



Australian Government

Commonwealth Grants Commission

**Draft report for the
review of the interstate distribution of
local road grants**

**Local Roads Conference
18 May 2006, Canberra**

TERMS OF REFERENCE



The Hon Dr Sharman Stone MP
Federal Member for Murray
Parliamentary Secretary to the Minister for Finance and Administration

Mr Alan Morris
Chairman
Commonwealth Grants Commission
Cypress Court
5 Torrens Street
BRADDON ACT 2612

26 OCT 2005

Dear Mr Morris

I am writing to convey to you the attached Terms of Reference for the Commission's review of the interstate distribution of the local road grants paid as local government financial assistance grants (FAGs). The Terms of Reference provide guidance to the Commission to recommend a new methodology for the distribution of identified local roads grants to local government. The methodology should ensure that the distribution of this funding is based on the relative needs of local government in States and Territories for local roads rather than the current historical share.

The Terms of Reference require the Commission to report to Ministers by 30 June 2006 on possible changes to the interstate distribution.

Yours sincerely

Dr Sharman Stone

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Terms of Reference for the Review of the Interstate Distribution of the Local Road Grants paid as Local Government Financial Assistance Grants

COMMONWEALTH GRANTS COMMISSION ACT 1973

1. I, Sharman Stone, Parliamentary Secretary to the Minister for Finance and Administration, pursuant to section 17 of the *Commonwealth Grants Commission Act 1973*, refer to the Commission for review and report upon, by 30 June 2006, the interstate distribution of the local road grants paid under section 12 of the *Local Government (Financial Assistance) Act 1995*.

2. For the review, the Commonwealth Grants Commission should recommend a distribution between the States and Territories of the section 12 grants. The allocation method used in deriving the recommendation should:

- (a) assess the relative needs of local government in the States and the Northern Territory, and the ACT Government for expenditure on maintenance and preservation of local roads and, to the extent practicable, bridges on local roads; and
- (b) not take account of local roads in unincorporated areas of the States and Territories.

3. The Commission should also recommend how the interstate distribution of the section 12 grants could be updated in future years.

4. The review will not address the quantum of funds available for section 12 grants.

5. The Commission should use the latest available data for the review.

The Australian Government's Department of Transport and Regional Services has undertaken to provide information in its possession required for the review in a timely manner.

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CHAPTER 1

THE REVIEW

INTRODUCTION

- 1 In 2005–06, the Australian Government will provide around \$1.62 billion in untied local government financial assistance grants. Around 70 per cent (\$1.12 billion) of these grants are provided as general purpose grants and the remainder (\$500 million) are identified as local road grants. The general purpose grants are distributed between the States and Territories¹ on an equal per person basis whereas the local road grants are distributed on the basis of fixed shares inherited from a former Federal programme of tied road grants.
- 2 On 26 October 2005, the Hon Dr Sharman Stone MP, the then Parliamentary Secretary to the Minister for Finance and Administration, sent the Commonwealth Grants Commission (the Commission) Terms of reference for a review of the interstate distribution of the local road grants. The Terms of reference are at pages **ii** and **iii** of this draft report.
- 3 The Australian Government had foreshadowed the Review in its formal response to recommendation 16 of the report of the House of Representatives Standing Committee on Economics, Finance and Public Administration (also known as the Hawker Report) on its inquiry into local government and cost shifting².
- 4 The local road grants that are the subject of this Review are paid by the Australian Government through the States to around 700 local governing bodies³ under the *Local Government (Financial Assistance) Act 1995* (the Act). In the Act, these grants are referred

¹ In the rest of this report, the term State(s) includes the Australian Capital Territory and the Northern Territory unless the context indicates otherwise.

² The Committee's report, *Rates and Taxes: A fair share for responsible local government*, was tabled in Parliament in November 2003 and a copy is at www.aph.gov.au/house/committee/efpa/localgovt/report.htm
The Australian Government response to the report was tabled in Parliament in June 2005 and a copy is at www.dotars.gov.au/localgovt/publications/hawker_report

³ 'Local governing bodies' is the term used in the Act to define those bodies eligible for financial assistance grants. It includes mainstream councils as well as other bodies established under or by State legislation, and bodies declared to be local governing bodies by the Australian Government Minister on the advice of the State Minister.

to as section 12 payments. More details on the operation of the Act and the distribution of the grants to local governing bodies can be found in the Local Government National Report⁴.

- 5 The distribution of the local road grants involves a two step process:
- the value of the grants paid to a State in a financial year is the value of the grants paid to the State in the previous year escalated by annual changes in the Australian population and CPI⁵ so that, the per person value of the grants is maintained in real terms; and
 - the grants are distributed to local governing bodies within a State according to recommendations of the State's local government grants commission⁶, which must follow distribution guidelines called National Principles⁷ in reaching its recommendations.

WHAT THE COMMISSION WAS ASKED TO DO

- 6 Under the Terms of reference, the Commission is to recommend the interstate distribution of the local road grants. The Commission is to base its recommendation on an assessment of the relative needs of the States for expenditure on maintenance and preservation of local roads (excluding local roads in unincorporated areas⁸), and to the extent practicable, bridges. In Chapter 3, we discuss issues the Commission had to consider to undertake this assessment of relative needs. The difficulty in obtaining reliable data is outlined in Chapter 4. Chapter 5 contains details of the assessments and the assumptions used to obtain them.
- 7 The Terms of reference ask the Commission to advise the Australian Government on how the distribution could be updated in future years but preclude the Commission from addressing the quantum of the local road grants. We discuss updating in Chapter 6.

HOW THE COMMISSION IS CONDUCTING THE REVIEW

- 8 The Commission is conducting the Review in two stages.
- 9 In the first stage, the Commission released an Issues Paper (CGC 2005/2) in November 2005. Comments on the issues were sought by 15 January 2006.

⁴ DOTARS 2005, *2003–04 Report on the Operation of the Local Government (Financial Assistance) Act 1995*, Canberra, ACT.

⁵ This is the weighted average of the All Groups Consumer Price Index for the eight capital cities.

⁶ A local government grants commission is established in each State and the Northern Territory for the purpose of recommending the distribution of the financial assistance grants to local governing bodies within their jurisdiction. The Australian Capital Territory has no need for a local government grants commission because local government functions are combined with Territory functions.

⁷ The National Principle for the local road grants states:

The grants should be allocated to local governing bodies as far as practicable on the basis of the relative needs of each local governing body for roads expenditure and to preserve its road assets. In assessing road needs, relevant considerations include length, type and usage of roads in each local governing area.

⁸ 'Unincorporated areas' are parts of States for which no incorporated body of local government has responsibility. State governments generally provide local government services in unincorporated areas. Large portions of New South Wales, South Australia and the Northern Territory are unincorporated.

- 10 The Commission received 17 submissions in response to the Issues Paper. Submissions were received from all State governments and all State local government associations. DOTARS and one council also provided submissions. A list of the submissions received is at Attachment A and copies of submissions are available on the Commission's website, www.cgc.gov.au.
- 11 The Commission also sought data from local government grants commissions, the ACT Department of Urban Services, the ABS and Austroads. The Commission engaged the Public Sector Mapping Agencies (PSMA) and ARRB Group Ltd (ARRB) to provide specialist services and advice.
- 12 The release of this draft report concludes the first stage of the Review.
- 13 In the second stage, the Commission will hold a conference in Canberra on 18 May 2006 to discuss this draft report with representatives from State governments, local government associations and relevant Australian government agencies. The Commission will submit a final report to the Government by 30 June 2006.

