Suggested Environmental Performance Requirements for Traffic Noise

Doug Munro
Submitter 275

The following provides suggestions for modified and new environmental performance requirements (EPRs) for the consideration of the North East Link Inquiry and Advisory Committee. I have provided suggested text and some explanatory notes in each case.

NV1 Criteria for Project Roads

Traffic noise from North East Link Project Roads must not be greater than 50dBA Leq 9h (2200h to 0700h) free field at residential buildings. Residential buildings are those existing or having planning approval prior to the exhibition of the North East Link Environment Effects Statement.

Where it is not practicable, as determined by the Independent Environmental Auditor, to meet this external traffic noise criterion at residential buildings then at-property acoustic treatments must be offered to the registered owner of such buildings and provided if and as agreed.

That acoustic treatment must provide for an internal noise not greater than 35dBA Leq 9h (2200h to 0700h) for bedrooms and 40dBA Leq 15h (0700h to 2200h) for living areas.

These internal noise criteria apply at all habitable levels of those buildings.

The external noise level is to be achieved for a period of 40 years from project opening commensurate with the expected design life of the traffic noise control measures. In those cases where the external noise level has been unable to be achieved at project commissioning the external noise must be no higher during that 40 year time period than at commissioning to ensure that internal noise levels do not increase.

The noise mitigation criterion(a) must be annotated on the building title.

Notes:
Project Roads must be defined, as it is in the draft EPR NV1; or perhaps better, if that term is used in other EPRs, then in a glossary. If elements of the present NV1 are to be retained a little judicious rewording might be prudent such as the new section is not a freeway since it is tolled, the including all access ramps applies to the whole project and not the new section only, and the ramps at interchanges are not access only.

Residential buildings can be described by example if that is needed as is done in the VicRoads Policy. In the present NV1, Category A and then a footnote of that are not needed since they derive from the VicRoads Traffic Noise Reduction Policy which is not referred to in the present EPR.

Practicability encompasses feasibility and reasonableness. Descriptions of these terms are in the VicRoads and NSW documents which could be cited. If possible these descriptions might be tightened.

The Independent Environmental Auditor is to be the decision maker on whether external traffic noise reduction measures can or cannot meet the criterion, and hence whether at-property acoustic treatment has to be offered. This must be done independently of the contractor; it is not a least cost issue since external traffic noise measures are preferred.

9h (2200h to 0700h) and 15h (0700h to 2200h) are based on the Better Apartment Design Standards criterion modified from 8h (2200h to 0600h) and 16h (0600h to 2200h) respectively to correspond with the more usual time periods for noise, and as are used in this EES for both SEPP N-1 and construction noise objectives.

Equivalent level of protection proposed by the proponent as an amendment to NV1 is not acceptable. It fails the test for clarity. It suggests an equivalence to the internal acoustic level provided by the specified external level without specifying the noise attenuation of the structure. The conclave explicitly agreed to a numerical internal criterion. Equivalence to the proponent proposed external criterion of 63dBA L10 18h (0600h to 2400h) would be about 40dBA Leq 9h (2200h to 0700h) by my estimate.

NV2 **Criterion for intersecting non-Project Roads**

Traffic noise at residential buildings on non-Project Roads that intersect North East Link Project Roads and;

- are within 400m of the centre line of those Project Roads, and;
- for which external traffic noise which must be measured no more than six months before Project opening and, in the absence of construction noise, is equal to or greater than 50dBA Leq 9h (2200h to 0700h) free field, and;
- is measured to have increased by 2dBA or more at between 12 and 18 months after Project opening;

must be offered at-property acoustic treatments.
Residential buildings are those existing or having planning approval prior to the exhibition of the North East Link Environment Effects Statement.

These acoustic treatments must be offered to the registered owner of such buildings and provided if and as agreed. That acoustic treatment must provide for an internal noise not greater than 35dBA Leq $9h$ (2200h to 0700h) for bedrooms and 40dBA Leq $15h$ (0700h to 2200h) for living areas. Those internal noise criteria apply at all habitable levels of those buildings.

The noise mitigation criterion(a) must be annotated on the building title.

Notes:

The intention of the current NV1(b) in recognising a possible increase in noise from traffic on the Project Roads on intersecting non-Project Roads plus that from increased traffic created by the Project on those adjoining roads has merit. My recommendation arises from my dissatisfaction that the proposed EPR is capable of implementation and is able lead to a timely and effective outcome. That is discussed in 1.12 of my submission 275.

The terms residential buildings, Project Roads, 9h (2200h to 0700h), and 15h (0700h to 2200h) have the same meaning as for NV1.

