Revised Roads Assessment

Discussion Paper – DP12-03

March 2012

Tasmania
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STATE GRANTS COMMISSION

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BACKGROUND

The State Grants Commission is an independent statutory body responsible for recommending the distribution of Australian Government Financial Assistance Grants (FAGs) to Tasmanian local government authorities. In 2011-12, Tasmanian councils were entitled to a total FAG entitlement of $68.8 million. The State FAG entitlement is distributed to councils in two pools, a base grant and a road grant. The larger component is the road grant which was $35.1 million in 2011-12.

The Commission continually monitors council practices to ensure that its methods for distributing both the base and road grants are contemporary and equitable across councils. In this context, the Commission periodically undertakes comprehensive reviews of its models. For this triennial review period the Commission has opted to review its roads assessment methodology for the distribution of the road grant. As can be seen from Table 1 below, any method changes identified as part of this review will be incorporated into the assessment of the 2012-13 distribution.

Table 1: Overview of Triennial Review Period

Distribution	Action
2009-10	Method Changes + Data Updates
2010-11	Data Updates
2011-12	Data Updates
2012-13	Method Changes + Data Updates

The purpose of this paper is to detail the issues identified as part of the review, and outline the impacts to the roads assessment methodology, if the changes are adopted.

ROADS ASSESSMENT REVIEW

During the Roads Assessment Review process, the Commission has consulted with a group of council engineers to provide their expertise to the process. The engineers provided an extensive list of recommendations for potential changes to the assessment, and these proposed changes were circulated to councils as *DP11-01 Roads Assessment Review* and councils were consulted during the 2011 schedule of councils hearings and visits.

Recommendations

The issues and recommendations raised within *DP11-01 Roads Assessment Review* are shown below. In the shaded box below each recommendation is the Commission position, confirmation of any action required and a statement regarding its inclusion in the proposed Revised Roads Assessment (RRA) outlined in this paper.

Recommendation 1: Aggregation of Unsealed

- that urban and rural unsealed roads be aggregated into a single road type, and the aggregation should extend to data used to inform the cost adjustors applied to all unsealed roads;

The Commission accepted this recommendation and councils generally agreed. This recommendation has been included within the RRA.

Recommendation 2: Disaggregation of Urban Sealed

- that the urban sealed road type **not** be disaggregated and that road length be retained as the primary assessment measure;

The Commission accepted this recommendation and councils generally agreed. This recommendation has been included within the RRA.

Recommendation 3: Road Profiles

- that the current standard road profiles for each road type broadly reflect contemporary average engineering standards across the State;

The Commission and councils accepted this recommendation. However, the Commission considered it necessary to update the profiles in conjunction with a revision in the maintenance definitions used within the RRA. The updated profiles can be found in Appendix 1.

Recommendation 4: Definition Simplification

- that the current road definitions remain in place. However, as soon as standardised planning schemes have been implemented by the Tasmanian Planning Commission and councils, the Commission should seek to base definitions of urban and rural roads governed by the adjacent council planning zones;

The Commission accepted this recommendation as a reasonable alternative, but issues raised regarding this alternative have been raised by some councils, and are yet to be fully investigated by the Commission. This approach has not been adopted for the purposes of the RRA.

Recommendation 5: Urbanisation Allowance

- that the current Urbanisation Allowance be retained, as it necessarily captures the additional cost of CBD roads compared to standard urban sealed roads;

The Commission accepted this recommendation, and councils broadly agreed. Therefore, the Commission has consulted with councils and updated the CBD road lengths used for this allowance, and the updated road lengths have been incorporated into the RRA.

Recommendation 6: Bridges Assessment

- that the calculation of an adjusted cost of maintenance and renewal for bridges is a reasonable alternative to the current share of bridges deck area assessment. A life cycle cost would bring the bridges assessment more into line with the assessment of roads;

The Commission accepted this recommendation, and councils broadly agreed. This recommendation has been included within the RRA..

Recommendation 7: Updating of Data

- that all appropriate life expectancies and costs of maintenance be updated prior to the implementation of any changes in methodology to the roads assessment model;

The Commission and councils agreed that updated data should be used, and the Commission has collected and incorporated up-to-date data where possible to inform the RRA. The updated data includes GIS data to inform the Rainfall and Terrain cost adjustors, as well as the CBD road lengths used for the Urbanisation Allowance.

Recommendation 8: Life Cycle Calculations

- that the Commission consider reviewing the mathematical construction of the Roads Preservation Model to ensure it better reflects actual council engineering practices;

The Commission and councils accepted this recommendation. The Commission has used the available data from councils, as well as adopted new definitions for the maintenance methods used by councils, and these factors have simplified the assessment picture of 'what councils do'. This recommendation has been included within the RRA.

Recommendation 9: Asset Management Systems

- that the Commission seek access to and utilise asset management data held by councils to better inform the review of its roads assessment methodology.

The Commission accepted this recommendation, and councils supported the capture of data directly from their asset management systems. The Commission issued a data collection to councils, and the updated information has been used to inform the RRA.

Standard Road Profiles

During the construction of the RRA, it was noted that there were some inconsistencies in the definitions used by some councils. Furthermore, it was noted that the inconsistencies may negatively influence the RRA outcomes. In order to alleviate the problem, the Commission consulted with the engineers workgroup to create a list of definitions that would be consistent across all councils.

This work took its lead from the *Austroads Glossary of Terms* (Fourth Edition, August 2010). The glossary is a substantial document that attempts to provides nationally consistent definitions across all areas pertaining to the construction, safety, planning and economics of roads and bridge infrastructure.

The major change to the definitions used within the RRA is that the term 'reconstruction' has been removed. What the Commission previously called 'reconstruction' would, using the definitions in Appendix 1, be defined as a form of 'rehabilitation'. This change alone enabled the mathematical formulas used by the Commission to be simplified to implement Recommendation 8.

The engineers workgroup met to formulate advice to the Commission regarding the definitions. The engineers also considered it appropriate, in light of the definitional changes, to also review the standard road profiles used by the Commission within its assessment.

The profiles, discussed and agreed by the engineers workgroup, were circulated by the Commission along with the data collection to seek council comment on the changes. Significantly, there were no negative comments regarding the changes to the definitions or profiles.

The new Definitions and Standard Road Profiles can be found in Appendix 1.

REVISED ROADS ASSESSMENT (RRA)

1. 95/5 Split Removal

It was recommended that the Commission should calculate a life cycle cost for bridges as well as roads, resulting in the total Road Grant pool being distributed according to council shares of the state total combined life cycle cost for both roads and bridges. It follows that the Commission will no longer apply the 95/5 split between roads and bridges and the total life cycle cost for both roads and bridges calculated within the RRA will distribute 100 per cent of the Road Grant.

2. Road Preservation Component

Having regard to other recommendations arising from the Roads Review, the RRA will calculate the total asset preservation requirement for each council based on three road types:

- urban sealed;
- rural sealed; and
- unsealed.

Bridges will be assessed separately as detailed in Section 3 below. Council will continue to report road lengths annually through the Consolidated Data Collection administered by Local Government Division of the Department of Premier and Cabinet. Average performance standards and specific costs will be applied to reported road lengths for the three council road types.

Table 2: Revised Roads Assessment: Road Component Data (Preliminary)

		Proportions	Estimated Life	Cost per Km
URBAN SEALED				
Rehabilitation	Heavy Patching & Asphalt Layer	58%	44 yrs	$461 475
	Removal & Replacement	38%	71 yrs	$1 159 700
	Structural Asphalt Repair	4%	44 yrs	$547 800
		100%		
Resurfacing	1 Coat Spray Seal	51%	15 yrs	$48 720
	30mm Asphalt Layer	37%	26 yrs	$189 000
	Slurry Seal	12%	13 yrs	$74 760
		100%		
Other Maintenance			4 yrs	$4 576
RURAL SEALED				
Rehabilitation	Scarify & Overlay	79%	54 yrs	$260 100
	Removal & Replacement	21%	70 yrs	$406 500
		100%		
Resurfacing	1 Coat Spray Seal		15 yrs	$34 800
Other Maintenance			5 yrs	$2 399
UNSEALED				
Removal & Replacement (Culverts)			72 yrs	$37 100
Regrading			1 yrs	$1 010
Resheeting			8 yrs	$29 379
Other Maintenance			2 yrs	$1 750

Note: The proportions, estimated lives and costs per km are weighted averages that were obtained through a data collection exercise directly with councils in October 2011.

