

Further to your recent communications and questions in regard to proposed extraction activities affecting local roads, I provide the following comments. A glossary of terms is attached at Appendix A.

1. What are the underlying principles and standards that should be applied to assessment of traffic impact?

*The key principles are to provide a safe and efficient road network. Safety is the primary objective.*

*Austrroads is the guide that is typically relied upon in Australia in regard to road design. However, many States have their own road design guidelines (such as Main Roads) that may allow for a lesser standard. Where such guidelines exist, these may be relied upon.*

2. It is considered that the three fundamental issues are network efficiency, safety and asset management (in some contexts, amenity may also be a significant factor) – do these need to be considered separately, or are they all considered and embedded in standards that should be applied?

*In theory they are all contained in the standards applied except amenity. Amenity is covered by Liveable Neighbourhoods in regard to urban residential areas. However, I am not aware of an amenity guideline or threshold applicable to rural roads.*

*There is a State Planning Policy (SPP 5.4) that deals with road and rail noise. However the thresholds start at 500 vehicles per day.*

3. What weightings should be applied to different kinds of vehicles in different contexts? (e.g. a semi-trailer movement has more impact than a light vehicle movement, what weighting should be applied to the semi-trailer, and is it a different weighting depending on the issue being considered?)

*Normally the application of the PCU factor would be the weighting. However, the PCU factor is used to determine network efficiency as*

*it represents the acceleration characteristics of larger vehicles compared to cars.*

*It should be noted that the traffic flow threshold levels are vehicles and this would include as-of-right trucks. No distinction is made.*

*Whilst a typical urban road may carry 3% larger vehicles, the proportion is more likely to be 10% to 20% in a rural environment.*

*However, a comparison to Bussell Highway could be made to set the level at which the proportion of trucks could be considered acceptable. North of Cowaramup the proportion is 12%.*

4. With respect to the application specifically, what are your recommendations and rationale in terms of – (1) the acceptability of standard of the roads proposed to be used for haulage, both before and after the upgrade of Gibb Rd as per the recommended condition of approval, (2) what controls on traffic movements would be appropriate and (3) any other recommendations on reasonable conditions that may be applied and which are considered necessary to achieve an acceptable traffic outcome.

*In regard to the existing road standard, I have not driven the road and thus I am not able to provide an opinion. However it is my understanding that it is a gravel road less than 7 metres in width.*

*It is my understanding that an upgrade to a 7 metre gravel road is proposed to cater for the extraction activity. Capable of passing two way traffic, this is a far safer road environment. Indeed the standard is greater than the Austroads advice (2015) that reference be made to the ARRB Unsealed Roads Manual - Guidelines to Good Practice that recommends a width of 5 metres to 6 metres for demands up to 150 vehicles per day.*

*In reference to the City's extraction policy I note the reference to Table 3 – Seal Widths and Carriageway Widths for Rural Road (the reference is to a superseded Austroads). The table suggests that no seal is required between 0-75vpd but a width of 7 metres should be provided. Given that the existing road is currently below the rural road standard, the widening to 7 metres for a short term extraction movement of 12 truck per day is a very good outcome.*

*As indicated, it should be noted that the Austroads reference stated in the Policy has been superseded and Austroads thresholds now start at 150vpd.*

*I would not suggest that traffic controls would be required for the level of traffic forecast. However, warning signs in advance of the access and truck route would be highly advisable. A reduced speed limit may also be appropriate, but is subject to approval from Main Roads.*

*For future policy updates, reference to Austroads Part 3 (Table 4.5 single carriageway rural roads) should be made as Austroads no longer considers unsealed roads. This obviously has knock-on implication for any rural local government as gravel roads no longer meet referenced standards*

*In an appeal situation, the City's Policy in regard to extractive industries may be given some weight, but is unlikely to be relied upon for the purpose of road upgrades, given it is not commensurate with current Austroads guidelines.*

