

PACIFIC HIGHWAY UPGRADE
OXLEY HIGHWAY TO KEMPSEY
NOISE & VIBRATION WORKING PAPER

REPORT NO. 04254
VERSION D

SEPTEMBER 2010

PREPARED FOR

GHD PTY LTD
PO BOX 5403
HUNTER REGIONAL MAIL CENTRE NSW 2310

Wilkinson Murray Pty Limited

ABN 41 192 548 112 • Level 2, 123 Willoughby Road, Crows Nest NSW 2065, Australia • **Asian Office: Hong Kong**
† +61 2 9437 4611 • f +61 2 9437 4393 • e acoustics@wilkinsonmurray.com.au • w www.wilkinsonmurray.com.au

3 OPERATIONAL TRAFFIC NOISE CRITERIA FOR RESIDENCES

Criteria for assessment of road traffic noise are set out in the *Environmental Criteria for Road Traffic Noise* (ECRTN) (EPA 1999). The RTA has also published the *Environmental Noise Management Manual* (ENMM) (RTA 2001) to assist in implementing the ECRTN.

Under the ECRTN, road developments for the Pacific Highway are classified as either 'new freeway' or 'redevelopment of an existing freeway'. The criteria set out in Table 3-1 would therefore apply.

Table 3-1 *Environmental Criteria for Road Traffic Noise* criteria for operational traffic noise - residences

Type of development	Noise level criterion		Where criteria are already exceeded
	Day (7am-10pm)	Night (10pm-7am)	
New freeway or arterial road corridor	L _{Aeq,15hr} 55 dB(A)	L _{Aeq,9hr} 50 dB(A)	The new road should be designed as not to increase existing noise levels by more than 0.5 dB(A). <i>Where feasible and reasonable, noise levels from existing roads should be reduced to meet the noise criteria. In many instances this may be achievable only through long-term strategies.</i>
Redevelopment of existing freeway/arterial road	L _{Aeq,15hr} 60 dB(A)	L _{Aeq,9hr} 55 dB(A)	In all cases, the redevelopment should be designed so as not to increase existing noise levels by more than 2 dB(A). <i>Where feasible and reasonable, noise levels from existing roads should be reduced to meet the noise criteria. In many instances this may be achievable only through long-term strategies.</i>

The noise level criteria in Table 3-1 applies to the predicted noise level at opening of the Proposal, which for the purpose of this assessment has been adopted as the year 2016 and at a time 10 years after opening of the Proposal, year 2026.

The 'existing' noise levels referred to in the last column of Table 3-1 are described in the *Environmental Noise Management Manual* (RTA 2001) as 'future existing' levels – that is, noise levels due to traffic on existing roads as predicted at a time immediately before opening of the Proposal. According to Step 3 of Section 7 of the *Environmental Noise Management Manual* (RTA 2001), this is sometimes necessary with projects with long lead times (over five years) where the 'existing' noise levels are likely to increase because of an increase in traffic flow between the original monitoring and the opening date. This is the case with the Proposal because of the potentially long lead time separating the monitoring of the 2006 existing noise levels and the adopted opening date of the Proposal in 2016.

Practice note (i) of the *Environmental Noise Management Manual* (RTA 2001) describes the circumstances under which the 'new freeway' and 'redevelopment of an existing freeway' criteria apply. Applying this practice note to the Proposal, in general terms the highway sections outside the 'Telegraph Point bypass' and 'Hastings River deviation' sections would be classified as a 'redevelopment of existing freeway/arterial road' while those two sections would be classified as a 'new freeway or arterial road corridor'. Table 3-2 provides a more detailed breakdown of the various criteria used along each of the identified noise catchment areas (NCAs). It is important to note, that even if the new highway is moving further away than the existing highway, it is still classified as a *new freeway*.

Table 3-2 Operational traffic noise criteria for each noise catchment area

Noise Catchment Area	Criteria type	Comments
NCA01	Redevelopment of an existing freeway and new freeway	Some residences in NCA01 would be affected by traffic noise from a road duplication that would follow the existing alignment within a previously developed existing road corridor. Those residences are subject to 'redevelopment' criteria. Some residences would be affected by traffic noise from road duplication marginally outside a previously developed existing road corridor. While those residences would be subject to 'redevelopment' criteria if there is an 'existing traffic noise exposure'; some of the more distant residences with no 'existing traffic noise exposure' would be subject to 'new freeway' criteria.
NCA02	Redevelopment of an existing freeway and new freeway	Some residences in NCA02 would be affected by traffic noise from a road duplication that would follow the existing alignment within a previously developed existing road corridor. Those residences would be subject to 'redevelopment' criteria. Some residences would be potentially affected by traffic noise from road duplication marginally outside a previously developed existing road corridor. While those residences would be subject to 'redevelopment' criteria if there is an 'existing traffic noise exposure'; some of the more distant residences with no 'existing traffic noise exposure' would be subject to 'new freeway' criteria.
NCA03	Redevelopment of an existing freeway	All residences in NCA03 would be affected by traffic noise from a road duplication that would follow the existing alignment within a previously developed existing road corridor. For this reason, all residences in NCA03 would be subject to 'redevelopment' criteria.
NCA04	Redevelopment of an existing freeway	All residences in NCA04 would be affected by traffic noise from a road duplication that would follow the existing alignment within a previously developed existing road corridor. For this reason, all residences in NCA04 would be subject to 'redevelopment' criteria.

