

Tourism Cost Adjustor Review

Data, cost drivers and materiality

Discussion Paper DP22-01

December 2021



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Executive Summary

In 2017, the Commission issued Discussion Paper DP17-01 “Tourism Impacts and the future of the Tourism Cost Adjustor”¹, which raised concerns over the loss of bed capacity data used for the Tourism Cost Adjustor (Tourism CA) in the Base Grants Model. Day tripper data was also identified as being below the minimum threshold for robust analysis.

Based on the feedback received from councils, the Commission decided to retain the Tourism CA but freeze the bed capacity and day tripper data used in the model and apply a 50% reduction to its expenditure effect from 2018-19, subject to an alternative data source becoming available and further analysis undertaken by the Commission.

Further to this decision, the Commission has investigated the possibility of using overnight stays data collected by Tourism Research Australia as a replacement for bed capacity data. This Discussion Paper outlines the results of the research and modelling undertaken and how it compares to the current Base Grants Recommendations. It also raises the following issues in regard to the data source and Tourism CA more broadly:

- Difficulties in obtaining reliable visitor numbers at the local government area level and sampling errors contained in the survey data applied in the new model.
- Relationship between visitor numbers and the expenditure categories used in the Tourism CA; and
- Materiality of the Tourism CA in the Base Grants Model.

Based on consideration of these issues, the Commission has made a preliminary decision that the operation of the Tourism CA should be discontinued but seeks feedback from councils prior to making a final decision.

Whilst encouraging written feedback from councils on the latest proposal by 28 January 2022 for the Commission to consider prior to it commencing the 2022 hearings and visits, the Commission will also accept verbal feedback on the proposal as part of the 2022 hearings and visits.

Following feedback from councils and assuming the Commission is in a position to enable decisions to be made, the Commission expects to publish its proposed position on this issue later in 2022.

¹ Refer to the State Grants Commission’s website at www.treasury.tas.gov.au/state-grants-commission/publications

Review Context

The State Grants Commission (the Commission) is an independent statutory body established under the *State Grants Commission Act 1976* and is responsible for recommending the distribution of Australian Government and State Government funds to Tasmanian local government authorities. To ensure that the distribution of available funds is as equitable and contemporary as possible, the Commission continually monitors council practices and updates assessment methods and data where appropriate. Based on these reviews, the Commission implements changes as they are determined.

As part of the Commission's review process, and in accordance with the Commission's Priority Work Plan, the Commission has been reviewing the Tourism CA since its decision to freeze the bed capacity and day tripper data used in the model and apply a 50% reduction to its expenditure effect.

The Commission, in deciding how it operates and applies the National Principles, has developed its own set of principles to guide its decision making. These are the State Principles, which are detailed in Attachment 1 of the Commission's methodology publication: [Financial Assistance Grant Distribution Methodology](#). One such principle relates to Data quality and sources, and has been replicated below for the purposes of understanding a key factor in the Commission's objectives from this review.

- **Data quality and sources**

The Commission takes the accuracy and consistency of data very seriously and actively seeks to increase the integrity of the data used within its assessments. The Commission has a strong preference for independent measures and data sources to inform its modelling, while being able to exercise broad judgement in its deliberations in relation to sources of data.

The Commission actively seeks to increase the integrity of the data used within its assessments and ensure its methods are contemporary and equitable across councils. The Commission may exercise its judgement and adopt alternative information sources where it considers such to be justified.

Current Tourism Cost Adjustor

The current Tourism CA is one of 11 cost adjustors used in the Base Grants Model to help determine the appropriate distribution of Financial Assistance Grants funding provided by the Australian Government amongst Tasmania's 29 councils. The Tourism CA aims to recognise the relative impact of tourism on council expenditure across the four following expenditure categories:

- Law, Order & Public Safety;
- Planning & Community Amenities;
- Waste Management & Environment; and
- Recreation & Culture.

The Tourism CA was historically informed by day tripper data sourced from Tourism Research Australia and bed capacity data sourced from Tiger Tourism (Tourism Tasmania), as measures of tourism activities. The Tourism CA currently weights these data components as 30% on day tripper data and 70% on bed capacity.

Following the changeover to the National Tourism Online database system in February 2016, Tiger Tourism has been unable to maintain bed capacity data in the National Tourism Online system.

In response, for the 2016-17 Recommendations, the Commission updated the day tripper data portion only of the cost adjustor, but froze the bed capacity statistics at the level used for the 2015-16 Recommendations (being as at 20 April 2015), as this was regarded as the last relatively reliable data set and which aligned most closely with the financial data informing the Base Grants Model (the 2014-15 CDC data). The decision to freeze the bed capacity statistics as at 20 April 2015 was due to the extreme volatility and gaps in bed capacity data (eg. Airbnb) since the move by Tiger Tourism to the national tourism database system.

Based on the feedback received from Councils on Discussion Paper DP17-01 "Tourism Impacts and the future of the Tourism Cost Adjustor", the Commission decided to continue to freeze the bed capacity and day tripper data used in the model for the 2018-19 Recommendations, while applying a 50 % reduction to the expenditure effect of the Tourism CA in recognition of the data quality issues.

Materiality

The Tourism CA is one of the least material cost adjustors in terms of its impact on applicable expenditure categories and redistribution of Base Grants funding. For the 2021-22 Recommendations, the Tourism CA had an expenditure effect of \$1.2 million over

29 councils. In absolute terms², this represented \$92 000 in Base Grants funding or 0.237% of the Base Grant total of \$38.8 million.

The least material cost adjustor is the Population Decline CA, which had an expenditure effect of \$0.2 million over 29 councils. In absolute terms, this represented \$33 000 in Base Grants funding or 0.09% of the Base Grant total of \$38.8 million.

The largest cost adjustor is the Scale (Administration) CA, which had an expenditure effect of \$14.0 million over 29 councils. In absolute terms, this represented \$600 000 in Base Grants funding or 1.47% of the Base Grant total of \$38.8 million.

The Commission has included a review of the relative impact of all cost adjustors as a part of its Priority Work Plan.

² Removes the impact of negative values by making them positive.

Tourism data

The two main sources of tourism data for Tasmania are Tourism Tasmania and Tourism Research Australia.

