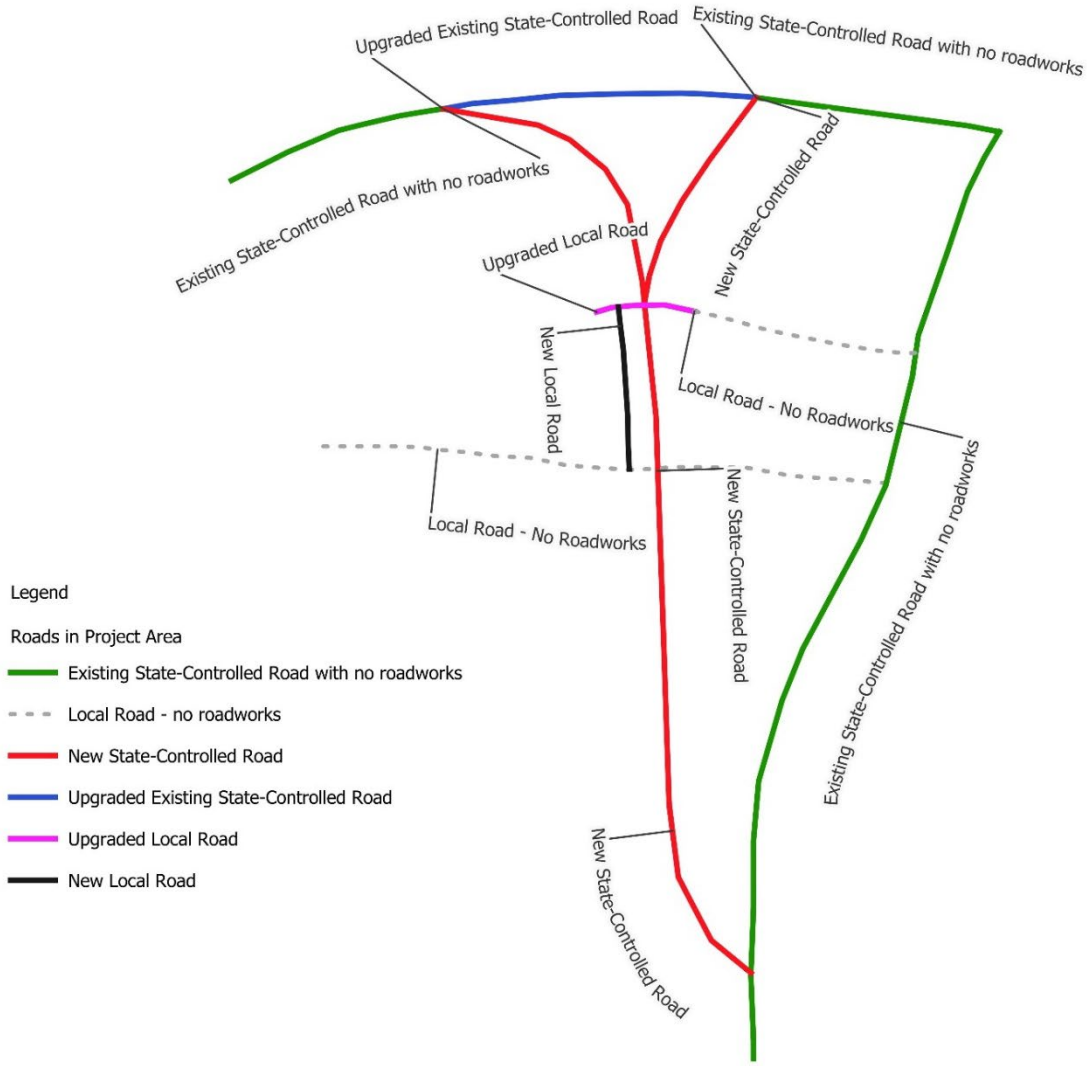

Figure 3.3(b) – New roads scenario

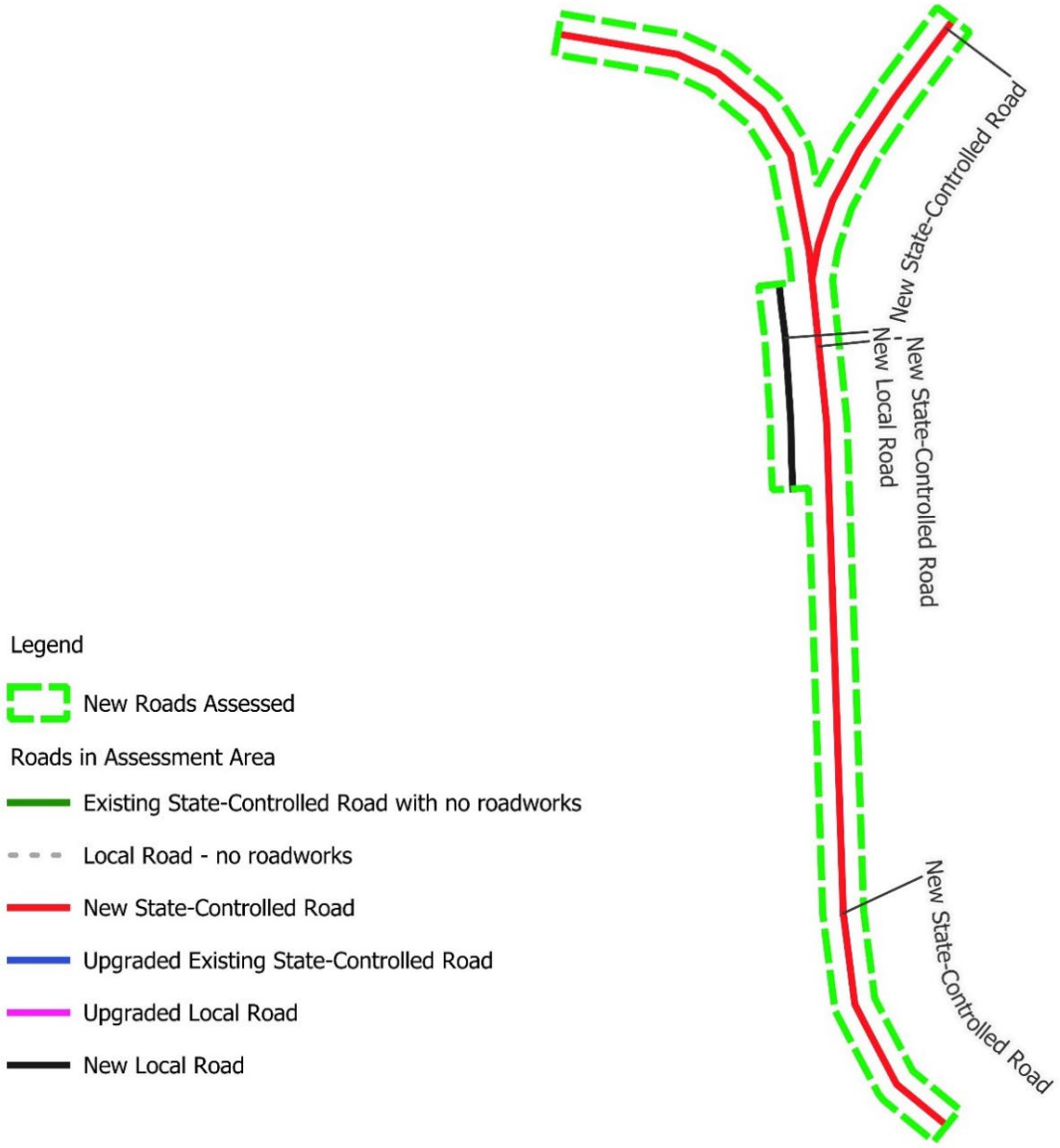

Figure 3.3(c) – New and upgrading existing rods scenario