Table 2 above shows the data that has been used within the revised assessment to calculate preliminary grant outcomes for the road grant in 2012-13. The proportional use of the maintenance methods and the estimated lives of each were obtained by taking averages from data collected from councils in late 2011. To update the costs per kilometre, the Commission engaged Mr John Howard of Jeff Roorda & Associates.

Life Cycle Cost

A mathematical issue was identified by the Road Review Panel that allowed certain road maintenance activities to be applied more times than would actually be the case in reality. The Commission has aimed to design the RRA to ensure that this does not happen. Furthermore, with the inclusion of the statewide proportions by which the various rehabilitation and resurfacing methods are used across all councils, the Commission is able to calculate a much more accurate average cost for maintaining council road networks.

Appendix 2 shows the calculation of the unadjusted cost/km/pa for each road type. A new element in the calculation is the number of times the resurfacing methods and other maintenance can be applied during the life span of the rehabilitation method. For example, a slurry seal has a life span of 13 years and is used on average 12 per cent of the time. If a slurry seal was to be the only resurfacing method on 1 kilometre of road, it would be applied three times (13years, 26 years & 39 years) during the 44 year life span of a heavy patching and asphalt rehabilitation. Therefore, to calculate the lifetime cost of a heavy patch and asphalt overlay, the Commission applies the slurry seal three times over the 44 year life of the road, and weights the cost by 12 per cent. This same calculation is completed for all rehabilitation methods, resurfacing methods and other maintenance, and by applying the appropriate weighting the Commission can calculate the unadjusted cost/km/pa for each road type as shown below.

Table 3: Unadjusted Costs per Kilometre per Annum from Revised Roads Assessment

Road Type	Cost/km/pa
Urban Sealed	$17 434
Rural Sealed	$7 414
Unsealed	$6 073

The unadjusted cost/km/pa is the average annual per kilometre cost for the average Tasmanian council to maintain its road network. However, there are unavoidable cost pressures on councils that create differentials for maintaining road networks, and these cost pressures are acknowledged by the application of the following cost adjustors and allowances.

It should be noted that the grant outcomes are driven in large part by the relative differences between the above costs/km/pa. The Commission is aware that the relative difference between rural sealed and unsealed roads has narrowed markedly according to the life cycle cost calculations. This issue is discussed in more detail in the analysis of the preliminary outcomes later in this paper.

Urbanisation Allowance

This allowance seeks to recognise the additional expenditure incurred by council when undertaking road works in heavily urbanised environments. Urban environments are characterised by significant commercial activity and high traffic volumes of both pedestrians and vehicles. This allowance augments the length of central business district (CBD) urban sealed roads to account for previous evidence that demonstrated that CBD road works cost councils three times more than standard urban sealed roads. Although most councils would experience this to some extent, the Commission recognises one distinct CBD for six councils.

It was recommended that the Urbanisation Allowance be retained within the RRA. The Commission undertook to remeasure CBD road lengths to be included as part of the allowance. The revised road lengths to be used within the Urbanisation Allowance, which have been confirmed with the nominated councils, are as follows:

Burnie (4.70km)	Clarence (1.44km)	Devonport (6.30km)
Glenorchy (4.76km)	Hobart (9.33km)	Launceston (8.13km)

In reviewing the CBD road lengths, the Commission has also retained its long-standing policy of recognising only one distinct CBD in each council area. Furthermore, it has been recognised that there was little consistency in the treatment of pedestrian malls, so the Commission has included pedestrian malls for the six councils, but the Commission has excluded service roads from the calculation as it would be unlikely that they cater for high traffic volumes.

Rainfall Cost Adjustor

The Rainfall CA is designed to account for the relative cost advantage or disadvantage associated with the amount of rainfall on council road networks. The base data is obtained from Geographic Information System (GIS) data provided by the Department of Primary Industry, Parks, Water and the Environment (DPIPWE). The Commission has obtained updated GIS data as at October 2011 that has been applied within the RRA.

Depending on the proportion of council roads within each rainfall band, the assessment applies the cost factors noted in Table 4 below. The cost factors were not examined as part of the roads review, so they remain unchanged for the RRA.

Roads subject to more than 1000 mm receive a +5 per cent increase in assessed expenditure, as high rainfall is seen as a disadvantage when maintaining sealed and unsealed roads. Roads receiving between 600-1000 mm are neither advantaged nor disadvantaged so no expenditure adjustment is made. Sealed roads subject to less than 600 mm receive a -5 per cent adjustment to reflect advantage, while low rainfall on unsealed roads is regarded as a disadvantage due to the requirement for dust management so a +5 per cent increase is applied.

Table 4: Cost Factors for Calculation of Rainfall Cost Adjustors

Rainfall Bands	Sealed roads	Unsealed roads
Less than 600 mm	0.95	1.05
600-1000 mm	1.00	1.00
Greater than 1000 mm	1.05	1.05

Note: These cost factors were last updated for the 2006-07 distribution following consultation with IPWEA and councils.

Terrain Cost Adjustor

The Terrain CA seeks to measure the relative cost advantage or disadvantage associated with the terrain characteristics on which council road networks are built. The data on which the cost adjustors are based is obtained from GIS data provided by DPIPWE. The Commission has obtained updated GIS data which has been applied within the RRA.

Depending on the proportion of council roads within each terrain band, the assessment applies the cost factors noted in Table 5 below. The cost factors were not examined as part of this review, so they remain unchanged for the RRA.

The cost factors reflect disadvantage for all roads constructed on steep terrain, flat rural sealed roads and all flat unsealed roads. Disadvantages of flat terrain relate primarily to drainage, while there are many issues with steep terrain including drainage scouring and shoulder instability.

Table 5: Cost Factors for Calculation of Terrain Cost Adjustors

Terrain bands	Urban sealed roads	Rural sealed roads	Unsealed roads (urban and rural)
Less than 0.5 degrees	1.00	1.10	1.10
0.5 –9.0 degrees	1.00	1.00	1.00
Greater than 9.0 degrees	1.10	1.10	1.15

Note: These cost factors were last updated for the 2006-07 distribution following consultation with IPWEA and councils.

Traffic Cost Adjustor

The Traffic CA measures the relative advantage or disadvantage associated with volumes of heavy vehicle traffic on council road networks. The cost adjustors are derived from data obtained through the freight demander survey undertaken by the Department of Infrastructure, Energy and Resources (DIER). The survey gathers origin, destination and tonnage data for the largest freight demanders in Tasmania. The data applied to calculate this cost adjustor is currently an average of the 2005-06 and 2008-09 surveys.

The survey allows the calculation of tonne-kilometres for each council by road type, which is the product of the tonnage carried over each road type and the distance over which it is carried. Relative positions are determined for each council based on the tonne-kilometres per kilometre of each road type. The distribution of the Traffic Cost Adjustor is controlled by the application of limits based closely on those determined by the Australian Road Research Board in 1989. The cost adjustor limits were not examined as part of this review, so they remain unchanged within the RRA.

Table 6 below, shows the Traffic cost adjustor limits. The council that has the greatest number of tonne-kilometres per kilometre travelling on a particular road type is awarded the upper limit or maximum cost adjustment for that road type. Similarly, the council with the least tonne-kilometres per kilometre is given the minimum cost adjustment. All other council results are spread between the limits depending on their relative position between the maximum and minimum results.

