

15 December 2017

Mr Jamie Townend
SPP 5.4 Review
Department of Planning, Lands and Heritage
Western Australian Planning Commission
Locked Bag 2506
Perth, WA 6001

Dear Mr Townend

**DRAFT STATE PLANNING POLICY 5.4 ROAD AND RAIL NOISE - CITY OF
COCKBURN [SPP 5.4 'TECHNICAL WORKING GROUP' ('TWG') MEMBER]
COMMENTS FOR YOUR CONSIDERATION**

Thank you for the opportunity to provide formal comment with respect to the *September 2017 Draft State Planning Policy No. 5.4* ('SPP 5.4'). Thank you also for providing the opportunity for the City of Cockburn to form part of the SPP 5.4 *Transport Corridor Protection Project Technical Working Group*. The City of Cockburn ('the City') greatly values stakeholder feedback opportunities and hopes the below comments will be of assistance in helping to finalise SPP 5.4.

The City of Cockburn's comments are provided below in three separate sections. Section 1 provides comments in relation to draft SPP 5.4, Section 2 provides comments in relation to draft SPP 5.4 Guidelines and section 3 provides comments in relation to the draft SPP 5.4 Frequently Asked Questions ('FAQ').

There are 5 main issues of concern with the draft SPP 5.4 which are discussed in further detail in appendices 1 to 3;

- A. Vibration should be included for freight rail and not ignored by SPP 5.4 as indicated by DoPLH FAQ No. 9 and 11.
- B. L_{Amax} should be included in addition to L_{Aeq} for freight rail rather than being considered as an alternative noise metric.
- C. The notion that noise/ vibration should be reduced at source needs to be identified for new public infrastructure and in some cases significant upgrades to existing public infrastructure. For existing rail infrastructure under infill development scenarios, it should not be interpreted to be a freight operator issue only, for the freight operator to resolve. In these instances it is considered to be a joint responsibility.
- D. Sensitive areas in WA should be identified, prioritised, assessed for noise and vibration, and "mitigation maps" developed for Perth Metro. Quiet house design in infill development scenarios is necessary and therefore this Policy should adopt the City of Cockburn Scheme Amendment No 118 approach for key areas within the Metro Area. This approach is supported by key industry stakeholders.

The City has consulted with all 12 metro LGA's which have freight rail and invited them to provide a map or description of the areas that might benefit from mitigation maps similar to the Cockburn Lakes map below. These areas are identified by each LGA as having potential for development or redevelopment for residential land use. Only seven of the Freight Rail LGA's have sensitive areas with a total number of 19

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areas that might be scoped in more detail for acoustic and vibration monitoring and development of mitigation maps through a rolling program implemented by PTA in partnership with the LGA's.

The Council staff would follow a similar model to the Cockburn example and provide land ownership details and act as the liaison person between the land owners and the acoustic consultant. Based upon the cost of the Cockburn project at \$20,000 it is predicted that the entire Perth Metropolitan area could be assessed and mapped for approximately less than \$400,000. Needless to say the information provided to date is basic and would need to be confirmed in more detail with the individual Local Governments. It is interesting to note the relatively small number of areas in the metro area that have been identified for the first time by the responsible Local Governments and this adds substantial weight for the State Government to focus resources and the application of SPP5.4 on these areas.

Previously there has been a perception that the application of alleged onerous/expensive noise and vibration mitigation will stifle development across large areas of Perth, clearly this is not the case and the number of sensitive areas are relatively minor and able to be managed to protect future occupants from noise and vibration from the freight rail line as rail movements inevitably increase.

E. Noise and vibration requires the attention of accredited experts.

The detailed comments, in relation to the three publicly advertised draft SPP 5.4 documents, from the City are as per the following points. Please also note the three appendices beneath the undersigned;

DRAFT SEPTEMBER 2017 STATE PLANNING POLICY 5.4 ROAD AND RAIL NOISE:

1. **Section 2** - modify this sentence as follows to include the underlined text; *“The purpose of the Policy is to minimise the adverse impact of road and rail noise and in some cases rail vibration (refer to section 5.3 of the guidelines) on noise-sensitive land use and/or development within the specified trigger distance of major transport corridors.”*
2. **Section 3** - include the following text and image at the end of 1st paragraph; *“There is plenty of evidence (World Health Organisation 2009) that sleep is a biological necessity, and disturbed sleep is associated with a number of health problems, particularly with children. Policy interventions, and the notion of ‘health impacts’, are therefore necessary considerations to ensure the wellbeing of the community.”*

Consequences of sleep deprivation by type and term
Source: World Health Organisation (Europe)
‘Night Noise Guidelines for Europe’

Type	Short-term	Long-term
Behavioural	Sleepiness Mood changes Irritability and nervousness	Depression/mania Violence
Cognitive	Impairment of function	Difficulty in learning new skills Short-term memory problems Difficulty with complex tasks Slow reaction time
Neurological	Mild and quickly reversible effects	Cerebellar ataxia, nystagmus, tremor, ptosis, slurred speech, increased reflexes, increased sensitivity to pain
Biochemical	Increased metabolic rate Increased thyroid activity Insulin resistance	Decreased weight despite increased caloric intake (in animals) Diabetes, obesity (in humans)
Others	Hypothermia Immune function impairment	Susceptibility to viral illness

3. **Section 4** - Insert the below disclaimer under Table 1 as follows; *“The designation of land within the trigger distances outlined above (within Table 1) should not be interpreted to imply that areas outside the trigger distances are un-affected by noise and possibly also vibration.”*
4. **Section 4.3 (f)** - Should be updated to acknowledge that a Special Control Area may require approval for a single house in some limited circumstances where considered necessary. This will implement the appropriate head of power to give statutory effect to mandate quiet house design outcomes for key sensitive areas.
5. **Section 4.3 (i)** - modify this sentence to read as follows; *“to ground-borne vibration from freight and major road infrastructure in most circumstances. Notwithstanding, as indicated within section 5.3 of the guidelines titled “vibration”, there are extenuating circumstances where “vibration” may be addressed within the planning system. This generally relates to new*

proposals or development over existing residential zoned land/ noise sensitive land uses adjacent to freight railway lines where development cannot be avoided. There is a presumption against new or further residential zoned land/ sensitive land uses within proximity to existing or future freight railway lines. In most situations where vibration is considered in limited circumstances within the planning framework, such as a Special Control Area, the decision maker should recognise in some few instances it may not be reasonable and practicable to meet the full extent of the expected vibration criteria thus, in these few instances, decision makers may exercise some level of flexibility, where appropriate, in decision making. Any associated Scheme Amendments are to address these issues in a holistic manner, including Local Planning Policies, on advice from the Department of Water and Environmental Regulation (noise branch) and the Department of Planning Lands and Heritage.”

Please note the City of Cockburn has demonstrated the above is more than suitable through Scheme Amendment No. 118. This is an exemplary model to showcase the benefits of holistic planning which has due regard to Clauses 69 and 27 of the Planning and Development Act 2005 and the World Health Organisation documentation as mentioned above. In addition this amendment has been supported through the advertising process by over 202 submissions. Please note the City understands the intent of FAQ no. 9 and 11 as prepared by the Department of Planning Lands and Heritage. A report prepared by SLR in 2015 (the WAPC’s consultants whom informed the SPP 5.4 review) indicates;

3.2.5 Sweden

The Swedish Environmental Protection Agency and Swedish Transport Administration provides guidelines for noise and vibrations. For vibrations the guidelines refer to the Swedish Standard SS 460 48 61 *Vibration and shock – Measurement and guidelines for the evaluation of comfort in buildings*.

New, upgrades to existing and existing rail lines are treated differently in the Transport Administrations guideline for noise and vibration, as outlined in **Section 4.2.8**.

There are no official guide values for ground-borne noise in Sweden. However, the Swedish Transport Administration internal guidelines TDOK 2011:460 give reference to a criterion successfully applied to previous projects.

Technical mitigation measures are unlikely to be considered if the cost of mitigation exceeds half of the property value.

It is understood that the WAPC is concerned with the potential impact on “housing affordability”. In line with the Sweden model, the City of Cockburn has worked comprehensively to prepare a very precise planning project which balances the consideration of “cost” and the moral obligation to protect human beings, including children, from the devastating health impacts from freight rail vibration. Amendment No. 118 including a draft LPP and industry supported Acoustic reports is respectfully put forward to the WAPC and the Minister for Planning to demonstrate that there can be a middle ground which satisfies all concerns whilst achieving good outcomes. To leave section 4.3 (i) as currently proposed by the DoPLH is inconsistent with Clause 27, in particular, of the Planning Act.

- 6. Section 5(a)** - Clause 27 of the Planning Act identifies matters which the Commission is to have regard in the preparation of a State Planning Policy. This includes “*characteristics and disposition of land use, amenity, design and environment*”. This needs to be more appropriately reflected in 5(a) of SPP 5.4 to a greater extent.

Section 5(a) refers to “*protecting the community from unreasonable levels of transport noise*” (which excludes vibration pursuant to section 8 of the policy). The definition of noise in a national and international scientific context includes ‘vibration’ and therefore draft SPP 5.4 is inconsistent with the scientific method and therefore inconsistent with the proper and orderly planning test as outlined by Clause 27 of the Planning Act. Clause 27 of the Planning Act indicates SPP 5.4 should appropriately address amenity and design for the environment.

The WA Environmental Protection Act 1986 states, in its definition section, that “*noise includes vibration of any frequency, whether transmitted through air or any other physical medium*”. There are no objective criteria under the Act for ground vibration from rail (or road) transport.

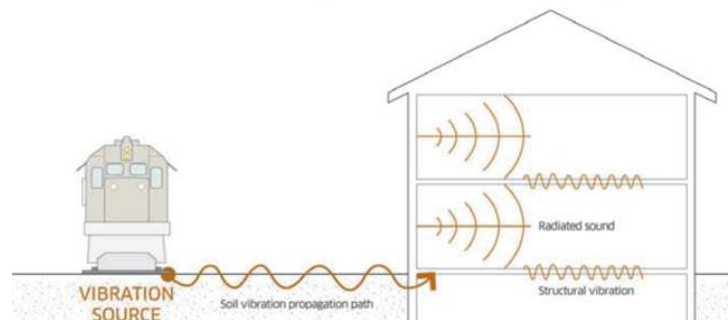
The WA Regulations (EPNR) provides some guidance on what constitutes an acceptable level of noise, albeit for more general sources of noise. From a WA State Government guidance perspective, the EPA has previously authored guidance on vibration/ noise planning which states an acceptable standard may be developed for indoor noise levels on the basis of AS/NZS standard 2107:2000.

Internationally, however, there is movement away from standards defining what constitutes an acceptable level of vibration, meaning individual authorities will need to prescribe objective vibration limits. The international trend is towards vibration standards which focus on methodology and subjective descriptions of possible human response, rather than objective values. Vibration results in regenerated noise which causes disturbances to residents through the shaking of furniture and household items. When vibration from a train passes through at night the sound of kitchen cutlery vibrating could for example wake up residents within the household.

See below international perspective, note vibration is addressed.

Ground-Borne Vibration Propagation

Source: Guidelines for New Development in Proximity to Railway Operations – Prepared for the Federation of Canadian Municipalities and the Railway Association of Canada – May 2013



It is noted the DoPLH addressed and acknowledged vibration under the earlier drafts of the SPPP 5.4 guidelines. This was identified under the draft August 2016 version on advice from the DoPLH acoustic consultants SLR and was supported by most members of the SPP 5.4 Technical Working Group. It is with disappointment to the Technical Working Group that the draft 2017 public version excludes vibration. This should be corrected.

Figure 7: treatment of noise at source, at receiver and between



Planning controls offer paramount opportunity to manage transportation vibration through coordinated design responses and education, which is invaluable at early contemplation stages of development. Without early planning controls, there may be a lack of foresight and guidance which could result in excessive noise and vibration (health impacts) beyond practicable control; or alternatively, large (planning) buffer distances which result in reduced land use efficiency.

The City of Cockburn has created the first local government response in WA to deal effectively with vibration through the local planning framework. This has not only been recognised by stakeholders within the Scheme Amendment process (including DoWER technical noise experts), but is being regarded as a model that ought to be applied elsewhere in respect of managing Perth's consolidating development footprint with the likes of freight rail.

Proposed Modification:

On the above basis 5(a) should be amended as follows; *“protect the community (in the interest of health and wellbeing) from unreasonable levels of transport noise and, in some circumstances, freight rail vibration.”*

7. **Section 6** - modify this sentence as follows to include the underlined text; “where it is unavoidable to place a proposed noise-sensitive land use and/or development to which the Policy applies, it will be necessary to demonstrate that the noise (and in some cases vibration) impact on the proposed etc.”
8. **Section 6.1** - Table 2 - note the following; Railways - provide L_{Amax} criteria as per the advice of the TWG, the Department of Water and Environmental Regulation (noise branch) advice and as per the advice regarding Amendment 118. This should have particular emphasis on high noise from rail.
9. **Section 6.1** - Table 2 - Noise Criteria - this should clearly state that the noise levels indoors are $L_{Aeq}(day)$ 40dB (living and work areas) and $L_{Aeq}(night)$ 35dB (bedrooms) to avoid confusion and clearly state the criteria.
10. **Section 6.1** - Table 2 - Road Criteria and footnote 1 - it may be worth including at the end of the footnote that façade treatment are necessary where the non-habitable room is open to a habitable space (such as a, ensuite open to a bedroom).
11. **Section 6.1** - Table 2 - outdoor criteria - how does an infrastructure provider ensure that the noise criteria are met above the ground floor level?
12. **Section 6.2** - replace the words “determine” and “likely” with “estimate” and “potentially possible”. Table 2 within the guidelines is an inaccurate hypothesis based on fixed assumptions as listed on Table 2. To imply these outcomes are “determined to be likely” is misleading and not consistent with the scientific method. The concept of the table is supported to some extent by

the City of Cockburn. The SPP should however be modified in the above regard to be clear where the listed outcomes are based on fixed assumptions. "To estimate potentially possible noise impacts" rather than "to determine likely noise impacts".

13. **Section 6.2** - Include the following at the end of the 1st paragraph. *"It is noted however that the Noise Exposure Forecast is based on a number of assumptions and is therefore not a true reflection of the likely noise outcomes for a particular area. Noise Exposure Forecasts are an informal guide used to streamline and give some level of accuracy to the noise estimation process"*.
14. **Section 6.2** - Replace the second paragraph as follows; *"Depending on the outcomes of the noise exposure forecast a decision maker may consider the forecast noise level should they be satisfied;*
 - no further measure is required;
 - noise-sensitive land use and/development is acceptable subject to mitigation measures;
 - noise-sensitive land use and/development is not recommended; or
 - noise-sensitive land use and/development is strongly discouraged.