Tourism Tasmania data

Tourism Tasmania collects visitor information through its Tasmanian Visitor Survey (TVS)³, which provides a profile of the characteristics, travel behaviour and expenditure of international and domestic visitors to Tasmania. The TVS is collected from more than 9 000 visitors annually as they depart Tasmania's air and sea ports. The data collected includes:

- Total visitors to Tasmania;
- Nights spent in Tasmania;
- Expenditure;
- Accommodation;
- Places visited, including overnight; and
- Visitor demographics.

While the TVS collects information on the number of visitors to tourism regions, it does not collect information on the number of visitors to local government areas. As a result, the TVS cannot be considered an alternative data source for the Tourism CA as it is not a common measure available to all councils.

Tourism Research Australia data

Tourism Research Australia (TRA) collects visitor information through its National and International Visitor Surveys.

For the National Visitor Survey (NVS)⁴, Interviews are conducted with approximately 120 000 Australian residents aged 15 years and over on an annual basis (or approximately 0.5% of the national population). Respondents are interviewed in their homes using random digit dialling and a Computer Assisted Telephone Interviewing system. The survey contains over 70 questions regarding:

- Destination;

³ Further information on the TVS can be found by visiting Tourism Tasmania's website at www.tourismtasmania.com.au/research/tvs

⁴ Further information on the NVS can be found by visiting Tourism Research Australia's website at www.tra.gov.au/tra/2016/aboutus/national-visitor-survey.html

- Purpose;
- Transportation;
- Activities;
- Expenditure;
- Accommodation; and
- Demographics.

For the International Visitor Survey (IVS)⁵, samples are collected from 40 000 departing and short term international travellers aged 15 years and over who have been visiting Australia. The survey is conducted by Computer Assisted Personal Interviewing (CAPI) in the departure lounges of the eight major international airports: Sydney, Melbourne, Brisbane, Cairns, Perth, Adelaide, Darwin and the Gold Coast.

The IVS contains around 100 questions supported by 'show-cards' that are used to help the respondent answer particular sections including:

- Usual place of residence;
- Purpose of visit and places visited;
- Transportation and accommodation;
- Activities;
- Expenditure; and
- Demographics.

TRA recognises that there are a number of limitations when interpreting the results of its NVS as follows: *“the results given in the NVS are based on a sample, rather than a census, of Australian residents. As with all sample surveys, the results are subject to sampling variability and therefore may differ from figures that would have been obtained if the entire Australian population had been included in the survey”*. The same limitations also apply when interpreting the results of the IVS.

Based on guidance provided by TRA, most of the estimates obtained for local government areas are subject to sampling variability, which is considered too high for practical purposes and should be used with caution for analysis and reporting.

Given that the NVS and IVS are the only common measures of visitor information available to all councils, the Commission has decided to use this information for the purposes of modelling an alternative Tourism CA. The results of this modelling and impact on Base Grants allocations are provided under the Options section of this Paper.

The Victorian Local Government Grants Commission also uses TRA survey data as the primary data source for its Tourism CA. However, Queensland has removed its Tourism CA due to concerns over the reliability of visitor data at the local government area level.

⁵ Further information on the IVS can be found by visiting the Tourism Research Australia website at www.tra.gov.au/tra/2016/aboutus/international-visitor-survey.html

Australian Bureau of Statistics employment data

The Commission considered the option of using Australian Bureau of Statistics employment data as an alternative data source for the Tourism CA, more specifically employment in Accommodation and Food Services.

However, given that employment in Accommodation and Food Services is already included as a subset of the data source used for the Service Industry Employment Cost Adjustor, the Commission did not consider it appropriate to use it again as a primary data source for the Tourism CA.

In discussions with other states and territories, it was also noted that while there is some correlation between high tourism scores and high service industry scores, one does not automatically lead to the other. For example, some councils may have a high service industry score because of their role as a service centre, but a low tourism score. Conversely, some significant tourist destinations have high tourism scores, but comparatively lower service industry scores.

Relationship between visitor numbers and expenditure categories

The Commission has measured the effectiveness of visitor numbers as a driver for the expenditure categories that the Tourism CA applies by using a statistical method known as Ordinary Least Squares (OLS).

OLS measures the strength of the relationship or correlation between the independent and dependent variables by calculating the R-squared (R^2). In terms of measuring the impact of visitor numbers on council expenditure, R^2 represents what proportion of change in council expenditure is explained by changes in visitor numbers, where 1 or 100% is a perfect correlation and 0 or 0% suggest no correlation.

The correlations for visitor numbers (as the independent variable) to council expenditure (as the dependent variable) are provided in Table 1 below:

Table 1: Correlations for visitor numbers to council expenditure (R^2)

Visitor measures based on TRA data (Independent Variables)	Expenditure categories (Dependent Variables)				
	Law Order and Public Safety	Planning and Community Amenities	Waste Management and the Environment	Recreation and Culture	Roads (not a Tourist CA exp.)
Overnight Stays	0.043	0.002	0.032	0.144	0.111
Day Tripper	0.172	0.033	0.132	0.249	0.124
Total (Overnight Stays and Day Tripper)	0.109	0.007	0.083	0.210	0.125
Caravans	0.133	0.013	0.106	0.222	0.082

Notes:

- The R^2 has been calculated using 5 years' worth of data, from 2014-15 to 2018-19. The small sample size is due to the lack of available TRA data prior to 1 July 2014 and onset of the COVID-19 pandemic in 2019-20 and introduction of travel restrictions.
- Although roads expenditure is not a part of the Tourism CA, it has been included in Table 1 as councils have previously raised concerns over the impact of tourists on roads.

The following observations can be made from the correlations provided in Table 1:

- Day Tripper data showed the strongest correlation with the expenditure categories. Except for *Planning and Community Amenities*, Day Trippers had a 13-25% relationship with the expenditure categories. The weakest correlation was Overnight Stays at 4-14%, which also excludes *Planning and Community Amenities*.
- *Recreation and Culture* was the category most closely correlated with the TRA's visitor data, which had a correlation of 14-25%. The weakest correlated was *Planning and Community Amenities* at 0.2-3%.
- *Roads* expenditure had a correlation of between 11-12% across all visitor measures, except for Caravans which had a correlation of 0.08%.

