



## Queensland Treasury Response to Commonwealth Grants Commission Draft Report Attachment 16

### **Roads**

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## SUMMARY OF QUEENSLAND'S POSITION

Queensland generally supports the roads assessment, but has concerns about the proposed methodology and data to calculate the cost weight for unsealed rural road maintenance, and the use and length weights used to combine factors.

The methodology used to calculate the urban, rural, and local road lengths is conceptually sound. Queensland considers that the synthetic mapping technique used to calculate the length of rural roads is a more reliable and policy neutral measure than state-provided data. Urban population centres of 40,000 or greater are an appropriate indicator of urban road length. The local roads measure of remote and very remote Census Districts with low population density is appropriate.

The unsealed rural road cost weight used in the Draft Report data are not representative of the average cost faced by all States, because they do not include the maintenance costs of unsealed roads for States with the largest proportion of unsealed roads. Queensland has concerns about attempts to disentangle the use related costs from total road maintenance costs, and suggests the Commission use Queensland data, with and without a use measure, to guide its judgement of an appropriate cost weight.

Identifying the impact road use and road length have on the costs of road maintenance have been challenging for the Commission in many Reviews. In the 2004 Review, the weights were judged, with expert assistance, to be 60 per cent length and 40 per cent use. Using the National Transport Commission (NTC) information the weights have effectively reversed in the 2010 Review Draft Report (51 per cent use and 32 per cent length, the remainder designated other). The rationale for the reversal of the weights is not clear. Data that is intended to identify appropriate heavy vehicle registration charges may not be the most appropriate means to determine the weights for combining use and length. In the absence of an consistent determination of appropriate road use and length weights, Queensland suggests the Commission use judgement and give equal weight to use and length. Equal weighting would ensure that the outcome is not biased to either states with high road use or states with greater road length.

### *Queensland's Position on Key Issues*

Prior to finalising the methodology for the Roads assessment proposed in the Draft Report, Queensland seeks further consideration of:

- The unsealed rural road cost weight, and suggests the use of judgement based on Queensland data; and
- If the change in road use and length weights from the 2004 Review to the 2010 Review is reasonable;
- If using the NTC data biases the outcome of the assessment towards some states; and
- Using judgement to weight road use and length equally when combining disabilities.

## **PROPOSED METHODOLOGY**

The Commission divides the Roads assessment into service delivery expenses and other expenses. Road expenses are primarily assessed through road length for urban and rural roads, and use:

- Urban road length is measured using State urban populations as a proxy and defines urban areas using the Australian Bureau of Statistics (ABS) Survey of Motor Vehicle Use (SMVU) definition of localities with populations of 40,000 or greater;
- Rural road length is measured using data on State managed rural roads produced by the synthetic mapping network; and
- Use will be measured through traffic volume and heavy vehicle use from the National Transport Commission (NTC) cost allocation to roads disabilities model.

Traffic volume is measured using vehicle kilometres travelled (VKT), derived from the ABS SMVU, which covers State managed roads and roads managed by local government. The Commission adjusted the VKT using data determined by the NTC on the Australian average proportion of travel on arterial roads by different types of vehicles. VKT measures the total distance travelled by all vehicles and treats a kilometre travelled by a car the same way as a kilometre travelled by a heavy truck. The Commission considers VKT the simplest of the measures used by the NTC in its analysis of road expenses.

Heavy vehicle use is measured using average gross mass-kilometres (AGM-km), rather than equivalent standard axle-kilometres (ESA-km), on the grounds that it is simpler than ESA-km, requires less estimation and there is no material difference in the GST distribution when using it, compared to using ESA-km or using ESA-km and AGM-km together. AGM-km is an average of the total mass of a vehicle and its load per kilometre travelled. The Commission estimated AGM-km for each State by applying Australian average AGMs for each vehicle type, derived from NTC trend data, to the kilometres travelled by each type of heavy vehicle in each State. This disability was then adjusted to remove travel on local roads.

Other services and local roads are assessed independently within the combined road services factor. The other services disability includes NTC expenses on corporate services, vehicle registration and driving licensing expenses. For reasons of simplicity, the Commission proposes assessing these expenses on an equal per capita (EPC) basis. Local roads are assessed using the length of minor roads in remote and very remote Census Collection Districts (CCDs) with populations of less than 10 people per 1,000 square kilometres.