The above is at the discretion of the decision maker and may include advice from the Department of Water and Environmental Regulation (noise branch).

15. **Section 6.3** - Modify this sentence to include the underlined text; *"The map illustrates the likely noise levels and associated noise exposure categories and can be prepared using the noise level information contained within the Noise Exposure Forecast Table (at the discretion of the decision maker/ local government and DoWER) or prepared using site-specific noise level information provided by a suitably qualified acoustic consultant/engineer."*
16. **Section 6.3** - Modify this sentence to include the underlined text; *"If the Noise Level Contour Map as considered appropriate in the discretionary view of the decision maker/ local government and DoWER identifies that no part of the site is estimated to be affected by noise levels above the criteria, no further measures are required."*
17. **Section 6.4** - Modify this sentence to include the underlined text; *"Noise Management Plans which may inform proposed Special Control Areas already approved by the relevant state agency responsible for noise regulations at the time of gazettal of this Policy are deemed to be satisfactory."*
18. **Section 6.4 e)** - *"for (c) and (d) the Noise Management Plan should include treatments which meet the indoor noise criteria, and outdoor noise criteria 10 dB greater than the noise criteria, as outlined in Table 2"* - what does this mean? It would perhaps be clearer to make the table account for the circumstances that the outdoor noise level can be higher.
19. **Section 7** - Modify this sentence to include the underlined text; *"The level and recommended type of noise management and mitigation measure will be dependent on the severity of the noise source, the intensity of the proposed land use and the information available at the particular stage of the planning process. This may result in vibration mitigation requirements through Special Control Areas, for example, in circumstances where existing residential/ noise*

sensitive land uses are proposed to be revitalised adjacent to freight railway lines.”

- 20. Section 7** - Modify this sentence to include the underlined text; “*There is a general presumption against approving proposals that cannot achieve the Policy’s noise criteria. However it is acknowledged that in some circumstances, such as in infill development, it may not be reasonable or practicable for the Policy’s noise criteria to be met. Discretion may be exercised by the decision-maker in these circumstances and also with where freight railway vibration is to be addressed.”*
- 21. Section 7.1 (b) (iii)** - further clarity or guidance is required in relation to what is meant by this point.
- 22. Section 7.2** - Modify this sentence to include the underlined text; “*The key objective for the above planning instruments for where noise-sensitive land use and/or development to which the Policy applies, is to address the impact of noise and in some instances vibration from freight railway lines through the:*
- a) *identification of appropriate compatible land use zoning such as Mixed Use zones;*
 - b) *design solutions that utilise street and lot configuration to screen and/or buffer noise;*
 - c) *consideration of density and built form outcomes that will help alleviate and/or manage noise; and*
 - d) *consideration to local planning scheme Special Control Areas with appropriate provisions for land in the vicinity of a transport corridor to ensure an upfront acoustic report and possible drafting of local planning policy at scheme amendment stage to inform future planning at the subdivision and development stage, which may include the requirements for a Local Development Plan.”* Note this is what Scheme Amendment No. 118 proposes. Amendment No. 118 is supported by the TWG and DoWER. As mentioned above it is considered to be a model holistic solution to the issues of road and rail noise.
- 23. Section 7.2** - Modify this sentence to include the underlined text; “*Information to be accompanied by region and local planning scheme and amendments, structure plans and activity centre plans prepared in accordance with the Guidelines and may include advice from DoWER (noise branch):*
- 24. Section 7.3** - Modify this sentence to include the underlined text; “*Subdivision and development applications should take into consideration any Special Control Area requirements, noise assessment and a Noise Management Plan conducted earlier in the planning process.”*
- 25. Section 7.3** - include point “d” as follows; “*notification on title to advise prospective purchasers and occupants of the possibility of road and rail noise”.*
- 26. Section 7.3** - include a third dot-point as follows; “*details as per Special Control Area particulars where relevant”.*
- 27. Section 7.3.1** - Modify this sentence to include the underlined text; “*The decision-maker may impose conditions on subdivision and development applications requiring the implementation of mitigation measures as outlined*

in the Noise Exposure Forecast, Noise Management Plan or as per the requirements of a Special Control Area.

28. **Section 7.3.1** - Modify this sentence to include the underlined text; *“Notifications on title should also be required as a condition of subdivision (including strata subdivision) and development approval informing of the existence of transport noise, and in some limited cases vibration, where noise (and possibly vibration) levels are forecasted or estimated to exceed the Policy’s outdoor noise criteria following the implementation of noise mitigation measures.”*
29. **Section 7.4** - Modify this sentence to include the underlined text; *“Demonstrate that the proposal can adequately mitigate the noise impacts through utilising noise attenuation measures. With regard to rail and road projects, this may and in some cases should include at-source-mitigation.”*
30. **Section 7.6 (b)** - Modify this sentence to include the underlined text; *“additional/alternative noise mitigation measures or metrics are proposed; and/or”.*
31. **Section 8** - Insert a new definition as follows; “L_{Amax}: A-weighted, Maximum, Sound Level”.
32. **Section 8** - Modify the following definition as follows *“Noise: Sound that is unwanted, unpleasant or loud. This policy does not address regenerated noise or vibration in relation to roads. Notwithstanding, for the purposes of this policy, vibration can be addressed in relation to freight railway lines only. This policy generally only considers regenerated noise or vibration under extenuating circumstances where it relates to infill development (under the guidance of SCA’s) adjacent to freight railway lines. Any such proposals are required to obtain technical guidance from the Department of Water and Environmental Regulation (noise branch).”*

DRAFT SEPTEMBER 2017 STATE PLANNING POLICY 5.4 - ROAD AND RAIL NOISE IMPLEMENTATION GUIDELINES

33. **Section 1.1** - Modify this sentence to include the underlined text; *“determining appropriate land use planning in areas impacted by transport noise including infill and greenfield areas.”*
34. **Section 1.3** - The first paragraph needs to be broken up into more than one sentence and reworded for clarity.
35. **Section 2.2** - The sentence *“Special Control Areas should not define alternative noise metrics.”* Is not supported by the Technical Working Group members, the Department of Water and Environmental Regulation (noise branch) [“the technical experts in the State”], Public Transport Authority, the Freight and Logistics Council of WA, Fremantle Ports and various other stakeholders.

The previous approved versions of SPP 5.4 and the earlier 2016 drafts referenced the World Health Organisation Night Noise Guidelines for Europe. This internationally accepted document references an “alternative noise metrics” namely “L_{Amax}.”

Page 10 of the current December 2014 SPP 5.4 guidelines makes mention as follows;

3.5 Vibration

Ground-borne vibration is most commonly associated with rail transport, and at close distances can lead to a loss of amenity in noise sensitive areas, but is not specifically addressed in the Policy. Refer to the Department of Environment Regulation (DER) for specific technical guidance.

Reference is also made to the following standards:

- ISO 2631-2:2003 Evaluation of human exposure to whole-body vibration Part 2: Continuous and shock-induced vibration in buildings (1 to 80 Hz);
- British Standard BS6472-2008; Evaluation of Human Exposure to Vibration in Buildings (1 Hz to 80 Hz).

It is noted the most recent draft of SPP 5.4 excludes the above? As is evident from Amendment No. 118 L_{Amax} is the appropriate noise metrics for this example as supported by DoWER.

Consistent with the proposed modifications above, please refer to the Freight and Logistics Council of WA Bulletin No. 7 titled "Freight rail noise policy and practice". This document includes the following as extracted below;

L_{Aeq} AND L_{Amax} TRANSPORT NOISE MEASUREMENT METHODS COMPARED

The L_{Aeq} noise measurement used in SPP 5.4 describes the average noise during a measurement period. The measurement is well suited to the large number and constant movements typical of road traffic. It is also reasonably suited to the regular and frequent movements of passenger rail.

The potential (maximum) noise impacts from road and passenger rail are therefore considered to be reasonably represented in the L_{Aeq} noise criteria set out in SPP5.4.

Freight rail is different from road noise as it is characterised by a low number of irregular movements, which results in significant noise fluctuation from a very low level to a very high level as freight trains pass.

The problem arises that a low track use may still have a significant acoustic impact on noise-sensitive neighbours because although infrequent, individual freight trains have a high maximum noise level.

Applying the SPP 5.4 L_{Aeq} noise measurement method to freight rail may result in low noise level values due to the averaging effect for a low number of movements. This may not therefore reflect the acceptable or apparent indoor noise levels in a noise-sensitive development such as a residential apartment. In particular, concerns arise from the potential for residents to be woken up several times during an evening despite SPP 5.4 L_{Aeq} (Night) noise criteria of 35dB(A) having been met.

RAIL FREIGHT NOISE CRITERIA

An alternative method more suited to the assessment of noise from intermittent sources with high noise levels such as aircraft and freight trains is L_{Amax} which is the maximum level measured over a period event i.e. a train pass-by.

Based on the above, there is considered to be a very strong industry supported position for L_{Amax} (alternative noise metrics) where it relates to freight rail. The 2005 draft version of the SPP 5.4 outlined the outdoor criteria of a 75dB L_{Amax} target and 80dB L_{Amax} limit. The internal level equivalent was considered to be 60dB L_{Amax} applicable to bedrooms and living rooms.

It is understood the reluctance from DoPLH to follow the international standard is based on the view of 'housing affordability' rather than any questions regarding the scientific methods. It is understood the DoPLH engaged SLR consultants who informed some of the DoPLH draft details of this policy. SLR recommended L_{Amax} in relation to freight rail. As mentioned

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above, the Sweden cost model (see comments under Point 5 above) was supported by the City of Cockburn under Amendment No. 118. Amendment No. 118 provides a model where housing affordability is considered in a balanced and reasonable manner. It is recommended SPP 5.4 is amended with this approach in mind.

The Bulletin No. 7 case study demonstrates that an L_{Amax} assessment will still be critical, in a range of situations, even if the more conservative $L_{Aeq(Night)}$ values set out in Appendix A of the previous SPP 5.4 Guidelines are applied.

For these reasons above, the sentence “*Special Control Areas should not define alternative noise metrics.*” should be replaced with; “*Special Control Areas may under some circumstances define alternative noise metrics. Any such considerations are to be discussed early on in the process with Department of Water and Environmental Regulation (noise branch) and the Department of Planning Lands and Heritage.*”

36. Section 2.2 - this section seems to imply that there is a requirement to avoid placing noise sensitive developments near transport corridors, which is contrary to the principals of transit oriented design. This section should make clear that where transit oriented design principals are applied this does not negate the need to incorporate appropriate Quiet House Design and possibly screening development where the transport infrastructure has very high noise levels.

37. Section 2.3 - Modify this sentence to include the underlined text; “*An assessment of the noise impacts should have been undertaken prior to this stage of planning. In the absence of a Special Control Area or a structure plan and/or noise assessment, the provision and/or intensification of noise-sensitive land use and/or development should be determined to be appropriate through an initial completion of a Noise Exposure Forecast worksheet as per the above.*”

38. Section 2.4 - This section does not indicate that the acoustic reports prepared on behalf of the transport infrastructure providers will need to be reviewed by government agencies to the same level (or similar level) as planning proposals. Why is this?

For example it is appropriate that the *Department of Water and Environmental Regulation (noise branch) and possibly EPA* provide comment/ assess the acoustic reports as well as the relevant local government/(s) whose district is affected. These are key government agencies that should be providing comment on future transport infrastructure provider’s acoustic reports.

It is noted table 1 of the policy indicates strict steps and implementation responsibilities for ‘planning proposals’. A similar level of detail should appropriately be applied to section 2.4. Perhaps, as one example, table 1 should be updated accordingly? It is understood the DoPLH does not want to infer too much bureaucracy on transport infrastructure providers. Notwithstanding the request is only for comments to be sought not necessarily for decisions to be made. Any public works only requires due regard to the local planning framework for example. On this basis why not reflect the current realities within the policy so that it is clear government seeks to provide an open and transparent process?

- 39. Table 1** - Under Local Government Implementation responsibilities it makes note that Local Government should be *“Determining whether Special Control Areas should be established. Refer Appendix 6 for model Special Control Area provisions for inclusion in local planning schemes.”* It is noted DoWER has supported L_{Amax} and vibration under Scheme Amendment No. 118 therefore the model SCA provisions in draft SPP 5.4 is scientifically flawed and therefore not supported. L_{Amax} and vibration should be implemented for infill areas as per Amendment No. 118.
- 40. Table 1** - this table should incorporate/ require comments from the Public Transport Authority in addition to the Department of Transport. The City of Cockburn received very detailed and valuable comments from the PTA during the advertising process of Scheme Amendment No. 118. PTA often provides valuable comment on various planning proposals and therefore should be listed as a relevant stakeholder in Table 1.
- 41. Table 1** - please update the reference to the *“Department of Water and Environmental Regulation”* to include *“(noise branch)”* as follows; *“Department of Water and Environmental Regulation (noise branch)”*.
- 42. Table 1** - Modify this sentence to include the underlined text and remove the crossed out text; *“Determining whether Special Control Areas should be established. This should be informed by technical advice from the Department of Water and Environmental Regulation (noise branch). Refer Appendix 6 & 8 for model Special Control Area provisions for inclusion in local planning schemes.”*
- 43. Table 1** - Modify this sentence to include the underlined text under the heading of ‘local government’; *“Preparing local planning policies consistent with this policy, and advice from the Department of Water and Environmental Regulation (noise branch). to complement or clarify requirements of the Policy or technical advice and help inform and guide the preparation, assessment and discretionary decision-making of planning applications at the local government level.”*
- 44. Table 1** - It is noted this sentence is included under ‘Local Government’ implementation responsibilities within Table 1 under the draft SPP 5.4 guidelines;

“Incorporating noise mitigation measures, as appropriate, into Developer Contribution Plans consistent with State Planning Policy 3.6 - Development Contributions for Infrastructure.”

Please note whilst this might sound feasible in the draft SPP (to the DoPLH) it is not likely to be implemented, in practice, through Local Government Scheme Amendment /(s) should the “mitigation measures” (such as a noise walls) be considered to be “State infrastructure”. The following concerns come to mind;

- a) Local Government requires *“a commitment’ to providing the infrastructure in a reasonable period”*. This is only possible for local government infrastructure, a local government cannot commit to delivery times for state infrastructure where a noise wall (for example) may be considered “state infrastructure”. This needs to be done by the relevant state agency.