CHAPTER 2

BACKGROUND TO THE REVIEW

LOCAL ROADS IN AUSTRALIA

- 1 The primary purpose of local roads is to provide access to property including farms, factories, offices and homes. Local roads also connect traffic moving between properties and higher level roads such as arterial roads and highways. In Australia, municipal councils are generally responsible for local roads.
- 2 Austroads¹ classifies roads in Australia as follows:
 - national highways;
 - arterials:
 - urban; and
 - rural.
 - local roads:
 - urban; and
 - rural.
- 3 For 2003, data provided by State road authorities and published by Austroads (2005, p14) show that:
 - the total length of roads in Australia was 813 000 km;
 - 83 per cent of all roads (672 000 km) were local roads but they carried only 24 per cent of the total traffic volume² on all roads; and
 - 87 per cent of all local roads (582 000 km) were rural local roads but they carried only 30 per cent of the total traffic volume on local roads.

¹ Austroads is the association of Australian and New Zealand road transport and traffic authorities. Austroads members are the Australian state road transport and traffic authorities, the Australian Department of Transport and Regional Services (DOTARS), the Australian Local Government Association (ALGA), and Transit New Zealand.

² Traffic volume is measured in million vehicle kilometres travelled (mvkt) by Austroads.

LOCAL GOVERNING BODIES IN AUSTRALIA

4 In 2005–06, there were 701 local governing bodies in the States and the Northern Territory receiving local road financial assistance grants. Some basic information about them is in Table 2.1. It shows that the local governing bodies and the ACT government were responsible for 649 000 km of local roads. This is about 97 per cent of the total length of local roads as estimated by Austroads.

Table 2.1 Basic information about local governing bodies

		NSW	Vic	Qld	WA	SA	Tas	ACT ^(a)	NT	Aust
Number (June 2005)	(No)	155	80	157	142	74	29	0	64	701
	(%)	22.1	11.4	22.4	20.3	10.6	4.1	0.0	9.1	100.0
Area (June 2005) ^(b)	(sq km '000)	709.8	227.4	1 751.1	2 487.1	155.9	67.9	2.4	93.0 ^(c)	5 494.6
	(%)	12.7	4.1	31.3	44.5	2.8	1.2	0.0	3.4	100.0
Population (June 2005)	(‘000)	6 774.2	5 022.3	3 964.0	2 010.1	1 542.0	485.3	325.2	202.8	20 325.9
	(%)	33.3	24.7	19.5	9.9	7.6	2.4	1.6	1.0	100.0
Local road length (June 2005)	(km)	143 782	129 171	147 522	122 993	75 310	14 079	1 837	14 108	648 802
	(%)	22.2	19.9	22.7	19.0	11.6	2.2	0.3	2.2	100.0
Local roads expenditure 2003–04 ^(d)	(\$m)	720.2	422	655.8	370.9	207.1	84.7	12.9	20.8	2 494.4
	(%)	28.9	16.9	26.3	14.9	8.3	3.4	0.5	0.8	100.0
Local roads maintenance expenditure 2003–04 ^(d)	(\$m)	540.1	327.2	363.1	251.6	168.5	37.6	12.9	12.8	1 711.5
	(%)	31.6	19.1	21.1	14.7	9.8	2.2	0.6	0.7	100.0

(a) The ACT is not a local governing body under the Act but ACT information relevant for the comparison is included in the table.

(b) This is the total area of local governing bodies. For New South Wales, South Australia and the Northern Territory, it is less than the total area of the State because parts of these States are unincorporated.

(c) Does not include the area of those local governing bodies in the Northern Territory that have no designated area.

(d) Expenditure for 2003–04 that was used by local government grants commissions to allocate grants in 2005–06.

Source: Estimated by the Commission using data provided by DOTARS, local government grants commissions and the ACT Department of Urban Services.

Population from ABS *Australian Demographic Statistics*, Cat No 3101.0, June 2005.

5 Actual expenditure on local roads (including maintenance and construction) by local governing bodies in 2003–04 was estimated as \$2 494 million (see Table 2.1). Of this expenditure, we estimate that \$1 712 million was spent on maintenance and preservation of local roads. In Chapter 4, we discuss this estimate of maintenance and preservation expenditure on local roads.

- 6 Table 2.2 shows the estimated local road financial assistance grants by State for 2005–06 along with grants per person and grants per kilometre of local roads³. The table shows that:
- South Australia received the lowest local road grants per person and per kilometre;
 - Western Australia, Tasmania, the ACT and the Northern Territory received above average grants per person; and
 - Tasmania and the ACT received grants well above the average per kilometre.

Table 2.2 Estimated local road financial assistance grants by State, 2005–06

		NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aust
<u>Local road financial assistance grants</u>										
Estimated allocations ^(a)	(\$m)	144.2	102.4	93.1	76.0	27.3	26.3	15.9	11.6	496.9
Distribution	(%)	29.0	20.6	18.7	15.3	5.5	5.3	3.2	2.3	100.0
Grants per person ^(b)	(\$/person)	21	20	23	38	18	54	49	57	24
Grants per kilometre ^(c)	(\$/km)	1 003	793	631	618	363	1 870	8 674	825	766
<u>Supplementary funding to South Australia</u>										
Allocation ^(a)	(\$m)	0.0	0.0	0.0	0.0	9.0	0.0	0.0	0.0	9.0
<u>Local road grants plus South Australian supplementary funding</u>										
Estimated allocations	(\$m)	144.2	102.4	93.1	76.0	36.3	26.3	15.9	11.6	505.9
Distribution	(%)	28.5	20.2	18.4	15.0	7.2	5.2	3.1	2.3	100.0
Grants per person ^(b)	(\$/person)	21	20	23	38	24	54	49	57	25
Grants per kilometre ^(c)	(\$/km)	1 003	793	631	618	482	1 870	8 674	825	780

Sources: (a) DOTARS

(b) State population from ABS Australian Demographic Statistics, Cat. No. 3101.0, June 2005.

(c) Local road lengths from DOTARS based on data provided by local government grants commissions and the ACT Department of Urban Services.

THE HAWKER REPORT

- 7 Chapter 4 of the Hawker Report noted that many submissions to their inquiry into local government and cost shifting, particularly from South Australia, argued that the interstate distribution of the local road grants was unfair. South Australian councils said that under the current distribution they receive less local road grants per person and per kilometre than all other States. The Committee acknowledged the disadvantage of South Australian councils. It also said that the historical formula lacked transparency⁴.
- 8 In March 2004, the Australian Government made an interim response to the Hawker Report to address the apparent disadvantage of South Australian councils. It agreed to provide

³ Local road lengths are supplied by DOTARS based on data provided by local government grants commissions and the ACT Department of Urban Services.

⁴ See *Rates and Taxes: A fair share for responsible local government* pp 63–64.

supplementary funding to South Australian councils of \$26.25 million over the three years to 2006–07 — \$4.25 million in 2004–05, \$9 million in 2005–06 and \$13 million in 2006–07.