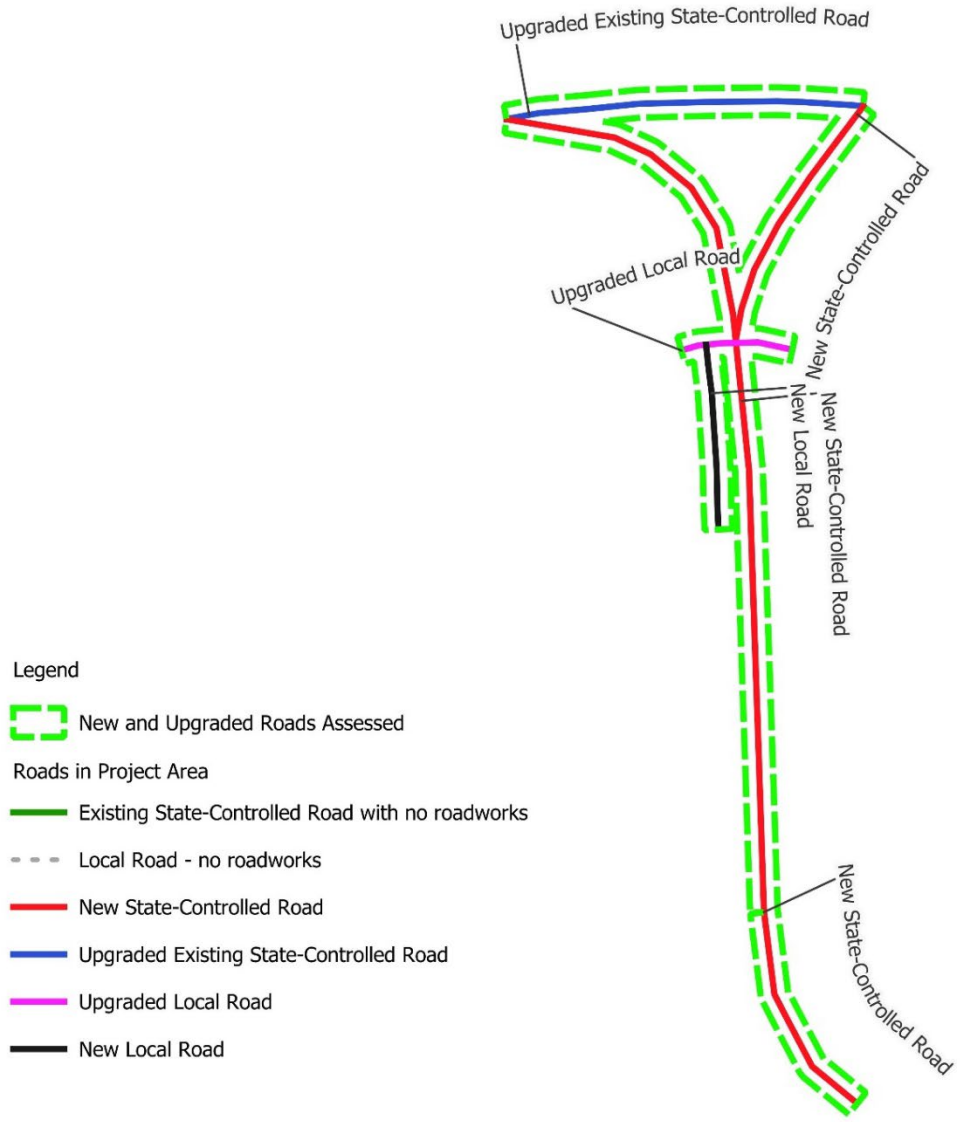

Figure 3.3(d) – Existing roads scenario for a new road project

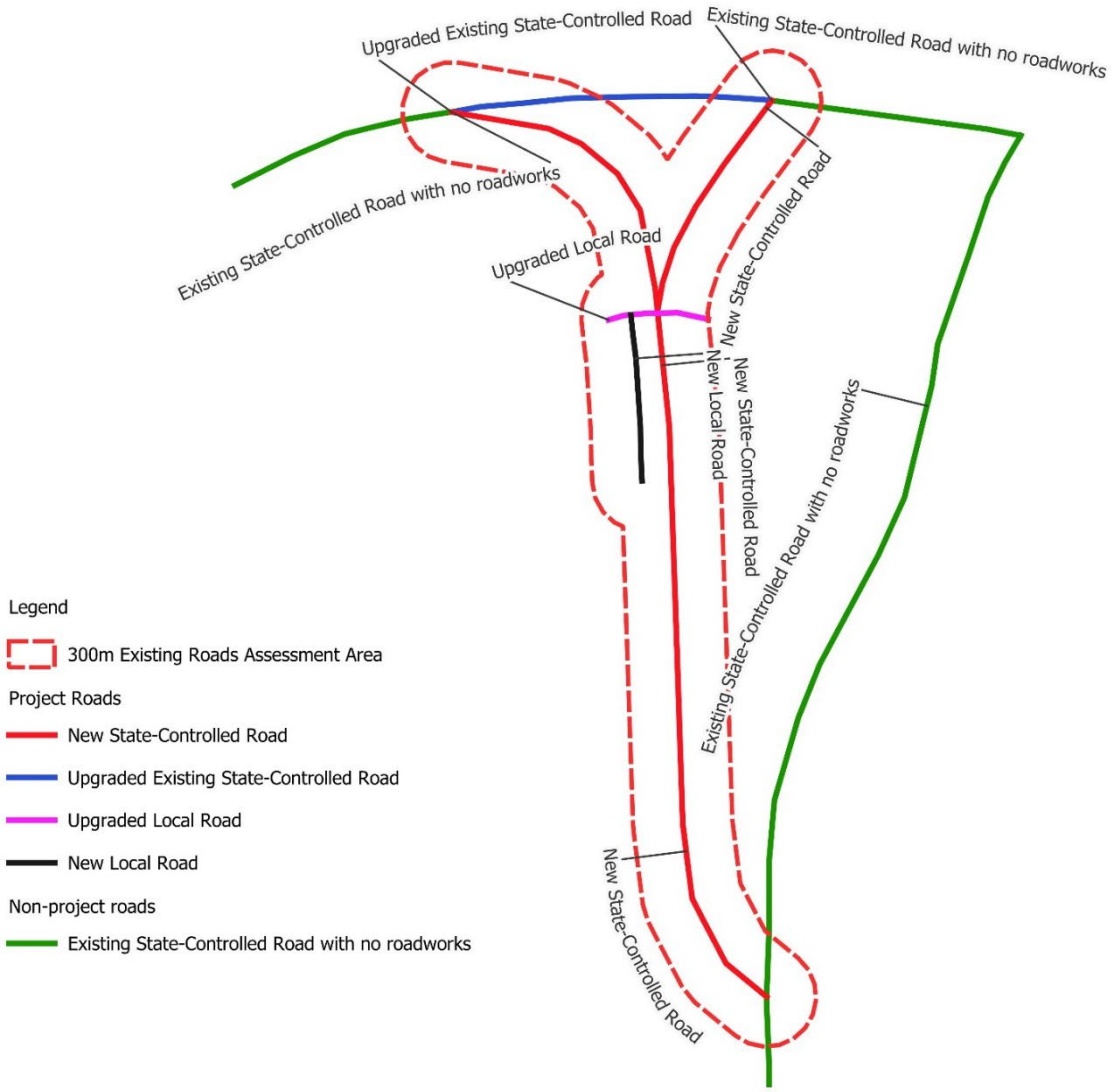

Figure 3.3(e) – Flowchart of existing roads – no roadworks assessment for managing the state-controlled network noise emissions in the assessment of a new road