Table 6: Traffic Cost Adjustor Limits

	Urban sealed	Rural sealed	Urban unsealed	Rural unsealed
Upper limit (maximum cost adjustment)	1.11	1.25	1.16	1.25
Lower limit (minimum cost adjustment)	0.93	0.96	0.91	0.91

Remoteness Cost Adjustor

The Remoteness CA aims to provide a measure of the relative advantage or disadvantage associated with distance from suppliers of road-making materials as cartage costs are a significant component of all road works. In its roads data collection, circulated to councils in September 2011, the Commission obtained data from councils in relation to sourcing of road-making materials. The Commission sought to determine whether the current Remoteness CA is a reasonable measure.

However, the data obtained from councils was inconclusive. There was evidence that some councils were sourcing road-making materials from suppliers outside their immediate region. This would undoubtedly be due to councils being able to access better value for money from a supplier not in its traditional regional hub. This is evidence that Councils are more likely to award the provision of materials tender to the company providing the most value for money, rather than the distance from its regional centre.

The data collected from councils does not, however, disprove the existence of a cost disadvantage for councils located further from the regional centres where the majority of urban sealed road-making materials are available. Therefore, the data collected was unable to assist the Commission in determining the effectiveness of its current Remoteness CA.

Therefore, the Remoteness CA has been retained unchanged for the calculation of the RRA, as the Commission continues to consider it as the most appropriate method of accounting for distance from road building suppliers. The cost adjustors are based on distances from the centre of each council road network to their respective regional centre where major suppliers are located. Additional adjustments are made to this data to account for the cost of transportation to King Island and Flinders Councils.

To control the redistribution of the cost adjustors, the results are re-ranged to ensure a maximum of 20 per cent and a minimum 0 per cent cost adjustment in relation to remoteness. Table 7 below lists the central point in each council road network as used by the Commission, and the distances from that point to its nearest regional centre.

Table 7: Distance Measurements for the Remoteness Cost Adjustor

Council	Central Point	Regional Centre	Distance (km)
Break O'Day	St Helens	Launceston	163
Brighton	Bridgewater	Hobart	22
Burnie	Burnie	Burnie	0
Central Coast	Ulverstone	Devonport	22
Central Highlands	Hamilton	Hobart	73
Circular Head	Smithton	Burnie	85
Clarence	Rosny Park	Hobart	8
Derwent Valley	New Norfolk	Hobart	38
Devonport	Devonport	Devonport	0
Dorset	Branxholm *	Launceston	85
Flinders #	Whitemark	Launceston	271
George Town	George Town	Launceston	51
Glamorgan Spring Bay	Swansea *	Hobart	137
Glenorchy	Glenorchy	Hobart	12
Hobart	Hobart	Hobart	0
Huon Valley	Geeveston *	Hobart	60
Kentish	Sheffield	Devonport	29
King Island #	Currie	Burnie	333
Kingborough	Margate *	Hobart	20
Latrobe	Latrobe	Devonport	10
Launceston	Launceston	Launceston	0
Meander Valley	Deloraine *	Launceston	50
Northern Midlands	Epping Forest *	Launceston	55
Sorell	Dodges Ferry *	Hobart	39
Southern Midlands	Oatlands	Hobart	85
Tasman	Nubeena	Hobart	100
Waratah Wynyard	Wynyard	Burnie	19
West Coast	Zeehan	Burnie	139
West Tamar	Exeter *	Launceston	23

Note: locations marked * are different from the administrative centres used for dispersion measurement in the Equalisation Model. These locations have been selected where the administrative centres are not close to the geographic centres of councils' road networks. The councils marked # (Flinders and King Island) include an additional 50 per cent weighting of the non-road component of the measured distance.

3. Bridge Preservation Component

The bridge preservation component of the RRA will calculate the asset preservation requirement for each council based on four bridge and two culvert types, which are:

- Concrete (CON);
- Steel (STL);
- Timber (TIM);
- Concrete/Timber Hybrids (CTH);
- Reinforced Concrete Pipe (RCP); and
- Reinforced Box Culvert (RBC).

The Commission holds comprehensive bridge and culvert data for each council. The Commission will continue to confirm individual council Bridge Deck Area (BDA) on an annual basis prior to each grant assessment. The eligibility criteria for bridges and culverts have not been changed during this review, and the current definitions are given below.

Eligible Bridge

A structure that spans a waterway, chasm, road, railway line or some other obstacle such that it provides for the passage of vehicles, pedestrians or stock, as part of the council local road network. The deck is suspended between abutments and a bridge can be single or multi-spanned. An eligible bridge must have 3 metres or greater total length. The BDA is the product of the width and length, and there is no maximum length or width restriction for bridges.

Eligible Culvert

A culvert is eligible as long as it has 3 metres or more of a horizontal opening facing the water (clear waterway). The 3 metre minimum can comprise either a single culvert or a series of smaller culverts installed side-by-side. The BDA is calculated by multiplying the clear waterway by the length of the culvert. However, culvert length is restricted to no more than 6 metres, as this is considered adequate to account for the width of a normal two-lane road under which the culvert may be placed.

As the Commission holds information regarding BDA totals for each bridge/culvert type for individual councils, the Commission will assess the bridge assets of individual councils using the performance standards and specific costs detailed in Table 8 below. The data listed for Rehabilitation was obtained from AusSpan Pty Ltd and is based on average costs and average life expectancies for the six bridge/culvert types. The Maintenance data are based on three-year average recurrent expenditure obtained from councils, then converted into a per m^2 measure using the asset data already held by the Commission. The Commission engaged Mr John Howard (Jeff Roorda & Associates) who has confirmed that the costs are a reasonable representation of bridge/culvert maintenance costs in Tasmania.

Cost Adjustors

The Commission has not identified any appropriate cost adjustors that would help reflect cost differentials between councils in the construction and maintenance of bridges and culverts. Council comment is sought in this regard to clarify whether appropriate cost adjustors can be obtained and included in the RRA.

Table 8: Performance Standards and Specific Costs (BRIDGES)

			Estimated Life (yrs)	Cost per m^2	Cost/m^2/pa
BRIDGES					
Rehabilitation#	Concrete	CON	84 yrs	$2 766	$33
	Steel	STL	73 yrs	$3 100	$42
	Timber	TIM	24 yrs	$2 000	$83
	Con/Tim Hybrid	CTH	43 yrs	$2 750	$64
	Reinforced Concrete Pipe	RCP	81 yrs	$3 010	$37
	Reinforced Box Culvert	RBC	80 yrs	$3 757	$47
Maintenance*	Concrete	CON	1 yr	$17	$17
	Steel	STL	1 yr	$11	$11
	Timber	TIM	1 yr	$30	$30
	Con/Tim Hybrid	CTH	1 yr	$9	$9
	Reinforced Concrete Pipe	RCP	1 yr	$38	$38
	Reinforced Box Culvert	RBC	1 yr	$15	$15

Bridge Rehabilitation data was obtained from AusSpan Pty Ltd.
* Bridge Maintenance data was obtained from annual council expenditure collected in October 2011.

PRELIMINARY OUTCOMES

Table 9 below shows the grant outcomes from the RRA using the 2011-12 Road Grant amount of $35 052 032.

