



Health
Northern Sydney
Local Health District

The Director
Infrastructure Projects
Planning & Infrastructure NSW
GPO Box 39
Sydney NSW 2001

Dear Sir/Madam,

Re: Epping to Thornleigh Third Track Project – SSI-5132

Thank you for the opportunity to comment on the Environmental Assessment for the above project.

NSW Health would like to make the following comments on the Environmental Assessment in regard to the Environmental Noise and Vibration Impact Assessment (ENVIA) and the Air Quality Impact Assessment (AQIA).

Environmental Noise and Vibration

Environmental noise can have negative impacts on human health and well-being and trigger ongoing community complaints about annoyance, sleep disturbance and stress. Evidence concerning the adverse health effects of environmental noise is detailed in a number of publications. For example the World Health Organization European Night Noise Guidelines for Europe 2009 says,

"It is a common experience that noise is unpleasant and affects the quality of life. It disturbs and interferes with activities of the individual including concentration, communication, relaxation and sleep (WHO Regional Office for Europe, 2000; Schwela, 2000). Besides the psychosocial effects of community noise, there is concern about the impact of noise on public health, particularly regarding cardiovascular outcomes...persistent noise stress increases the risk of cardiovascular disorders including high BP (hypertension) and IHD"

Also the World Health Organization Guidelines for Community Noise 1999 says,

"*Sleep disturbance* is a major effect of environmental noise. It may cause primary effects during sleep, and secondary effects that can be assessed the day after night-time noise exposure...*Physiological Functions* ... people living near airports, industries and noisy streets, noise exposure may have a large temporary, as well as permanent, impact on physiological functions...*Performance*. It has been shown, mainly in workers and children, that noise can adversely affect performance of cognitive tasks... Noise can produce a number of social and behavioural effects as well as annoyance."

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Current Situation

The ENVIA prepared by SPR Global Environmental Solutions details representative noise levels for the existing sound environment (2011) in Table 19. This table shows exceedances of the Interim Guideline for the Assessment of Noise from Rail Infrastructure Projects (IGANRIP) noise trigger levels at residential receivers for daytime $L_{Aeq(15\text{hour})}$, nighttime $L_{Aeq(9\text{hour})}$, and the maximum noise level L_{max} .

Noise impact of project

The ENVIA details representative noise levels for residential receivers prior to opening of the new track in Table 20 (2016 year), representative noise levels at opening of the track in Table 21 (2016 year), and representative noise levels 10 years after opening of the track in Table 22 (2026 year). The information presented in these tables shows that the new track will cause noise levels to generally increase by 2 decibels or more at a number of residential receivers during night-time hours ($L_{Aeq(9\text{hour})}$), and by 3 decibels in one location for L_{max} .

The IGANRIP details the responses and measures required when noise trigger levels are met or exceeded for redevelopment of existing rail lines. Effective community consultation is required throughout the project to facilitate public involvement and to allow for the community to participate in the mitigation selection process in a transparent, equitable and consistent way.

A summary of the recommended operational noise control/mitigation measures is outlined in Table 26 of the ENVIA. It is noted that concrete ballasted bridges, track lubrication around curves, and building treatments have been recommended as mitigation measures while other potentially effective noise mitigation options identified have not. Although a limited justification for not recommending relatively cost effective measures such as the use of low profile barriers has been presented, the analysis would benefit from further detail being provided.

In view of both the existing noise levels and the predicted incremental noise impacts of the project exceeding trigger levels, it is recommended that the mitigation measures outlined in Table 26 be revisited. Further consideration of cost effective measures such as the use of low profile barriers should occur to mitigate the impacts of the project upon a community that is already being exposed to noise levels exceeding those referenced in the IGANRIP. Further community consultation should be conducted as part of this process.

Limitations of modelling and wheel squeal

The ENVIA clearly indicates that wheel squeal is a characteristic of noise from train movements currently occurring on the rail line and it has a significant impact on the maximum sound level L_{max} and exceedances of IGANRIP trigger levels. It is stated that the noise modelling process used cannot reliably predict wheel squeal from train movements, however it would appear that noise from wheel squeal will not be substantially different from the current situation upon completion of the project.



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As wheel squeal is currently having a measurable impact upon noise levels, the specific mitigation measures described in IGANRIP for controlling wheel squeal noise should be applied to the current project. Furthermore to minimise additional cumulative noise impacts, the predicted occurrence of wheel squeal should be factored into the choice of control/mitigation options to address other operational noise.

Air Quality

The data in Tables 7.3 (PM₁₀) and 7.4 (PM_{2.5}) concerning predicted incremental impacts for particulate material appears to be incorrect as predicted absolute increases in PM_{2.5} are greater than those predicted for PM₁₀. This is not plausible as PM_{2.5} is a fraction of PM₁₀. Consequently, the data presented that relates to particulate matter needs to be reviewed and amended before a comment can be made on the potential impact of the project upon air quality.

Yours sincerely,

Dr Michael Staff
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