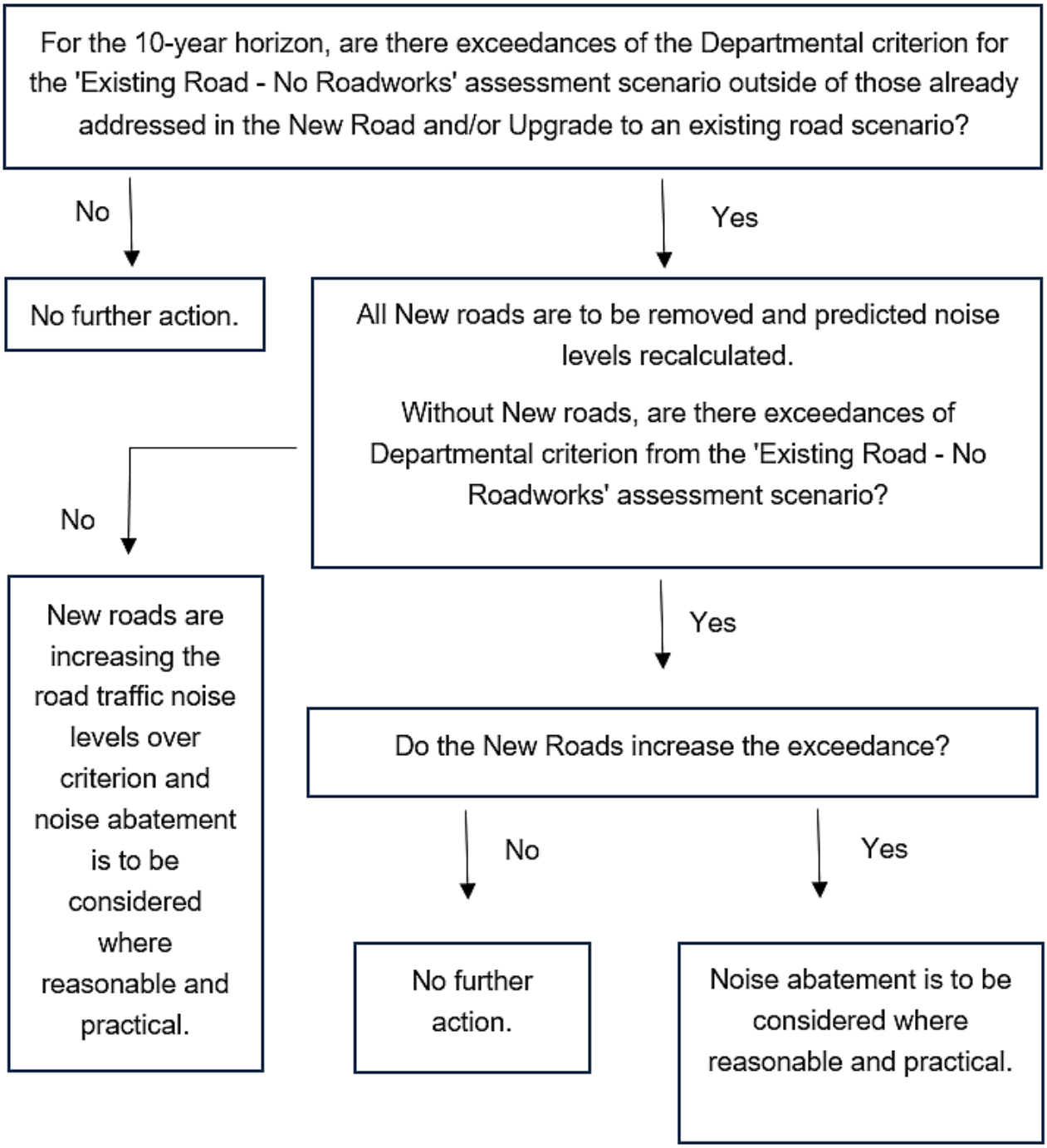

Table 3.3 provides an example of results to determine if an exceedance beyond the Project Roads is eligible for consideration for noise abatement.

Table 3.3 – Predicted road traffic noise levels – New Road assessment scenario

Receptor ID	Receptor Type	Criterion for Existing roads – no roadworks scenario L_{A10}(18h) dB(A)	Predicted L_{A10}(18h) noise level dB(A)			
			New Roads – assessed against New Road criterion	Project Roads (New and Upgrading existing roads)	All Project and Non-Project Roads Assessed against Existing roads – no roadworks criterion	All Roads excluding New Roads Assessed against Existing roads – no roadworks criterion
1	Residential	68	60	66	**70**	68
2	Residential	68	57	59	**69**	**69**
3	Residential	68	63	67	**72**	**70**

In the example provided in Table 3.3:

- Receptor 1 triggers an exceedance due to the inclusion of new roads, therefore abatement is to be considered if reasonable and practicable.
- Receptor 2 is exceeding due to the existing roads and does not trigger abatement requirements as there is no change in overall noise level or exceedance.
- Receptor 3 has an increased exceedance due to the inclusion of new roads; however, the exceedance is driven by the existing road and therefore abatement is to be considered if reasonable and practicable.

This methodology will provide 2 noise abatement considerations, one for upgraded and/or new roads, and the other to consider Non-Project Roads under the 'Existing Road – No Roadworks' criterion (if applicable). One consolidated noise abatement design is to be provided that considers rationalisation (that is, considering the 'Existing Road' scenario and extending noise barriers for equity and so on) whilst taking into account limitations such as (for example) availability of council land or other constraints in consultation with the Transport and Main Roads Project Manager.

Where the abatement design for a project road (either state-controlled or local) is included for receptors within the assessment area; however, there are adjacent receptors in the same logical row, the abatement design should be rationalised to provide an equitable approach for the logical row of receptors. This may require some consultation with the Transport and Main Roads Project Manager to determine the potential rationalisation if there is a long row of receivers.

4 New road criteria determination

Table 3.2(a) of the Code presents criteria for the construction of a new road for existing residences, driven by the existing noise level above or below 55 dB(A) L_{A10}(18h).

Section 4.4.2 of the Code states:

"*It is not possible to calculate or measure the existing road traffic noise descriptors for a new road. In some cases, there may be an appropriate existing road within the area of the new road project. This existing road could be used for the assessment. For a new road project, the assessment can only be based on the calculated and predicted values of the noise descriptors. Background noise levels are required to be measured at representative sites along the proposed new road corridor to determine the existing noise climate and relevant criterion level to be applied*."

To supplement this process to avoid an impractical number of measurements, and to provide a more robust methodology for determining the new road criteria at receivers, the noise model capturing existing roads can be used to determine the existing noise level for which the new road criterion is defined in conjunction with the noise measurements.

The supplementary methodology to assign new roads criteria to receivers is detailed below.

Noise measurements for the verification of any existing roads in the project area are to be undertaken as per the Code requirements.

In addition to noise measurements completed to verify a road traffic noise model, new road criteria measurements are also required. These measurements should be representative of clusters and taken where:

- road traffic noise is dominant
- the expectation is that the measured noise level is near 55 dB(A) L_{A10}(18h), and
- the measurement within the cluster fronts the new road corridor.

Where a new road is proposed adjacent to an existing road corridor, verification measurement(s) may also act as new road criteria measurements if the measured noise level is near 55 dB(A) L_{A10}(18h).

In determining criteria in the construction of a new road only, the existing calculated noise levels throughout the project are to be adjusted to remove overprediction within the model for each cluster.

Within each cluster:

- if the calculated noise level is below the lowest measured noise level, no further adjustment is required, or
- if the calculated noise level is above the lowest measured noise level, the existing noise levels within that cluster are corrected down by the difference.

The new road criteria model adjustments are not considered in the presentation of existing or future road traffic noise levels, nor considered in the design of noise abatement.