*Further, it is my opinion that the proposed extraction (14 vehicles per day) is unlikely to break the Policy threshold of 75 vehicles per day as:*

*The traffic data for Gibb Road south of Payne Road indicates an average daily flow of 61.6 vehicles per day (vpd), 48.2vpd and 56.5vpd for the 3 weeks of data (55.4 average vehicles per day). However, week 1 is only 6 days (18 Feb to 23 Feb and week 3 is a day and a half 02 / 03 March). Further Friday 29 Feb is a long weekend and thus the data is not representative of normal conditions. The long weekend counts show 61vpd (Fri) and 52vpd (Sat and Sun) compared to 49vpd, 32vpd and 44vpd the previous weekend. I would, therefore be cautious on relying upon these counts as the underlying number would appear to be between 40vpd and 50vpd during the typical weekday when the extraction will occur.*

*I note the application states 6 laden trucks per day (12 movements). However, using your Policy I calculate it would be 7, so 14 movement per day based on a 19metre semi (as-of-right)*

*So based on the evidence, if we assume 50vpd on Gibb Road plus 14vpd from the extraction, the Policy threshold of 75vpd would not be met. Even with the Condition of no more than 20 vehicles per day, the threshold would not be broken. It is noted that a PCU factor is applied by the policy, but the threshold is stated as vehicles per day, not PCU's.*

*On this basis it is my opinion that if the proponent took this to SAT, it could be concluded that no road upgrade would be deemed required. Further, if the proponent is using as-of-right vehicles then the affected roads could be argued that they should already be capable of accommodating such vehicles. If not, then it could be deemed that the responsibility for upgrade lies solely with the local government.*

5. More broadly, what standards should be applied to allow haulage at particular volumes on particular kinds of roads (in terms of width, surface and other attributes)

*Austrroads is probably the only standard that can be realistically applied. Application of MRWA standards is contestable as the roads are NOT controlled by MRWA.*

6. Relevance and accuracy of growth factors on traffic counts - is this appropriate or is there a better way?

*Growth factors are the normal standard applied. However a rate of 2% per annum is normal. I note your policy applies 5% pa. 2% should be used unless local data indicates the rate is actually higher.*

7. Factor of Safety applied to semi movements again is this appropriate or it there a better way?

*The roads should be designed and constructed cognisant of the vehicles using them. Thus the as-of-right vehicle is permitted on all*

*roads. Larger vehicles have the RAV network and MRWA assess each route.*

8. What weighting should be applied to existing traffic movements and their application to the DA. For example should existing movements have further factors of safety applied to semi-trailers?

*A standard TIA will review the traffic data and note the level of trucks. There are no additional measures required as the road network is designed and constructed cognisant of the permitted vehicles.*

9. Location of traffic counters in comparison to the subject land. What are the most appropriate location for the most accurate assessment.

*Straight road sections are best. In regard to a "site" normally adjacent to the site is most common. However, if the road is long with limited access then 100m from the terminating intersection is appropriate.*

10. Is there a way of addressing an extractive industry project such as this with the knowledge that after the quarrying has been completed traffic counts will reduce.

*There are no guidelines in regard to less permanent development such as an extraction facility. The development would be treated as if it were permanent. However, it is within the ability of the local Government to apply discretion.*

*There could be a counter argument made in that with growth applied to a road it may meet upgrading thresholds in 5 or 10 years. The question then arises, who is responsible? It also needs to be borne in mind that development is normally the growth. So in the instance of Gibb Road the next 5 years growth could be attributed to developments currently before the City. Traffic may also increase due to unauthorised use of land. In such instances, should the cost of upgrade lie with the proponent of a DA?*

11. Traffic counts and upgrades, in particular what would be considered as an appropriate consistent traffic count to be considered in general prior

to determining whether a road should be sealed. What other factors would then be considered similar to question 2.