Table 9: Outcomes of the Revised Roads Assessment (RRA)

Council	Road Preservation Component		Bridge Preservation Component		Total Preservation Cost		Road Grant Outcomes
	$	%	$	%	$	%	$
Break O'Day	5 251 698	88.4%	691 310	11.6%	5 943 008	4.05%	1 418 008
Brighton	1 788 755	94.1%	111 921	5.9%	1 900 676	1.29%	453 503
Burnie	4 222 138	97.0%	129 522	3.0%	4 351 660	2.96%	1 038 311
Central Coast	6 776 680	94.3%	407 077	5.7%	7 183 757	4.89%	1 714 052
Central Highlands	5 374 494	94.0%	341 735	6.0%	5 716 229	3.89%	1 363 898
Circular Head	6 591 425	93.8%	432 489	6.2%	7 023 913	4.78%	1 675 913
Clarence	5 598 156	99.0%	54 829	1.0%	5 652 984	3.85%	1 348 808
Derwent Valley	2 780 637	89.2%	335 962	10.8%	3 116 598	2.12%	743 624
Devonport	4 244 192	98.8%	51 448	1.2%	4 295 640	2.92%	1 024 944
Dorset	6 420 753	91.5%	600 185	8.5%	7 020 938	4.78%	1 675 203
Flinders	2 939 126	96.8%	98 511	3.2%	3 037 637	2.07%	724 783
George Town	2 731 259	91.5%	252 386	8.5%	2 983 645	2.03%	711 901
Glamorgan Spring Bay	3 480 722	94.9%	188 498	5.1%	3 669 221	2.50%	875 480
Glenorchy	4 895 646	97.2%	140 964	2.8%	5 036 609	3.43%	1 201 740
Hobart	6 140 848	94.1%	383 804	5.9%	6 524 651	4.44%	1 556 789
Huon Valley	5 339 360	90.4%	566 304	9.6%	5 905 664	4.02%	1 409 098
Kentish	3 929 293	91.2%	381 473	8.8%	4 310 766	2.93%	1 028 553
King Island	3 494 572	97.9%	75 289	2.1%	3 569 860	2.43%	851 772
Kingborough	4 817 856	96.1%	193 375	3.9%	5 011 231	3.41%	1 195 685
Latrobe	2 663 235	94.3%	160 962	5.7%	2 824 197	1.92%	673 856
Launceston	10 167 162	95.9%	433 010	4.1%	10 600 173	7.22%	2 529 212
Meander Valley	7 524 736	91.7%	678 082	8.3%	8 202 818	5.58%	1 957 201
Northern Midlands	8 348 898	91.9%	734 180	8.1%	9 083 078	6.18%	2 167 232
Sorell	3 546 771	91.0%	350 616	9.0%	3 897 387	2.65%	929 921
Southern Midlands	5 603 110	90.5%	586 973	9.5%	6 190 083	4.21%	1 476 960
Tasman	1 944 312	93.7%	130 425	6.3%	2 074 738	1.41%	495 035
Waratah Wynyard	4 720 694	93.7%	317 121	6.3%	5 037 815	3.43%	1 202 028
West Coast	2 251 901	91.5%	210 284	8.5%	2 462 185	1.68%	587 480
West Tamar	4 082 567	95.4%	196 723	4.6%	4 279 290	2.91%	1 021 043
	137 670 995	93.7%	9 235 458	6.3%	146 906 453	100.00%	35 052 032

ANALYSIS

The following analysis is based on the preliminary outcomes from the RRA found in Table 9, and actual 2011-12 Road Grant outcomes in Appendix 3.

Road/Bridge Split

As discussed previously, the 95/5 split between roads and bridges within the assessment was to be removed as the RRA would be capable of calculating a life cycle cost for both roads and bridges and a distribution of 100 per cent of the road grant could be made using the total life cycle cost from both infrastructure categories.

The 2011-12 outcomes show the distinct 95/5 split in grant at a state level between roads and bridges, whereas the preliminary RRA outcomes show that at a state level the split in life cycle costs is 93.6 per cent for roads and 6.4 per cent for bridges. This outcome aligns with modelling completed for the Roads Review Panel which indicated that if a life cycle cost for bridges were included in the assessment, the percentage of funds distributed at a state level for bridges would increase.

The increase in the overall allocation in grant towards bridges is due primarily to the recognition of different bridge types within the assessment of the bridge life cycle cost.

The current 95/5 split is based on actual recurrent council expenditure at a state level. The Commission then distributes 5 per cent of the road grant based on the relative bridge deck area of individual councils. By recognising that different materials are used to build bridges, the Commission can recognise different life spans of the infrastructure. This means that the Commission can calculate the different annual costs to maintain each type, which ensures that the assessment better reflects the mix of bridges types owned and maintained by individual councils.

For example, Table 8 shows that the cost/m^2/pa is greatest for timber bridges ($83) but much less for concrete ($33). This is broadly reflective of anecdotal evidence from councils that timber bridges are cheaper to construct but have a much shorter life span. The short life span is what makes timber bridges more expensive over time, and explains why councils are moving towards concrete as a more cost effective building material. Therefore, a council with a relatively large proportion of timber bridges will receive a correspondingly greater proportion of road grant as timber bridges increase its total preservation cost. However, timber is a much less cost effective material from which to construct infrastructure, and it is not expected that this will cause a perverse incentive for councils to retain timber bridges any longer than is necessary.

Road Preservation Component

The road preservation component assesses each road type individually, and relative movements in the cost/km/pa between road types determines to a large degree the movements in grant outcomes.

Table 10, below, shows the costs/km/pa before the application of cost adjustors (unadjusted) between the 2011-12 assessment and the preliminary RRA, and the dollar and percentage movements for each road type.

Table 10: Comparison of Unadjusted Costs Per Kilometre Per Annum for Road Types

Road Types	2011-12 Roads Assessment	Revised Roads Assessment (RRA)	$ Change	% Change
Urban Sealed	$24 452	$17 434	-$7 018	-28.7%
Rural Sealed	$8 467	$7 414	-$1 053	-12.4%
Unsealed	$4 828#	$6 073	+$1 245	+25.8%

The unadjusted cost/km/pa for unsealed in 2011-12 is a weighted average of both urban and rural unsealed costs.

If the cost/km/yr for all three road types moved by the same percentage there would be minimal changes in the overall grant outcome apart from the influences flowing from the new bridges assessment. However, this is not the case. The greatest decline is -28.7 per cent for the urban sealed assessment, while rural sealed decreased by -12.4 per cent, whereas, unsealed costs increased by +25.8 per cent.

Table 2 of this paper shows the individual costs of maintenance used within the RRA, and Appendix 2 shows how the calculations were made. When compared with the 2011-12 assessment, the vast majority of costs in relation to the maintenance of council roads have increased from those used in 2011-12. For example, the headline figure for urban sealed is the cost/km for the removal and replacement of an urban sealed road. For the 2011-12 assessment this cost was $696 754 per km, while the updated figure that is proposed to be used for the RRA is $1 159 700. This is an increase of over 65 per cent, and would suggest that a substantial increase in the cost of maintaining urban sealed roads has occurred. However, increases in maintenance costs for sealed roads have been overshadowed by the introduction of the life cycle cost calculation.

The life cycle cost calculation is intended to remove an anomaly from the model that allowed an over-provision for the cost of preservation of sealed roads within the model, in particular urban sealed roads. Appendix 6 shows the calculation of the costs/km/pa for all road types as applied for the actual 2011-12 road grant assessment, while Appendix 7 shows the same information after having the life cycle cost principles applied to the maintenance methods. The only change that has occurred between Appendices 6 & 7 is the rounding down to the nearest whole number of the times each maintenance method is applied. When comparing the costs/km/pa, the reductions for urban sealed and rural sealed are evident, as is the unchanged cost of unsealed maintenance. The grant movements caused by the life cycle cost principles using the 2011-12 assessment model can be examined more clearly in Appendix 8.

By introducing the life cycle cost principles, the calculated over-provision for sealed roads has been removed, but it would appear from the preliminary RRA outcomes in Table 9, and the cost/km/pa comparison in Table 10 above, that there is now a calculated over-provision for the cost of preserving unsealed roads within the RRA, and grant outcomes are therefore weighted too heavily in favour of unsealed roads.

The road type proportions of councils across the three assessed road types can be found in Appendix 4, and this shows that the average Tasmanian council has 21 per cent urban sealed, 31 per cent rural sealed and 48 per cent unsealed roads. Appendix 5 shows the changes in grant outcome from the RRA, and the results follow the percentage movements in the costs/km/pa in Table 10. A council with a relatively large proportion of unsealed roads will be better off under the RRA as it currently stands (Central Highlands, Flinders & King Island) when compared to a council with primarily urban sealed (Glenorchy & Hobart) or rural sealed roads (Central Coast, Kentish, Latrobe & Meander Valley), as its calculated road preservation cost will increase rather than decrease.