While there may also be other drivers impacting on the expenditure categories, the correlations provided in Table 1 overall suggest a very weak relationship between visitor numbers and expenditure. A similar analysis undertaken for the 2017 Discussion Paper also provided similar results.

These other drivers include economic drivers such as demographic shifts, employment trends and industry composition. It can also be argued that the benefits of a growing tourism economy outweigh any additional costs incurred in providing tourist related services.

To some extent, councils which are experiencing high levels of tourism are already compensated through the operation of the Service Industry Employment CA, which includes employment in Accommodation and Food Services as a subset of its data source. For the 2021-22 Recommendations, the expenditure effect the Service Industry Employment CA was \$6.4 million over 29 councils. In absolute terms, this represented \$0.4 million in Base Grant funding or 0.9% of the Base Grant total of \$38.8 million.

In relation to Roads expenditure, discussions with other states and territories did not identify a reliable data source that could be used to attribute roads expenditure to visitor numbers.

Conclusions and the future

Based on the analysis done, the Review concluded as follows:

The data used in the current Tourism CA is out of date.

Visitor survey data collected by Tourist Research Australia contains sampling and weighting issues.

There is a very weak correlation between visitor numbers and expenditure categories used in the Tourism CA although there may also be other factors driving these costs.

It can be argued that the benefits of a growing tourism economy outweigh any additional costs incurred in providing tourist related services.

The amount of Base Grant funding being distributed by the Tourism CA is immaterial.

As a result, the Commission has made the following Preliminary Decision in regard to the operation of the Tourism and pending feedback from councils:

Commission Preliminary Decision:

Remove the Tourism CA from the Base Grants model effective from the 2023-24 Recommendations.

The financial impact to councils of removing the Tourism CA is presented as “Option 1” under the following list of Options for councils to consider, which are supported by the following Appendices:

- Appendix 1 - Variance of Options 1, 2 and 3 to the 2021-22 Recommended Allocations
- Appendix 2 - Cost adjustor expenditure effect
- Appendix 3 - Data and modelling method

Options

Option 1 - Remove Tourism CA

This option removes the Tourism CA in its current form, which is based on bed capacity and day tripper data frozen at 2015-16 levels with a 50% reduction to its expenditure effect due to data quality issues.

For the 2021-22 Recommendations, the Tourism CA had an expenditure effect of \$1.2 million over 29 councils. In absolute terms, this represented \$92 000 in Base Grants funding or 0.237% of the Base Grant total of \$38.8 million.

At the individual council level, this translated in the most disadvantaged council receiving an additional +\$12 000 in Base Grants funding while the least disadvantaged council saw a reduction of -\$12 000. This represents the quantum of change in Base Grants funding to individual councils if the Tourism CA was removed.

The quantum of change in Base Grants funding to individual councils if the Tourism CA was removed would range from +\$12 000 to -\$12 000

Option 2 - Replace data used in Tourism CA with TRA data (Overnight Stays and Day Tripper)

This option involves replacing the data used in the current Tourism CA with TRA data, which includes a combination of Overnight Stays and Day Trippers (International, Interstate and Intrastate). This is based on a 4-year average of visitor numbers up to 2018-19, which excludes the impact of the COVID-19 travel restrictions introduced in 2019-20.

The expenditure effect of the Tourism CA has been restored back to 100% to reflect the use of a more contemporary data source.

The same modelling approach used by Victoria for constructing its Tourism CA has been used for Option 2⁶.

Under this Option, the Tourism CA would have an expenditure effect of \$2.4 million over 29 councils. In absolute terms, this represents \$82 000 in Base Grants funding or 0.212% of the Base Grant total of \$38.8 million.

At the individual council level, this translates to the most disadvantaged council receiving an increase in Base Grants funding of +\$9 000, while the least disadvantaged council would see a reduction of -\$8 000.

As a result, the amount of funds distributed amongst councils would change using the new data source.

Using Overnight Stays and Day Trippers as the new data source would result in a change in the amount of funds distributed amongst councils, which would range from +\$9 000 to -\$8 000.

Option 3 - Replace data used in Tourism CA with TRA data (Day Trippers only)

This option is the same as Option 2 but only uses Day Tripper data.

Under this Option, the Tourism CA would have an expenditure effect of \$2.2 million over 29 councils. In absolute terms, this represents \$102 000 in Base Grants funding or 0.263% of the Base Grant total of \$38.8 million based on 2021-22 Recommendations.

⁶ For the Victorian Local Government Grants Commission's approach to modelling its Tourism Cost Adjustor refer to the online publication "General Purpose Grants - Cost Adjustors": www.localgovernment.vic.gov.au/funding-programs/victoria-grants-commission/financial-assistance-grants.

For individual councils, this translates to the most disadvantaged council receiving an additional +\$18 000 in Base Grants funding ,while the least disadvantaged council would see a reduction of -\$14 000.

As a result, the outcomes have a wider range under Option 3 using Day Tripper data compared to Option 2 using a combination of Overnight Stays and Day Tripper data.

Using Day Tripper data as the new data source would result in a change in the amount of funds distributed amongst councils, which would range from +\$18 000 to -\$14 000. This is a wider range of outcomes compared to Option 2.

Submissions due date

Note that the Commission now has a policy of continuous improvement of its methodology and implements methodology changes as and when its research and consultation processes have addressed all the issues and the Commission is ready to implement a change.

Whilst encouraging written feedback from councils on the latest proposal by 28 January 2021 for the Commission to consider prior to it commencing the 2022 hearings and visits, the Commission will also accept verbal feedback on the proposal as part of the 2022 hearings and visits.

Following feedback from councils and assuming the Commission is in a position to enable decisions to be made, the Commission expects to publish its proposed position on this issue later in 2022.

Questions to councils

1. Are there any data sources that the Commission may not have considered that could be suitable replacements for the current data sources⁷?
2. What comments do you have regarding the Commission's preliminary decision to cease the use of the Tourism Cost Adjustor?
3. Do you have any other comments in relation to this matter that have not been adequately covered above?

⁷ The Commission has a strong preference for independent measures and data sources to inform its modelling. Preferable data sources are ones that provide indicators across all municipal areas, and are capable of or subject to periodic updates. The Commission may exercise its judgement and adopt alternative information sources where it considers such to be justified.