*Current traffic data is the most accurate in regard to any DA application. However, the data needs to be collected during school term times and be reflective of normal conditions. In the South West region this is perhaps a little hard due to the seasonal fluctuation in traffic flows due to tourism in the region.*

*It also needs to be borne in mind that growth may not be relevant to roads accessing an actual quarry (such as a long cul-de-sac).*

*However, in regard to sealing, Austroads no longer considers unsealed roads (see Q4). Neither do Main Roads as follows:*

- ▶ AADT is calculated based on Passenger Car Equivalents instead of AADT. The Passenger Car Equivalents (PCEs) for large vehicles shown in Table 4.5.1 are used to convert vehicles / day to PCUs / day.
- ▶ Unsealed shoulders are replaced by sealed shoulders. The reason for this is two-fold: (a) sealed shoulders generally have lower maintenance and Whole of Life Cycle Costs, and (b) research has shown that sealed shoulders up to 2.0m wide have a significant reduction effect on run-off-the-road and head-on KSI crashes.

Element	Design (PCUs / Day)			
	150 - 500	500 - 1000	1000 - 3000	3000 - 8000
Traffic Lanes <sup>(1)</sup>	7m (2 x 3.5m)	7m (2 x 3.5m)	7m (2 x 3.5m)	7m (2 x 3.5m)
Total Shoulder	1m	1.5m	1.5m or 2m	2m or 2.5m
Minimum Shoulder Seal <sup>(2)(3)(4)(5)</sup>	1m	1.5m	1.5m or 2m	2m or 2.5m
Wide Centreline	N/A	N/A	None or 1m	None or 1m
Total Carriageway	9m	10m	11m	12m

**Table 4.5: Single Carriageway Rural Road Widths**

*However, based on the MRWA table, there appears to be no standard for unsealed roads, but volumes up to 150vpd would appear to be acceptable on un sealed roads.*

*The danger in relying on the current Austroads is that many rural roads may already be operating way beyond the thresholds, but there are no plans to upgrade. Sadly, the literal application of Austroads may result in many roads needing to be widened. As a result development applications for small tourism development may trigger the need for upgrading, which would render the development unviable.*

*So in terms of the warrants, it need to be carefully considered to ensure the outcomes are fair and reasonable.*

12. Anything else you can think of that may assist us with the assessment of this type of DA in the future.

*In my opinion careful updating of the Policy is needed, but a balance needs to be made in regard to passing costs on to DA proponents in one industry but not another.*

*For a future Policy update I would suggest that the onus of addressing the suitability of larger vehicle routes be placed with the DA proponent. Perhaps a requirement that a “professional traffic engineer” undertakes a route assessment and provides advice in regard to what upgrades, changes or other issues should be addressed as part of the DA. The assessment should cover all local roads used and any intersection with the arterial road network.*

*Subject headings may include*

- *Existing road standard and suitability to cater for truck movement*
- *Visibility along the route for trucks and other road users*
- *Consideration of adjacent land uses and safety of access.*
- *Safety of intersections.*

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**APPENDIX A            GLOSSARY OF TERMS**

Liveable Neighbourhoods    Western Australian Planning Commission urban planning policy framework

As of right vehicle            Any vehicle that is not a RAV, commonly known as 'as of right' or 'general access vehicle'. For example, rigid trucks up to 12.5 metres and semi trailers 19 metres or less in combination

**ACRONYMS**

AustRoads    Austroads is the organisation of Australasian road transport and traffic agencies in Australia and New Zealand. Austroads guides are the primary reference for traffic and road design.

ARRB            Australian Road Research Board

DA                Development Application

MRWA -        Main Roads Western Australia

PCU             Passenger Car Units

RAV             Restricted Access vehicle

SAT             State Administrative Tribunal

TIA             Traffic Impact Assessment (>100 vehicles in any hour)

TIS             Traffic Impact Statement (<100 vehicle in any hour)

Vpd             Vehicles per day