The term non-Project Roads in this context refers to roads that are not Project Roads but intersect with those Project Roads and may be impacted by increased noise from the Project Roads themselves, increases in traffic from traffic entering or leaving those Project Roads, and possibly ventilation noise in some cases. They are most likely to be arterial roads.

Intersect refers to adjoining roads that intersect with the Project Roads by having one or more connections to those Project Roads. They would be expected to be those arterial roads at interchanges. It may be useful to nominate the roads; for example in the north-south section of NELP it might include Grimshaw Street, Lower Plenty Road and Manningham Road.

### NV3 Criterion for abutting non-Project Roads

Traffic noise at residential buildings on non-Project Roads that abut, but do not intersect but may cross, North East Link Project Roads must be measured within 6 months of project opening. Those having external traffic noise greater than 50dBA Leq 9h (2200h to 0700h) free field must be offered at-property acoustic treatments.

Residential buildings are those existing or having planning approval prior to the exhibition of the North East Link Environment Effects Statement.
These acoustic treatments must be offered to the registered owner of such buildings and provided if and as agreed. That acoustic treatment must provide for an internal noise not greater than 35dBA Leq 9h (2200h to 0700h) for bedrooms and 40dBA Leq 15h (0700h to 2200h) for living areas. Those internal noise criteria apply at all habitable levels of those buildings.

The noise mitigation criterion(a) must be annotated on the building title.

Notes:

The present NV1(a) provides for noise mitigation of noise sensitive receptors where existing roads are incorporated into the Project Roads viz. the Eastern Freeway between Hoddle Street and Springvale Road, and Greensborough Highway between the Metropolitan Ring Road and Grimshaw Street. The current NV1(b) recognises possible adverse effects of traffic on and created by the Project on intersecting non-Project Roads. But the EPRs do not provide for noise protection of receptors along roads that run beside and essentially parallel to the Project Roads.

The terms residential buildings, Project Roads, 9h (2200h to 0700h), and 15h (0700h to 2200h) have the same meaning as for NV1.

The term non-Project Roads in this context refers to roads that are not Project Roads but abut those Project Roads. They are most likely to be arterial roads.

Abut refers to adjoining roads that abut the Project Roads by being parallel or near parallel to those Project Roads. They would be expected to be arterial roads. It would probably be desirable to nominate the roads in the EPR. Specifically the roads are Greensborough Road between Grimshaw Street and Lower Plenty Road and Bulleen Road between Road between Manningham Road and the Eastern Freeway.

**NV4**  
**Criterion for educational and community buildings**

Traffic noise from North East Link Project Roads must not be greater than 60dBA Leq 12h (0600h to 1800h) façade reflected at educational and community buildings. Educational and community buildings are those existing or having planning approval prior to the exhibition of the North East Link Environment Effects Statement.

Where it is not practicable, as determined by the Independent Environmental Auditor, to meet this external traffic noise criterion at residential buildings then at-property acoustic treatments must be offered to the registered owner of such buildings and provided if and as agreed.
That acoustic treatment must provide for an internal noise not greater than 45dBA $L_{eq}^{12h}$ (0600h to 1800h). Those internal noise criteria apply at all noise sensitive levels of those buildings.

The external noise level is to be achieved for a period of 40 years from project opening commensurate with the expected design life of the traffic noise control measures. In those cases where the external noise level has been unable to be achieved at project commissioning the external noise must be no higher during that 40 year period than at commissioning to ensure that internal noise levels do not increase.

Notes:

I have developed this EPR from the existing NV1 and changed the $L_{10}$ to $L_{eq}$ for uniformity by subtracting 3dBA in line with usual practice for traffic noise. By reference to AS/NZS 2107:2016 Acoustics—Recommended design sound levels and reverberation times for building interiors it would seem that a 40dBA $L_{eq}^{12h}$ (0600h to 1800h) internal noise level for those noise sensitive receptors as a group may be appropriate and hence an external criterion of 55dBA $L_{eq}^{12h}$ (0600h to 1800h) is indicated. However, unlike the strong health basis for recommending the noise criterion for residential receptors in NV1, I am not aware of sufficient evidence at present to justify that lower level.

The terms Project Roads, practicable, and Independent Environmental Auditor have the same meaning as in NV1.

Educational and community buildings can be described by example if that is needed as is done in the VicRoads Policy. Category B and then a footnote of that are not needed since they derive from the VicRoads Traffic Noise Reduction Policy which is not referred to in this EPR.