Appendices

Appendix 1 - Variance of Options 1, 2 and 3 to the 2021-22 Recommended Allocations

Council	Population	2021-22 Recommended Allocations (\$)			Variance to 2021-22 Recommended Allocations (\$)		
		Minimum Grant (MG)	Relative Need Grant (RN)	Total Base Grant funding - after cap and collar effect (MG + RN)	Option 1: Remove Tourism CA	Option 2: TRA data (Overnight Stays & Day Tripper)	Option 3: TRA data (Day Tripper)
Break O'Day	6 346	136 535	1 178 010	1 314 545	0	7 619	266
Brighton	18 123	389 919	985 239	1 375 158	12 402	- 6 044	- 6 235
Burnie	19 701	423 870	978 549	1 402 419	0	0	0
Central Coast	22 157	476 712	1 953 934	2 430 646	7 011	- 8 187	- 10 179
Central Highlands	2 166	46 602	956 649	1 003 251	- 6 038	2 957	2 218
Circular Head	8 152	175 392	1 128 515	1 303 907	- 1 668	1 318	- 478
Clarence	58 729	1 263 566	0	1 263 566	0	0	0
Derwent Valley	10 518	226 297	1 175 879	1 402 176	628	5 181	10 688
Devonport	25 747	553 951	800 284	1 354 235	0	0	0
Dorset	6 685	143 829	1 350 916	1 494 745	- 5 022	1 464	1 350
Flinders	1 004	21 601	707 009	728 610	186	- 10	- 750
George Town	7 117	153 123	1 066 933	1 220 056	1 830	379	1 927
Glamorgan-Spring Bay	4 750	102 197	101 679	203 876	0	0	0
Glenorchy	47 963	1 031 932	0	1 031 932	0	0	0
Hobart	55 250	1 188 713	0	1 188 713	0	0	0
Huon Valley	17 966	386 542	1 587 131	1 973 673	- 1 068	6 283	17 655
Kentish	6 393	137 547	1 346 936	1 484 483	- 5 428	6 081	1 649
King Island	1 612	34 682	824 140	858 822	626	103	- 1 632
Kingborough	38 628	831 088	0	831 088	0	0	0
Latrobe	11 961	257 343	781 521	1 038 864	- 314	- 7 107	- 5 567
Launceston	68 813	1 480 524	0	1 480 524	0	0	0
Meander Valley	20 037	431 099	1 664 390	2 095 489	3 533	- 3 227	1 184
Northern Midlands	13 598	292 563	882 022	1 174 585	- 485	- 1 204	3 651
Sorell	16 030	344 888	965 960	1 310 848	6 090	- 2 404	- 1 238
Southern Midlands	6 400	137 697	1 703 784	1 841 481	2 411	815	2 152
Tasman	2 479	53 336	462 959	516 295	- 10 888	8 925	8 275
Waratah-Wynyard	13 900	299 061	1 473 225	1 772 286	5 052	- 3 094	- 5 110
West Coast	4 132	88 901	1 335 972	1 424 873	- 11 791	- 1 541	- 13 712
West Tamar	24 423	525 465	1 736 637	2 262 102	9 356	- 8 305	- 6 112
State Totals	540 780	11 634 975	27 148 273	38 783 248	5	2	2
Notes:				Absolute value	91 827	82 248	102 028
- Absolute values removes the impact of negative values by making them positive				% of Base Grant	0.237%	0.212%	0.263%
- State Totals for Options 1, 2 and 3 includes rounding							

Appendix 2 - Cost Adjustor Expenditure Effect

1. Current Tourism Cost Adjustor

Council	General Administration	Health, Housing and Welfare	Law, Order and Public Safety	Planning and Community Amenities	Waste Management and Environment	Recreation and Culture	Other	Roads	Total Expenditure Effect of cost adjustor	Impact on Non-roads Expenditure	Rank - Percentage impact of cost adjustor on non-roads expenditure
Break O'Day	+ 0	+ 0	+ 2 712	+ 17 225	+ 27 135	+ 35 593	+ 0	+ 0	+ 82 665	+1.3%	5
Brighton	+ 0	+ 0	- 4 157	- 26 405	- 41 596	- 54 562	+ 0	+ 0	- 126 719	-0.7%	29
Burnie	+ 0	+ 0	- 616	- 3 914	- 6 165	- 8 087	+ 0	+ 0	- 18 782	-0.1%	18
Central Coast	+ 0	+ 0	- 1 886	- 11 981	- 18 874	- 24 758	+ 0	+ 0	- 57 499	-0.3%	22
Central Highlands	+ 0	+ 0	+ 2 501	+ 15 886	+ 25 025	+ 32 826	+ 0	+ 0	+ 76 238	+3.5%	3
Circular Head	+ 0	+ 0	+ 978	+ 6 210	+ 9 782	+ 12 831	+ 0	+ 0	+ 29 800	+0.4%	9
Clarence	+ 0	+ 0	- 10 061	- 63 909	- 100 677	- 132 058	+ 0	+ 0	- 306 704	-0.5%	27
Derwent Valley	+ 0	+ 0	+ 163	+ 1 037	+ 1 634	+ 2 143	+ 0	+ 0	+ 4 977	+0.0%	17
Devonport	+ 0	+ 0	+ 1 002	+ 6 367	+ 10 030	+ 13 156	+ 0	+ 0	+ 30 555	+0.1%	12
Dorset	+ 0	+ 0	+ 2 265	+ 14 385	+ 22 661	+ 29 725	+ 0	+ 0	+ 69 036	+1.0%	7
Flinders	+ 0	+ 0	+ 168	+ 1 064	+ 1 676	+ 2 199	+ 0	+ 0	+ 5 107	+0.5%	8
George Town	+ 0	+ 0	- 307	- 1 952	- 3 075	- 4 034	+ 0	+ 0	- 9 368	-0.1%	20
Glamorgan-Spring Bay	+ 0	+ 0	+ 8 054	+ 51 161	+ 80 596	+ 105 718	+ 0	+ 0	+ 245 529	+5.2%	1
Glenorchy	+ 0	+ 0	- 9 514	- 60 433	- 95 201	- 124 876	+ 0	+ 0	- 290 024	-0.6%	28
Hobart	+ 0	+ 0	+ 6 291	+ 39 958	+ 62 947	+ 82 568	+ 0	+ 0	+ 191 764	+0.3%	10
Huon Valley	+ 0	+ 0	+ 914	+ 5 803	+ 9 141	+ 11 991	+ 0	+ 0	+ 27 848	+0.2%	11
Kentish	+ 0	+ 0	+ 2 410	+ 15 306	+ 24 112	+ 31 627	+ 0	+ 0	+ 73 454	+1.2%	6
King Island	+ 0	+ 0	+ 47	+ 300	+ 473	+ 620	+ 0	+ 0	+ 1 441	+0.1%	16
Kingborough	+ 0	+ 0	- 5 759	- 36 582	- 57 629	- 75 592	+ 0	+ 0	- 175 563	-0.5%	26
Latrobe	+ 0	+ 0	+ 373	+ 2 372	+ 3 737	+ 4 901	+ 0	+ 0	+ 11 383	+0.1%	15
Launceston	+ 0	+ 0	+ 2 214	+ 14 060	+ 22 149	+ 29 053	+ 0	+ 0	+ 67 477	+0.1%	14
Meander Valley	+ 0	+ 0	- 725	- 4 603	- 7 251	- 9 511	+ 0	+ 0	- 22 090	-0.1%	19
Northern Midlands	+ 0	+ 0	+ 468	+ 2 974	+ 4 685	+ 6 145	+ 0	+ 0	+ 14 271	+0.1%	13
Sorell	+ 0	+ 0	- 1 881	- 11 950	- 18 825	- 24 693	+ 0	+ 0	- 57 349	-0.4%	25
Southern Midlands	+ 0	+ 0	- 306	- 1 943	- 3 060	- 4 014	+ 0	+ 0	- 9 323	-0.1%	21
Tasman	+ 0	+ 0	+ 4 091	+ 25 984	+ 40 934	+ 53 693	+ 0	+ 0	+ 124 702	+5.0%	2
Waratah-Wynyard	+ 0	+ 0	- 1 337	- 8 493	- 13 380	- 17 550	+ 0	+ 0	- 40 761	-0.3%	23
West Coast	+ 0	+ 0	+ 4 707	+ 29 898	+ 47 099	+ 61 780	+ 0	+ 0	+ 143 484	+3.5%	4
West Tamar	+ 0	+ 0	- 2 806	- 17 826	- 28 082	- 36 835	+ 0	+ 0	- 85 549	-0.4%	24
Sum Redistributed	0	0	39 356	249 991	393 815	516 570	0	0	1 199 732		