- b) State infrastructure items are generally constructed in large stages, not on a basis that aligns to the pattern of development. This can become very problematic in areas of redevelopment (as opposed to Greenfield areas) where a landowner has not 'triggered' the town planning scheme liability provisions for a developer contribution. Noise walls are generally required to be built prior to residential development. Also noise walls don't work (from a mitigation perspective) in a piecemeal construction basis. Noise walls are required to be constructed in one stage.
- c) A development contribution plan requires *"a clear and sound basis with linkages to the local government's strategic and financial planning processes"*. This is only possible for local government infrastructure, a local government cannot include state infrastructure in their strategic and financial planning processes. This needs to be done by the relevant state agency.

Perhaps the DoPLH should remove the italicised text above or alternatively provide further guidance on this point? At the present moment there is too much left to the imagination and not enough detail about what it is the DoPLH has in mind.

45. Table 1 - Under "Subdivision and development - Steps to address" please include an additional dot point as follows; *"comply with Special Control Area provisions"*.

46. Table 1 - Under "Subdivision and development - WAPC", Modify this sentence to include the underlined text;

"WAPC - Assessment and determination of subdivision plans; and accompanying Noise Level Contour Maps, Noise Exposure Forecasts and Noise Management Plans on advice from the Department of Water and Environmental Regulation (noise branch)."

47. Table 1 - Notwithstanding comment 44 above, the section "local government implementation responsibilities at subdivision and development" may involve "collecting DCA monies". Therefore "collecting DCA monies" may need to be included in this section.

48. Section 3.1 - The current December 2014 SPP 5.4 Implementation guidelines under section 2.2 "understanding noise" refers to the "literature" of the World Health Organisation (in part) as follows;

The World Health Organisation (WHO) in the Night Noise Guidelines for Europe of 2009 considers that there is 'sufficient evidence' that road and rail transport noise can adversely affect community health and amenity. Research indicates noise increases the risk of adverse physiological and psychological outcomes, including:

- stress reactions, which, over time can lead to chronic stress, increased blood pressure and risk of heart diseases including myocardial infarction (heart attacks);
- increased incidence of stroke;
- effects on pregnancy outcomes such as reduced birth weight and size in newborns;
- children's learning in schools, such as retardation of reading age; and
- sleep patterns (direct health effects are still under research).

Environmental noise also affects the amenity of an area, including activities such as reading, watching TV, studying and enjoyment of outdoor areas.

Figure 1 shows a range of typical noise levels.

Why has this very important reference to the WHO been removed? It is considered appropriate to leave reference of the "literature" and the WHO in the guidelines.

By removing the above text removes the scientific and social amenity reasons (or justification) as to why we are seeking for developers to (ultimately) incur more costs for noise mitigation. This justification is considered a key component of the current guidelines and fits with the objectives of the Planning Act and should therefore remain within the guidelines and not be removed as proposed by the draft 2017 SPP 5.4 Guidelines. Coincidentally it is noted the WHO recommends noise sensitive uses where developed near freight railway lines must comply with vibration requirements and L_{Amax} .

The WHO, for example, includes a section on "sleep time" which helps explain the scientific importance of sleep and therefore the reasons why sleep shouldn't be interrupted by road and rail noise and vibration. These scientific studies help build the understandings of noise within the community. The below table should be included into the guidelines.

Consequences of sleep deprivation by type and term
 Source: World Health Organisation (Europe)
 'Night Noise Guidelines for Europe'

Type	Short-term	Long-term
Behavioural	Sleepiness Mood changes Irritability and nervousness	Depression/mania Violence
Cognitive	Impairment of function	Difficulty in learning new skills Short-term memory problems Difficulty with complex tasks Slow reaction time
Neurological	Mild and quickly reversible effects	Cerebellar ataxia, nystagmus, tremor, ptosis, slurred speech, increased reflexes, increased sensitivity to pain
Biochemical	Increased metabolic rate Increased thyroid activity Insulin resistance	Decreased weight despite increased caloric intake (in animals) Diabetes, obesity (in humans)
Others	Hypothermia Immune function impairment	Susceptibility to viral illness

49. Section 3.2 - Figure 2: Update Figure 2 with your previous image as per the August 2016 draft SPP 5.4 as shown below which identifies vibration as per international best practice.

Source: WAPC August 2016 Draft SPP 5.4 Implementation Guidelines. It is noted this document/ image includes

Figure 7: treatment of noise at source, at receiver and between



50. Section 3.2 - page 6 makes mention of L_{Aeq} this section needs to be updated to reference L_{Amax} . Why would this section not mention L_{Amax} noting it is internationally referenced and relied upon?

It is noted L_{Amax} is referenced within the December 2014 SPP 5.4 Guidelines as indicted below. Why has L_{Amax} been removed, L_{Amax} was supported for inclusion into the SPP 5.4 by the majority of the SPP 5.4 Technical Working Group.

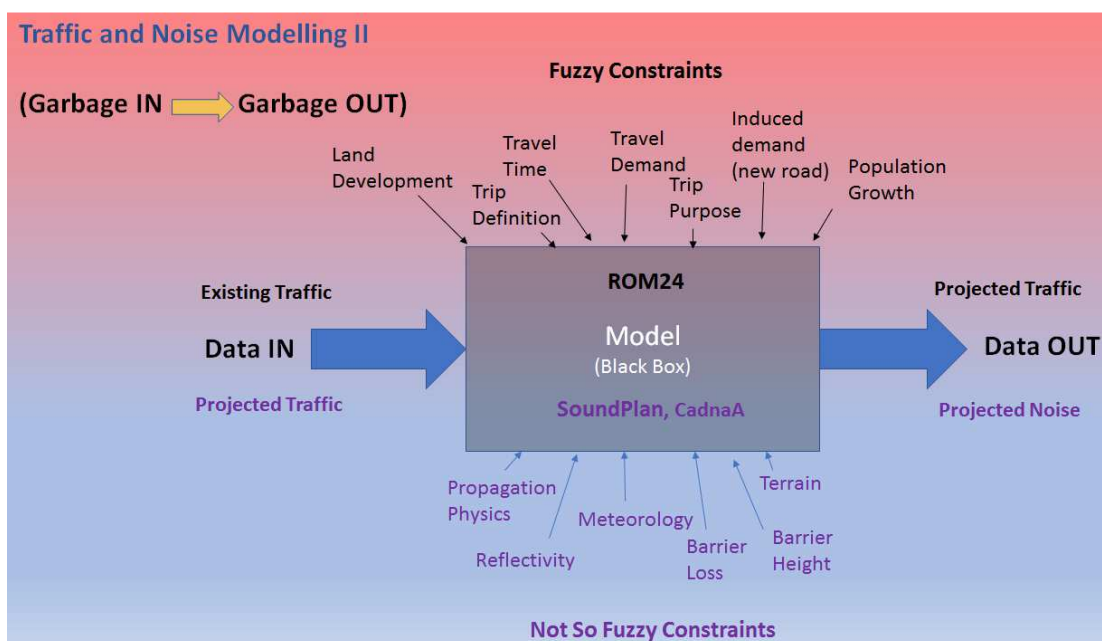
- For the purpose of assessing freight trains only, day and night noise levels must be assessed on the basis of each period having a minimum of one train per hour, and estimates of $L_{Aeq,Night}$ values may be made on the basis of a maximum train passby noise level L_{AmaxS} or sound exposure level L_{Ae} .

51. Section 3.2.1 - Modify this sentence to include the underlined text; *"The Policy recognises that in some instances it may not be 'reasonable' and/or 'practicable' to implement noise and (in some cases) vibration mitigation measures in order to achieve the noise criteria"*.

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52. Section 3.3 - Point 1 under section 3.3 indicates a map (Figure 3) can be prepared using the noise level information contained within the Noise Exposure Forecast under Table 2 of the guidelines. Table 2 is based on a number of assumptions listed on the right hand side within the margin of page 7 of the guidelines. It goes without saying that a noise exposure forecast will be less accurate than a site specific noise level assessment as indicated under point 2 of section 3.3. The draft SPP 5.4 could be interpreted to mean that either of the two options under section 3.3 will be as accurate as the other. This would be an incorrect assumption and could result in misappropriation of the maps in the future.

Please refer to the below images of one of the presentation slides of Mr Shane Chambers (Physics Research Associate - School of Physics, UWA), which seems to provide a consistent view with the above comments. Table 2 is a risky approach to the oversimplification of noise should it be used as the statutory compliance model.



Traffic and Noise Modelling I

- Traffic modelling -> 'Dark Art' guesstimate
- Maths -> Economic modelling (human behaviour)
- Traffic numbers represented as 'strings'
- Traffic model overly complex, too many assumptions => *Prone To Error*
- Acoustic modelling -> Physics based estimate
- Maths -> Physics based modelling (no humans)
- Each string equivalent to acoustical 'Line Source'
- Traffic noise model too simple, too few assumptions => *Prone To Error*

Acousticians question/model their own sources

Why '**Gospel of Traffic Models**' always correct?

⇒ Noise model statutorily assessed!

⇒ Traffic models (Gov) 'Crown Immunity'

Line Source

Based on the above, Table 2 is not supported. Should however the WAPC consider that it should be kept within the policy could there be an additional sentence after points 1 and 2 in section 3.3 along the lines as follows; *“A site specific assessment in accordance with point 2 above is expected to provide a more accurate representation of a particular area than what would be prepared under point 1 above. On this basis option 2 should be relied on for accurate and informed decision making”*.

53. Table 2 Noise Forecast - This table is not supported. This table should only be used as a rough guide in hypothetical scenarios where discussions are based on a superficial basis.

54. Table 2 Noise Forecast - Should the WAPC keep this table within the Policy (against the request of the TWG) it could do with a disclaimer. The disclaimer should make mention something along the following lines;

A noise level contour map prepared in accordance with the noise forecast table is not going to be as accurate or reliable as a site level assessment. It also needs to be said within the guidelines that should any of these assumptions (within Table 2) not be true in a particular case study/ example then the noise contour level map would be inaccurate in that regard. This needs to be expanded to clarify what a change in any of the assumptions within the table would mean for the end outcome and what this would mean in terms of reliability. Refer to % of heavy vehicles, topography, land form and appropriate noise metric options.

55. Table 2 Noise Forecast - Assumption 1 mentions *“The NEF table does not account for the risk of short-term noise/ vibration impacts which have historically been the cause of various complaints in Western Australia.”* This point should be elaborated upon. How would one then account for the risk of short-term noise/ vibration impacts? The policy says in other areas that vibration is not addressed however here it acknowledges noise/ vibration impacts which have historically been the cause of various complaints in Western Australia. As mentioned within this submission, vibration should be addressed as per the City of Cockburn infill example under Scheme Amendment No. 118. Table 2 should be amended accordingly.

56. Table 2 Noise Forecast - Assumptions 4 to 9 refers to specific “traffic mixes” such as primary roads 80km/h and heavy vehicle percentages of 7.5% and other such figures. How representative is this of all future assessments and how appropriate is it to apply assumptions to ultimately guide the development outcomes of Western Australia’s housing market?

Are these traffic assumptions supported by MRWA? It seems to be at odds with the scientific process if it is intended to be applied in a statutory manner.

57. Table 2 Noise Forecast - a point to make clear that future vehicle counts are to be used for the noise assessment should be included.

58. Table 2 Noise Forecast - Guidance is required to make clear what should be done for development in Exposure Category D and E:

67 to 70	D ¹	Noise-sensitive land use and/or development is not recommended. ²
71 +	E ¹	Noise-sensitive land use and/or development is strongly discouraged. ²
<p>1 For Exposure Categories D and E there is no quiet house option.</p> <p>2 If noise-sensitive land use and/or development is unavoidable, an approved Noise Management Plan is required to demonstrate compliance with the noise criteria (see Table 1).</p>		

59. **Section 3.4** - Modify this sentence to include the underlined word; *“When it is determined that the Policy applies to a planning proposal the Noise Exposure Forecast enables proponents and/or decision-makers to undertake a simple assessment of the hypothetical risk of noise impacts on noise-sensitive land use”*.
60. **Section 3.4 (pg 8) and 3.4.1 (pg 9)**- What is the definition of a “proponent”? Shouldn’t the concept of a “proponent” be replaced with “suitably qualified individual/(s)”.
61. **Section 3.4.1** - Figures 4 and 5 illustrate screening and topographical interruptions respectively. This applies (within the images) to single storey dwellings only. Where is the mention of the provision of figures which relate to multiple dwellings in these circumstances? The text within Figures 4 and 5 should be updated to refer to “single storey” dwellings.
62. **Section 3.4.1** - remove the word “fence” from “noise wall/ fence” under dot point 2. Fences are less substantial and in most circumstances have limited effectiveness in noise attenuation.
63. **Section 3.5** - replace struck through text with underlined text as follows; *“A Noise Management Plan provides a site-specific noise assessment and recommended noise mitigation measures to achieve the Policy’s criteria an outcome consistent with industry best practice.”*
64. **Section 3.5** - Insert the underlined words as follows; *“The Department of Water and Environmental Regulation (noise branch) is available to provide noise-related advice and expertise, as well as other stakeholders potentially affected such as the State government transport portfolio.”* Please also mention that the AAS or the AAAC may be able to provide assistance also in addition to DoWER.
65. **Section 4** - Insert the underlined word as follows; *“The most straightforward way of minimising the noise-related impact of transport corridors is to avoid proposing new noise-sensitive land use and/or development in close proximity to such infrastructure.”*
66. **Section 4** - Beneath the above sentence include the following paragraph; *“It is noted however in some instances there are existing noise sensitive land uses in close proximity to major road, passenger rail and major freight rail infrastructure. For example Bibra Lake and South Lake in the City of Cockburn have historically been located adjacent to major freight railway lines which are increasing in freight transportation frequency in more recent times.*

In these instances where infill development is contemplated, through a revitalisation project for example, a site specific Special Control Area on advice from the Department of Water and Environmental Regulation (noise branch) might be considered necessary.”

67. Section 4 - The opening paragraph seems to imply that there is a requirement to avoid placing noise sensitive developments near transport corridors, contrary to the principals of transit oriented design. This is at odds with DoPLHs own strategic plan for Perth which seeks to reorientate development to a balance between infill and greenfield.

68. Section 4.1 - In relation to this paragraph; *“If residential development is unavoidable, consideration should be given to the siting and layout of dwellings and form particularly of multiple dwellings, which are built at a scale that is more likely to make mitigation measures more economically feasible.”*

It seems this sentence above (from the draft Guidelines) refers to Greenfield development rather than infill development scenarios. What about infill projects such as the City of Cockburn’s Lakes Amendment No. 118? In this instance there are existing residential properties experiencing 90+dB at night from rail noise and vibration adjacent to the freight railway lines. It is not practical to rezone multiple people’s residential properties to allow for “multiple dwellings”. Likewise siting and layout of dwellings can only go so far in these examples given the proximity of many lots adjacent to the railway line. In South Lake, for example, the market is unlikely to develop multiple dwellings. It is more likely single storey grouped dwellings would be constructed post residential density up-coding. This section of the draft SPP guidelines should therefore include additional text which talks about infill development in areas unlikely to be developed for multiple dwellings and where siting and layout of dwellings can only achieve so much. As mentioned above Amendment No. 118 is a good example. This section could identify that Special Control Areas in these instances should apply site specific solutions on advice from the Department of Water and Environmental Regulation (noise branch).