- 9 Table 2.2 also shows that when the \$9 million of supplementary funding is included, South Australia receives 7.2 per cent of total local road grants, compared to 5.5 per cent of the local roads financial assistance grants. With these supplementary funds, South Australia receives near the Australian average of total grants per person in 2005–06 but still has the lowest grants per kilometre of all States. In 2006–07, the supplementary funding will be \$13 million and South Australia will receive about 7.8 per cent of the total local road grants.
- 10 Our comparisons of the current distribution of the local road grants with alternate distributions in Chapter 5, use the distribution in Table 2.2 that includes the \$9 million in supplementary funding for South Australian councils. This is because, for all practical purposes, these are the local road grants currently distributed to the States.
- 11 This Review arose out of the Australian Government’s June 2005 formal response to Recommendation 16⁵ of the Hawker Report, when it said that it:

... will ask the Commonwealth Grants Commission to review the current interstate distribution of the identified roads component of the financial assistance grants and to report back to the Government by 30 June 2006. The Government will provide a long term solution to South Australia’s disadvantage after the Commonwealth Grants Commission reports.

HISTORY OF THE INTERSTATE DISTRIBUTION OF LOCAL ROAD GRANTS

- 12 When the Commission conducted its 2001 review of the operation of the *Local Government (Financial Assistance) Act 1995*, it was unable to obtain an explanation of the basis for the interstate distribution of the local road grants. Subsequently, DOTARS provided an explanation of the historical basis for the distribution of these grants⁶.
- 13 Drawing on the explanation provided by DOTARS, the basis for the current interstate distribution of local road grants appears to result from the following:
- at the October 1990 Special Premiers' Conference, it was agreed that funds from the Australian Government for local roads that were then tied and paid through the State under the *Australian Land Transport Development Act 1988* would be paid as untied general purpose grants to local government, or to State Governments where they were responsible for local roads, as from 1991–92;
 - prior to 1991–92,

⁵ See *Government Response to the Report of the House of Representatives Standing Committee on Economics, Finance and Public Administration. Rates and Taxes — A Fair Share for Responsible Local Government* p.14

⁶ See for instance Appendix D of the 2003 Hawker Report, *Rates and Taxes: A fair share for responsible local government*.

- the Australian Government had provided road grants to the States including grants for urban and rural local roads⁷. Some of those grants were passed on to local government by the States;
- the basis for the distribution of Australian Government grants to the States for local roads prior to 1991–92 is now not known but appears to have been related to, amongst other things, State population and local road length;
- road authorities in most States had responsibility for some local roads (mainly in unincorporated areas) and so kept a proportion of the local road grants. This proportion was negotiated between the State government and the local government association in each State. Therefore, national consistency in the determination of the proportion would have been lacking⁸;
- in 1991–92, \$303.2 million was provided to local government as local road grants under an amended *Local Government (Financial Assistance) Act 1986* and \$39.4 million was provided to the States for local roads maintained by them;
 - the interstate distribution of the local road grants under the amended 1986 Act was determined by the shares paid to the States under the previous arrangement adjusted for the amounts paid to the States for the local roads maintained by them;
 - the local road grants when paid to local governing bodies were untied and did not have to be spent on local roads;
- in 1992–93, there were more changes that enlarged the pool of local road grants and increased some State shares:
 - the Tasmanian Government returned to local government in Tasmania the local road grants it had retained. These were added to Tasmania’s share of local road grants under the local government financial assistance grants legislation; and
 - \$4.1 million of the local road grants paid to the Northern Territory Government were returned to the local road grants pool. This was the estimated expenditure by the Territory Government on local roads in unincorporated areas that then became the responsibility of community councils and associations;

⁷ The Australian Government provided funding to the States for rural local roads in 1947 and for urban local roads in 1974.

⁸ The report of the Independent Committee of Inquiry into the Distribution of Federal Road Grants (1986) states that:

The formulae have emerged from separate negotiations in each State, from starting points that were the product of State history. In two of the States there is an initial division of grants between urban and rural local roads (using definitions that are not necessarily the same as those used in road grants legislation). In all except one of the States a significant amount of local road grants is allocated to State road authorities. In two of the States this is about one-third of the total because of the many local roads that are the responsibility of State road authorities. (p 27)

- in 1993–94, the payments to the States for local roads maintained by the States were untied and included in general purpose payments to the States; and
 - from 1995–96, the ACT began receiving financial assistance grants with the introduction of the *Local Government (Financial Assistance) Act 1995*. The interstate shares of the local road grants paid to the States and the Northern Territory declined accordingly.
- 14 This brief history indicates that the existing interstate distribution of the local road grants has evolved over time. Prior to 1991-92, it seems to have had some relationship to State population, local road length and some other factors. However, since then the distribution of grants to local government has reflected interstate differences in the arrangements between States and their local governments for funding local roads managed by the State.
- 15 Given the way State shares of local road grants have developed, it is unlikely that the current interstate distribution of the local road grants will reflect current local road expenditure needs.

AUSTRALIAN GOVERNMENT FUNDING OF LOCAL GOVERNMENT FOR LOCAL ROADS

- 16 Funding for local roads provided by the Australian Government to local government includes:
- untied financial assistance grants of which around 30 per cent is identified for local roads, but all these grants (including the proportion identified as local roads grants) can be spent according to the priorities of each local governing body;
 - supplementary funding to South Australian councils for local roads, but this is only being paid for three years from 2004–05; and
 - specific purpose (or tied) grants for local roads under the following programmes:
 - the Roads to Recovery programme; and
 - the National Black Spot programme.
- 17 In 2005–06, the total amount paid by the Australian Government to local government for local roads (including the local road financial assistance grants and the supplementary funding for South Australia) is estimated as \$823 million. Details of this funding by programme and State are in Table 2.3. This review is considering only the interstate distribution of the local road grants component of the financial assistance grants.

Table 2.3 Australian Government funding to local government for local roads, 2005–06

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aust
	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m	\$m
Local road financial assistance grants	144.2	102.4	93.1	76.0	27.3	26.3	15.9	11.6	496.9
Supplementary funding to SA councils for local roads	0.0	0.0	0.0	0.0	9.0	0.0	0.0	0.0	9.0
Roads to Recovery programme	85.0	62.5	62.5	45.0	25.0	10.0	5.0	5.0	300.0
National Black Spot programme ^(a)	10.5	5.2	3.8	4.6	0.7	1.3	– ^(b)	0.3	26.3
Total	239.7	170.1	159.4	125.5	62.0	37.6	20.9	16.9	823.2

(a) Total of approved funding for Black Spot projects on local roads for 2005–06. However, not all projects will be funded in 2005–06.

(b) The ACT has a total allocation of \$0.602 million for 2005–06 for all road types.

Source: DOTARS.

CHAPTER 3

OUR APPROACH TO THE REVIEW

1 Local government responsibilities for roads have been described¹ as:

- maintenance and construction of local roads
- management of main roads for the State Road Authority (in some cases)
- traffic management including signage/line marking
- parking control
- pedestrian facilities including school crossings
- bicycle facilities
- bus facilities (in some cases)
- street and other public area lighting and road furniture.

These items may vary from place to place but they provide a guide to the range of activities for which local government is the principal provider. (p 5)

2 The terms of reference ask us to recommend an interstate distribution of local road grants based on the relative needs of local government to incur maintenance and preservation expenditure for local roads and, to the extent practicable, bridges. This means that expenditure on some of local government's road responsibilities that are described above are not considered in this Review. In particular, we are not asked to consider expenditure on, or the relative needs for, road construction and upgrading. This is consistent with the aim of the financial assistance grants to fund existing needs, not to facilitate future growth.