Location is the final disability within the service delivery expenses category of the Roads assessment. The road services expenses component of the assessment is measured using interstate wage and non-wage costs and a regional location factor is applied to services relating to rural road length only.

## ASSESSMENT APPROACH

### *Service Delivery Expenses*

#### **Rural Road Length**

Roads data has been problematic for the Commission over an extended period because of poor interstate comparability. States did not have consistent definitions of roads and interpreted definitions used by the Commission in different ways. To address this, the Commission and states formed a roads working party to explore ways to improve the quality of state roads data.

After significant time and resources, the roads working party accepted the benefits of the Queensland proposal of a synthetic road network approach to measuring rural road length. The Commission adopted the synthetic road network approach, noting the data it produced are a more reliable and comparable measure of rural road length.<sup>1</sup>

Queensland supports the Commission's use of a synthetic mapping approach to determine rural road length as it provides the most comparable data, leading to a more robust assessment method.

#### *Unsealed rural road cost weight*

The Commission proposes applying a cost weight for unsealed roads, on the basis that the costs associated with maintaining unsealed roads are materially different from the costs for sealed roads. Early in the 2010 Review, the Commission used a placeholder weight for unsealed roads (0.15) calculated by the Australian Roads Research Board (ARRB) Group Ltd. This data was not appropriate as it was based on local government roads in Victoria, and there are significant differences in the types of roads in the ARRB report and roads under State control.

The data the Commission classifies as comparable (from New South Wales, Victoria and Tasmania) suggests the cost of maintaining unsealed roads is significantly lower than for sealed roads, and a cost weight of 0.5 was used in the Draft Report. This weight is subject to further change as the data to hand includes the effects of road use<sup>2</sup>. The placeholder weight must change as it is based solely on data from Southern states. Unsealed roads in Northern states face monsoons, road trains and mining equipment, which have a more detrimental impact than conditions faced in Southern states.

The Commission should compare like with like as it is inappropriate to compare the maintenance costs of a heavily trafficked road to a road that is seldom used. Ideally, the Commission would have obtained data from States for roads in the synthetic road network developed for the 2010 Review Roads assessment, with similar usage as determined by an Australian average usage measure, say 300 Annual Average Daily Travel (AADT). Queensland provided data on this basis, which indicated the appropriate unsealed cost weight for Queensland is 0.7. States that have not included a usage measure, such as an AADT, when compiling their data are likely to overstate the difference in the maintenance costs of sealed and unsealed and cannot provide a robust cost weight.

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<sup>1</sup> Commonwealth Grants Commission, Report on State Revenue Sharing Relativities 2008 Update, para 8, p36.

<sup>2</sup> Commonwealth Grants Commission, Report on State Revenue Sharing Relativities 2010 Review, Draft Report, Attachment 16, p353, para 23.

Queensland is not convinced it is possible remove differences in road maintenance cost due to road use simply or accurately. A process that attempts to deduce the costs attributable to length as a residual after removing proportions of total costs cannot produce an accurate result, because of the assumptions about what an appropriate proportion to remove is. For example, applying the national aggregated (rural and urban) use and length proportions to the total rural roads maintenance data will not be accurate.

Queensland suggests the Commission use both sets of road maintenance data provided by Queensland, with and without a use measure, to guide its judgement on an appropriate cost weight for unsealed roads. Analysis of this data indicates an appropriate cost weight would be between 0.5 and 0.7. If the Commission decides the data issues are not able to be resolved and cannot determine an appropriate cost weight, Queensland suggests omitting the cost weight, rather than relying on the preliminary or the placeholder data which are not indicative of conditions at a State level.

### **Differences in state-provided data**

State-provided data used to calculate the unsealed rural roads cost weight used in the Draft Report do not represent the average cost faced by all States. The data used does not include the maintenance costs of unsealed roads in the States which have the largest proportion of these types of roads, that is: Western Australia, Queensland, South Australia and the Northern Territory. These states face harsher factors on their unsealed roads that data from New South Wales, Victoria and Tasmania. Queensland believes that the cost weight for unsealed roads relative to sealed roads is understated because these States' data are not included in the Commission's calculation.