The Commission recognises that there now seems to be a calculated over-servicing of unsealed roads within the RRA. The unsealed road assessment has benefitted from the RRA in the following ways:

- The introduction of the life cycle cost calculation has no discernible negative impact on the unsealed cost/km/pa over 2011-12 levels;
- The unit costs of maintaining unsealed roads have increased since the last data update in 2009-10; and
- the removal and replacement of cross-road culverts has tended to exacerbate the increase of the cost/km/pa for unsealed roads.

Further Work Required

The Commission recognises that using the RRA as it currently stands would produce skewed grant outcomes and this would not be a satisfactory outcome for the Commission or councils. As a result, the Commission is seeking further independent advice from Mr John Howard in relation to the road costs used for this paper, and seeking advice from councils regarding the RRA in general, but in particular the specific questions below.

- Does the interaction of the life cycle cost calculations, and the new maintenance methods, reduce the sealed road assessments by too large a degree?
- What elements of the current unsealed road assessment depart from actual council practice and contribute to the calculated over-provision for the cost of preserving unsealed roads?

Phasing the Implementation of RRA

The Commission accepts that there is still work to do in relation to finalising the RRA for the 2012-13 assessment. This means that final grant movements will not be known until the required work and consultation is completed. However, the Commission feels it necessary to canvass the potential for having to phase-in the eventual RRA grant outcomes.

The form that any phasing will take, if any, will depend entirely on the quantum of grant movements for councils. The Commission, especially in a review implementation year as 2012-13 will be, is cognisant of the impacts that grant fluctuations can cause for councils, and the Commission would seek to minimise disruption to council budgets.

Therefore, depending on the extent of anticipated grant movements when the RRA issues are addressed, the Commission may select one of the following phasing options to minimise budgetary impacts on councils:

- Apply ‘caps’ and/or ‘collars’ to control the magnitude of dollar movements e.g. restrict percentage shifts in grant to no more than +/- 10 per cent; or
- Fixed percentage phase-in of new grant shares over a period of time (e.g. year 1 – 33 per cent, year 2 – 66 per cent, year 3 – 100 per cent).

SUBMISSIONS AND TIMEFRAMES

The Commission would like to thank the council engineers and their respective councils for their assistance and support during the review.

The Commission invites comments and input from councils on the issues raised within this discussion paper. However, council input need not be confined to the issues identified within this paper. Councils should feel free to provide comments on other pertinent issues regarding the Commission assessment methodologies.

Submissions should be forwarded to the Commission Secretary, Mr Rod Malcomson as follows:

- By post: Secretary
  State Grants Commission
  GPO Box 147
  HOBART TAS 7001

- By email: rodney.malcomson@treasury.tas.gov.au

Further details regarding the annual assessments can be found in the 2011-12 Annual Report that is available on the Commission website. Go to the Department of Treasury and Finance webpage (www.treasury.tas.gov.au) and click the Commission 'Quick Link', then follow the link to publications.

Submissions close on Friday 23 March 2012.

Any queries regarding the review should be directed to the Secretary on 6233 8988.

2012 Hearings and Visits

The Commission will provide councils with the opportunity to discuss the review and any other concerns during the 2012 Hearings and Visits program that will begin in April 2012.

APPENDICES

APPENDIX 1

Definitions

Maintenance[1] – all actions necessary for retaining an asset, as near as practicable, to its original condition or to reduce its rate of deterioration. (Includes rehabilitation, resurfacing and other maintenance)

Rehabilitation[1] – a major surfacing action for the purpose of returning the structural condition of the pavement to its as-constructed or design condition.

Resurfacing[1] – to improve a pavement surface by the addition of a new wearing course.

Other Maintenance – other maintenance tasks (not rehabilitation or resurfacing) to ensure the continued serviceability of the pavement.

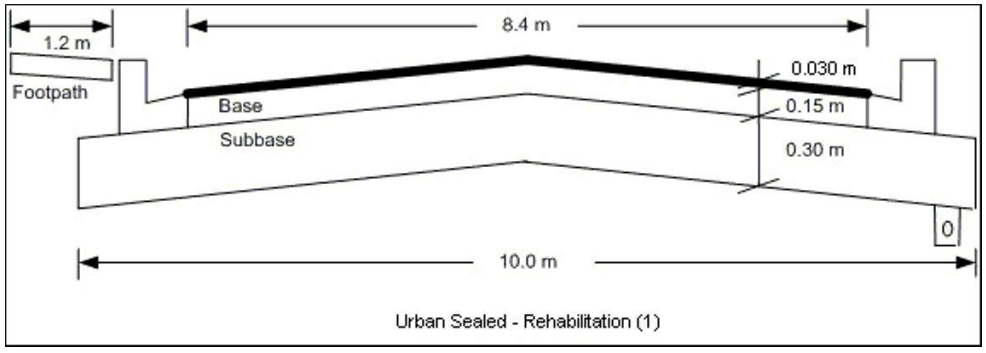
[1] **Taken from the Austroads Glossary of Terms (Fourth Edition, August 2010)**

Standard Road Profiles

URBAN SEALED

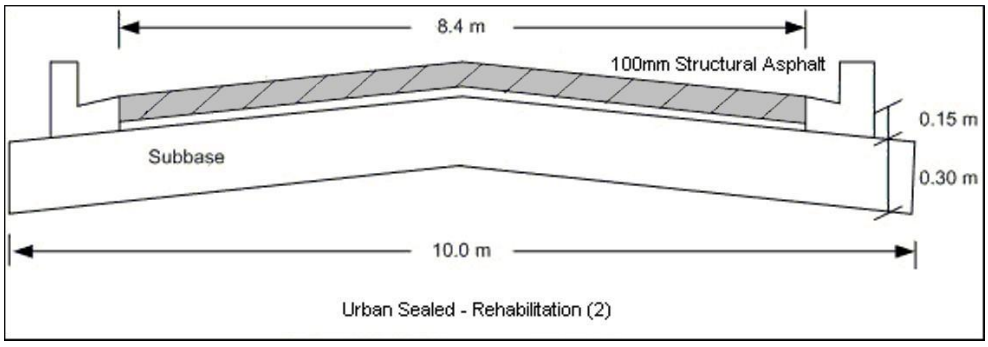
Rehabilitation

(1) Removal and replacement of sealed sub-base and base pavement, 30mm Asphalt surfacing, kerb and channel, footpath (1 side) including excavating and laying 100mm subsurface drain.



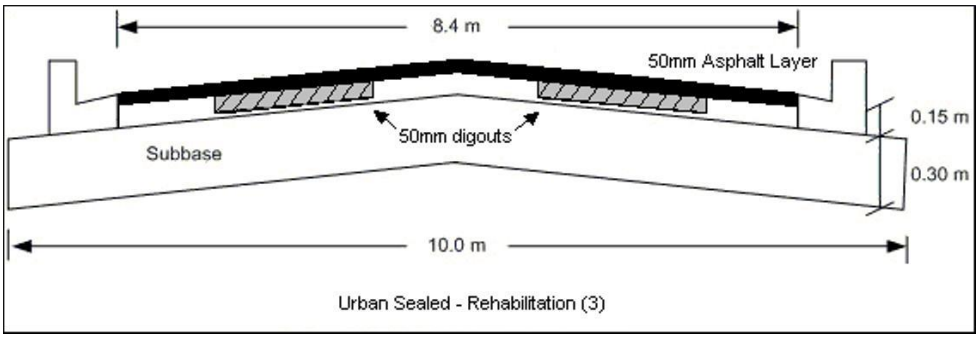
Urban Sealed - Rehabilitation (1)

(2) Boxing out 100mm depth of base course pavement layer, and making a structural repair with 100mm of asphalt surfacing.