Noise Catchment Area	Criteria type	Comments
NCA05	Redevelopment of an existing freeway	All residences in NCA05 would be affected by traffic noise from a road duplication that would follow the existing alignment within a previously developed existing road corridor. For this reason, all residences in NCA05 would be subject to 'redevelopment' criteria.
NCA06	Redevelopment of an existing freeway	All residences in NCA06 would be potentially affected by traffic noise from a road duplication that would follow the existing alignment within a previously developed existing road corridor. For this reason, all residences in NCA06 would be subject to 'redevelopment' criteria.
NCA07	Redevelopment of an existing freeway	All residences in NCA07 would be potentially affected by traffic noise from a road duplication that would follow the existing alignment within a previously developed existing road corridor. For this reason, all residences in NCA07 would be subject to 'redevelopment' criteria.
NCA08	Redevelopment of an existing freeway	All residences in NCA08 would be affected by traffic noise from a road duplication that would follow the existing alignment within a previously developed existing road corridor. For this reason, all residences in NCA08 would be subject to 'redevelopment' criteria.
NCA09	Redevelopment of an existing freeway	All residences in NCA09 would be affected by traffic noise from a road duplication that would follow the existing alignment within a previously developed existing road corridor. For this reason, all residences in NCA09 would be subject to 'redevelopment' criteria.
NCA10	Redevelopment of an existing freeway	All residences in NCA10 would be affected by traffic noise from a road duplication that would follow the existing alignment within a previously developed existing road corridor. For this reason, all residences in NCA10 would be subject to 'redevelopment' criteria.
NCA11	Redevelopment of an existing freeway	All residences in NCA11 would be affected by traffic noise from a road duplication that would follow the existing alignment within a previously developed existing road corridor. For this reason, all residences in NCA11 would be subject to 'redevelopment' criteria.
NCA12	Redevelopment of an existing freeway	All residences in NCA12 would be affected by traffic noise from a road duplication that would follow the existing alignment within a previously developed existing road corridor. For this reason, all residences in NCA12 would be subject to 'redevelopment' criteria.
NCA13	New freeway (majority) and Redevelopment of an existing freeway (minority)	<p>Most residences in NCA13 would be potentially affected by traffic noise from a new road that constitutes a 'new road traffic noise source'. Those residences would also be subject to 'new freeway' criteria.</p> <p>A small number of residences located near the northern boundary of NCA13 would be affected by traffic noise from a road duplication that would follow the existing alignment within a previously developed existing road corridor. Those few residences would be subject to 'redevelopment' criteria.</p>

Noise		
Catchment Area	Criteria type	Comments
NCA14	New freeway (majority) and Redevelopment of an existing freeway (1)	<p>Most residences in NCA14 would be affected by traffic noise from a new road that constitutes a 'new road traffic noise source'. Therefore, those residences would also be subject to 'new freeway' criteria.</p> <p>One residence located near the northern boundary of NCA14 would be affected by traffic noise from a road duplication that would follow the existing alignment within a previously developed existing road corridor. This residence would be subject to 'redevelopment' criteria.</p>
NCA15	New freeway	All residences in NCA15 would be affected by traffic noise from a new road that constitutes a 'new road traffic noise source'. For this reason, all residences in NCA15 would be subject to 'new freeway' criteria.
NCA16	New freeway	All residences in NCA16 would be affected by traffic noise from a new road that constitutes a 'new road traffic noise source'. For this reason, all residences in NCA16 would be subject to 'new freeway' criteria.
NCA17	New freeway	All residences in NCA17 would be affected by traffic noise from a new road that constitutes a 'new road traffic noise source'. For this reason, all residences in NCA17 would be subject to 'new freeway' criteria.
NCA18	New freeway	All residences in NCA18 would be affected by traffic noise from a new road that would constitute a 'new road traffic noise source'. For this reason, all residences in NCA18 would be subject to 'new freeway' criteria.
NCA19	New freeway (majority) and Redevelopment of an existing freeway (2)	<p>Most residences in NCA19 would be affected by traffic noise from a new road that constitutes a 'new road traffic noise source'. Those residences would be subject to 'new freeway' criteria.</p> <p>A small number of residences located near the southern boundary of NCA19 would be affected by traffic noise from a road duplication that would follow the existing alignment within a previously developed existing road corridor. Those 2 residences would be subject to 'redevelopment' criteria.</p>

Noise Catchment Area	Criteria type	Comments
NCA20	New freeway (majority) and Redevelopment of an existing freeway (4)	<p>Most residences in NCA20 would be affected by traffic noise from a new road that would constitute a 'new road traffic noise source'. Those residences would be subject to 'new freeway' criteria.</p> <p>A small number of residences located near the southern boundary of NCA20 would be affected by traffic noise from a road duplication that would follow the existing alignment within a previously developed existing road corridor. Two residences would be subject to 'redevelopment' criteria.</p> <p>Three residences located near the northern boundary of NCA20 would be affected by traffic noise from a road duplication that would follow the existing alignment wholly outside an existing road corridor. Two of those residences where there is an 'existing traffic noise exposure' would be subject to 'redevelopment' criteria. The third residence would be subject to no 'existing traffic noise exposure' and therefore subject to 'new freeway' criteria.</p>
NCA21	Redevelopment of an existing freeway	All residences in NCA21 would be affected by traffic noise from a road duplication that would follow the existing alignment within a previously developed existing road corridor. For this reason, all residences in NCA21 would be subject to 'redevelopment' criteria.
NCA22	Redevelopment of an existing freeway	All residences in NCA22 would be affected by traffic noise from a road duplication that would follow the existing alignment within a previously developed existing road corridor. For this reason, all residences in NCA22 would be subject to 'redevelopment' criteria.