It is unlikely the state-provided data have been reported consistently across Australia, which means the data may not accurately represent the costs associated with maintaining rural roads, sealed or unsealed. The road length chosen when calculating the unit cost may produce a materially different cost weight. For example, State A could report the length of the whole road where repairs were undertaken, State B could report the start to finish length of the section of road in which repairs were undertaken, and State C could report the length of the actual repair. The impact such reporting could have on unit costs are shown below:

<b>Table Example of comparative routine maintenance costs</b>			
	<b>Length of whole road (km)</b>	<b>Length of repair section of road (km)</b>	<b>Length of actual repair (m)</b>
<b>Length of sealed/unsealed rural road</b>	50	5	5
<b>Total cost of road maintenance (\$'000s)</b>	200	200	200
<b>Calculated unit cost \$/km</b>	4,000	40,000	40,000,000

Another difference between State data returns is the classification of roads as sealed or unsealed. In more remote locations, many roads have only a sealed centre strip, with wide unsealed shoulders. Generally, due to the relatively low usage of these roads most traffic would travel on the sealed section, unless passing another vehicle. Much damage, and therefore maintenance cost, is related to wheels on one side of a vehicle dropping onto the unsealed sections as vehicles pass each other. It is not clear that States will necessarily classify and report the maintenance costs of these types of roads on a consistent basis.

The Commission should ensure that States have provided data on a standard basis before it relies on these data to calculate cost weights. Any cost weight calculated is likely to be approximate only because of differences in state-provided data.

### **Urban Road Length**

Queensland supports the Commission's decision to use State urban populations of 40,000 or greater as a proxy for urban road lengths, given the difficulties in deriving a comparable and policy-neutral measure of State managed urban roads using a synthetic mapping approach.

While ideally the same methodology would be used to calculate road length in rural and urban centres, Queensland agrees with the Commission's concerns that the synthetic mapping approach did not produce an appropriate measure of urban road length. Using State urban populations of 40,000 or greater as a proxy for urban road lengths is consistent with the principal purpose of urban roads, which is to transport people and goods around an urban centre, and it is consistent with the NTC's definition of urban centres which is used to construct cost weights and disabilities.

### **Local Roads**

Queensland supports the Commission's proposal to assess local roads using State geography and population settlement patterns. This measure is robust because it only includes areas with very low populations and excludes urban areas, ensuring there is no double-counting of roads included in the rural road length measure. The local roads factor satisfies the materiality threshold and is a simpler and more reliable measure of States' local roads tasks than the approach used in the 2004 Review.

### **Traffic Volume**

Queensland supports the Commission's proposal to assess traffic volume using VKT, in the absence of any alternative measures. VKT is the standard measure the NTC uses to assess traffic volume in its cost allocation model. However, Queensland is concerned about the high degree of influence traffic volume has when included in the combined road services factor. VKT does not recognise the differing costs of road maintenance on rural roads compared with urban roads. This creates biases in favour of some States and against others. There is a substantial increase of traffic volume, relative to the other weightings, when the 2007-08 data is used. Queensland suggests the Commission revisit the data and provide an explanation for this increase. If no explanation can be given, Queensland suggests the Commission discount the influence of this weight on grounds of data unreliability.

### **Heavy Vehicle Use**

Ideally, heavy vehicle use would be assessed using average gross mass-kilometres (AGM-kms) for each type of vehicle in each State, because AGM-kms requires less estimation. However, Queensland notes the Commission's concerns about data reliability.

### **Combining Disabilities**

A longstanding issue has been the extent to which road maintenance costs are driven by road length and/or road use, and how to weight factors derived for length and use. The Commission's proposal for the 2010 Review is based on the NTC's cost allocation method, which apportions road expenses reported to it by the States into those attributable to road use and those which are not.

The Commission proposes using a modified version of the NTC model to provide the weights to bring road disabilities together. This approach weights road use at 51 percent and road length at 32 percent (the remaining percentages are attributed to other services and local roads). This effectively reverses the weights used in the 2004 Review, which weighted road length (60 percent) higher than road use (40 percent), and suggests that on average the Commission now believes that road use is a more important driver of road expenses than road length.