69. Section 4.2 - a clear statement that a fence is limited in effectiveness for noise attenuation is warranted in this section.

70. Section 4.5 - This section refers to Table 3 “quiet house” packages. Please note there are similar packages under the Freight and Logistics Council Bulletin number 7 as follows;

<http://freightandlogisticscouncil.wa.gov.au/documents/bulletins/Bulletin-Seven.-Freight-Rail-Noise-Policy-and-Practice-October-2015.pdf.pdf>

which outlines alternative packages which are considered to be better for use in freight railway noise scenarios. These packages should be referenced also within the guidelines for use in SCA’s where clay roof tiles are also to be a requirement. Again this is undertaken for under Amendment No. 118 and is supported by DoWER, Freight and Logistics Council, PTA, DoT, Fremantle Ports and various other stakeholders.

71. Section 4.5 (figure 16) - the single house under figure 16 is a poor example. The house should be rotated 15 degrees to the west. Under the current image it is difficult to distinguish the difference between the eastern and western side of the dwelling. It seems they are almost at right angles to the road and therefore it seems they should both be red rather than one red and one blue.

72. Figure 17 - this scenario depicts an open ensuite without noise treatment to the ensuite window. In this scenario, if the ensuite window faced the road it would also require treatment for noise, in the absence of a door between the habitable and non-habitable space. A clarifying statement to this effect may be warranted.

73. Section 4.5 - Include the following advice as provided by expert Acoustic Engineers (Lloyd George);

“There is plenty of evidence (World Health Organisation 2009) that sleep is a biological necessity, and disturbed sleep is associated with a number of health problems, particularly with children. Therefore, bedrooms (where people sleep) should be prioritised in the contemplation noise mitigation. Noise attenuating bedrooms should be prioritised over noise attenuating areas such as a kitchen, or dining room where residents are generally not sleeping. Consideration is to be given to locating bedrooms away from major roads/ rail transport corridors. Where bedrooms are contemplated on the same side of a building as the major transport corridor consider the following;

- *Locate windows/doors on the side (perpendicular) of the building or where possible, the opposite side of the building to the transport corridor;*
- *Keep window/door sizes as small as practicable;*
- *Select awning/casement style windows over sliding windows;*
- *Avoid sliding door access from a bedroom to balcony;*
- *Aim to locate balconies on the same side of the building as the transport corridor.”*

74. Section 5.3 - It is noted *“this [draft] policy does not address ground-borne vibration”*. This is not appropriate. This Policy should be updated to address ground-borne vibration.

75. Section 5.3 - Replace the current paragraph within draft SPP 5.4 guidelines Section 5.3 with the following paragraph (and equivalent image);

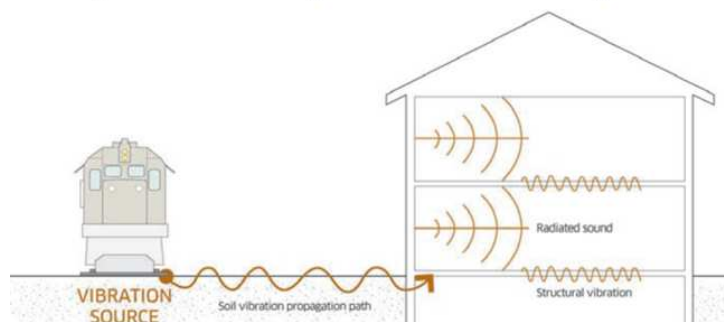
“This Policy addresses ground-borne vibration in limited circumstances. Generally ground-borne vibration will be controlled through this Policy where it applies to metropolitan areas under infill development scenarios adjacent to freight rail and sometimes passenger rail infrastructure. In these scenarios this is to be implemented through Special Control Areas at a local government level in consultation with key industry stakeholders.

Vibration and sound are intimately related. Vibrating objects can generate (radiate) sound and conversely, sound waves (particularly at lower frequencies) can also cause objects to vibrate. Noise that propagates through a structure as vibration and is radiated by vibrating wall, ceiling and floor surfaces is termed “ground-borne noise/ vibration”, “regenerated noise/ vibration”, or sometimes “structure-borne noise/ vibration”.

Vibration is most commonly associated with freight and passenger railways and at close distances to rail corridors, can cause a loss of amenity to sensitive land uses. There is plenty of evidence (World Health Organisation 2009) that sleep is a biological necessity, and disturbed sleep is associated with a number of health problems, particularly with children.

Ground-Borne Vibration Propagation

Source: Guidelines for New Development in Proximity to Railway Operations – Prepared for the Federation of Canadian Municipalities and the Railway Association of Canada – May 2013



Internationally, there is movement away from standards defining what constitutes an acceptable level of vibration, meaning individual authorities will need to prescribe objective vibration limits. The international trend is towards vibration standards which focus on methodology and subjective descriptions of possible human response, rather than objective values.

Planning controls offer paramount opportunity to manage transportation vibration through coordinated design responses and education, which is invaluable at early contemplation stages of development. Without early planning controls, there may be a lack of foresight and guidance which could result in excessive noise and vibration (health impacts) beyond practicable control; or alternatively, large (planning) buffer distances which result in reduced land use efficiency.

Vibration levels are dependent on ground composition and groundwater levels, rail track and rolling stock condition, train speeds and other factors, making it difficult to predict and mitigate. Vibration is best and most cost-effectively addressed 'at-source' through measures including rail track grinding, wheel maintenance or speed restrictions in built up areas. Notwithstanding, in scenarios where 'at-source' measures are implemented this does not mean noise mitigation (for sensitive land uses) construction standards are not required. Ground-borne vibration is a 'joint responsibility' for both the rail operators and the developer/ home owner building noise sensitive buildings in proximity to the noise source. It should not be interpreted to be a freight rail operator solution as this is unlikely to result in any meaningful mitigation.

Vibration can be challenging and at times costly to mitigate it is for this reason that planning controls may seek to implement discretionary considerations in relation to mitigation requirements where appropriate. Notwithstanding it is expected the industry will evolve over time and improve vibration mitigation initiatives. Through economies of scale these costs are expected to reduce over time. Industry leaders do assess and where required, mitigate vibration."

Note: In relation to the above, see Scheme Amendment No. 118 is example where this is achieved at a Local Government Level.

76. Appendix 1 - The noise exposure forecast shouldn't be used as the statutory compliance model. This should be clarified within Appendix 1.

77. Appendix 1 - refers proponents to "For road vehicle per day data and % heavy vehicle mix information, visit the Main Roads Western Australia Traffic Map website: <https://mrapps.mainroads.wa.gov.au/TrafficMap>." However these traffic counts are current and past traffic counts rather than future counts. The Guide should make this clear.

78. Appendix 3 - replace this sentence as follows; "The monitoring equipment shall be capable of recording at least the LAeq parameter. It may also be useful for the equipment to be capable of measuring LAmax, LA1, LA10 and LA90 parameters."

With this below;

"The monitoring equipment shall be capable of recording LAeq, LAmax, LA1, LA10 and LA90 parameters."

79. Appendix 3 - this should include clear guidance on how old measurements can be for use in a Noise Management Plan (for instance can you use noise measurements taken 8 years ago? 5 years ago? 3 years ago?) and that measurements taken at another geographical location may not be extrapolated to another location - for instance, the City has had an instance where it was proposed to use freight rail noise measurements taken from 2.5km away from the development location.

80. Appendix 4 - Where are all these methodologies derived from? How can they be applied in all scenarios?

81. Appendix 4 - Dot point 6 requires road upgrades to comply with the noise criteria for the first two floors. How is it foreseen that Local Governments will comply with this requirement?

82. Appendix 4 - Dot point 7 proposes only 1 train an hour be used for modelling of freight trains. In some areas of the City of Cockburn, residents are already experiencing as many as 8 or 9 trains each night (an eight hour period) so one train an hour may not account for increases in rail traffic. This is particularly relevant as no two trains are the same.

83. Appendix 4 - Dot point 8 does not make sense and requires clarification.

84. Appendix 5 - what is the purpose of this checklist?

85. Appendix 6 - Typo under 5.0 (Table 1) - shouldn't this be Table 2 of the SPP (not the guidelines).

86. Appendix 7 - The notification on title section should be amended to reference "vibration" also. As mentioned above, Vibration and sound are intimately related. Vibrating objects can generate (radiate) sound and conversely, sound waves (particularly at lower frequencies) can also cause objects to vibrate. The notification on title wording should therefore reflect the realities of noise and vibration. Appendix 7 should be amended accordingly to reference vibration.

87. Appendix 8 - This should be updated to reference the City of Cockburn's draft Scheme Text under Amendment No. 118 as follows;

"The Freight Rail Noise Area is shown on the Scheme Map as FRNA.

The purpose of the Freight Rail Noise Area is to-

- a) implement State Planning Policy No. 5.4 Road and Rail Noise ('SPP 5.4') and the associated SPP 5.4 Implementation Guidelines;*
- b) define noise and vibration affected areas, based on SPP 5.4 and site specific noise and vibration measurements, within parts of the suburbs of *insert suburb/(s) names here*;*
- c) protect current and/or future inhabitants, with applications for noise-sensitive land uses, from unreasonable levels of transport noise by implementing a pre-determined standardised set of noise and vibration attenuation measures, or alternatively implementing site specific assessments and measures prepared by a suitably qualified acoustic consultant, at the development approval stage;*
- d) encourage noise mitigation best-practice advancements, design and construction standards for new development proposals in proximity to major transport corridors; and*
- e) recognise in some few instances it may not be reasonable and practicable to meet the full extent of the expected vibration criteria thus, in these few instances, Local Governments may exercise some level of flexibility, where appropriate, in decision making.*

Notwithstanding the exemptions to the need for development approval set out in Part 7 of the Deemed Provisions, and this Scheme, development approval is required where the following development is included in the Freight Rail Noise Area or a Road Noise Area, as defined by Part 5 of the Scheme, but not for minor extensions:

- a) The erection or extension of a single house*
- b) The erection or extension of an ancillary dwelling*
- c) The erection or extension of a grouped dwelling.*
- d) The erection or extension of a multiple dwelling.*

*The Freight Rail Noise Area is defined on the Scheme Map within 300 metres of the central line of the nearest railway track of the Freight Railway Line within the suburbs of *insert suburb names here* pursuant to State Planning Policy 5.4, which applies to noise-sensitive land uses. The Freight Rail Noise Area is informed by a site specific Freight Train Noise and Vibration Assessment prepared in accordance with State Planning Policy No. 5.4.*

Note: The designation of particular parts of the district as a Freight Railway Noise Area should not be interpreted to imply that areas outside the Freight Railway Noise Special Control Area are un-affected by noise and vibration.

In determining an application to carry out development in the Freight Rail Noise Area, the Local Government may impose conditions on any planning approval as to:

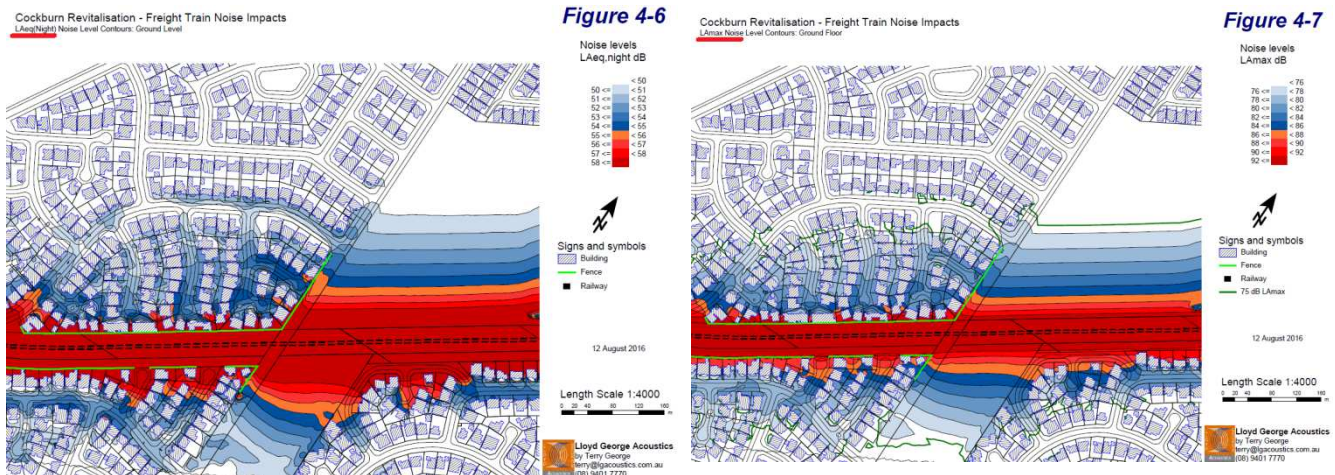
- a) require noise and vibration attenuation measures to be incorporated into the design of buildings; and*
- b) require the registration of notifications on title advising of the potential for Freight Rail Noise and Vibration nuisance.*

The Local Government may consult with; the Department of Water and Environment Regulation (Noise branch), Main Roads Western Australia or any other such government department, acoustic or building industry experts the Local Government considers necessary; in the consideration and determination of an application for development approval to ensure appropriate noise and vibration attenuation measures are incorporated into the design of buildings.”

DRAFT SEPTEMBER 2017 STATE PLANNING POLICY 5.4 - ROAD AND RAIL NOISE FAQ's:

88. FAQ No. 9: The FAQ No. 9 response seems to reflect an incorrect interpretation. The L_{Amax} metric is not supposed to be included in place of L_{Aeq} (for freight rail) but rather L_{Amax} is intended to be included in addition to L_{Aeq} (for freight rail). As per the City of Cockburn's Amendment No. 118 the inclusion of L_{Amax} in addition to L_{Aeq} (for freight rail) allows for more certainty in the deemed to satisfy construction package outcomes.

The City of Cockburn prepared two “Deemed to Satisfy” Maps for comparison purposes. The map with L_{Aeq}-only (i.e. not including L_{Amax}) resulted in more lots being identified as “specialist advice required”. Basically if L_{Aeq} was used only in the example of South Lake and Bibra Lake (infill development) there would be less certainty and less ability for compliance with SPP 5.4. The City's second (preferred) map which included L_{Amax} in addition to L_{Aeq} allows for there to be more certainty and ability to comply with SPP 5.4.