Existing noise levels to determine the new road criterion are calculated from the existing, modelled road network. Where data is not available for any section of the road network, the road is omitted from consideration. Where there are no existing roads (state-controlled or local) that can be modelled, then an existing L_{A10}(18h) noise level below 55 dB(A) can be assumed, and the lower criteria applied for all receptors.

Where measurement data for the new road criterion (i.e. at or close to 55 dB(A) L_{A10}(18h)) is not dominated by road traffic noise, the lower criterion can be assumed for these locations. The predicted noise levels for the project are to be compared against a noise criterion determined by the corrected, existing noise level for each facade of each storey for all sensitive buildings. Individual buildings may have differing criteria across different facades.

5 Post construction noise assessment methodology

The post construction road traffic noise assessment (Section 4.4.2 of the Code) aims to confirm the compliance of the project design of noise attenuation treatments for 10-years post construction completion, and to ensure the noise sensitive receptors meet the intended noise design criteria. The post construction noise assessment shall be conducted after implementing noise attenuation treatments and completing roadworks and construction activities. In order to confirm compliance, the Transport and Main Roads Project Manager may also opt to undertake this assessment regardless of noise attenuation treatments being implemented on a project (for example, if an existing road project identifies marginal compliance with criterion during assessment).

To avoid any confusion, post construction measurement shall be conducted in the following situations:

- new roads

- upgraded roads, and
- existing roads where noise attenuation treatments have recently been constructed.

To adequately determine compliance, the following methodology is required as per Section 5.1 and Section 5.2.

5.1 Noise monitoring

Noise measurements are to be completed in accordance with Section 4.3.1 of the Code. At a minimum, noise monitoring is expected generally at the same locations where monitoring has been previously completed during the design phase; however, additional locations may also be considered by the department. Traffic counts for each measurement day are to be completed concurrently in accordance with Section 4.3.1.2 of the Code where feasible.

5.2 Noise modelling

The latest noise model (for example, Detailed Design or Permission to Use) is to be updated to reflect further changes in earthworks to create a base As-Built noise model. Any variation of inputs between the previous noise model and As-Built noise model shall be clearly stated in a dedicated section of the report. The variations can be related to changes to alignment, speed, pavement surface, terrain, noise treatments, and so on.

The As-Built noise model is used to calculate noise levels for each measurement location, following the guidance within Section 4.4.2 of the Code. The highest noise level across all valid days of monitoring is to be checked against the as-built noise model with the arithmetic averaged 18-hour traffic data measured through traffic counts for the valid days of monitoring. Where traffic count data is unavailable, the model shall be checked against the highest noise levels monitored at each location with the design traffic data for the opening year.

If the As-built noise model provides an equal or conservative calculation (that is, the calculated values are either equal to or higher than the measured values), it can be considered suitable for checking compliance.

Where the noise model underpredicts at a monitoring location, the assessment must consider a correction to be applied for the associated cluster(s) within the noise model.

Figure 5.2 provides the decision tree for this process.