2. New Tourism Cost Adjustor - Overnight Stays and Day Trippers

Council	General Administration	Health, Housing and Welfare	Law, Order and Public Safety	Planning and Community Amenities	Waste Management and Environment	Recreation and Culture	Other	Roads	Total Expenditure		Rank - Percentage impact of cost adjustor on non-roads expenditure
									Effect of cost adjustor	Impact on Non-roads Expenditure	
Break O'Day	+ 0	+ 0	+ 5 123	+ 32 544	+ 51 267	+ 67 247	+ 0	+ 0	+ 156 182	+2.5%	5
Brighton	+ 0	+ 0	- 6 629	- 42 110	- 66 337	- 87 014	+ 0	+ 0	- 202 091	-1.1%	28
Burnie	+ 0	+ 0	+ 296	+ 1 881	+ 2 964	+ 3 887	+ 0	+ 0	+ 9 029	+0.0%	14
Central Coast	+ 0	+ 0	- 5 416	- 34 403	- 54 196	- 71 089	+ 0	+ 0	- 165 103	-0.7%	24
Central Highlands	+ 0	+ 0	+ 3 292	+ 20 908	+ 32 937	+ 43 204	+ 0	+ 0	+ 100 341	+4.6%	3
Circular Head	+ 0	+ 0	+ 1 125	+ 7 148	+ 11 261	+ 14 771	+ 0	+ 0	+ 34 306	+0.4%	12
Clarence	+ 0	+ 0	- 20 286	- 128 857	- 202 991	- 266 265	+ 0	+ 0	- 618 399	-1.1%	27
Derwent Valley	+ 0	+ 0	+ 1 694	+ 10 761	+ 16 952	+ 22 236	+ 0	+ 0	+ 51 644	+0.5%	10
Devonport	+ 0	+ 0	+ 984	+ 6 251	+ 9 848	+ 12 917	+ 0	+ 0	+ 30 001	+0.1%	13
Dorset	+ 0	+ 0	+ 2 400	+ 15 247	+ 24 019	+ 31 506	+ 0	+ 0	+ 73 173	+1.1%	8
Flinders	+ 0	+ 0	- 42	- 265	- 418	- 548	+ 0	+ 0	- 1 274	-0.1%	16
George Town	+ 0	+ 0	- 481	- 3 057	- 4 816	- 6 317	+ 0	+ 0	- 14 672	-0.2%	17
Glamorgan-Spring Bay	+ 0	+ 0	+ 11 690	+ 74 256	+ 116 977	+ 153 439	+ 0	+ 0	+ 356 363	+7.5%	2
Glenorchy	+ 0	+ 0	- 18 371	- 116 695	- 183 832	- 241 133	+ 0	+ 0	- 560 031	-1.2%	29
Hobart	+ 0	+ 0	+ 20 213	+ 128 393	+ 202 260	+ 265 305	+ 0	+ 0	+ 616 171	+1.1%	7
Huon Valley	+ 0	+ 0	+ 2 723	+ 17 294	+ 27 244	+ 35 736	+ 0	+ 0	+ 82 996	+0.5%	11
Kentish	+ 0	+ 0	+ 4 216	+ 26 780	+ 42 187	+ 55 336	+ 0	+ 0	+ 128 519	+2.0%	6
King Island	+ 0	+ 0	- 156	- 989	- 1 558	- 2 043	+ 0	+ 0	- 4 745	-0.3%	19
Kingborough	+ 0	+ 0	- 9 545	- 60 632	- 95 515	- 125 288	+ 0	+ 0	- 290 981	-0.8%	25
Latrobe	+ 0	+ 0	- 2 425	- 15 401	- 24 262	- 31 825	+ 0	+ 0	- 73 912	-0.6%	22
Launceston	+ 0	+ 0	+ 13 992	+ 88 880	+ 140 015	+ 183 658	+ 0	+ 0	+ 426 545	+0.6%	9
Meander Valley	+ 0	+ 0	- 2 376	- 15 095	- 23 779	- 31 191	+ 0	+ 0	- 72 442	-0.4%	20
Northern Midlands	+ 0	+ 0	- 224	- 1 425	- 2 244	- 2 944	+ 0	+ 0	- 6 837	-0.1%	15
Sorell	+ 0	+ 0	- 3 032	- 19 261	- 30 342	- 39 799	+ 0	+ 0	- 92 434	-0.6%	21
Southern Midlands	+ 0	+ 0	- 508	- 3 225	- 5 080	- 6 663	+ 0	+ 0	- 15 475	-0.2%	18
Tasman	+ 0	+ 0	+ 7 183	+ 45 625	+ 71 874	+ 94 277	+ 0	+ 0	+ 218 959	+8.8%	1
Waratah-Wynyard	+ 0	+ 0	- 2 885	- 18 327	- 28 871	- 37 870	+ 0	+ 0	- 87 952	-0.6%	23
West Coast	+ 0	+ 0	+ 3 761	+ 23 888	+ 37 630	+ 49 360	+ 0	+ 0	+ 114 639	+2.8%	4
West Tamar	+ 0	+ 0	- 6 315	- 40 116	- 63 195	- 82 894	+ 0	+ 0	- 192 520	-0.8%	26
Sum Redistributed	0	0	78 693	499 857	787 434	1 032 882	0	0	2 398 866		