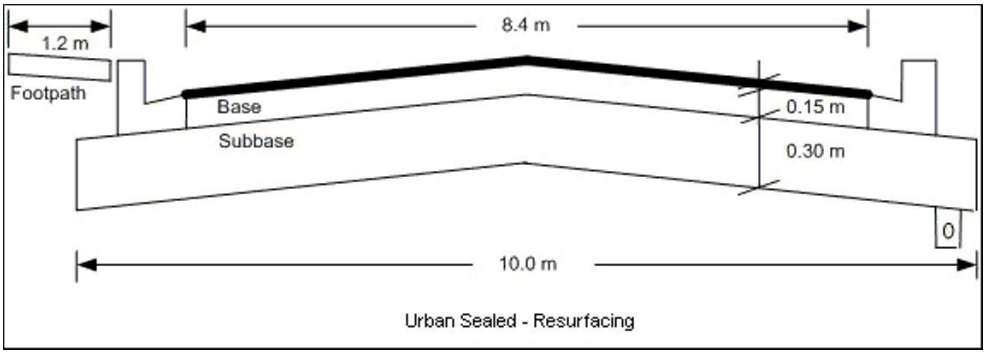
Urban Sealed - Rehabilitation (2)

(3) Heavy patching and retention of existing road profile, involving the digging out of structurally failed areas (up to 25 per cent of total area) and filling with 50mm layer of fine crushed rock or asphalt, then resurfacing total area with 50mm asphalt layer.



Resurfacing (including line marking)

(1) 30mm asphalt layer;
(2) One coat spray seal with 10mm aggregate; or
(3) 15mm slurry seal.



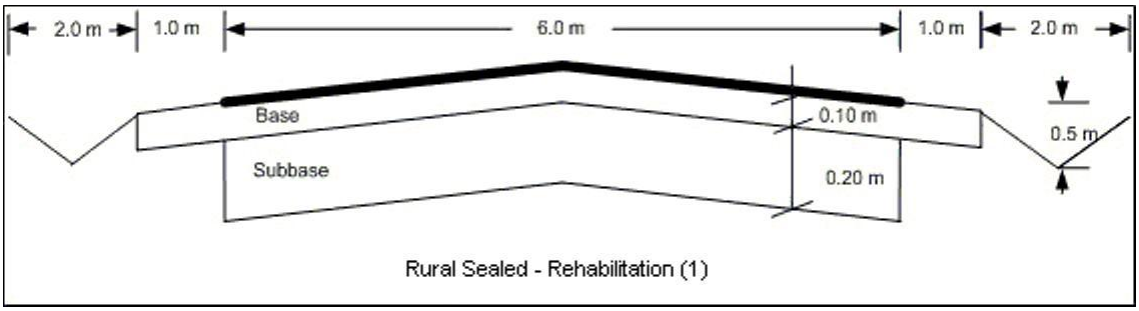
Other Maintenance

Other routine maintenance e.g. potholes, edge breaks, guardrail and sign maintenance, footpath maintenance etc (excludes roadside vegetation management)

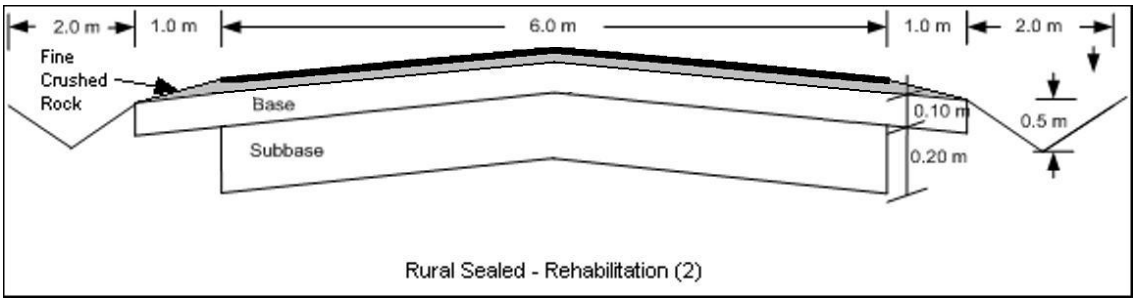
RURAL SEALED

Rehabilitation

(1) Removal and replacement of sub-base and base, cross road drainage culverts (Ø 450mm x 10m with two end walls, 5 culverts per km), trimming, compaction and resurfacing with prime and two coat seal, and reform table drains.



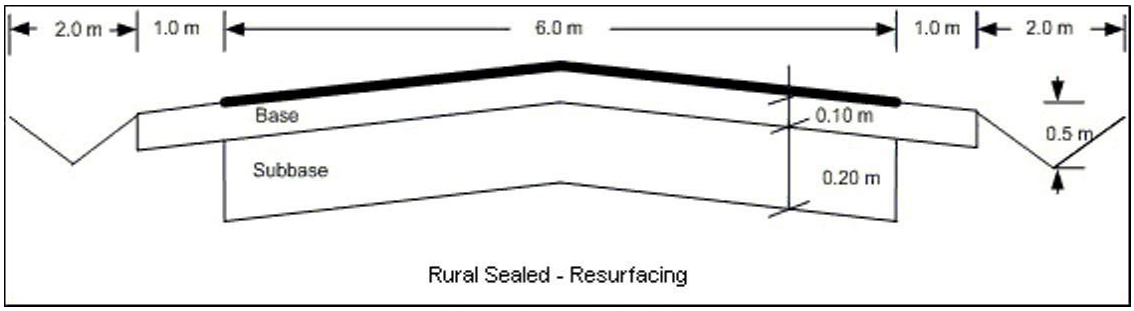
(2) Scarify pavement, remove and replace cross road drainage culverts (Ø 450mm x 10m with two end walls, 5 culverts per km), lay 100mm fine crushed rock, trimming, compaction, resurface with prime and two coat seal, and reform table drains.



Rural Sealed - Rehabilitation (2)

Resurfacing (including line marking)

Resurfacing with one coat spray seal with 14mm aggregate.



Rural Sealed - Resurfacing

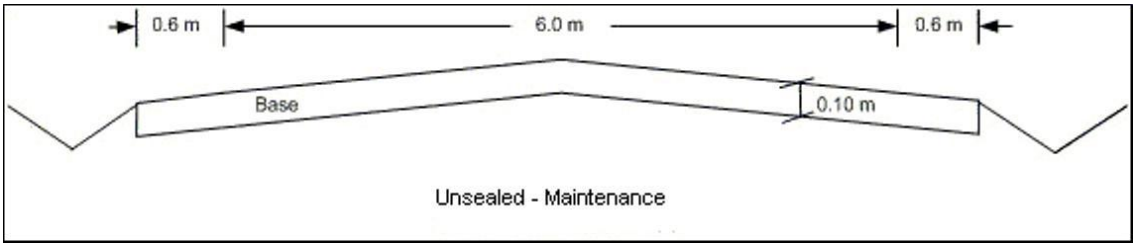
Other Maintenance

Other routine maintenance e.g. pothole patching, shoulder maintenance, guardrail and sign maintenance etc. (excludes roadside vegetation management)

UNSEALED

Maintenance

- Removal and replacement of cross road drainage culverts (Ø 450mm x 9m with two end walls, 5 culverts per km)
- Regrading of surface.
- Resheeting of surface.
- Other routine maintenance e.g. table drains, shoulder, guidepost and sign maintenance etc. (excludes roadside vegetation management)



Unsealed - Maintenance

APPENDIX 2

Calculation of Cost/km/pa for all Road Types using Revised Roads Assessment (RRA)