Figure 5.2 – Post construction noise model check process

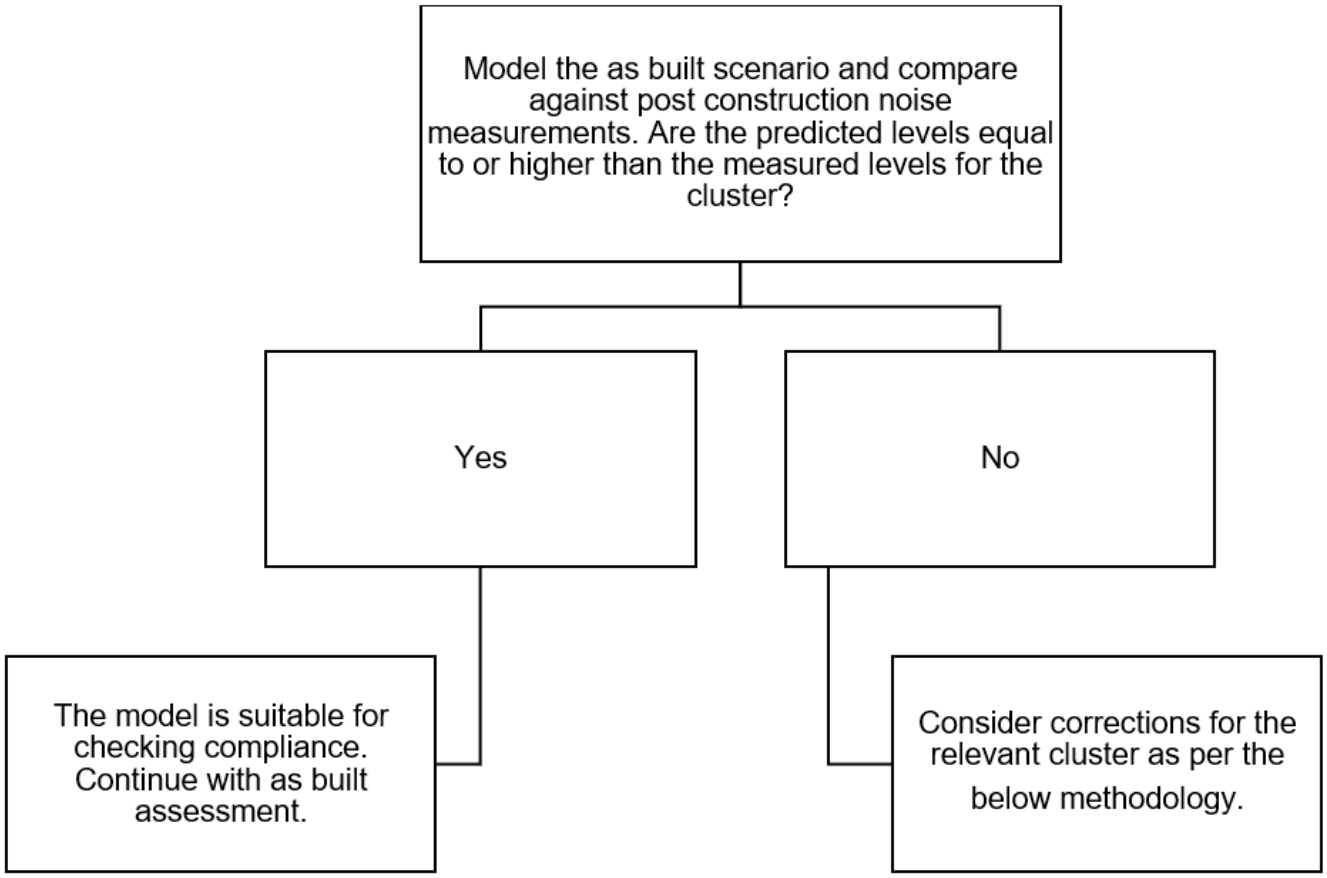

Table 5.2(a) provides an example for the review process. Note, all measured and calculated noise levels are presented to one decimal point.

Table 5.2(a) – Post construction checks for required L_{A10}(18h) correction

Area	Site ID	Day 1 Measured L_{A10}(18h) noise level (dB(A))	Day 2 Measured L_{A10}(18h) noise level (dB(A))	Day 3 Measured L_{A10}(18h) noise level (dB(A))	Maximum measured L_{A10},18h noise (dB(A))	Calculated L_{A10},18h noise level (using averaged traffic) (dB(A))	Difference (Calculated – measured) (dB(A))
Cluster 1	1	63.1	64.8	64.3	64.8	65.8	+1.0
Cluster 2	2	62.7	63.1	63.0	63.1	64.1	+1.0
Cluster 3	3	62.0	62.1	62.9	62.9	64.9	+2.0
Cluster 4	4	64.6	65.2	65.2	65.2	67.2	+2.0
Cluster 5	5	64.2	64.0	63.9	64.2	63.2	-1.0(1)
Cluster 6	6	66.0	66.1	65.1	66.1	65.1	-1.0(1)

1. Note: A +1.0 dB correction was applied for L_{A10} (18h) predictions Cluster 5 and Cluster 6

The cross-checked (with measurements) As-Built noise model, adopting the design 18-hour traffic composition for the 10-year horizon, paired with any corrections for underprediction, is used to predict the 10-year horizon road traffic noise levels at all receptors. This prediction is to be made 10-years from construction completion irrespective of the design horizon, for all sensitive receptors (as assessed in the design phase). Where the 10-year horizon differs from the design horizon, corrections for the traffic data may be considered.

If the 10-year post completion prediction indicates noise levels above the design noise levels at any sensitive receptors, then a confirmation of noise abatement suitability is to be made. The report should confirm if noise levels from the 10-year horizon meet the criterion at all locations, or where there are exceedances of the criterion the Exception Circumstances Treatments (ECTs) proposed in the design are sufficient. If there are additional exceedances or exceedances with inadequate noise abatement (for example, a higher level of ECTs is required), then this is considered as a non-compliance and further investigation is required in consultation with the Transport and Main Roads Project Manager in the event of non-compliance. Table 5.2(b) provides an example of this review to be included in the assessment report.

Table 5.2(b) – Example of compliance check for criterion exceedances

Receptor ID	**Receptor type**	**Criterion for Upgrading Existing Road L_{A10}(18h) dB(A)**	**Post construction 10-year horizon predicted L_{A10}(18h) noise level (dB(A))**	**Treatment provided in design**	**Additional noise abatement needs to be considered**
1	Residential	68	**70**	Noise Barrier	**Yes**
2	Residential	68	**71**	Noise Barrier + Mechanical Ventilation and Airconditioning	No
3	Residential	68	**75**	Noise Barrier + Mechanical Ventilation and Airconditioning	No

The following investigative process is recommended in consultation with the Transport and Main Roads Project Manager during the defect liability period as part of additional works in the event of non-compliance:

- Additional noise modelling to understand the need for additional noise abatement. Consultation with the Transport and Main Roads Project Manager is required to understand any opportunity to retrofit and/or construct additional noise barriers.
- Additional noise measurements may also be considered within the localised area(s) where the non-compliance was flagged.
- A noise abatement report is required to inform the Transport and Main Roads Project Manager on the noise abatement options for the department to consider.

6 Approved unbuilt development

The assessment of developments, both recently constructed 'built', and approved unbuilt development, are to be considered within road traffic noise assessments. Regarding approved unbuilt development, Section 4.3.4.2 of the Code notes that:

"*Approved future land development should also be considered in all road traffic noise investigations*."

Approved unbuilt development in the context of this document refers to a proposed unbuilt development which has approval by the relevant authority (typically Council), including Material Change of Use (MCU) and Reconfiguration of Lot (RoL) approvals. Note that this may also include any unbuilt developments in the appeals process if provided by the department.

Regarding sensitive development recently constructed, it is acknowledged that Section 3.5 states that the department generally only considers the impact of road traffic noise upon an existing development (10-years after final signoff), however, the Code also states:

"*In some cases where a road traffic noise impact assessment is required, e.g. building a new road near existing residences, a private development may have been constructed beside the proposed new road within 10-years prior to the assessment. The department will consider the impact on this development if the impact had not previously been assessed under planning legislation (e.g. IDAS)*."

Typically, neither the noise impacts of a new road or upgrade of an existing road are considered as part of the planning assessment for developments. Therefore, all built and approved unbuilt receivers are to be incorporated for these assessment types, this is detailed further below.