Freight rail has a significant low frequency component as compared to road traffic which shows that freight rail has louder external and internal low frequency noise than road traffic. This is supported by the WHO. Conventional building construction and glazing in particular is relatively poor at moderating low frequency noise. Increasing building mass is the most effective counter to low frequency noise with useful materials including masonry walls (instead of stud walls) and clay tiles (instead of steel roofing).

Subsequent to the Freight and Logistic Council's publication of Bulletin No. 7, the FLCWA undertook further research to investigate the cost implications of the alternative treatment packages for residential development outlined in the Bulletin. The research demonstrated that while the alternative architectural packages increase the dwelling construction cost, in most but not all instances, they achieve a greater noise reduction per dollar spent on construction (dB reduction/\$ spent) than the SPP 5.4 architectural packages.

The City of Cockburn’s approach under Amendment No. 118 (which adopts the alternative treatment packages) seems to be a reasonable compromise to this issue regarding freight rail. Keep in mind the City has built into the draft SCA Scheme text “discretion” (cost conscience) where it comes to vibration requirements for freight rail. This “discretion” (cost consideration) is elaborated on in the CoC associated draft Local Planning Policy. Where freight rail is involved it makes sense to consider LA_{max} in addition to LA_{eq}, as applying LA_{eq} in isolation means (ultimately) an unacceptable level of amenity for residents adjacent to freight railway lines such as South Lake and Bibra Lake. The DoPLH approach is not considered to be in keeping with Clause 27 of the Planning Act as mentioned under Point 6 above.

The Western Australian State Government sees a growing role for freight rail in providing a viable alternative to road transport for suitable freight tasks in strategic corridors. WA rail activity has the potential to increase by up to 126 per cent in the future.

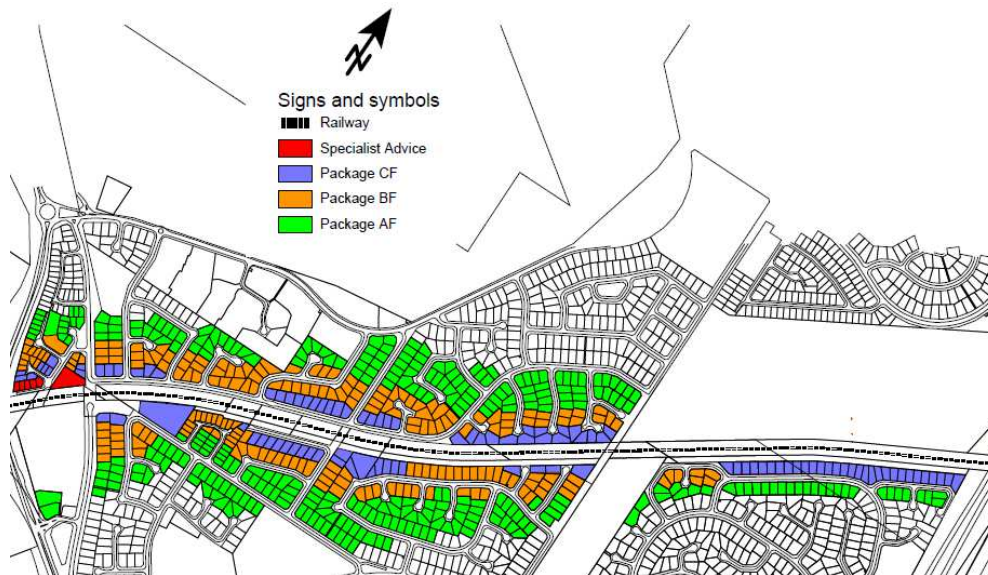


The day-to-day functioning of WA’s economy is highly dependent on the effectiveness of the freight transport network. On this basis it is critical that draft SPP 5.4 be permitted to deal with vibration.

89. FAQ No. 11: The FAQ No. 11 response is unlikely to be based on any scientific argument nor is its conclusion consistent with the objectives of the Planning Act where it relates to the guidance for the preparation or amendments to SPP’s.

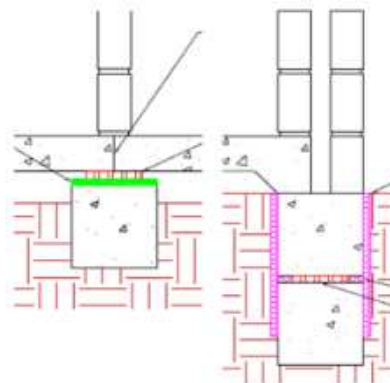
Clause 27 of the Planning Act identifies matters which the Commission is to have regard in the preparation of a State Planning Policy. This includes “characteristics and disposition of land use, amenity, design and environment”. Residential amenity (under infill scenarios) adjacent to freight rail is being ignored by this policy.

The City of Cockburn and the Public Transport Authority have a reasonable solution to vibration mitigation for the WA Metro Area. The solution for SPP 5.4 is to include a ‘Deemed to Satisfy’ construction package for residential sensitive properties within the Metro Area. Effectively an extrapolation of the City’s below map. This below map for two suburbs cost \$20,000. Preparing an equivalent map for the residential sensitive properties within the Metro Area would not be an exorbitant cost.



The scientific method above is supported by the majority of key stakeholders within the SPP 5.4 Technical Working Group including DoWER. Addressing vibration would therefore not add significant additional complexity and challenges as suggested by the FAQ No. 11 response.

The DoPLH under FAQ No. 11 indicates; *“vibration would [“allegedly”] add to time constraints and cost to proponents without a guarantee for success”*. The City is confident that the market can come up with cost effective solutions to resolve this engineering challenge. See below an example of a draft engineering solution to vibration mitigation for a single house. These can be demonstrated to be cost appropriate in the short to medium term. Government could allocate resources to show leadership in this area which might help reduce costs. This is considered to be more appropriate than ignoring the issue of vibration as has currently been drafted.



Should you wish to discuss further please contact Lorenzo Santoriello - Senior Strategic Planning Officer via email at L.santoriello@cockburn.wa.gov.au or by telephone on (08) 9411 3530 or the undersigned.

Yours Sincerely

Andrew Trosic
MANAGER STRATEGIC PLANNING

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APPENDIX 1

Points 'A' to 'E' on page 1 of the above submission were raised with the 12 Freight Rail impacted Local Governments and the South West Group via email on 20 October 2017.

Please see next pages for details

Email Details as follows;

"From: Nick Jones

Sent: Friday, 20 October 2017 4:42 PM

To: Mick McCarthy; Chris.Tanner@kwinana.wa.gov.au; Paul.Neilson@kwinana.wa.gov.au; Erica Scott; Clint Burdett (clint.burdett@canning.wa.gov.au); Michele Rogers; Robert Casella; (joseph@fremantle.wa.gov.au); David Rosling; 'llangford@gosnells.wa.gov.au'; Luke Gibson; Gavin Ponton (Gavin.Ponton@melville.wa.gov.au); 'MartinShurlock@mundaring.wa.gov.au'; 'Alyssa.VanButzelaar@belmont.wa.gov.au'; 'paulg@fremantle.wa.gov.au'; 'SteveTrlin@mundaring.wa.gov.au'

Cc: Daniel Arndt; Patricia Orr; Lorenzo Santoriello; Andrew Trosic

Subject: *Headline comments on SPP5.4 and Freight Rail noise and vibration*

This is a submission from Daniel Arndt, Director Planning and Development at City of Cockburn

This email has been sent to all twelve Local Government Authorities who have freight rail in Perth Metro (Kwinana, Rockingham, Fremantle, Serpentine-Jarrahdale, Kalamunda, Canning, Belmont, Swan, Melville, Mundaring and Gosnells) and the Local Government Authorities (LGAs) in the South West Group. The City of Cockburn invites comments on the content of this email in relation to the draft SPP 5.4 and we are open to meet with stakeholders either individually or in a workshop scenario. Ultimately the City strongly believes that all LGAs should lodge individual submissions to the State Government and Western Australian Planning Commission (WAPC) on a similar vein, preferably indicating support for Cockburn's position as best practice in this space. It is likely due to the contentious nature, particularly its potential impact on Metronet, that the issue will generate some media attention in the coming weeks/months and therefore you may need to pre-prepare a position on the SPP.

Submission from the City of Cockburn to the State Government about freight rail and SPP5.4

The Perth metropolitan area will have a growing dependence on freight rail into the future. Whether the freight passes through the existing Fremantle Port or a new Port in Kwinana, the rail corridors are fixed and they pass through residential areas including the proposed Metronet rail corridor. There are a growing number of residents living near the freight line who are complaining that the trains are more frequent and more noisy. There is also a growing number of residential areas within the metro area in close proximity to the freight rail line which are prime redevelopment areas. The key cause of complaint and the key cause of concerns from a public health perspective is night time sleep disturbance. The number of night time trains will inevitably increase as the population of Western Australia increases and as traffic congestion increases. It is likely that trains carrying ore from mines in WA for refining at Kwinana, such as Tianqi Lithium, for example will increase as we move towards a battery based economy. Once a residential building has been constructed it is extremely difficult if not impossible and costly to retrofit noise and vibration mitigation measures. The argument that vibration and the use of L_{Amax} metric is either too complex or too expensive fails to acknowledge that we have an increasing scenario where we have identified that an occupant will be exposed to emissions that will be detrimental to their health and well-being. It is not acceptable to argue that this scenario represents affordable housing because we have the technology to both measure and mitigate the impacts for future occupants of the building when freight rail movements inevitably increase in future. It is believed that in NSW in response to reports about adverse health effects in the community from sleep deprivation due to noisy freight trains, the Minister for Health placed

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requirements on the rail industry to reduce the noise. This is linked to the introduction of licences for rail operators to ensure their trains meet minimum noise standards in NSW.

The current review of SPP5.4 is the only valid opportunity for the community to have input into the overall system around freight rail in WA. Current levels of use of freight rail are predicted to increase to enable WA to minimise the use of roads for freight transport. There are significant concerns that freight rail trains in WA and the associated infrastructure are completely unregulated in terms of noise or vibration. There are no requirements for the persons responsible for the freight rail infrastructure or the train operators to take any actions to supply quieter trains or rolling stock, to maintain plant with the intention of minimising noise, or to schedule noisy/heavy trains outside of night time periods. There are reports of trains being moved from NSW to WA because they fail to comply with noise limits in NSW due to the fact there are no such restrictions in WA. The State Government should investigate this issue and determine whether to take action to regulate noise and vibration from freight trains. This is especially relevant in light of the assertions in the draft SPP that noise from freight rail should be reduced at source. The City strongly urges the State Government to introduce regulations controlling the noise and vibration of freight trains. If no such regulations are adopted then this places a greater emphasis on the need to have tighter controls on development through the SPP.

Approximately three years ago the WA State Government Noise Experts located in Department of Water and Environment Regulation (DWER) significantly reduced the level of service and advice made available to all stakeholders. There is a considerable void in this space and officers in various State Government Departments and within Local Government have been forced to try and obtain advice from other sources or to make decisions without the necessary input from these noise experts. The City calls upon the State Government to take steps to reverse this reduction in service and allocate resources necessary to enable the Noise Experts in DWER to be the source of expert technical advice about noise and vibration to State and Local Government decision makers.

There are 5 main issues of concern within draft SPP 5.4

1. *Vibration should be included for freight rail*
2. *L_{Amax} should be included for freight rail*
3. *The method where noise/vibration be reduced at source needs to be identified for new public infrastructure or significant upgrades to existing public infrastructure*
4. *Noise and vibration requires the attention of accredited experts*
5. *Sensitive areas in WA should be identified, prioritised, assessed for noise and vibration, and “mitigation maps” developed for Perth metro (as has been demonstrated in a recent best practice example which is discussed below)*

1. Vibration should be included for freight rail

There is a need for all stakeholders to accept that noise and vibration are complex and that an approach that effectively dodges this fact is inappropriate. The health impacts of disturbed sleep from increasing number of night time freight trains cannot be ignored and dismissed with vibration in FAQ 11 as “complex and challenging to model and mitigate, adding to time constraints and costs to proponents without a guarantee for success”. The City of Cockburn and the Public Transport Authority (PTA) have proven that vibration is able to be measured and mitigated and the cost will decrease as measures become more commonplace in the development industry.

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The City of Cockburn and PTA are working with Summitt Building Company to develop a low cost construction method to mitigate vibration from a typical house.

2. L_{Amax} should be included for freight rail

The health impacts of disturbed sleep from increasing number of night time freight trains cannot be ignored and dismissed with L_{Amax} noise in WAPC FAQ 9 “not recommended due to the likely significant implications for both developers and/or operators, including more stringent and costly building treatments, noise walls and larger physical separation distances”. The use of L_{Amax} reflects the true impact of night time trains on sleep disturbance and if this results in more stringent and costly building treatments, then this is clearly necessary to protect public health. In the City’s experience the use of L_{Amax} results in the houses nearest to the rail line being able to adopt a deemed to satisfy package façade treatment rather than a costly individual acoustic assessment. Note that the L_{Amax} assessment typically results in a package treatment with costs similar to L_{Aeq} . L_{Amax} measures the train as it passes a house with the obvious potential for sleep disturbance. Whereas L_{Aeq} measures an average of the maximum noise over time and ignores the loudest 30 seconds as the train passes and disturbs sleep. The use of L_{Amax} for freight rail is supported by DWER and PTA.

3. The method where noise/vibration be reduced at source needs to be identified as an issue within draft SPP 5.4.

The SPP documents frequently suggest that noise and vibration from freight rail should be reduced at source. There are significant concerns that freight rail trains in WA and the associated infrastructure are completely unregulated in terms of noise or vibration. The City considers that the responsibility for minimising the impacts of noise and vibration from freight rail should be shared between the rail operator and the landowner. The draft SPP effectively ignores that freight rail trains are predicted to increase especially at night and reduces the extent of mitigation by landowners while at the same time offers nothing to indicate how noise and vibration will be reduced at source. The current review of SPP 5.4 is the appropriate time for the State Government to investigate how the rail operator will reduce noise and vibration at source, to what extent and by when. In the absence of a valid mitigation plan and a necessary funding commitment it must be assumed that the entire effort to mitigate noise and vibration from freight rail will be borne by landowners where there is existing public transport infrastructure and existing noise sensitive dwellings. Where new public transport infrastructure is proposed or upgraded public transport infrastructure, the noise and vibration mitigation should be shared by the rail/ road operator and the home builder. This should however not result in exorbitant costs to either the home owner or the rail operator. Compromised solutions in overly constrained areas, balancing cost and acoustic outcomes, may be required to achieve an agreed level of acoustic mitigation.