ASSESSING RELATIVE NEEDS

3 The terms of reference do not explicitly state how the Commission should assess 'relative needs'. There are a number of ways to assess relative needs but generally they involve

¹ National Road Transport Commission, *Vehicle access project: Guidelines for assessing the suitability of heavy vehicles for local roads, Final report - July 2002*, Report Prepared by: John Bennett, John Bennett and Associates Pty Ltd and Bob Pearson, Pearson Transport Resource Centre Pty Ltd and available from www.ntc.gov.au. The National Roads Transport Commission is now the National Transport Commission.

estimating the expenditure local government in each State would incur if it were to perform a similar level of maintenance and preservation tasks on local roads as the other States. The estimated expenditure for a State would reflect only those factors that affect costs and which are beyond the control of individual States and local governing bodies.

- 4 One approach to allocating the local road grants would then acknowledge that the local road grants are part of a package which is insufficient to fully equalise the financial capacities of local government. In this package, parts of the general purpose grants for each State could be considered as being available to meet local road needs leaving the local road grants to be allocated to allow those with greatest need to provide services at or close to the average. Under this approach, some States may not receive local road grants.
- 5 Another approach is to allocate the local road grants according to the estimate of what each State would need to spend to achieve the uniform standard as a proportion of what the States in total would need to spend. In this way, the interstate allocation of local roads grants would be in proportion to the assessed level of expenditure needs.
- 6 Although the first approach is one possible interpretation of the terms of reference, this would require the Commission to consider aspects of the total package of funding for local government beyond the local road grants. This appears to be beyond our terms of reference. In the rest of this draft report we follow the second approach under which all States receive a proportion of the local road grants.
- 7 This approach was generally supported by submissions to the Review.
- 8 We discuss a range of methods for assessing relative needs later in this Chapter.

Policy neutrality and dealing with differences in responsibilities between States

- 9 A fundamental principle of an assessment of relative needs is that it be made on a policy (or effort) neutral basis². That is, it must be made on the basis that each State and local government is applying the same policies in determining the size and standard of the service being provided. Consequently, the share of the grant allocated to each State should not be affected by its policies or actions. A decision by a State to provide a higher standard of service than the other States should not result in a higher share of the grant. Nor should decisions to provide the service in a more efficient way than other States lead to a lower share of the grant.

² Policy (or effort) neutrality is one of the fundamental pillars of the relative needs assessment processes adopted by the Commission. It is also one of the national principles that must be followed by all the local government grants commissions. The National Principles define Effort Neutrality as:
..... policies of individual local governing bodies in terms of expenditure and revenue effort will not affect grant determination.

- 10 One area where there are policy differences across States is the allocation of responsibilities between State and local governments for local roads³. Some of the differences are:
- the New South Wales, Victorian, South Australian and Northern Territory governments are responsible for local roads in unincorporated areas; and
 - arterial roads are generally the responsibility of State governments, but in New South Wales and Queensland some roads that perform an arterial function (and would be classified as arterial roads in other States) are the responsibility of local government.
- 11 As far as possible the assessments for this review should reflect the size of the local road maintenance and rehabilitation task that would arise in each State if it followed the same policy on the allocation of responsibility for roads between the State and local governments as all other States. To do otherwise could result in the interstate allocation of funds being affected by policy choices made by individual States on the allocation of responsibility for roads between the State and local government.
- 12 In determining the allocation of GST revenue among the States, the Commission makes an assessment of State relative needs to incur expenditure on arterial roads. In determining which roads are arterial roads for the purpose of this assessment, the Commission adopts a policy neutral approach by seeking to apply a common definition of arterial roads across States based on the function or purpose of the roads. Adopting a similar approach for local roads would complement this assessment. That is, it would ensure that all roads are included in the determination of either the GST or the local roads grants and that no roads are included in determining both allocations.
- 13 The Commission is aware that there is not a consistent definition of ‘local roads’ applied across States. A 1998 Austroads report *Responsibilities for Local Roads*⁴ identified some of the benefits of adopting a nationally consistent approach to defining classes of roads and put forward a proposed functional road classification. The proposed classification described local roads as those roads
- whose principle function is to distribute traffic and provide access to individual land holdings or land uses. (p16)
- The classification proposed in the Austroads report was not adopted.
- 14 We sought to apply a consistent definition of ‘local roads’ to all States, with that definition based on the function or purpose performed by the roads. We sought to exclude those arterial roads which are maintained by local governments in some States but which are taken into account in the assessment of State expenditure on arterial roads. Conversely, we sought to include other roads which are the financial responsibility of some States but perform functions that would not generally be considered comparable with arterial roads.

³ Differences are identified in Attachment A of Austroads 1998, *Responsibilities for Local Roads* Austroads AP-129/98, Sydney.

⁴ Austroads 1998, *Responsibilities for Local Roads*, AP-129/98.

- 15 To be fully policy neutral, the inventory of local roads should only include those roads that would exist if all councils applied the same criteria in deciding what roads were necessary to meet the needs of the community and to comply with engineering criteria.
- 16 However, there is some anecdotal evidence that councils are subject to local considerations in deciding what roads to construct or decommission. For example, councils, particularly in rural areas, are often reluctant to reduce existing lengths of local roads following changes to the industry base (for example, moving to industries that require a less intensive form of production). However, there is no evidence that these effects would be more or less prevalent in any States or that their effect on total road lengths is large. That is, interstate comparisons based on existing roads should not be materially affected by this.

At what level should the assessment be done?

- 17 We could derive the funding requirements of local government in each State by:
- building them up as the sum of the needs of each local governing body in each State;
 - by making assessments at a sub-State level by combining similar councils; or
 - by making broader assessments at the whole of State level.
- 18 In the Issues Paper, the Commission supported a whole of State approach because that was consistent with the distributional arrangements for the grants. Submissions to the Commission generally supported assessments at the State level. For instance, the Local Government Association of Queensland stated that from a practical perspective the assessment should be made at a state-wide level. However, it also stated:
- there will need to be a regional breakdown to allow for urban, rural and remote differences between States.
- 19 In general, analysis at the whole of State level is the most appropriate for this Review. However, for practical reasons associated with data limitations, we have used information at both the council and the sub-State level to identify and measure the influences that cause expenditure to vary between States. These matters are discussed further in Chapter 5.

What factors cause local road expenditure to vary between States?

- 20 Undertaking the assessments on a policy neutral basis means we must take account of only those factors that are beyond the control of State government and local governing bodies and which affect the size of the local road maintenance task, the type and frequency of work required and the cost of that work. Local government grants commissions refer to these factors by different names including disabilities, cost drivers, cost adjusters and cost relativity indexes.
- 21 Assessments by the Commission for State expenses on arterial roads and by local government grants commissions for expenditure by local authorities on local roads, indicate those factors could include:
- road length;

- road use (which may be measured using population or traffic volumes);
 - road surface type (sealed, unsealed, formed);
 - road location (urban, rural, remote areas);
 - environmental factors (climate, terrain, soil types, salinity);
 - bridges (number, type, length, area); and
 - wage levels.
- 22 The literature suggests that each of these influences affects the costs incurred in maintaining roads. However, it does not appear to be appropriate or feasible to include all of them in an assessment of relative needs. For example, road surface type may not be policy neutral because decisions on surface type are made in part on the basis of the level of service councils choose to provide. Moreover, to the extent that surface type reflects engineering standards for the expected traffic level, the effects would be largely captured by allowances for road use.
- 23 While there must be a conceptual justification before a factor would be included in the assessments, there must also be data to measure the factor and to determine the relationship between the factor and costs. Those data must be available for all States and prepared on a comparable basis in each State. Limitations on the availability of reliable and comparable data for all States have severely constrained the range of influences we have been able to consider in this review. This is discussed further in Chapter 4.