**NV5**  
Criteria for open spaces

Traffic noise from North East Link Project Roads must not be greater than 55dBA $L_{eq}^{15h}$ (0700h to 2200h) free field at passive open spaces and 60dBA $L_{eq}^{15h}$ (0700h to 2200h) free field at active open spaces including school recreational areas.

The external noise level is to be achieved for a period of 40 years from project opening.

Notes:
There may be a need to provide a definition of these open space uses to draw a distinction between passive and active.

The term Project Roads has the same meaning as in NV1.

**NV6 Compliance monitoring**

Traffic noise monitoring must be carried out to determine continuing compliance with the criteria in NV1, NV2, NV3, NV4 and NV5 over the specified 40 year time period.

Monitoring must be initially carried out between 6 and 9 months after Project opening consistent with timely assessment of traffic noise compliance and stabilisation of traffic flows.

Monitoring must be carried out every 2 years thereafter up to 10 years and after that every 5 years to the end of the compliance period.

The traffic noise monitoring must be undertaken in accordance with *VicRoads Traffic Noise Measurement Requirements for Acoustic Consultants – September 2011* with a minus 2.5dBA adjustment applied for free field measurements from those that are façade reflected.

Remedial action must be taken as soon as practicable in the event of non-compliance with any of the criteria in NV1, NV2, NV3, NV4 and NV5.

The monitoring program is to be audited by the Independent Environmental Auditor.

A summary of traffic noise results including non-compliance and corrective action, if any, must be made publicly available within 3 months of each monitoring period.

**Notes:**

The currently proposed EPR requires monitoring after 6 months and again at 10 years. Given the suggested high dependence on open graded asphalt as a noise mitigation measure with the attendant doubt about the longevity of its performance, that monitoring interval is unacceptable. Hence I have suggested more frequent intervals.

However, the critical issue is continuing sustained acoustic performance, not monitoring per se. Defining monitoring intervals is fraught. The Independent Environmental Auditor, or similar, should have some flexibility to review performance and vary monitoring intervals and locations, to ensure that ongoing compliance is achieved.

I have deleted the proposed *Baseline traffic noise must be re-verified after project award and prior to construction works* from the tabled EPR NV2. That information may be needed.
as part of the design for traffic noise mitigation. It is not needed in the EPR; the traffic noise EPRs are about post construction performance.

Consideration might usefully be given to continuous traffic noise monitoring rather than monitoring at intervals, or a combination of approaches. That would parallel air quality monitoring. That would require flexibility in program oversight by the Independent Environmental Auditor.

### H1 Haulage

i. By 1 April 2020 provide a report to the Minister for Planning on opportunities to avoid or minimise haulage of spoil, construction materials and construction machinery on arterial roads by providing direct freeway access to one or both the Metropolitan Ring Road and the Eastern Freeway by, but not limited to:
   - haul roads constructed from work sites to the freeways where and if feasible;
   - investigating the possibility of moving spoil by slurry pipeline to dewatering and vehicle loading point(s) adjacent to the freeways; and
   - investigating the scope for moving spoil by conveyer belts to vehicle loading point(s) adjacent to the freeways.

ii. Require and enforce that engine compression brakes are not used on haulage vehicles, or (better) hire only vehicles not fitted with such brakes.

iii. If arterial roads have to be used for some haulage, where practicable limit such movements to normal working hours as defined by EPA 1254, and select routes that have the least adverse impact; in all cases subject to approval of the Independent Environmental Auditor.

iv. Local roads must not be used for construction vehicles.

v. Ensure that all haulage vehicles comply with the noise requirements of Environment Protection (Vehicle Emissions) Regulations 2013 S12(1) and that they have compliance documentation from an EPA approved vehicle noise tester. In addition, ensure that such vehicles are fitted with exhaust mufflers compliant with the original equipment manufacturer specifications.

vi. By design and operational measures minimise the need for haulage vehicles to reverse and require the use of broadband reversing alarms.

vii. Avoid vehicle idling at construction and spoil disposal sites.

viii. Minimise associated noise of vehicle loading at construction sites, any vehicle washing required and unloading at disposal sites.
Train haulage vehicle drivers in *minimum impact* driving and ensure that the requirements are observed.

**Notes:**

This suggested EPR relates to *haulage* activities, being the use of heavy duty vehicles outside the construction sites including those removing spoil, bringing construction materials to site, bringing construction machinery to and from the sites and the like. It is not about *construction* vehicles and machinery on the construction sites. The IAC may wish to extend this to all construction vehicles both off and on site and thereby encompass haulage vehicles.

Douglas A Munro

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