4. Noise and vibration requires the attention of accredited experts

It is accepted practice in the development process in WA for relevant experts to play a key role including Structural Engineers, Fire Engineers and the like. The State Government’s process of dealing with Contaminated Sites is to have a system of experts (Auditors) accredited to deal with Contaminated Sites assessments. A similar system for freight rail would give all stakeholders confidence that noise and vibration from freight rail only will be dealt with by acoustic consultants who are approved and accredited to deal with development applications involving freight rail. Local Government has extensive experience of numerous acoustic consultants addressing these types of assessments with high levels of inconsistency. Of 142 trains measured over more than a month in 2016 in Cockburn the difference between the loudest and the quietest train was on average about 25dB indicating the significant variation in noise from various trains. It is proposed that a list of Freight Rail consultants be selected and accredited by a panel represented by WAPC, DoWER,

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PTA, and Local Government. Accreditation would be based on a criteria that acknowledges prior experience in WA, and membership of the Acoustical Society. Only accredited acoustic consultants would be permitted to submit noise and/or vibration assessment reports for properties near to the freight rail corridor. Note that over time there would be less need for specific assessment to be carried out once the mitigation maps are developed.

5. Sensitive areas in the Metro area should be identified, prioritised, assessed for noise and vibration, and “mitigation maps” developed

The City of Cockburn and PTA have partnered in a recent Scheme amendment project to demonstrate that a significant length of rail line can be assessed for noise and vibration, and a map produced that identifies lots requiring specific noise and vibration treatment or assessment based on criteria that will provide an acceptable level of protection for occupants in nearby homes even when the rail line becomes busier in the future. This Scheme amendment was supported by the State governments noise experts, the Department of Environment Regulation, Noise branch, PTA, FLCWA, WALGA and Fremantle Ports. [See link here](#). The City's project in the Lakes area has shown how an area with 2.5km of freight rail line can be assessed by an acoustic consultant as a single project for noise and vibration from the trains. Contours have been converted into noise packages and vibration requirements for each block of residential land. There are 3416 lots in the project area and 463 require noise attenuation and 89 require noise and vibration attenuation.

This project cost \$20,000 and resulted in a detailed map showing properties with deemed to satisfy works necessary to mitigate for noise and vibration. This type of model is commonplace where a new major road is being planned and an acoustic assessment provides a similar map for use by all stakeholders. It is recommended that sensitive areas be identified where portions of the freight rail line are prioritised based on potential for noise/vibration complaints. These areas should firstly be assessed for mitigation at source, what can be done to rail infrastructure, types of locomotives and rolling stock, scheduling heavy trains, noise walls and vibration isolation, and secondly what can be done by the land owner (package treatments and the like) during redevelopment. The provision of a deemed to satisfy mitigation map would provide stakeholders with certainty around the works necessary if/when the land is redeveloped. The map could also guide property owners on the best methods to reduce noise and vibration impacts on their existing buildings noting that there is no intention that this be retrospective. It is proposed that the sensitive areas be identified in a project shared between the relevant Local Council and PTA and the list of areas be assessed as a single contract with an accredited acoustic consultant with the contract funded and managed by PTA, in partnership with the Local Councils. In the first place the 12 Local Council's with freight rail in the Perth Metro area could provide maps showing the areas deemed to be sensitive and worthy of assessment. Clearly portions of the rail line passing through non-residential areas would not be included in the list of sensitive areas.

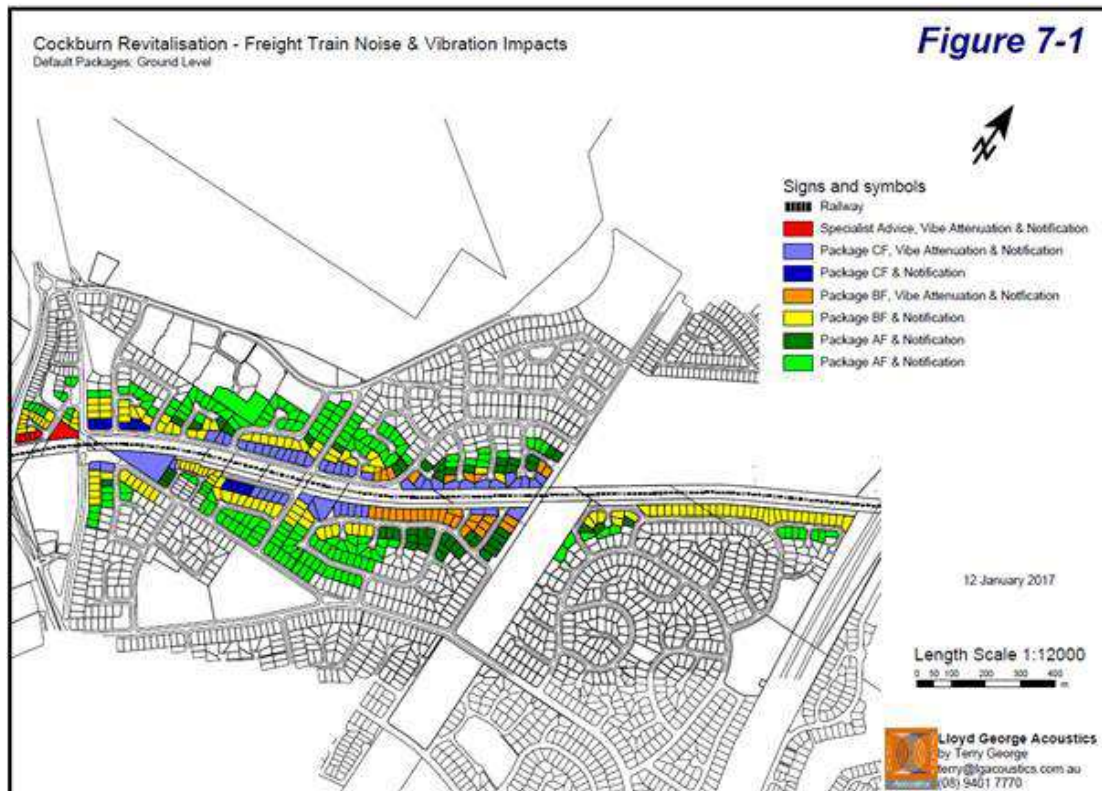
The City of Cockburn best practice model

The City of Cockburn has two Noise Attenuation Planning Policies (one draft) which articulates the requirements of SPP5.4 within its area for developers and, in line with the requirements of the (existing) SPP and advice of the DWER, hopes to designate a Special Control Area (Rail Noise Area) to implement quiet house design requirements for an area of infill development known as The Lakes.

The City of Cockburn's (Draft) Freight Rail Noise Area has been identified as a proposed Special Control Area to assist residents to meet best practice requirements

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around noise mitigation in the vicinity of the Freight Train Line, based on the noise and vibration investigations undertaken for the City of Cockburn in partnership with the Public Transport Authority. The investigation revealed that the noise levels in the vicinity of the examined area of train line exceeded the requirements of draft SPP 5.4. Vibration measurements were also undertaken which revealed that the vibration levels associated with a train pass exceeded accepted criteria identified by the DWER. The outcome of the Freight Train Noise and Vibration Investigation was to identify the required “Package” treatments for noise and vibration in the vicinity of the Freight Rail Line:



The Deemed to Satisfy Construction Packages indicated by various colours on the map, are based on the SPP packages but also consider the impact of L_{max} levels associated with the trains as well as vibration levels. The cost per house for the Quiet House Design (QHD) is predicted to be as follows:-

Package A - \$5,000
 Package B - \$15,000
 Package C - \$24,000

The preliminary feedback from a large project builder (Summitt Homes) is that they should be able to add vibration isolation for a standard 3 bed house for \$20,000 - \$30,000. This cost is expected to reduce over time, as with most relevant examples in planning and building, as the industry improves practices through economies of scale and human innovation.

These costs are not considered to be excessive and certainly do not justify a strategy aimed at allowing substandard residences claimed to be “affordable housing” next to the freight rail line. This will place families in locations where their health will be adversely effected and reduce the capacity of Perth to operate with a viable freight and passenger rail system into the future. The call for a night time curfew on trains across Perth is increasing. These costs are considered to be comparable to AS 3959

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(Bushfire costs) and it is considered protecting lives and public health are comparably equal issues. Both in need of being addressed by the Planning system.”

APPENDIX 2

Consistent with the outcome of Appendix 1 above, the City of Cockburn and the Public Transport Authority are discussing the (early) next steps forward as follows;

Please see next pages for details

Email Details as follows;

From: Nick Jones

Sent: Friday, 15 December 2017 12:07 PM

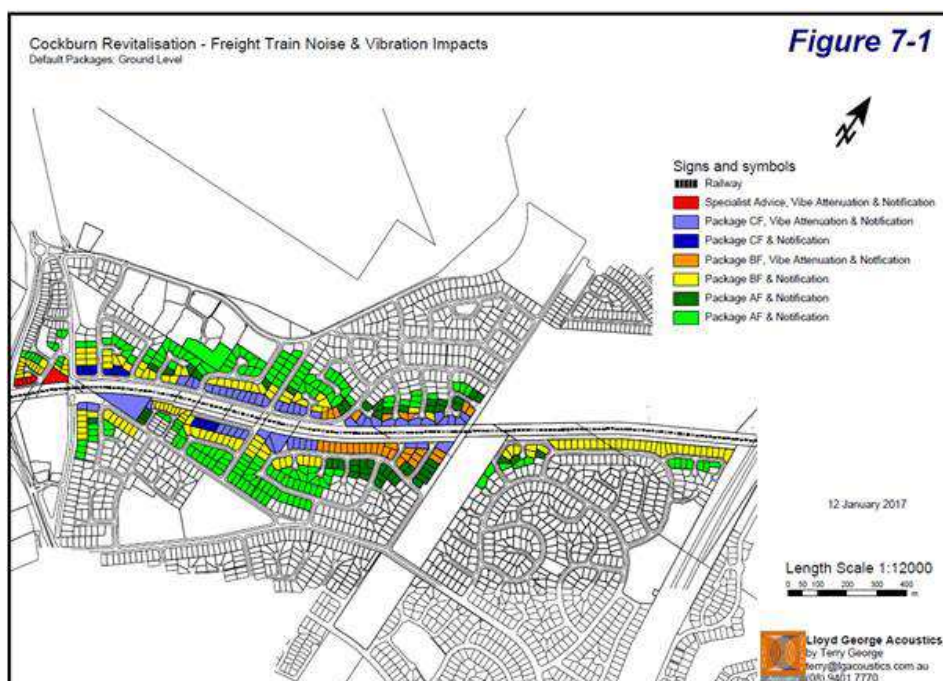
To: Ludlow, Miranda (Miranda.Ludlow@pta.wa.gov.au)

Cc: Lorenzo Santoriello; Patricia Orr

Subject: Mitigation maps project

Hi Miranda

The City has consulted with all 12 metro LGA's which have freight rail and invited them to provide a map or description of the areas that might benefit from mitigation maps similar to the Cockburn Lakes map below. These areas are identified by each LGA as having potential for development or redevelopment for residential land use. Only seven of the Freight Rail LGA's have sensitive areas with a predicted total number of 19 areas that might be scoped in more detail for acoustic and vibration monitoring and development of mitigation maps through a rolling program implemented by PTA in partnership with the LGA's. The Council staff would follow a similar model to the Cockburn example and provide land ownership details and act as the liaison person between the land owners and the acoustic consultant. Based upon the cost of the Cockburn project at \$20,000 it is predicted that the entire Perth Metropolitan area could be assessed and mapped for approximately less than \$400,000. Needless to say the information provided in this email is basic and would need to be confirmed in more detail with the individual Local Governments. It is interesting to note the relatively small number of areas in the metro area that have been identified for the first time by the responsible Local Governments and this adds substantial weight for the State Government to focus resources and the application of SPP5.4 on these areas. Previously there has been a perception that the application of alleged onerous/expensive noise and vibration mitigation will stifle development across large areas of Perth, clearly this is not the case and the number of sensitive areas are relatively minor and able to be managed to protect future occupants from noise and vibration from the freight rail line as rail movements inevitably increase. Please call me to discuss how this project may be progressed as per our previous discussion.



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Rockingham

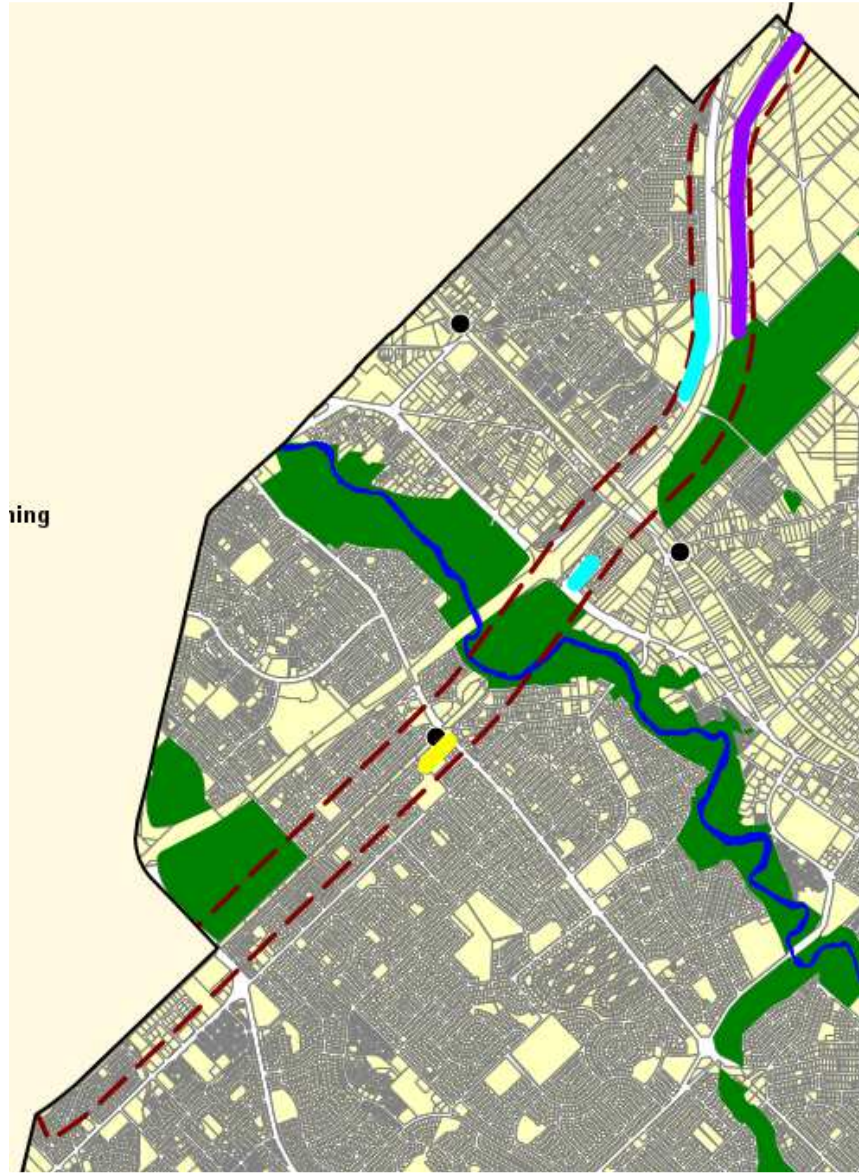
Comment provided - More recently, the City has been actively opposing a proposal by DOT to expand the freight rail network by reinstating a rail reserve (referred to as the 'Kwinana Loop Railway' and shown red below) removed by Westrail about 20 years ago that would bring freight rail closer to more properties in north Rockingham. The decision on the proposed alignment is still to be made and will only be resolved through the Westport Taskforce's planning for the Outer Harbour.