6.1 Different project types

The following summarises the project types and how approved unbuilt, newly constructed, and existing developments are to be considered:

- New roads and upgrades to existing roads:
  - All existing and built receivers are assessed for road traffic noise impacts, including those constructed within the past 10-years. A noise mitigation design is provided for this scenario.
  - The department will consider any approved unbuilt developments within the assessment area prior to undertaking any works. The information for these approved unbuilt developments will then be provided to the RPEQ for their inclusion in the assessment. If the approved unbuilt developments have not been provided or communicated to the assessing RPEQ prior to works being undertaken, the RPEQ should confirm this with the Transport and Main Roads Project Manager before the noise assessment work begins. An additional scenario including all approved unbuilt development and all existing and built receivers (including any conditioned mitigation) is to be assessed for road traffic noise impacts. An additional noise mitigation design is provided for this scenario.
  - For approved unbuilt development, the acoustic assessment is to capture, within an independent section of the report, the:
    - approved unbuilt development information used for input into the assessment, such as noise assessment reports, plans and so on.
    - formal approval documentation which captures conditions of developments, and any noise abatement measures required as part of the development.
- Existing roads assessment:
  - All existing and built receivers are assessed for road traffic noise impacts, including those constructed within the past 10-years. A noise mitigation design is provided.

6.2 Assessment methodology for approved unbuilt developments

For all sensitive receptors including those within approved unbuilt developments (in combination, not in isolation), the predicted 10-year horizon noise impacts are to be assessed against departmental criterion. Any noise abatement treatments conditioned with developments is to be included in this assessment. That is, all approved unbuilt developments to be considered in the assessment are included in the same noise assessment scenario with any conditioned mitigation (such as noise barriers) in addition to all existing built receptors.

In addition to conditioned noise abatement, modelling for approved unbuilt development is also to consider any proposed building forms and earthworks either through available plans and site observations.

Where approved unbuilt development is captured within an assessment, 2 noise abatement options (if / where required) are to be identified including optioning and rationalising as required for the 10-year horizon:

- Noise assessment and abatement design for existing and built receptors only, with the consideration of ECTs where noise barriers are not reasonable and practicable following guidance within Section 6.4 of the Code.
- Noise assessment and abatement for existing and built receptors and all approved unbuilt developments.

Note that any receivers considered for ECTs will need to be checked against Section 3.5 of the Code, which provides the instances in which the department does not consider ECTs for developments (both built and approved unbuilt).

The assessment and any reasonable and practical mitigation design for approved unbuilt noise sensitive developments shall be included as a standalone section in the noise assessment report, noting that mitigation options for the existing and built receptors and approved unbuilt developments are to be presented separately for the 2 scenarios above for consideration by the department.

7 Noise mitigation optioning

Section 4.4.1 of the Code highlights that a noise assessment is to provide an outline of the investigation process in determining the preferred road traffic noise attenuation strategies / options. The following provides a guide to help demonstrate this requirement in a noise assessment report:

- Integrated design:
  - Integration of noise barriers with other design elements such as PUP, drainages, road safety offsets etc. should be discussed, including potential conflicts / design.
- Barrier placement:
  - The investigation process of barriers at the roadside, property boundary, and any favourable terrain locations is to be outlined whilst considering the strategies and guidance within Section 6 and Section 7 of the Code. This is to include reasoning as to why barriers have been 'designed out' of a location, for example due to PUP conflicts, land ownership conflicts, maintenance access / safety access requirements etc. Other considerations may include corridor management offsets, CPTED, streetscape impacts, commercial property line of sight, and so on.
- Barrier height:
  - The height required to achieve compliance is to be reported; noting that a minimum height of 1.8 m and/or a minimum 3 dB(A) reduction is also required at the most exposed receptor as per Section 6.3 of the Code and Section 11 of this document.
  - Each barrier may require further investigation to be presented surrounding barrier height where there are:
    - options for alternative footprints
    - if it is reasonable to increase a barrier height above 6m to remove requirements for ECTs, and
    - if compliance cannot be reasonably or practicably met, at what height provides the best value vs benefit for the community and the department.

Following documentation of the above-mentioned considerations, the final recommended mitigation is to be presented for each investigation area. This should include an overview map of the barrier and receivers in the main body of the report, as well as summary tables

of results for the areas of investigation. At a minimum all receivers exceeding the criterion in the unmitigated case should have results included in the summary tables.

The following collates a non-exhaustive guidance within the Code pertaining to selection of noise abatement options, and the placement and design process for noise barriers. For a full understanding of noise abatement options and considerations please refer to the relevant sections of the Code. The design considerations should be clearly documented in the mitigation design section of the report when presenting the recommended mitigation design where they are relevant.

- Section 6.1 of the Code provides a strategy for noise abatement. Abatement measures should generally be considered in the following hierarchy (assuming that typically, a noise sensitive use exclusion zone is not practicable within the project footprint):
  - Earth mound (landscaped)
  - Noise fence and earth mound (landscaped)
  - Noise fence
  - Noise barrier and at building ECT's
  - ECT's (where noise barriers / earth mounds are not reasonable and/or practicable).
- Road traffic noise barrier placement can be affected by many of the following factors:
  - Buried services
  - Topography
  - Safety requirements including lighting, clear zones and sight distances
  - Crime prevention through environmental design for vehicle and pedestrian safety
  - Maintenance and access requirements including local streets
  - Drainage
  - Public amenity including privacy and security, shading, air circulation, and views
  - Fauna movements
  - Visual amenity (streetscape and built environment)
  - Visual exposure to the road corridor (an overlap of barriers at least twice of the gap between them helps to address this concern)

  - Community expectations, equity, and rationalisation.
- The following items should also be captured when considering the barrier height:
  - The minimum height to achieve criterion whilst typically preferring:
    - Infill of barrier gaps
    - Rationalisation of noise fence height
    - Stepped changes in height
    - Reduction in heights to facilitate barrier termination
  - Urban / corridor design including barrier heights of existing walls
  - Barriers on structure such as retaining walls and/or elevated structures such as bridges. Note, rationale for height limitations (if applicable) need to be documented.
  - No measurable increase requirements (if applicable).