Local roads in unincorporated areas

- 24 The Terms of reference require us to exclude local roads in unincorporated areas. These local roads are usually the responsibility of State governments. The Issues Paper indicated we were inclined to include access roads and other internal community roads maintained by Indigenous communities within unincorporated areas that are treated as local governing bodies for the purposes of the *Local Government (Financial Assistance) Act 1995*. We thought that approach was consistent with the existing scope of the grants and the approach of local government grants commissions in allocating the grants to local governing bodies.
- 25 In their submissions, most parties supported the proposal. However, Victoria stated that there should be no expansion of the types of roads eligible for funding, such as the local roads in unincorporated areas, without an increase in funding from the Australian Government.
- 26 We sought clarification of this matter from DOTARS. DOTARS advised that:
- We agree that it would be consistent with the intent of the inquiry and the current arrangements for the terms of reference to be interpreted to include the access roads and the roads within indigenous communities located in unincorporated areas.
- 27 Almost all of the roads in question are in the Northern Territory. Further justification for the proposed approach comes from the 1992–93 action by the Australian Government when it increased the local road grant pool and the amount paid to the Northern Territory for on passing to local authorities by \$4.1 million. At the same time, it reduced the amount paid to the Northern Territory Government for local roads in unincorporated areas by the estimated

expenditure on local roads in areas managed by community councils and associations. As a result of this decision, the Northern Territory Government implemented legislation to transfer responsibility for maintaining these roads to the respective local governing bodies⁵.

CONSIDERATION OF ALTERNATIVE MODELS

28 In considering models that could be used in assessing relative needs for local road expenditure, the Commission examined its assessment of State arterial road expenses and the assessments by the local government grants commissions of local road expenditure.

29 We considered the following four approaches:

- **an indicator model** — the share of local road grants allocated for a State would be a weighted average of State shares of some indicators, such as population and road length;
- **an average standard approach** — similar to the Commission's assessment for State arterial roads where each State's expenses would be estimated as average expenses on local roads across all States as adjusted for the effects on expenses of factors in the State that are beyond the control of local government;
- **an asset preservation model** — annual whole of life costs would be estimated for each State by applying a standard lifetime maintenance program for each type of road to the State's road network; and
- **a notional service provision approach** — expenses in each State would be estimated using observed relationships between expenses incurred in each region (for example, urban, rural and remote) and indicators of the level of service required (for example, population and area).

30 These models are now considered in turn.

Indicator models

31 Indicator models use readily available information (such as population and road length) in an intuitively reasonable, simple formula. They may be appropriate if there are limited reliable data and information available.

32 Indicator models were used from 1923 to 1969 to allocate road grants between States. For instance, from 1923 to 1931 the Australian Government used the formula:

- 60 per cent according to State population; and
- 40 per cent according to State area.

However, Tasmania's share was adjusted up from 2.84 per cent to 5 per cent because of its perceived relatively greater road needs. Other State shares were adjusted down.

⁵ This is based on advice to the Commission from the Northern Territory Treasury.

- 33 Local government grants commissions in New South Wales, Queensland, South Australia and the Northern Territory use indicator models to allocate the local road grants between local governing bodies. Their models use at least two of the following indicators:
- population;
 - local road length;
 - area; and
 - bridge length.
- 34 The Queensland model is the simplest. The formula is:
- 62.85 per cent of the pool is allocated according to road length; and
 - 37.15 per cent of the pool is allocated according to population.
- 35 Different formulae are applied for local government bodies in rural and urban areas under the New South Wales and the South Australian models.
- 36 Some submissions to the Review argued for an indicator model. For instance, submissions from the South Australian Government and the Local Government Association of South Australia suggested an equal weighting of a State's share of population and road length. The Queensland Government suggested an equal per person distribution — the model used for distributing the general purpose grants among States.
- 37 Strengths of the indicator model include its transparency, simplicity and ease of updating. The weakness is that the links between the indicators and road expenditure are not clear, which means judgment must be made about the relative weights applied to each variable.

An average standard approach

- 38 This is the approach the Commission uses for assessing State expenses on roads as part of the distribution of the GST revenue between States. A similar approach is used by the local government grants commissions of New South Wales and South Australia when assessing expenditure on roads for the allocation of the general purpose grants among local authorities.
- 39 The process for estimating shares using an average standard approach would be:
- Estimate total annual expenses by all local governing bodies on maintenance and preservation of local roads and, to the extent practicable, bridges on local roads.
 - Derive the average national expense per person, or per kilometre of local road⁶, incurred on maintenance and preservation (that is, total expenses incurred by all local authorities divided by their total population or the total length of local roads). This average expense is called the 'average standard'. It implies the standard level of maintenance used in

⁶ In the Commission's usual formulation of an average standard approach, the average would be an average per person. However, the use of an average per kilometre of local road may be appropriate for assessing local roads expenditure.

- deriving each State's assessed expenses is an average of what is actually done in all local authorities.
- The assessments then proceed on the basis that spending the average amount would deliver the average road maintenance and preservation task in all States, unless there are identifiable factors (called disabilities) that cause:
 - more (or less) road maintenance and preservation work to be done in one State compared with the average; and
 - given tasks to cost more (or less) than the average amount.
 - Measure the disabilities that are conceptually relevant and material. A way of linking the measure of the disability and its impact on average expenses must also be determined. For instance, if terrain is a disability, measures of how terrain affects average expenses and measures of differences between States in their terrain are required.
 - The final step is to determine the interstate distribution of local road expenses implied by the model.
- 40 The average standard approach assumes all councils make a maintenance effort equal to the average of the work done by all local authorities. This approach avoids the need for judgments about the tasks to be performed, their desirable frequency and the standards to which they should be performed. The assessment task involves identifying and measuring the influences that affect the level, frequency and unit costs of maintenance and preservation tasks and determining how they affect expenses incurred.
- 41 To ensure the assessments are not affected by atypical events, they would be based on data for several years.
- 42 The strengths of this approach include that:
- it is consistent with an assessment of expenditure on the basis of relative needs;
 - factors can be included that allow for material differences in expenditure between States; and
 - the Commission has developed considerable expertise in applying this approach to the distribution of grants between States.
- 43 Its main weakness is that the formulation of the model can be difficult to understand for those unfamiliar with the approach.

An asset preservation or whole of life costing approach

- 44 While the average standard approach can be seen as a 'top down' approach, the asset preservation model can be seen as a 'bottom up' approach.
- 45 An asset preservation approach involves identifying and costing the various tasks that need to be done over the life of a road to maintain and preserve it to a given standard and converting the costs to equivalent annual expenses. The tasks that need to be performed and the costs of them would be based on engineering criteria that reflect the average practices of all local

authorities. In deriving the expenses incurred in each State, the assessments would allow for the effects of differences between the States that lead to some tasks being done more (or less) frequently than the standard or which affect the costs of those tasks.