I have not prepared a 'mitigation map' for this possible freight alignment given the status of the proposal.



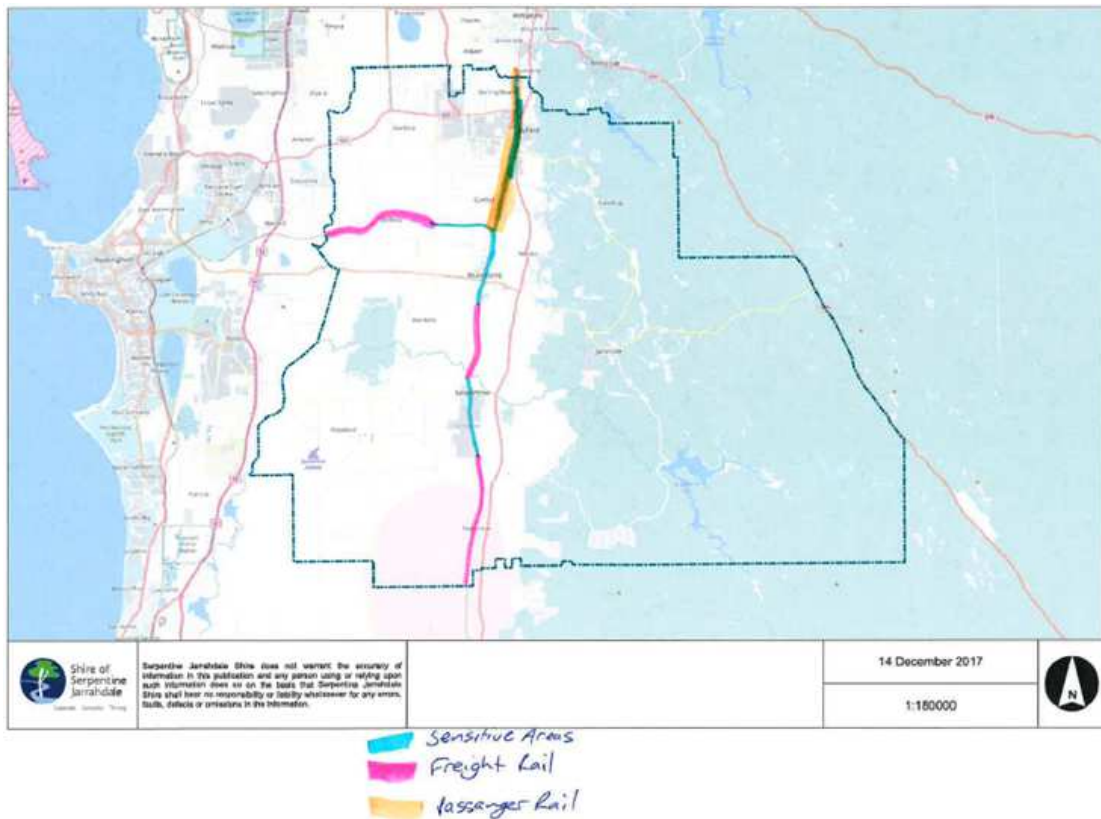
Gosnells

Comment provided - All areas within the maroon line are sensitive with the exception of the green (environmental conservation), purple (industrial), blue (recreation) and yellow (public purpose).

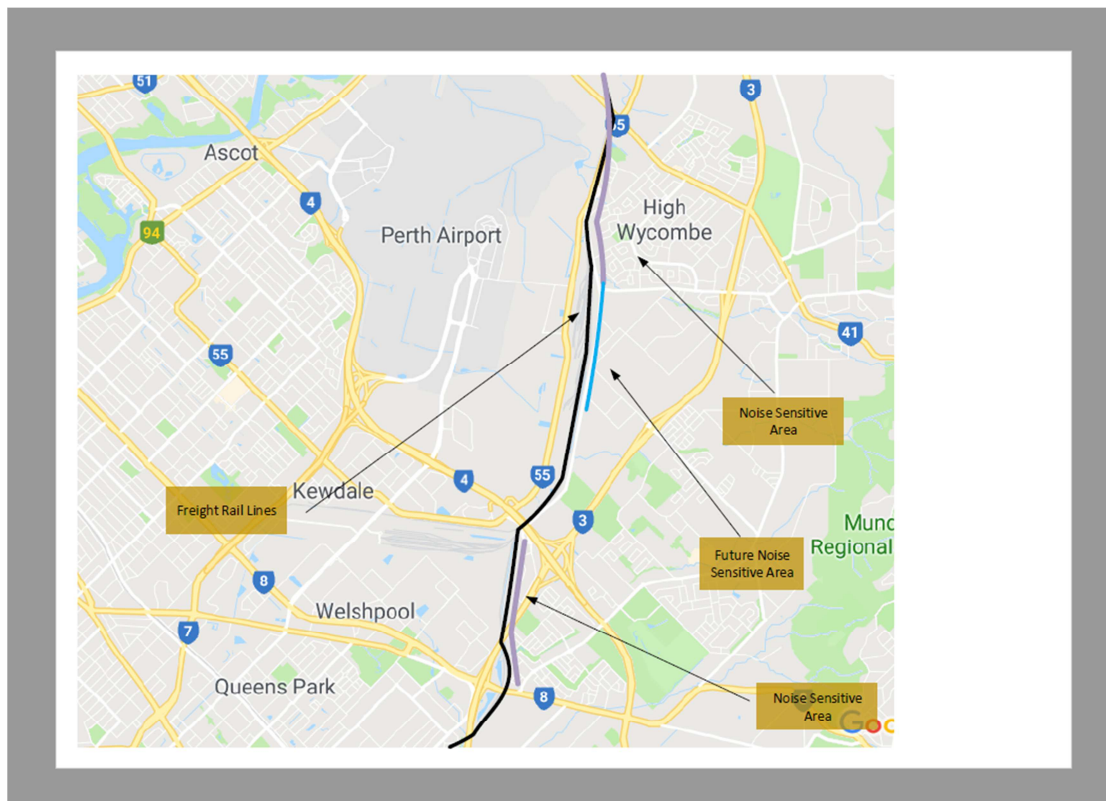


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Serpentine - Jarrahdale

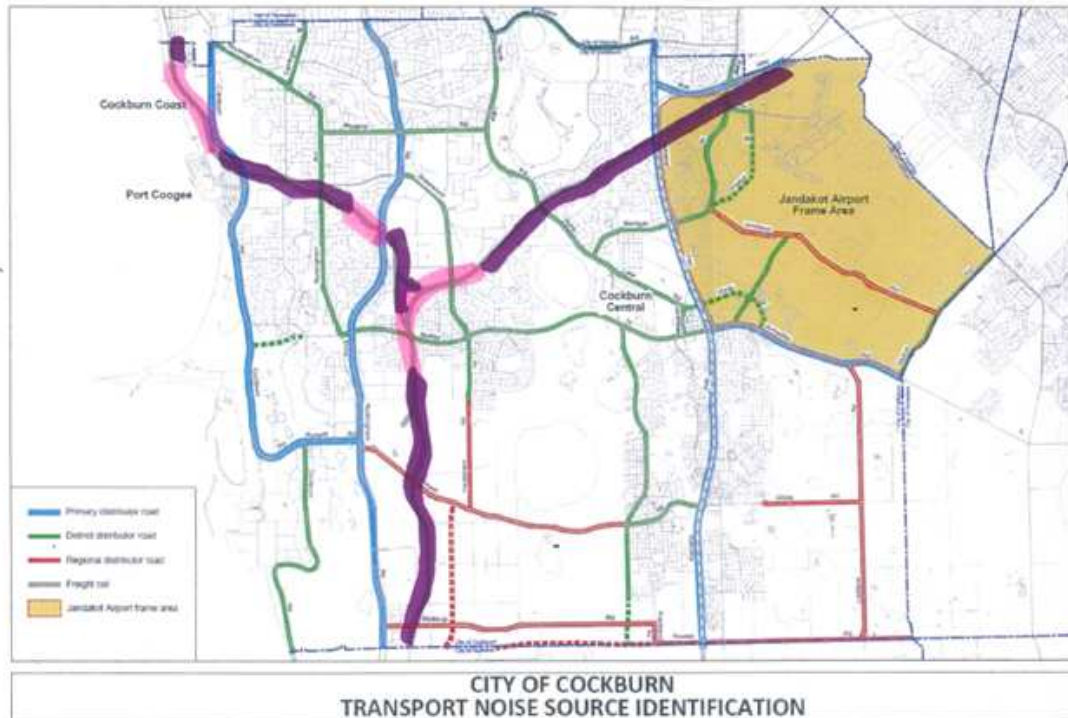


Kalamunda



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Cockburn



Swan

Comment provided - MRS zonings and existing freight line where redevelopment is possible or likely.

Hazelemere, currently residential development or urban.

Large part of Swan Valley, (in this case likely no new single residential allowed though)

Ellenbrook, Bullsbrook and Upper Swan, residential development and special use.

Midland, MRA controlled land but redevelopment likely.

Herne Hill, possible intensification but subject to special requirements in the Swan Valley.

Bellevue, currently existing residential but recent up-coding to allow intensification.

There is also some proposed realignment of the freight line and potentially a new freight line.

Mundaring

Comment provided - The Shire only has a small section of freight rail measuring about 1.3km within its boundaries. The eastern half of the rail line butts onto residential zoned land. However with industrial zoned land, a flight path, Roe and

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Great Eastern Hwy all in the vicinity, it can hardly be described as a quiet area at the best of times! Therefore as far as a map goes, the description I provided does cover the noise sensitive area.

Belmont

Comment provided -There is only a single freight rail line within the City of Belmont and it is within the Kewdale Industrial Area. This freight rail line is more than 300 metres (which is the transport corridor trigger distance) from the closest sensitive residential areas of Kewdale and Cloverdale. As such the City of Belmont does not have any residential areas with redevelopment potential that should be prioritised and assessed for noise and vibration.

Canning

No land likely to be developed for residential near to the freight rail line.

Melville

No land likely to be developed for residential near to the freight rail line.

Kwinana

No land likely to be developed for residential near to the freight rail line.

Fremantle

Comment provided - We understand the value of this work for the City of Cockburn and other growth local governments with significant amounts of developable land close to freight rail lines, but for Fremantle this is less of a priority. Land close to the freight rail corridor within Fremantle where there are residential uses is already fully developed, and given the heritage status of several of these areas (notably the West End and South Fremantle) there is very limited scope for significant redevelopment.”

APPENDIX 3

Consistent with Appendix 1 and 2 above the South West Group provides the following;

Please see next pages for details

Tuesday, 5 December 2017

Enquiries: Mick McCarthy – 9364 0631
Our Reference: Submission on SPP 5.4

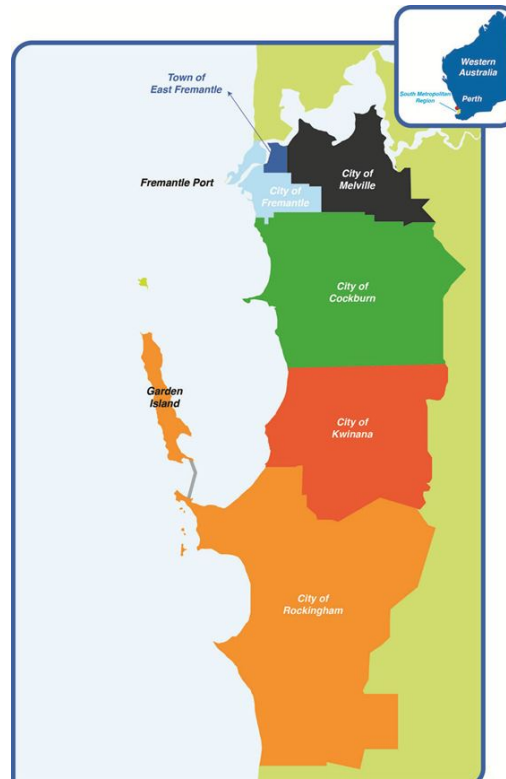
SPP5.4 Review
Policy and Priority Initiatives
Department of Planning, Lands and Heritage
Locked Bag 2506
PERTH WA 6001

Dear Sir

**SOUTH WEST GROUP SUBMISSION ON DRAFT STATE PLANNING POLICY 5.4
ROAD AND RAIL NOISE**

The South West Group, formed in November 1983, is a Voluntary Regional Organisation of Councils (VROC) comprising the Cities of Cockburn, Fremantle, Kwinana, Melville, and Rockingham and the Town of East Fremantle. The South West Group is managed by a Board consisting of the Mayors and CEOs of its member Local Governments.

The South West Group's vision is for the "South West Metropolitan Region – the economic gateway to the west". The South West Group will collaborate to maximise the quality of life within the region by influencing and informing future planning and infrastructure delivery. The region occupies about 12% (619 square kilometres) of the Perth Metropolitan Area, has a gross regional product of \$25.5 billion, population of 425,000 and over 32,000 local businesses.



The region contains the State's only major container port, premier heavy industrial area at Kwinana and is centrally located in terms of trade movements, national freight routes and an extensive logistics and supply chain network. As well as North and South Quays in Fremantle Harbour, other major assets of significance for freight include the Australian Marine Complex (AMC) in Henderson, Jandakot City, Fremantle Outer Harbour Jetty and Terminal in Kwinana and HMAS Stirling at Garden Island. Many of these assets make up the Western Trade Coast.

Major roads and rail infrastructure corridors traverse through the region carrying passenger, light commercial and heavy vehicles as well as passenger and freight rail.

The freight and logistics industry is a significant part of local economy and needs to be protected. The region plays a major role in the packing and unpacking of containers and supports a highly developed supply chain network.