URBAN SEALED	Life Span	Cost/km	Times Applied	Resurf Weight	Lifetime Cost	Annual Cost	Rehab Weight	
	yrs	$		%	$	$	%	$
	a	*b*	*c*	*d*	*e=bcd*	*f=e/max a*	*g*	*h=∑fg*
Heavy Patch & Asphalt Overlay	44	461 475	1		461 475	10 488		
1 Coat Spray Seal	15	48 720	2	51%	49 694	1 129		
30mm Asphalt Layer	26	189 000	1	37%	69 930	1 589		
Slurry Seal	13	74 760	3	12%	26 914	612		
Other Maintenance	4	4 576	10		45 760	1 040		
					653 773	14 858	58%	8 618
Removal & Replacement	71	1 159 700	1		1 159 700	16 334		
1 Coat Spray Seal	15	48 720	4	51%	99 389	1 400		
30mm Asphalt Layer	26	189 000	2	37%	139 860	1 970		
Slurry Seal	13	74 760	5	12%	44 856	632		
Other Maintenance	4	4 576	17		77 792	1 096		
					1 521 597	21 431	38%	8 144
Structural Asphalt Layer	44	547 800	1		547 800	12 450		
1 Coat Spray Seal	15	48 720	2	51%	49 694	1 129		
30mm Asphalt Layer	26	189 000	1	37%	69 930	1 589		
Slurry Seal	13	74 760	3	12%	26 914	612		
Other Maintenance	4	4 576	10		45 760	1 040		
					740 098	16 820	4%	673
						Cost/km/pa		**$ 17 434**

RURAL SEALED	Life Span	Cost/km	Times Applied	Resurf Weight	Lifetime Cost	Annual Cost	Rehab Weight	
	yrs	$		%	$	$	%	$
	a	*b*	*c*	*d*	*e=bcd*	*f=e/max a*	*g*	*h=∑fg*
Scarify & Overlay	54	260 100	1		260 100	4 817		
1 Coat Spray Seal	15	34 800	3	100%	104 400	1 933		
Other Maintenance	5	2 399	10		23 990	444		
					388 490	7 194	79%	5 683
Removal & Replacement	70	406 500	1		406 500	5 807		
1 Coat Spray Seal	15	34 800	4	100%	139 200	1 989		
Other Maintenance	5	2 399	13		31 187	446		
					576 887	8 241	21%	1 731
						Cost/km/pa		**$ 7 414**

UNSEALED	Life Span	Cost/km	Times Applied	Resurf Weight	Lifetime Cost	Annual Cost	Rehab Weight	
	yrs	$		%	$	$	%	$
	a	*b*	*c*	*d*	*e=bcd*	*f=e/max a*	*g*	*h=∑fg*
R&R Culverts	72	37 100	1		37 100	515		
Regrading	1	1 010	72		72 720	1 010		
Resheeting	8	29 379	9		264 411	3 672		
Other Maintenance	2	1 750	36		63 000	875		
					400 131	6 073	100%	6 073
						Cost/km/pa		**$ 6 073**

APPENDIX 3

Outcomes of the 2011-12 Roads Preservation Model (RPM) Assessment

Council	RPM Component (95%)			BDA Component (5%)			Road Grant Outcomes (100%)	
	Exp Req	Grant		BDA	Grant			
	$	$	%	m^2	$	%	$	%
Break O'Day	5 712 904	1 218 202	92.1%	7 469	104 322	7.9%	1 322 526	3.77%
Brighton	2 266 627	483 329	96.6%	1 204	16 810	3.4%	500 140	1.43%
Burnie	5 383 756	1 148 016	97.5%	2 114	29 532	2.5%	1 177 548	3.36%
Central Coast	8 187 616	1 745 902	95.6%	5 802	81 043	4.4%	1 826 946	5.21%
Central Highlands	4 851 281	1 034 472	94.1%	4 652	64 973	5.9%	1 099 446	3.14%
Circular Head	6 640 174	1 415 930	94.9%	5 434	75 896	5.1%	1 491 827	4.26%
Clarence	7 379 397	1 573 560	99.3%	834	11 643	0.7%	1 585 204	4.52%
Derwent Valley	2 703 716	576 532	91.2%	3 962	55 343	8.8%	631 876	1.80%
Devonport	5 735 651	1 223 053	98.9%	984	13 738	1.1%	1 236 792	3.53%
Dorset	6 522 392	1 390 815	92.5%	8 017	111 978	7.5%	1 502 794	4.29%
Flinders	2 664 971	568 270	96.6%	1 416	19 771	3.4%	588 042	1.68%
George Town	3 248 473	692 695	94.5%	2 876	40 177	5.5%	732 873	2.09%
Glamorgan Spring Bay	3 942 012	840 583	96.6%	2 087	29 144	3.4%	869 728	2.48%
Glenorchy	6 734 831	1 436 115	97.7%	2 458	34 332	2.3%	1 470 448	4.20%
Hobart	8 589 667	1 831 634	94.9%	7 085	98 956	5.1%	1 930 591	5.51%
Huon Valley	5 243 133	1 118 030	90.7%	8 202	114 557	9.3%	1 232 587	3.52%
Kentish	4 311 504	919 372	93.7%	4 403	61 504	6.3%	980 876	2.80%
King Island	3 079 600	656 684	97.9%	993	13 867	2.1%	670 552	1.91%
Kingborough	5 528 006	1 178 775	96.2%	3 312	46 265	3.8%	1 225 041	3.49%
Latrobe	3 183 547	678 850	96.3%	1 890	26 397	3.7%	705 247	2.01%
Launceston	12 806 330	2 730 783	96.9%	6 178	86 285	3.1%	2 817 068	8.04%
Meander Valley	8 568 098	1 827 035	93.7%	8 817	123 157	6.3%	1 950 193	5.56%
Northern Midlands	9 189 440	1 959 528	93.4%	9 886	138 085	6.6%	2 097 614	5.98%
Sorell	3 860 738	823 252	93.4%	4 152	57 990	6.6%	881 243	2.51%
Southern Midlands	5 225 092	1 114 183	90.7%	8 214	114 732	9.3%	1 228 916	3.51%
Tasman	1 934 007	412 402	94.9%	1 577	22 022	5.1%	434 424	1.24%
Waratah Wynyard	5 238 958	1 117 139	93.9%	5 233	73 089	6.1%	1 190 229	3.40%
West Coast	2 713 169	578 548	94.2%	2 567	35 854	5.8%	614 403	1.75%
West Tamar	4 716 546	1 005 742	95.2%	3 661	51 141	4.8%	1 056 884	3.02%
	156 161 636	33 299 430	95.0%	125 477	1 752 602	5.0%	35 052 060	100.00%

APPENDIX 4

Road Type Proportions across Tasmanian Councils

Council	Urban Sealed	Rural Sealed	Unsealed	Total
Break O'Day	17%	23%	60%	100%
Brighton	40%	44%	16%	100%
Burnie	40%	47%	13%	100%
Central Coast	20%	61%	19%	100%
Central Highlands	2%	11%	87%	100%
Circular Head	5%	33%	62%	100%
Clarence	57%	30%	14%	100%
Derwent Valley	10%	20%	71%	100%
Devonport	71%	25%	5%	100%
Dorset	6%	27%	67%	100%
Flinders	2%	17%	81%	100%
George Town	25%	39%	36%	100%
Glamorgan Spring Bay	24%	22%	54%	100%
Glenorchy	82%	12%	6%	100%
Hobart	99%	0%	1%	100%
Huon Valley	6%	19%	74%	100%
Kentish	9%	53%	38%	100%
King Island	3%	8%	89%	100%
Kingborough	24%	26%	50%	100%
Latrobe	20%	58%	22%	100%
Launceston	51%	19%	31%	100%
Meander Valley	13%	57%	30%	100%
Northern Midlands	11%	48%	41%	100%
Sorell	21%	18%	61%	100%
Southern Midlands	4%	19%	77%	100%
Tasman	7%	23%	70%	100%
Waratah Wynyard	13%	39%	47%	100%
West Coast	39%	12%	49%	100%
West Tamar	19%	45%	37%	100%
TOTAL	21%	31%	48%	100%