- 46 The asset preservation model does not measure what local governing bodies actually spend on maintenance and preservation of local roads in a year. It estimates a notional amount that they should spend on average to maintain and preserve the local road asset according to the standard. The notional amount can be more or less than the amount actually spent on roads.
- 47 These models require comprehensive local road data including traffic volumes and a detailed understanding of the factors affecting local road maintenance and preservation costs.
- 48 Local government grants commissions in Victoria, Western Australia and Tasmania use this approach in allocating the local road grants between councils and in assessing local road expenditure for the allocation of the general purpose grants. The Queensland Local Government Grants Commission uses this approach in assessing local road expenditures as part of the allocation of general purpose grants but not for allocating the local road grants.
- 49 The treatment of bridges by local government grants commissions in asset preservation models is much less advanced than that for local roads. There is no attempt to set a standard for bridges. Their calculations reflect what is actually in place.
- 50 The asset preservation approach is a sophisticated approach that reflects a standard life cycle costing. But applying it across States would be complex because interstate comparability would be an issue. Applying this approach would involve judgments about national standards for local roads for circumstances varying from Indigenous communities in the Northern Territory to inner city local roads in Sydney. Judgments would also be required across a wide range of circumstances for the appropriate life cycles and tasks to be performed to maintain the local road asset, their normal frequency and the benchmark costs. An asset preservation approach appears more appropriate for assessing the needs of individual local governing bodies than it does for assessing needs at the State level.

A notional service provision approach

- 51 A fourth possible approach has been developed by the National Institute of Economic and Industry Research (NIEIR) and outlined in a report for the Municipal Association of Victoria⁷. NIEIR says that its approach is objective, effort neutral and uses data that are available or can be estimated with reasonable reliability.
- 52 This model is based on weighting the populations in urban, rural and remote areas of each State by factors that allow for:
- the level of road services provided (or road density) in each area — measured as a standard number of lane-kilometres per person in each region. There are more lane-

⁷ See Appendix 3 of National Institute of Economics and Industry Research 2001, *Road funding in Australia — there must be a better way*. The report is available from www.mav.asn.au.

- kilometres of road per person in remote areas than in urban areas. The standard would be derived from data on the length of roads in each region; and
- the relative costs of road works in each area. Unit costs are generally higher in urban areas than rural and remote areas due to the higher standards of roads.
- 53 A State's share of the available funds would be proportional to its share of the Australian weighted population.
- 54 This model would be simple. The viability of this model depends on the logic and strength of the relationship between road density (measured as road length per person) and population density (measured as population per square kilometre). It has been said that the strong relationship between road density and population density is spurious arising primarily from the high correlation between population and its inverse in the constructed variables: road density (road length per person) and population density (persons per square kilometre)⁸. The Commission conducted some testing of the model, which supported those findings. Nevertheless, alternate specifications of the notional service provision model that do not have those problems can be devised and may be worth further investigation.

Comments from stakeholders on approaches

- 55 Submissions to the Review provided a range of views on the most appropriate assessment approach. For instance, there was support for:
- an approach that:
 - is easy to understand,
 - uses data that is readily available and can be updated annually,
 - is verifiable, and
 - is transparent;
 - the average standard approach because this is the method the Commission applies to its assessment of State roads; and
 - the asset preservation approach from a technical perspective, but there also was acknowledgment that data were not available to support it.

Conclusions

- 56 We examined each of the models against the background of criteria relating to their:
- conceptual reliability and the rigor of the resulting estimates of relative need;
 - data requirements and the expected comparability and reliability of those data; and
 - simplicity, clarity and transparency.

⁸ Brindle, R 1994, *Lies, Damned Lies and "Automobile Dependence" — Some hyperbolic reflections*, Australasian Transport Research Forum, vol 19, pp 117–131, Transport Research Centre, University of Melbourne. Also available from www.aitpm.org.au/annex/0304_RBtech.pdf

- 57 We concluded that we would not pursue the asset preservation model. It is conceptually sound. However, we considered that it was unlikely to produce reliable outcomes because it would depend heavily on judgment about the range of tasks that should be undertaken, their frequency and the extent to which they would be affected by different conditions and cost structures. Moreover, the detailed and comparable data required for each State are generally not available. Finally, it is the most complex of the alternatives we examined.
- 58 The average standard model would also produce conceptually sound estimates of relative expenditure requirements. It would do so in a simpler way than the asset preservation model. However, the reliability of the results produced by such a model would depend on the availability and reliability of data on the main influences on maintenance costs — road lengths, road use and the effects of climate and geography on cost levels. Experience with assessments for arterial roads indicates that such data are available but their reliability is questionable. We decided to examine this model further and to evaluate results produced by it in the light of an assessment of the accuracy and comparability of the data and the sensitivity of outcomes to those data.
- 59 The indicator and notional service provision models are less conceptually rigorous than the other models because they rely on broad proxies for the size and use of road networks, such as population, area and population density. However, the suitability of such proxies can be verified through empirical analysis, they are simple and clear, and the necessary data are reliable and comparable across States. We decided these practical advantages were sufficient to justify further consideration of such models.
- 60 Overall, our decision on the most appropriate approach involves judgments that must balance:
- the conceptual strengths and potential susceptibility to data shortcomings of the average standard approach; and
 - the conceptually less rigorous but more robust and reliable data that underpin the indicator and notional service provision models.

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CHAPTER 4

OBTAINING CONSISTENT AND RELIABLE DATA

INTRODUCTION

- 1 To assess expenditure on local road maintenance, the Commission requires data that allow it to measure the important causes of needs in a comparable, consistent and reliable way for all States. If we are unable to obtain data that are defined and collected in a comparable way for all States and which are comprehensive and reliable, there will be a limit to the sophistication of the assessment methods that can be used.
- 2 The data that we particularly seek are:
 - expenditure on maintenance and preservation of local roads and bridges;
 - total length of local road along with length of local road by the type of local road;
 - measures of road use; and
 - bridge data.
- 3 Data, aggregated to State or regional level or at local governing body level, were collected from many sources including local government grants commissions, the ACT Department of Urban Services, Austroads, ARRB Group Ltd (ARRB), the Public Sector Mapping Agencies¹ (PSMA) and the Australian Bureau of Statistics (ABS).

LOCAL ROAD MAINTENANCE EXPENDITURE

- 4 The Commission requires estimates of expenditure by local governing bodies in each State on the maintenance and preservation of local roads:
 - to put the total grant amounts in the context of actual expenditure;

¹ The Public Sector Mapping Agencies Australia Limited is an unlisted public company wholly owned by the State, Territory and Australian Governments. It combines spatial data from governments to create national spatial information datasets.

- to put components of the expenditure (eg expenditure on bridges) into context;
 - to provide average per person figures for use in the average standard approach; and
 - to allow actual and assessed expenditure for each State to be compared.
- 5 The expenditure data required is expenditure by local governing bodies on the maintenance and preservation of local roads and bridges. Therefore, it should exclude expenditure:
- by States on local roads that are not normally the responsibility of local government;
 - by local governing bodies on ‘non-local’ roads, such as Regional / State arterials; and
 - by local governing bodies on new construction or upgrading of existing roads.
- 6 There are two sources for the expenditure data:
- local government grants commissions, which collect data annually from local governing bodies; and
 - the ABS Government Finance Statistics (GFS) collection.