3. New Tourism Cost Adjustor - Day Trippers

Council									Total Expenditure		Rank - Percentage impact of cost adjustor on non-roads expenditure
	General Administration	Health, Housing and Welfare	Law, Order and Public Safety	Planning and Community Amenities	Waste Management and Environment	Recreation and Culture	Other	Roads	Effect of cost adjustor	Impact on Non-roads Expenditure	
Break O'Day	+ 0	+ 0	+ 3 021	+ 19 190	+ 30 230	+ 39 653	+ 0	+ 0	+ 92 093	+1.5%	5
Brighton	+ 0	+ 0	- 6 236	- 39 613	- 62 404	- 81 855	+ 0	+ 0	- 190 108	-1.1%	28
Burnie	+ 0	+ 0	+ 2 986	+ 18 965	+ 29 875	+ 39 188	+ 0	+ 0	+ 91 014	+0.5%	10
Central Coast	+ 0	+ 0	- 5 218	- 33 147	- 52 216	- 68 493	+ 0	+ 0	- 159 074	-0.7%	24
Central Highlands	+ 0	+ 0	+ 3 477	+ 22 086	+ 34 793	+ 45 638	+ 0	+ 0	+ 105 995	+4.9%	3
Circular Head	+ 0	+ 0	+ 1 009	+ 6 408	+ 10 094	+ 13 241	+ 0	+ 0	+ 30 751	+0.4%	12
Clarence	+ 0	+ 0	- 19 922	- 126 542	- 199 344	- 261 481	+ 0	+ 0	- 607 288	-1.0%	27
Derwent Valley	+ 0	+ 0	+ 4 246	+ 26 968	+ 42 483	+ 55 725	+ 0	+ 0	+ 129 421	+1.2%	8
Devonport	+ 0	+ 0	+ 2 329	+ 14 794	+ 23 305	+ 30 569	+ 0	+ 0	+ 70 997	+0.3%	14
Dorset	+ 0	+ 0	+ 2 998	+ 19 041	+ 29 996	+ 39 346	+ 0	+ 0	+ 91 380	+1.4%	6
Flinders	+ 0	+ 0	+ 24	+ 152	+ 239	+ 313	+ 0	+ 0	+ 727	+0.1%	17
George Town	+ 0	+ 0	+ 584	+ 3 708	+ 5 840	+ 7 661	+ 0	+ 0	+ 17 793	+0.3%	15
Glamorgan-Spring Bay	+ 0	+ 0	+ 7 703	+ 48 930	+ 77 080	+ 101 106	+ 0	+ 0	+ 234 818	+4.9%	2
Glenorchy	+ 0	+ 0	- 18 578	- 118 005	- 185 895	- 243 840	+ 0	+ 0	- 566 318	-1.2%	29
Hobart	+ 0	+ 0	+ 2 294	+ 14 574	+ 22 959	+ 30 115	+ 0	+ 0	+ 69 943	+0.1%	16
Huon Valley	+ 0	+ 0	+ 7 593	+ 48 232	+ 75 980	+ 99 664	+ 0	+ 0	+ 231 469	+1.3%	7
Kentish	+ 0	+ 0	+ 3 250	+ 20 645	+ 32 522	+ 42 659	+ 0	+ 0	+ 99 075	+1.6%	4
King Island	+ 0	+ 0	- 394	- 2 504	- 3 944	- 5 173	+ 0	+ 0	- 12 015	-0.7%	26
Kingborough	+ 0	+ 0	- 9 266	- 58 856	- 92 716	- 121 617	+ 0	+ 0	- 282 454	-0.7%	25
Latrobe	+ 0	+ 0	- 1 501	- 9 536	- 15 022	- 19 705	+ 0	+ 0	- 45 764	-0.4%	20
Launceston	+ 0	+ 0	+ 19 493	+ 123 821	+ 195 058	+ 255 859	+ 0	+ 0	+ 594 232	+0.9%	9
Meander Valley	+ 0	+ 0	+ 5	+ 32	+ 50	+ 65	+ 0	+ 0	+ 151	+0.0%	18
Northern Midlands	+ 0	+ 0	+ 1 950	+ 12 385	+ 19 510	+ 25 591	+ 0	+ 0	+ 59 435	+0.4%	11
Sorell	+ 0	+ 0	- 2 155	- 13 689	- 21 564	- 28 286	+ 0	+ 0	- 65 693	-0.4%	21
Southern Midlands	+ 0	+ 0	+ 781	+ 4 961	+ 7 815	+ 10 251	+ 0	+ 0	+ 23 809	+0.4%	13
Tasman	+ 0	+ 0	+ 7 170	+ 45 546	+ 71 749	+ 94 114	+ 0	+ 0	+ 218 579	+8.8%	1
Waratah-Wynyard	+ 0	+ 0	- 2 921	- 18 555	- 29 230	- 38 341	+ 0	+ 0	- 89 046	-0.6%	23
West Coast	+ 0	+ 0	- 16	- 102	- 161	- 212	+ 0	+ 0	- 492	-0.0%	19
West Tamar	+ 0	+ 0	- 4 705	- 29 887	- 47 081	- 61 756	+ 0	+ 0	- 143 429	-0.6%	22
Sum Redistributed	0	0	70 912	450 434	709 578	930 757	0	0	2 161 682		