APPENDIX 5

Proposed Grant Outcomes Comparison between 2011-12 Assessment and the RRA

Council	Actual 2011-12 Outcomes	Proposed RRA	Change	
	$	$	$	%
Break O'Day	1 322 525	1 418 008	+ 95 483	+7.2%
Brighton	500 139	453 503	- 46 635	-9.3%
Burnie	1 177 547	1 038 311	- 139 237	-11.8%
Central Coast	1 826 945	1 714 052	- 112 893	-6.2%
Central Highlands	1 099 445	1 363 898	+ 264 453	+24.1%
Circular Head	1 491 826	1 675 913	+ 184 087	+12.3%
Clarence	1 585 203	1 348 808	- 236 395	-14.9%
Derwent Valley	631 875	743 624	+ 111 749	+17.7%
Devonport	1 236 791	1 024 944	- 211 846	-17.1%
Dorset	1 502 793	1 675 203	+ 172 410	+11.5%
Flinders	588 041	724 783	+ 136 742	+23.3%
George Town	732 872	711 901	- 20 971	-2.9%
Glamorgan Spring Bay	869 727	875 480	+ 5 753	+0.7%
Glenorchy	1 470 447	1 201 740	- 268 707	-18.3%
Hobart	1 930 590	1 556 789	- 373 801	-19.4%
Huon Valley	1 232 586	1 409 098	+ 176 511	+14.3%
Kentish	980 875	1 028 553	+ 47 678	+4.9%
King Island	670 551	851 772	+ 181 221	+27.0%
Kingborough	1 225 040	1 195 685	- 29 355	-2.4%
Latrobe	705 246	673 856	- 31 390	-4.5%
Launceston	2 817 067	2 529 212	- 287 855	-10.2%
Meander Valley	1 950 193	1 957 201	+ 7 008	+0.4%
Northern Midlands	2 097 613	2 167 232	+ 69 619	+3.3%
Sorell	881 242	929 921	+ 48 678	+5.5%
Southern Midlands	1 228 915	1 476 960	+ 248 046	+20.2%
Tasman	434 423	495 035	+ 60 611	+14.0%
Waratah Wynyard	1 190 228	1 202 028	+ 11 800	+1.0%
West Coast	614 402	587 480	- 26 922	-4.4%
West Tamar	1 056 883	1 021 043	- 35 840	-3.4%
TOTAL	35 052 032	35 052 032	+ 0	+0.0%

APPENDIX 6

Cost/km/pa used for the Actual 2011-12 Assessment for all Road Types

		Life Span	Cost/km	Times Applied	Resurf Weight	Lifetime Cost	Annual Cost	
		yrs	$		%	$	$	
		a	*b*	*c*	*d*	*e=bcd*	*f=e/max a*	
URBAN SEALED	Reconstruction	80	696 754	1.0		696 754	8 709	
	Rehabilitation	45	522 827	1.8		929 470	11 618	
	Thin Asphalt Overlay	22	126 630	3.6	34%	156 561	1 957	
	Reseal	17	49 421	4.7	66%	153 496	1 919	
	Other Maintenance	15	3 720	5.3		19 840	248	
						1 956 121	**24 452**	**/km/pa**
RURAL SEALED	Reconstruction	75	288 136	1.0		288 136	3 842	
	Rehabilitation	50	125 658	1.5		188 487	2 513	
	Reseal	18	35 172	4.2		146 550	1 954	
	Other Maintenance	15	2 373	5.0		11 865	158	
						635 038	**8 467**	**/km/pa**
URBAN UNSEALED	Resheeting	9	22 061	1.0		22 061	2 451	
	Regrading	1	893	9.0		8 037	893	
	Other Maintenance	1	1 186	9.0		10 674	1 186	
						40 772	**4 530**	**/km/pa**
RURAL UNSEALED	Resheeting	8	22 061	1.0		22 061	2 758	
	Regrading	1	893	8.0		7 144	893	
	Other Maintenance	1	1 186	8.0		9 488	1 186	
						38 693	**4 837**	**/km/pa**

APPENDIX 7

Cost/km/pa for all Road Types using 2011-12 Assessment (Applying Basic Life Cycle Cost Principles)

		Life Span	Cost/km	Times Applied	Resurf Weight	Lifetime Cost	Annual Cost	
		yrs	$		%	$	$	
		a	*b*	*c*	*d*	*e=bcd*	*f=e/max a*	
URBAN SEALED	Reconstruction	80	696 754	1.0		696 754	8 709	
	Rehabilitation	45	522 827	1.0		522 827	6 535	
	Thin Asphalt Overlay	22	126 630	3.0	34%	129 163	1 615	
	Reseal	17	49 421	4.0	66%	130 471	1 631	
	Other Maintenance	15	3 720	5.0		18 600	233	
						1 497 815	**18 723**	**/km/pa**
RURAL SEALED	Reconstruction	75	288 136	1.0		288 136	3 842	
	Rehabilitation	50	125 658	1.0		125 658	1 675	
	Reseal	18	35 172	4.0		140 688	1 876	
	Other Maintenance	15	2 373	5.0		11 865	158	
						566 347	**7 551**	**/km/pa**
URBAN UNSEALED	Resheeting	9	22 061	1.0		22 061	2 451	
	Regrading	1	893	9.0		8 037	893	
	Other Maintenance	1	1 186	9.0		10 674	1 186	
						40 772	**4 530**	**/km/pa**
RURAL UNSEALED	Resheeting	8	22 061	1.0		22 061	2 758	
	Regrading	1	893	8.0		7 144	893	
	Other Maintenance	1	1 186	8.0		9 488	1 186	
						38 693	**4 837**	**/km/pa**

APPENDIX 8

Comparison of 2011-12 Grant Outcomes using the Actual Assessment and Life Cycle Cost Principles (Using Costs/km/pa from Appendices 6 & 7)

Council	Actual 2011-12 Outcomes	2011-12 Outcomes using Life Cycle Cost	Change	
	$	$	$	%
Break O'Day	1 322 525	1 351 421	+ 28 896	+2.2%
Brighton	500 139	474 802	- 25 337	-5.1%
Burnie	1 177 547	1 121 096	- 56 451	-4.8%
Central Coast	1 826 945	1 795 070	- 31 875	-1.7%
Central Highlands	1 099 445	1 230 331	+ 130 887	+11.9%
Circular Head	1 491 826	1 589 556	+ 97 730	+6.6%
Clarence	1 585 203	1 469 360	- 115 843	-7.3%
Derwent Valley	631 875	665 209	+ 33 334	+5.3%
Devonport	1 236 791	1 128 067	- 108 724	-8.8%
Dorset	1 502 793	1 607 739	+ 104 946	+7.0%
Flinders	588 041	654 307	+ 66 266	+11.3%
George Town	732 872	716 841	- 16 031	-2.2%
Glamorgan Spring Bay	869 727	870 721	+ 994	+0.1%
Glenorchy	1 470 447	1 331 875	- 138 573	-9.4%
Hobart	1 930 590	1 735 909	- 194 681	-10.1%
Huon Valley	1 232 586	1 321 674	+ 89 088	+7.2%
Kentish	980 875	1 011 756	+ 30 881	+3.1%
King Island	670 551	751 221	+ 80 669	+12.0%
Kingborough	1 225 040	1 210 076	- 14 964	-1.2%
Latrobe	705 246	695 068	- 10 178	-1.4%
Launceston	2 817 067	2 654 735	- 162 332	-5.8%
Meander Valley	1 950 193	1 972 758	+ 22 565	+1.2%
Northern Midlands	2 097 613	2 156 234	+ 58 621	+2.8%
Sorell	881 242	888 497	+ 7 255	+0.8%
Southern Midlands	1 228 915	1 337 892	+ 108 977	+8.9%
Tasman	434 423	461 329	+ 26 906	+6.2%
Waratah Wynyard	1 190 228	1 205 724	+ 15 496	+1.3%
West Coast	614 402	589 423	- 24 979	-4.1%
West Tamar	1 056 883	1 053 336	- 3 547	-0.3%
TOTAL	35 052 032	35 052 032	+ 0	+0.0%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