DRAFT SPP 5.4

The Western Australian Planning Commission (WAPC) review of the SPP for road and rail noise is welcomed and it is acknowledged that there is a need to put in place measures that improve consistency in its scope and application.

The South West Group has consulted with its member Councils, some of which will lodge their own submissions.

The City of Cockburn for example has undertaken some excellent research into the application of the SPP on freight rail within their locality and has developed a best practice model that can be used by other Local Governments. The South West Group's submission reinforces many of the issues raised by the member Councils and other organisations, such as the Freight and Logistics Council, on the draft SPP 5.4.

The application of SPP 5.4 on road noise is quite straight forward, with setbacks and quiet house provisions for noise sensitive development along busy roads generally understood and closely linked to traffic volumes and percentage of heavy vehicles.

The application of provisions contained in draft SPP 5.4 for rail noise are considered inadequate and require major amendments to SPP 5.4.

In addition, the South West Group has identified a number of State Government policy and resourcing issues that will be required to support the successful implementation of SPP 5.4. The policy and resource implications have widespread implications for the application of the SPP 5.4 and need to be addressed at the same time in order for the SPP to be effective.

STATE GOVERNMENT POLICY AND RESOURCE ISSUES RELEVANT TO SPP 5.4

The key State Government policy and resource issues relate to:

- Recognition of Local Planning Schemes and Strategies
- Consistency of SPP 5.4 with other SPP's and approved plans
- Addressing noise and vibration at source through increased regulation
- Expertise in noise and vibration assessment and management capability required by the State Government

Recognition of Local Planning Schemes and Strategies

The starting point for the introduction of SPP 5.4 is recognition of local planning schemes and strategies. Road and rail corridors form part of the land use mix and feature in local planning schemes and strategies (e.g. transport strategies) as key land use corridors.

Planning at the local level is able to adequately address road and rail noise impacts through the planning process by ensuring their compatibility with existing and future land uses in accordance with local planning schemes and strategies approved by the WAPC.

It is not practical or equitable to apply the noise mitigation measures outlined in SPP 5.4 to existing development unless the land in question is subject to a development application or rezoning proposal. As a result, the policy is more relevant to future development and the inclusion of locational (e.g. setbacks) and built form modifications/enhancements to mitigate road and rail noise.

When planning a new road or rail alignment, the local planning schemes and strategies provide the framework and structure to assess the feasibility of the corridor within land use constraints and opportunities.

The approved local planning schemes and strategies should be the starting point for the assessing the land use and potential social impacts of noise and vibration associated with road and rail proposals against existing and future land uses.

Consistency of SPP 5.4 with other SPPs and approved plans

There are a number of SPPs which are used to guide land use and development in the Perth and Peel Region. It is important that SPP 5.4 reflects what is already in place in approved and draft SPPs and is consistent with approved Structure Plans and Activity Centre Plans.

There are a number of inconsistencies between draft SPP 5.4 approved and draft SPP's including SPP 4.2 – Activity Centres for Perth and Peel and Draft SPP 7.0 - Design and Built Environment.

A review of the provisions, setbacks and quiet house measures in draft SPP 5.4 against the provisions in other SPPs and approved Structure Plans and Activity Centre Plans is required to identify and resolve any inconsistencies.

Addressing noise and vibration at source through increased regulation

The draft SPP 5.4 is based on mitigating noise emanating from rail transport through a higher standard of built form dwellings, but does not make reference to the need to address rail noise and vibration at source which is a higher order issue beyond the scope of the planning policy.

By targeting built form as the main mitigation factor, particularly in residential uses, draft SPP 5.4 places the onus for achieving acceptable noise levels in sensitive areas disproportionately on landowners and developers.

There needs to be greater emphasis placed on mitigating noise at source as this would reduce impacts and the level of residual noise generated and therefore required to be managed through quiet house built form enhancements.

The use and management of the rail network is governed by State and Federal Government regulations that are subsequently passed onto, and built into, contracts with rail operators.

There needs to be increased requirements for rail operators to mitigate noise and vibration at source. This is common practice in the management and operation of major road projects in Western Australia (e.g. noise bunds/walls) and a similar mitigation approach at source needs to be applied to rail construction proposals and rail operations.

This mitigation of rail noise and vibration at source is the responsibility of the State Government and rail operator.

In other Australian states, such as New South Wales, the State Government have put in place requirements for rail operators to reduce rail noise either through track and vehicle noise mitigation measures or through noise reduction specifications for purchasing new and replacement engines and rolling stock.

This approach should be adopted in Western Australia as State Government policy, rather than relying on unlikely to be achieved setbacks to development and noise mitigation of the built form as the primary response.

Expertise in noise and vibration assessment and management capability required by the State Government

The current situation where all development proposals in noise sensitive locations are required to be supported by a noise assessment is expensive, ad hoc and leads to inconsistencies in the application of the SPP. In addition, there is limited access to the required knowledge and expertise in this specialist field at State and Local Government levels.

The State Government, through the Department of Water and Environmental Regulation (DWER), needs to re-establish an effective noise branch that is able to provide timely advice to Local Governments and proponents on noise and vibration regulations and specifications.

This advisory service was successfully operated by the State Government in previous years and was highly regarded by government and the private sector for their expertise and knowledge.

Feedback from the member Councils suggest that this service is no longer available and that the noise branch has been forced to restrict its role to purely regulatory due to resource and budget cuts. This situation has adversely impacted on the quality and timeliness of its advice.

The implementation of SPP5.4 will require a dedicated team of noise and vibration specialists to advise government and the private sector, with the DWER noise branch best placed to undertake this role through the provision of greater resourcing and support.

In terms of the private consulting sector, a system of accredited noise and vibration experts should be established similar to that operating for Contaminated Sites auditors. This would enable independent review and authorisation of noise and vibration assessments and management plans.

RESPONSE TO DRAFT SPP 5.4

The application of the provisions contained in draft SPP 5.4 for rail noise are inadequate and require major amendments to SPP 5.4 and significant changes to achieve acceptable outcomes. As a result, the South West Group submission focuses on the noise and vibration impacts of rail transport, with particular reference to freight rail.

The key issues addressed in the submission include the following, which are expanded upon further under each heading:

- Vibration is a factor that should be included for freight rail in SPP 5.4
- A review of the noise measurements (i.e. LAeq, LAeqnight or LAm_{ax}) is required to determine the most appropriate measurement for freight rail noise, including the impacts of noise mitigation measures on built form and affordable housing
- Sensitive areas should be identified, prioritised, assessed for noise and vibration, and “mitigation maps” developed for the Perth Metropolitan Area

Vibration is a factor to be included for freight rail in SPP 5.4

Vibration from freight rail negatively impacts on people’s health, particularly at night time, and decreases amenity in sensitive locations. Excluding vibration from SPP 5.4, as a key determinant affecting existing and future development in sensitive areas, is an oversight that needs to be rectified.

The joint investigation undertaken by the City of Cockburn and the Public Transport Authority (PTA) demonstrated that vibration is able to be measured and mitigated in a pragmatic and cost effective manner through the use of mitigation maps (see below).

A review of the noise measurements (i.e. LAeq, LAeqnight or LAm_{ax}) is required to determine the most appropriate measurement for freight rail noise

The LAeq measurement identified in SPP 5.4, which is based on average noise levels over an extended period of time, may be acceptable in applying to road and passenger rail noise but may not be appropriate to apply to freight rail noise.

Freight rail movements are of short term duration causing severe impacts at some locations and therefore a noise measurement that better reflects the extent and duration of noise characteristics may be required. Particular attention should be given to noise measurements in sensitive areas immediately adjacent to the freight rail line and along bends in the freight rail line where wheel screech is likely.

LAm_{ax} has been identified as a possible alternative to LAeq, however LAm_{ax} has the potential to over-estimate noise impacts and therefore lead to the requirement to undertake excessive noise mitigation measures. The application of excessive noise mitigation measures will lead to increased costs for development in noise sensitive areas and could adversely impact on housing affordability.

LAeqnight noise measurement is located between LAeq and LAm_{ax} and therefore may be more acceptable to use for freight rail noise measurement and impact mitigation.

Further investigation and review of the most appropriate noise measurement for freight rail movements are required to ensure that the measurement accurately reflects the extent, duration and nature of noise generated from freight rail and the noise mitigation measures to achieve quiet house standards.

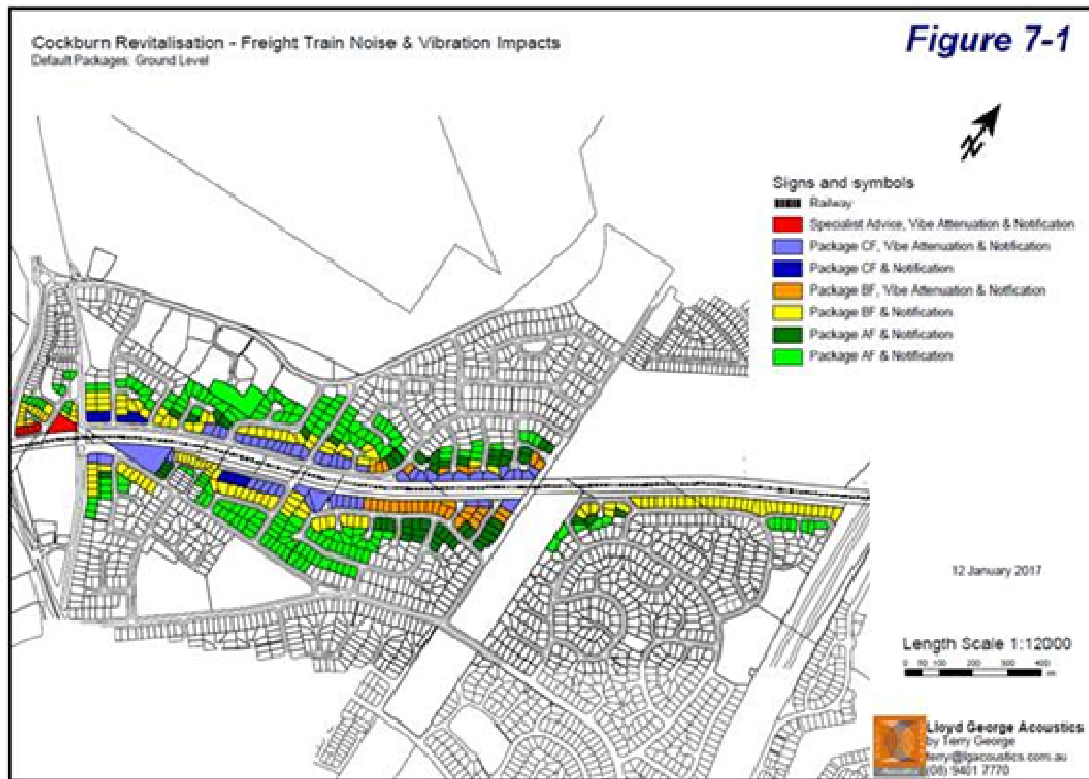
A key consideration in the review relates to the financial implications of noise mitigation on housing costs and impacts on housing affordability.

Sensitive areas should be identified, prioritised, assessed for noise and vibration, and “mitigation maps” developed for the Perth Metropolitan Area

The City of Cockburn and PTA worked in partnership in identifying noise and vibration impacted areas from freight rail around the Lakes Revitalisation Area and designated corresponding packages for impact attenuation.

Access to accurate mapping information and identified noise and vibration impact mitigation measures at the lot level will greatly assist Local Governments and State Government agencies involved in the assessment and conditional approval of developments affected by road and rail noise and vibration.

The figure below prepared by the City of Cockburn and PTA provides an easy to understand structure to manage noise and vibration impacts associated with freight rail. This approach should be used for all noise sensitive locations along the freight line in the Perth Metropolitan Region.



The City of Cockburn is hoping to have the most impacted areas designated as Special Control Areas (Rail Noise Area) to implement quiet house design requirements for infill development.

The pro-active approach by the City of Cockburn and PTA provides much greater clarity in the application of the SPP, whilst also incorporating rail vibration assessment and mitigation.

The State Government, through the PTA, should work with other Local Governments with land abutting the rail freight networks in the Perth Metropolitan Area to develop similar impact and mitigation maps for freight rail noise and vibration.

Based on the cost of undertaking the analysis identified in Figure 7.1 for the Lakes Revitalisation Area above, it is estimated that a similar analysis of all Metropolitan freight rail lines in the Perth Metropolitan Area would be in the order of \$300,000 in total. This is considered a sound and prudent investment in the assessment and mitigation of freight rail noise and vibration in noise sensitive areas along freight rail lines.

In conclusion, the draft SPP 5.4 – Road and Rail Noise should be amended and State Government policy changed to achieve improved outcomes and better application of the policy based on the following recommendations.

STATE GOVERNMENT POLICY AND RESOUCE ALLOCATION RECOMMENDATIONS

Recommendation 1

That the State Government acknowledge the important role played by local planning schemes and strategies in addressing noise impacts from road and rail transport

Recommendation 2

That the State Government review SPP 5.4 against WAPC approved structure plans and other planning policies that are inconsistent with the provisions contained in Draft SPP 5.4 with particular reference to:

- SPP 4.2 – Activity Centres for Perth and Peel
- Draft SPP 7.0 - Design and Built Environment

Recommendation 3

That the State Government require the Public Transport Authority (PTA) and freight rail operators to put in place mitigation measures at source to reduce rail noise and vibration impacts as the highest order priority

Recommendation 4

That the State Government, through the Department of Water, Environmental Regulation (DWER), re-establish and adequately resource the noise branch to provide policy and technical advice on noise and vibration to stakeholders

RESPONSE TO SPP 5.4 RECOMMENDATIONS

Recommendation 5

Vibration along freight rail lines needs to be included in SPP 5.4 as an assessment and mitigation factor

Recommendation 6

That a review of the noise measurement for freight rail movements be undertaken to determine the most appropriate noise measurement (LAeq, LAeqnight, LAmx or other) to assess the impacts for freight rail noise in proximity of the freight rail line, taking into account the costs of mitigation and impacts on housing affordability.

Recommendation 7

That the State Government, through the Public Transport Authority (PTA) identify, prioritise and assess for noise and vibration along sensitive areas of the freight rail network in the Perth Metropolitan Area and partner with Local Government to develop noise and vibration mitigation maps similar to that prepared for the Lakes Revitalisation Area in the City of Cockburn

I trust that you will adopt the following recommendations, which are aimed at improving the application of SPP 5.4 and better positioning the State Government in responding to noise and vibration impacts.

Please contact me on phone (08) 9364 0631, mob 0478 325 469 or email director@southwestgroup.com.au if you require further information regarding this submission.

Yours sincerely



Mayor Carol Adams
Chair South West Group