Appendix 3 - Data and modelling method

1. Current Tourism Cost Adjustor

	Data								Population Weighted Average		Cost Adjustor				
	Population	Domestic Day Trippers			Bed Capacity			Total Weighted Index	$i = axh$	$j = \sum i / \sum a$	Raw Cost Adjustor	Range Factor	Ranged Cost Adjustor		Rank
		3 yr Avg	Per Capita	Index	3 yr Avg	Per Capita	Index						$k = h/j$	Rank	
				$W = 0.300$			$W = 0.700$								
a	b	$c = b/a$	$d = c / Avg c$	e	$f = e/a$	$g = f / Avg f$	$h = Wd + Wg$								
Break O'Day	6 346	59 111	9.31	0.75	2 236	0.35	1.77	1.46	9 281		2.65	1.02	5		
Brighton	18 123	35 111	1.94	0.16	88	0.00	0.02	0.06	1 153		0.12	0.99	29		
Burnie	19 701	222 889	11.31	0.91	1 196	0.06	0.30	0.49	9 567		0.88	1.00	18		
Central Coast	22 157	124 000	5.60	0.45	1 489	0.07	0.34	0.37	8 218		0.67	1.00	22		
Central Highlands	2 166	106 556	49.19	3.95	1 127	0.52	2.61	3.01	6 524		5.45	1.06	3		
Circular Head	8 152	98 222	12.05	0.97	1 201	0.15	0.74	0.81	6 584		1.46	1.01	9		
Clarence	58 729	131 889	2.25	0.18	2 227	0.04	0.19	0.19	11 000		0.34	0.99	27		
Derwent Valley	10 518	133 000	12.64	1.01	841	0.08	0.40	0.59	6 156		1.06	1.00	17		
Devonport	25 747	288 000	11.19	0.90	2 681	0.10	0.52	0.64	16 354		1.15	1.00	12		
Dorset	6 685	99 444	14.88	1.19	1 742	0.26	1.31	1.27	8 516		2.31	1.02	7		
Flinders	1 004	0	0.00	0.00	259	0.26	1.30	0.91	911		1.64	1.01	8		
George Town	7 117	67 333	9.46	0.76	471	0.07	0.33	0.46	3 276		0.83	1.00	20		
Glamorgan-Spring Bay	4 750	145 000	30.53	2.45	4 636	0.98	4.90	4.16	19 781		7.54	1.09	1		
Glenorchy	47 963	97 889	2.04	0.16	1 100	0.02	0.12	0.13	6 220		0.23	0.99	28		
Hobart	55 250	559 667	10.13	0.81	8 663	0.16	0.79	0.79	43 912		1.44	1.01	10		
Huon Valley	17 966	262 111	14.59	1.17	1 582	0.09	0.44	0.66	11 868		1.20	1.00	11		
Kentish	6 393	90 778	14.20	1.14	1 844	0.29	1.45	1.36	8 664		2.45	1.02	6		
King Island	1 612	1 556	0.96	0.08	271	0.17	0.84	0.61	991		1.11	1.00	16		
Kingborough	38 628	191 889	4.97	0.40	1 265	0.03	0.16	0.23	9 064		0.42	0.99	26		
Latrobe	11 961	101 000	8.44	0.68	1 414	0.12	0.59	0.62	7 401		1.12	1.00	15		
Launceston	68 813	969 778	14.09	1.13	5 514	0.08	0.40	0.62	42 717		1.12	1.00	14		
Meander Valley	20 037	171 889	8.58	0.69	1 532	0.08	0.38	0.48	9 522		0.86	1.00	19		
Northern Midlands	13 598	198 000	14.56	1.17	1 065	0.08	0.39	0.63	8 507		1.13	1.00	13		
Sorell	16 030	188 111	11.73	0.94	90	0.01	0.03	0.30	4 845		0.55	0.99	25		
Southern Midlands	6 400	88 778	13.87	1.11	212	0.03	0.17	0.45	2 883		0.82	1.00	21		
Tasman	2 479	142 222	57.37	4.60	1 895	0.76	3.84	4.07	10 083		7.37	1.08	2		
Waratah-Wynyard	13 900	58 333	4.20	0.34	974	0.07	0.35	0.35	4 828		0.63	1.00	23		
West Coast	4 132	30 667	7.42	0.60	3 293	0.80	4.00	2.98	12 309		5.39	1.06	4		
West Tamar	24 423	96 889	3.97	0.32	1 473	0.06	0.30	0.31	7 509		0.56	0.99	24		
State Total	540 780	4 760 111	Average = 12.5	29	52 383	Average = 0.2	29	29	298 643	PWA = 0.552	PWA = 1.000	PWA = 1.000			