Local Government Grants Commissions — reported expenditure

- 7 Local government grants commissions provided the Commission with details of expenditure by local governing bodies on local roads and bridges during 2003–04.
- 8 The data were generally consistent and comparable for local authorities within each State. But, there were some inconsistencies across the States in how the data were categorised, collated and reported, such as:
- possible inconsistencies between States in the definition of a local road were likely to be reflected in expenditure on local road maintenance;
 - the scope and definition of ‘maintenance’ was not fully consistent across States, and there was not always a clear and consistent distinction between maintenance and preservation, and renewals, upgrading and other capital expenditure.
 - the scope and definition of ‘road expenditure’ was not fully consistent across States, with some variation in the scope of ancillary work (such as kerbing, drainage, lighting, footpaths, and traffic control and road safety measures) included; and
 - the method of allocating administrative or other overhead expenses to maintenance tasks was not explicitly revealed in the data definitions, although most States said those expenses were included.
- 9 Consequently, some adjustments were made to the data to improve the consistency across States. The adjustments we made are outlined in Appendix B.
- 10 A summary of the data is in Table 4.1. Separately identified expenditure on bridges was not available for Tasmania and the Northern Territory. In each case, bridge expenditure was included in total expenditure on local roads.

Table 4.1 Local Government Grants Commission estimates of local road maintenance expenditure, by State, 2003–04

		NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aust
Maintenance expenditure ^(a)										
Local roads	(\$m)	515.7	314.6	345.6	246.5	166.3	na	9.6	na	na
Bridges	(\$m)	24.4	12.6	17.5	5.2	2.2	na	1.0	na	na
Total	(\$m)	540.1	327.2	363.1	251.6	168.5	37.6	10.6	12.8	1 711.5
Bridges as a proportion of total expenditure	(%)	4.5	3.9	4.8	2.0	1.3	na	9.4	na	3.8 ^(b)
Total expenditure per km	(\$/km)	3 756	2 533	2 461	2 046	2 237	2 671	5 770	907	2 638
Total expenditure per person	(\$/person)	80	65	92	125	109	77	33	63	84

(a) Expenditure data for some States was adjusted by the Commission to improve consistency. See Attachment B.

(b) National average excludes Tasmania and the Northern Territory.

Source: Expenditure data sourced from local government grants commissions and the ACT Department of Urban Services. Road length data provided by DOTARS from local government grants commissions and the ACT Department of Urban Services.

Population from ABS *Australian Population Statistics* June quarter 2005, Cat No 3101.0

11 In terms of simple indicators, the data show a range across the States:

- total expenditure per kilometre ranges from \$907 (Northern Territory) to \$5 770 (ACT); and
- total expenditure per person ranges from \$33 (ACT) to \$125 (Western Australia).

12 The Commission recently requested local road expenditure data for the four financial years 2001–02 to 2004–05 from the local government grants commissions. This will allow us to examine any volatility due to year-to-year variation in road maintenance expenditure.

Australian Bureau Of Statistics (Government Finance Statistics)

13 The ABS provides estimates of expenditure and revenue, classified by level of government and the purpose of the expenditure in its *Government Finance Statistics*².

14 The ABS provided unpublished data on expenditure by local governments in each State on 'road maintenance' and 'road transport nec' for the six years to 2003–04.

15 For the Commission's assessments of State expenditure for the distribution of GST revenue, we use ABS GFS expenditure data. However, after detailed examination of the data from the ABS and the local government grants commissions, we decided to use the local government grants commission data because:

- in recent years, the ABS has relied heavily on the local government grants commissions for data on local government;

² ABS *Government Finance Statistics*, Cat No. 5512.0

- the total expenditure for all States identified by ABS for 2003–04 was much larger than estimates based on local government grants commission data (\$4 432 million compared with \$2 494 million for total expenditure on local roads and \$1 712 million for expenditure on local road maintenance³). Part of the difference is that ABS data appear to include capital expenditure and expenditure on work done on behalf of the State; and
 - the local government grants commission data could be dissected by individual local governing bodies and by groups of local governing bodies within each State.
- 16 The large differences between ABS and local government grants commission estimates of local government expenditure on local road maintenance raise some concerns about the overall consistency of the road expenditure data for local government.

LOCAL ROAD LENGTH

- 17 For State shares of the local road grants to be unaffected by decisions of individual States and local governments, the length of local roads must be measured consistently across States. Ideally, the measure of the length of local roads would complement the measure of arterial roads used in allocating the GST among the States. That is, the sum of national highways, arterial roads and local roads should cover all public roads in each State.
- 18 The Commission's assessment of State expenditure on arterial roads is based on the lane lengths of arterial roads. This is to account for the additional expenses associated with multi-lane roads. For this Review, the Commission has used length of local roads and not the lane length because local roads do not normally have more than one lane in each direction.
- 19 Potential sources for the data on road length include:
- local government grants commissions;
 - Austroads; and
 - the graphical information systems held by PSMA.

Local government grants commissions

- 20 Local government grants commissions collect local road length data from local governing bodies for use in distributing the local road and the general purpose components of the financial assistance grants between local governing bodies in their State.
- 21 The level of detail collected varies, with some grants commissions obtaining detailed data on local road length by traffic volume and by road surface type. Some grants commissions check their information by undertaking on-site audits of road length or by interrogating data from graphical information systems showing roads in the State.

³ See the Commission's estimates based on local government grants commission data in Table 2.1.

- 22 While each local government grants commission appears to apply a consistent definition of local roads in their State, a consistent definition is not applied across States. It appears that the data reflects each State's policies on the allocation of responsibility for roads between the State and local government.
- 23 There is also uncertainty as to whether grants commissions have information on all local roads in their State. For example, the Western Australian Local Government Grants Commission recently advised the Commission of an extra 2 900 km of local roads which it wanted included in the length of local roads. These local roads were described as 'Aboriginal access roads, that exist but which local governments have not accepted responsibility for because they do not have the resources to maintain them'⁴.

State Road Authorities as reported by Austroads

- 24 Austroads collates road length data for national highways, arterials and local roads for each State and publishes them in its *RoadFacts* publication⁵. Austroads relies on data from State Road Authorities, which in turn often rely on local government grants commissions for data on local roads.
- 25 The Commission has used Austroads data in its assessment of State expenditure on arterial roads. However, it has concerns about the interstate comparability of the data and decided to hold arterial road lengths constant using data for 2001.
- 26 One way of estimating the local road length for each State would be to start with the total road length figures for each State from Austroads' *RoadFacts 2005* (which reflect road lengths in 2003) and subtract the length of national highways and State arterials used in the 2006 Update (which reflects road lengths in 2001). This should give estimates that include all identified roads and avoid double-counting by treating them as either State or local roads.
- 27 However, the estimates would have shortcomings and would need further adjustments before they could be used for this Review. Specifically:
- the approach would attribute all changes in road length to local roads;
 - local roads in unincorporated areas that are the responsibility of States would need to be identified and classified as State roads; and
 - the figures for total road length in the Northern Territory need to be examined further because a footnote to the relevant table in *RoadFacts 2005* states:
The data as supplied above are for roads managed by the Northern Territory Government and exclude roads owned or managed by other authorities, i.e. Private, Aboriginal, Local Government and Parks Australia North.
- 28 This last issue suggests that the Austroads data in *RoadFacts 2005* may not be consistently defined across States.

⁴ Letter from Chairman, WA Local Government Grants Commission to Secretary Commonwealth Grants commission, 20 March 2006.