8 No measurable increase

As per Section 6.3.8 of the Code, any re-alignment of noise barriers involving removal or replacement of noise barriers, including approved unbuilt development conditioned noise barriers, shall not cause noise impacts on adjacent noise sensitive receptors to be measurably increased. This is to be demonstrated in the noise assessment report by providing the following documented process:

Step 1 – Determine the receptors which may be impacted by the removal, realignment, or replacement of noise barriers through the following:

- Determine which sections of existing noise barrier are to be removed / replaced / realigned (‘removed noise barrier segments’).
- Determine the adjacent receptors to these removed segments / barriers, for the purpose of the no measurable increase assessment, adjacent receptors can be considered as the first 2 rows of receivers directly behind the removed barrier segments, including any barrier returns. The RPEQ may extend the receptors considered if they determine it appropriate for the specific receptors behind the barrier.

Step 2 – Determine applicable noise abatement for eligible receptors identified within Step 1:

- Predict road traffic noise levels for the year of opening following completion of the project with the recommended noise abatement measures proposed for the 10-year horizon, taking into consideration within Section 6.3.8 of the Code that a replacement noise barrier shall generally be at least the same extent and height as the existing noise barrier that is removed / replaced with a minimum height of 1.8 m.
- Calculate any measurable increase between the 2 year of opening scenarios below:
  - existing scenario including existing barriers with year of opening traffic (without the project influence on traffic), versus
  - completion of the project with year of opening traffic and recommended noise abatement measures.

Where a new road is determined to be influencing a measurable increase the assessing RPEQ can choose to remove the section(s) of new roads from the assessment as the broader contribution from new roads is handled through the separate assessment processes, as per Section 3.

Note: The no measurable increase predictions from each scenario shall be rounded to the nearest integer as per other noise predictions.

Determine any reasonable and practical noise abatement to address any measurable increase for the receptors identified in Step 1.

9 Traffic count requirements

Section 4.3.1.2 of the Code states that collection of traffic data during the time of the noise measurement is preferable to traffic estimates. The Code further clarifies that, for large road upgrade projects, measured traffic data shall always be collected, and traffic estimation shall only be used for comparative purposes.

In the absence of a definition, a large project is considered as a high-risk project as defined by the department's Environmental Processes Manual. For medium and low risk projects, the consideration of traffic counts is at the discretion of the Transport and Main Roads Project Manager for design phases of the project. Traffic counts are required where a post construction assessment is required.

Ideally, traffic counts should be conducted at the same time as noise measurements. The number and coverage of traffic counters for each project is to be agreed with the department as part of a noise monitoring plan.

Tube counters should be far enough away from noise monitoring locations to avoid potential influence from 'tyre slap' noise.

If traffic counts cannot be completed simultaneously with noise measurements, further consultation with the Transport and Main Roads Project Manager is required to determine a way forward on large projects. In general, it is good practice to confirm traffic count requirements prior to noise monitoring with the Transport and Main Roads Project Manager.

10 Noise descriptor corrections

Section 3 of the Code presents criteria which includes noise descriptors such as the L_{A10}(1h) and L_{A10}(12h), in addition to the L_{A10}(18h). Section 4.4.2 also notes that:

"*For existing roads, verifying a noise calculation model shall be undertaken by comparing measured and calculated noise descriptors determined simultaneously at a number of sites. The model may be deemed to be verified if the average difference between the measured and calculated values of the descriptors is no more than ± 2.0 dB(A)*."

This document provides clarity on how the L_{A10}(1h) and L_{A10}(12h) noise descriptors may be calculated / predicted and clarifying that these descriptors require verification.

Calculated and predicted L_{A10}(1h) and L_{A10}(12h) noise levels can be either:

- Calculated using traffic information relevant for each period for the L_{A10}(1h) descriptor; and/or
- Based on corrections to the calculated / predicted L_{A10}(18h) road traffic noise levels using the measurement data for the L_{A10}(1h) and L_{A10}(12h) descriptors.

If the L_{A10}(1h) calculated / predicted noise levels are based on 1-hour traffic data as per the Calculation of Road Traffic Noise (CoRTN), then, where measurements have also been completed, the report is to contain the verification of the L_{A10}(18h) and L_{A10}(1h) noise levels, against the measured noise levels for the L_{A10}(18h) and L_{A10}(1h) descriptors.

Where L_{A10}(1h) and L_{A10}(12h) calculated / predicted noise levels are based on corrections to the calculated / predicted L_{A10}(18h) values, corrections are to be based on measured values and consider potential variance between the noise descriptors throughout the project. The assessment is to compare the relationships between available 18-hour, 1-hour, and 12-hour traffic volumes against the measured L_{A10}(18h), L_{A10}(1h), and L_{A10}(12h) differences. This may result in specific corrections for sections of road where the relationship between the noise descriptors is significantly different. For example, a major motorway may require a different correction to an arterial road in the study area, that is, different corrections may be required for each road.

It is not possible to calculate or measure the existing road traffic noise descriptors for a new road. In some cases, there may be an appropriate existing road within the area of the new road project which can be used for the assessment. In lieu of any available roads, literature or other similar project data may be called upon in the absence of hourly traffic data and measurement data for the calculation of the L_{A10}(1h) and L_{A10}(12h) descriptors for new roads.

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Section 6.3 of the Code states that:

"*There are instances where noise barriers may not be implemented within the road corridor due to technical feasibility (an engineering consideration of what can be practicably constructed – minimum height of a noise fence shall be 1.8 m and/or a minimum of 3 dB(A) noise reduction shall be achieved at the façade of the most exposed noise impacted receptor)*."

This document section aims to clarify the minimum noise barrier requirements. These are to be:

- The minimum height of a noise fence shall be 1.8 m, and
- A 3 dB(A) noise reduction be achieved at the façade of the most exposed noise impacted receptor for which that barrier is being designed for. This is to be the single most exposed noise impacted receptor at one overall receiver / building, and not the single most exposed receptor at each receiver / building.