Queensland is concerned that the proposed weightings for road use and length in the 2010 Review do not accurately reflect Queensland's experience that both disabilities are of similar importance when calculating road costs.

The Commission proposes assessing the effects of road length separately for urban and rural roads, and acknowledges the desirability of separately measuring the use of those roads, to better reflect their different maintenance costs. However, the ABS SMVU data does not allow traffic volume and heavy vehicle use to be separately measured for urban and rural roads, nor does the NTC weight these influences differently for urban and rural roads. The NTC's analysis of the use factors therefore implies that traffic volume and heavy vehicle use have the same impact on both urban and rural roads.

Queensland is concerned about the high influence the traffic volume disability has when included in the combined road services factor. The SMVU VKT measure reflects the volume of each State's traffic relative to the national average. However, it does not recognise the differing costs of road maintenance on rural roads compared with urban roads. As previously stated, this creates biases in favour of some States and against others. This means the application of 'average' costs to urban and rural road expenditure is likely to skew the assessment, particularly for States that have urban and rural length and/or use proportions significantly different from the national average. Queensland understands the NTC is currently involved in a joint project with Austroads<sup>3</sup> to improve cost allocation rules by road type. This work may enable the Commission to appropriately disaggregate urban and rural expenditure data by cost driver and derive a more realistic assessment.

Queensland suggests the Commission use its judgement to weight use and length equally, to ensure no state is disadvantaged.

### ***The influence of capital***

Conceptually, Queensland is concerned the GFS data does not align with the NTC data used to determine weights for combining road disabilities. The GFS road expenses include depreciation, which are not included in the NTC data. The inconsistency between GFS expense data and NTC data produces large differences in expenses between States, which can not be fully explained. Although the GFS expense category descriptions refer to the NTC categories, States advised that the GFS expense data may also contain a variety of other expenses that do not form part of the NTC dataset. For example, State expenditure reported to the NTC relating to road improvements (F1 and F2 expenses), is recorded in GFS as capital expenditure and not road expenses. There is some doubt about whether States have been consistent in their treatments of capital and recurrent transactions. Some States, such as

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<sup>3</sup> AustRoads, Project Details, 31 July 2009. Available online at: <http://www.onlinepublications.austrroads.com.au/projects/Project/Details.aspx?ProjectID=754>

Victoria and the Australian Capital Territory (ACT), have recommended omitting expenses relating to capital expenditure (F1 and F2) because of this difference in data alignment. While Queensland shares Victoria and the ACT's concerns, Queensland suggests the Commission should apply a discount to this part of the NTC data due to the influence of capital in the F1 and F2 expenses. This approach would enable the Commission to retain the F1 and F2 expense categories, but would acknowledge the unreliability of the data.

### **Native Title and Land Rights**

Queensland supports the inclusion of native title and land rights in the other services component of the Roads assessment on the basis of simplicity and transparency. Queensland believes that an APC assessment is appropriate.

### **Other disabilities raised by States**

Three disabilities proposed by States, which have not included in the Roads assessment, are urbanisation, bridges and tunnels and physical environment.

#### ***Urbanisation disability***

New South Wales (NSW) supports assessing urbanisation to recognise the higher maintenance costs in very large cities that arise from factors other than the greater use of roads. The Commission did not make an urbanisation adjustment because NSW could not separate out the higher costs in very large cities from those arising from higher use and those arising from increased urbanisation. Queensland supports the Commission's decision not to include an urbanisation disability on the absence of reliable cost data and because urbanisation, to the extent that it may exist, is addressed through the traffic volume disability.

#### ***Bridges and tunnels disability***

NSW and Tasmania propose including an adjustment to recognise the higher maintenance costs of bridges and tunnels. Queensland agrees the absence of comparable interstate data makes an assessment not appropriate, and because it would introduce unnecessary complexity into the assessment.

#### ***Physical environment disability***

Tasmania and the Northern Territory supported a physical environment assessment to recognise the differential effects of climate and soil type on State road expenses. Ideally, a physical environment disability would be included, although practically Queensland recognises it would be difficult to measure and create a robust method.