Minimum = 0.115	Minimum = 0.988
Maximum = 7.541	Maximum = 1.085

2. New Tourism Cost Adjustor - Overnight Stays and Day Trippers

	Data - Overnight Stays and Day Trippers				Population Weighted Average		Cost Adjustor			
	Population	4 yr Avg	Per Capita	Primary index	$e = a \times d$	$f = \sum e / \sum a$	Raw Cost Adjustor	Range Factor	Ranged Cost Adjustor	Rank
	a	b	$c = b / a$	$d = ((1/Max - Min) \times (c - Avg c)) + 1$			$g = d / f$	$RF \rightarrow 4.94$	$h = (d+RF)/(f+RF)$	
Break O'Day	6 346	337 568	53.19	1.36	8 649		1.220		1.041	5
Brighton	18 123	69 716	3.85	1.01	18 218		0.900		0.982	28
Burnie	19 701	391 383	19.87	1.12	22 092		1.004		1.001	14
Central Coast	22 157	198 343	8.95	1.04	23 093		0.933		0.988	24
Central Highlands	2 166	180 118	83.16	1.58	3 422		1.415		1.076	3
Circular Head	8 152	204 132	25.04	1.16	9 447		1.038		1.007	12
Clarence	58 729	276 273	4.70	1.01	59 402		0.906		0.983	27
Derwent Valley	10 518	273 563	26.01	1.17	12 263		1.044		1.008	10
Devonport	25 747	536 610	20.84	1.13	29 053		1.010		1.002	13
Dorset	6 685	229 547	34.34	1.23	8 197		1.098		1.018	8
Flinders	1 004	17 553	17.48	1.10	1 108		0.989		0.998	16
George Town	7 117	116 642	16.39	1.10	7 801		0.982		0.997	17
Glamorgan-Spring Bay	4 750	583 093	122.76	1.87	8 868		1.672		1.124	2
Glenorchy	47 963	149 743	3.12	1.00	47 963		0.895		0.981	29
Hobart	55 250	1 912 901	34.62	1.23	67 863		1.100		1.018	7
Huon Valley	17 966	460 078	25.61	1.16	20 894		1.041		1.008	11
Kentish	6 393	300 300	46.97	1.32	8 425		1.180		1.033	6
King Island	1 612	24 458	15.17	1.09	1 753		0.974		0.995	19
Kingborough	38 628	341 449	8.84	1.04	40 228		0.933		0.988	25
Latrobe	11 961	128 066	10.71	1.05	12 618		0.945		0.990	22
Launceston	68 813	1 912 110	27.79	1.18	81 113		1.056		1.010	9
Meander Valley	20 037	285 428	14.25	1.08	21 652		0.968		0.994	20
Northern Midlands	13 598	252 108	18.54	1.11	15 117		0.995		0.999	15
Sorell	16 030	180 772	11.28	1.06	16 977		0.948		0.990	21
Southern Midlands	6 400	101 743	15.90	1.09	6 993		0.978		0.996	18
Tasman	2 479	349 815	141.11	2.00	4 958		1.791		1.146	1
Waratah-Wynyard	13 900	145 988	10.50	1.05	14 643		0.943		0.990	23
West Coast	4 132	237 660	57.52	1.39	5 761		1.248		1.046	4
West Tamar	24 423	204 095	8.36	1.04	25 349		0.929		0.987	26
State Total	540 780	10 401 249	Average = 30.6		603 922	PWA = 1.117	PWA = 1.000		PWA = 1.000	

Min	3.12
Max	141.11

Minimum = 0.90	Minimum = 0.981
Minimum = 1.79	Maximum = 1.146

3. New Tourism Cost Adjustor - Day Trippers

	Data - Day Trippers				Population Weighted Average		Cost Adjustor			
	Population	4 yr Avg	Per Capita	Primary index	Population Weighted Average		Raw Cost Adjustor	Range Factor	Ranged Cost Adjustor	Rank
	<i>a</i>	<i>b</i>	<i>c = b / a</i>	<i>d = ((1/Max - Min) x (c - Avg c)) + 1</i>	<i>e = a x d</i>	<i>f = Σe / Σa</i>	<i>g = d / f</i>	<i>RF -> 4.94</i>	<i>h = (d+RF)/(f+RF)</i>	
Break O'Day	6346	139 750	22.02	1.26	8 017		1.130		1.024	5
Brighton	18123	60 000	3.31	1.01	18 362		0.906		0.983	28
Burnie	19701	288 000	14.62	1.16	22 938		1.041		1.008	10
Central Coast	22157	128 250	5.79	1.05	23 183		0.936		0.988	24
Central Highlands	2166	103 500	47.78	1.61	3 482		1.438		1.081	3
Circular Head	8152	114 000	13.98	1.16	9 422		1.034		1.006	12
Clarence	58729	201 000	3.42	1.01	59 591		0.907		0.983	27
Derwent Valley	10518	214 250	20.37	1.24	13 055		1.110		1.020	8
Devonport	25747	340 500	13.22	1.15	29 498		1.025		1.005	14
Dorset	6685	143 000	21.39	1.25	8 388		1.122		1.023	6
Flinders	1004	11 750	11.70	1.13	1 130		1.006		1.001	17
George Town	7117	92 750	13.03	1.14	8 135		1.022		1.004	15
Glamorgan-Spring Bay	4750	228 750	48.16	1.61	7 660		1.442		1.082	2
Glenorchy	47963	111 500	2.32	1.00	47 963		0.894		0.981	29
Hobart	55250	669 000	12.11	1.13	62 474		1.011		1.002	16
Huon Valley	17966	373 750	20.80	1.25	22 403		1.115		1.021	7
Kentish	6393	145 500	22.76	1.27	8 139		1.139		1.026	4
King Island	1612	9 000	5.58	1.04	1 682		0.933		0.988	26
Kingborough	38628	219 750	5.69	1.04	40 365		0.935		0.988	25
Latrobe	11961	99 250	8.30	1.08	12 916		0.966		0.994	20
Launceston	68813	1 212 750	17.62	1.20	82 883		1.077		1.014	9
Meander Valley	20037	223 750	11.17	1.12	22 405		1.000		1.000	18
Northern Midlands	13598	196 250	14.43	1.16	15 798		1.039		1.007	11
Sorell	16030	129 750	8.09	1.08	17 266		0.963		0.993	21
Southern Midlands	6400	89 250	13.95	1.16	7 394		1.033		1.006	13
Tasman	2479	191 250	77.15	2.00	4 958		1.789		1.146	1
Waratah-Wynyard	13900	88 500	6.37	1.05	14 651		0.943		0.989	23
West Coast	4132	45 750	11.07	1.12	4 615		0.999		1.000	19
West Tamar	24423	165 250	6.77	1.06	25 873		0.947		0.990	22
State Total	540 780	6 035 750	Average = 16.7		604 645	PWA = 1.118	PWA = 1.000		PWA = 1.000	

Min	2.32
Max	77.15

Minimum = 0.894	Minimum = 0.981
Maximum = 1.789	Maximum = 1.146

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