⁵ Austroads *RoadFacts 2005* is available from www.austroads.com.au

29 Table 4.2 provides an estimate of ‘local road length’ using this approach.

Table 4.2 Estimating local road length using Austroads data

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aust
	km	km	km	km	km	km	km	Km	km
Total road length ^(a)	182 007	153 010	181 304	148 851	96 574	24 596	2 645	23 985	812 974
LESS									
National highways ^(b)	3 105	1 004	4 188	4 648	2 750	320	20	2 670	18 705
State arterials ^(b)	33 558	21 230	21 246	20 334	9 557	2 884	765	4 128	113 682
State managed local roads ^(c)	2 962	66			10 221			15 416	28 665
EQUALS									
Estimated local road length	142 382	130 710	155 870	123 869	74 046	21 392	1 860	1 771	651 902

(a) Austroads *RoadFacts 2005*, Table 2.3.

(b) Figures used by the Commonwealth Grants Commission in 2006 Update based on Austroads *RoadFacts 2000* (including 2002 updates).

(c) Local roads in unincorporated areas in New South Wales, Victoria, South Australia and the Northern Territory managed by the State. The NT estimate include approximately 1 425 km in National Parks.

Source: Austroads *RoadFacts 2005*, Table 2.3; Commonwealth Grants Commission 2006 Update, State Road Authority Annual Reports, Victoria Grants Commission, NT Treasury.

Public Sector Mapping Agencies (PSMA)

30 The Commission sought data from the PSMA on road length by type of road by State. It understood that a uniform set of definitions of road types was applied across graphical information systems and that these systems contained information about roads provided by the States. The Commission expected to obtain consistent estimates of local road length for all States using this approach.

31 This approach looked promising. However, examination of the data indicated some substantial differences between the total road lengths and the local road lengths for States and individual local governing authorities obtained by PSMA and those provided by Austroads and local government grants commissions.

32 There appear to be differences in the scope of roads included in each set of data, but there was not a consistent pattern in the differences — in some States the total length of roads provided by PSMA was higher than that from the other sources but in others it was lower. Those differences could not be explained without further extensive investigations of the detail in each data set, especially the data provided to PSMA by the State authorities. We have concluded that we could not use the PSMA data as the basis of assessments for this Review. However, we believe this data source warrants further investigation in the future.

The preferred measure of local road length

- 33 Table 4.3 compares the three sets of figures for the length of local roads in each State (those based on local government grants commission, Austroads and PSMA data).
- 34 The table shows discrepancies between the local government grants commission estimates and the estimates derived from Austroads data for Queensland, Tasmania and the Northern Territory. The difference for Queensland may be due to some district roads for which the State government is responsible but which would be treated as local roads in other States. The difference for Tasmania may be the inclusion of State forestry roads in the Austroads and PSMA estimates. The difference for the Northern Territory may be because data in the Austroads *RoadFacts 2005* cover only roads managed by the Northern Territory Government.

Table 4.3 Estimates of local road length by State by source

Source	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aust
	km	km	km	km	km	km	km	km	km
Local government grants commissions ^(a)	143 782	129 171	147 522	122 993	74 316	14 079	1 837	14 108	647 808
Derived from Austroads ^(b)	142 382	130 710	155 870	123 869	74 046	21 392	1 860	1 771	651 902
PSMA ^(c)	107 483	107 826	222 100	143 515	63 332	21 426	2 239	1 758	672 118

(a) DOTARS estimates based on information provided by local government grants commissions and the ACT Department of Urban Services.

(b) See Table 4.2.

(c) Total of road lengths for PSMA road types 304 and 305 and excluding local roads in unincorporated areas, State Forests, National Parks and Reserves. For South Australia and the Northern Territory, the PSMA figure does not include the lengths of local roads in unincorporated areas that are the responsibility of local governing bodies.

- 35 We have concluded that local road length, as reported by local government grants commissions, is the most reliable measure available for the length of local roads in each State. Each grants commission has subjected the data to considerable work to ensure they provide a consistent basis for allocation of funds within their State.
- 36 Accepting that local road lengths reported by local government grants commissions are the most reliable single State data does not necessarily mean that they are appropriate for the Commission's purposes. This is because we still have concerns about consistency across States in the definition of local roads applied by local government grants commissions.
- 37 Some further work should allow us to make adjustments to overcome the largest sources of interstate differences. For example, if possible we should adjust the road lengths in Queensland to include some district roads for which the State government is responsible but which would be treated as local roads in other States and to exclude some roads which are the responsibility of local government but which would be treated as State arterials in other States. Similar adjustments may be necessary in some other States.

DEFINING CATEGORIES OF LOCAL ROADS

- 38 The work of local government grants commissions indicates that the type of road can affect the relative maintenance expenditures incurred in different regions. Moreover, some of those effects appear to be significant.
- 39 However, local government grants commissions define the types of local roads differently. Some make distinctions between roads in urban and rural areas, some between built up and non-built up areas, some between kerbed and unkerbed roads, some include categories based on traffic levels and there is usually a disaggregation by road surface type.
- 40 There is no direct compatibility between any two States. While several States include Rural / Urban or Built-Up / Non Built Up categories, it cannot be assumed that they are defined the same way in each State.
- 41 We considered that, if possible, account should be taken of the effects on maintenance expenditure of differences across the States in the types of local roads. Collecting data from all States according to one or other of the classifications used by local government grants commissions was not feasible. We therefore decided to categorise roads as local roads in urban, rural and remote areas.
- 42 These categories provide a proxy for the standard of local roads. Urban local roads are generally built to the highest specifications because they attract the greatest use. They are most expensive per kilometre to maintain. Conversely, remote local roads are often of a lower standard and are the least expensive per kilometre to maintain. This categorisation is similar to the approach adopted by NIEIR for the notional service provision model.
- 43 We have used estimates provided by ARRB in its draft report to allocate roads to urban, rural and remote areas. ARRB started with the total length of local roads and the urban and rural local road lengths from Austroads *RoadFacts 2000*. It then applied the results of its road use survey (discussed below) to estimate the length of remote local roads included in the rural local road length figures in *RoadFacts 2000*.
- 44 The Commission has also used the Australian Classification of Local Governments (ACLG) which allocates local governing bodies to one of 22 categories. The ACLG classifies local governing bodies using population, population density and the proportion of its area that is classified as urban⁶. We have used the 22 ACLG categories and have also collapsed the 22 categories into three categories — urban, rural and remote. This involved treating local governing bodies;
- classified as Urban under the ACLG (13 categories) as urban;
 - classified as Rural Remote under the ACLG as remote (4 categories); and
 - the remaining local governing bodies (in 5 ACLG categories) as rural.

⁶ See Appendix F of DOTARS 2005, *Local Government National Report 2003–04* for a description of the ACLG and the classifications for all local governing bodies.

- 45 The advantage of using the ACLG to classify local governing bodies is that we can make use of data on local road length, population, area and local road expenditure combined with the ACLG classification of the local governing body.
- 46 One important difference between the classification used by ARRB and the classification using the ACLG is that the ARRB approach classifies the actual length of local road as urban, rural or remote whereas the ACLG categorises local governing bodies as urban, rural or remote. This could mean that some of the local road length of a local governing body classified under the ACLG as urban could be classified as rural under the ARRB approach.

ROAD USE

- 47 The need to measure road use is based on the argument that higher levels of use result in higher maintenance costs.
- 48 The indicators of road use generally used in studies include numbers of vehicles travelling on roads and total vehicle kilometres travelled on roads. In many studies the number of vehicles and kilometres travelled are classified and weighted by vehicle type, because larger heavier vehicles cause more damage to roads (and hence lead to higher costs) than light vehicles. If road use measures are not available, population is often used as a proxy for road use.
- 49 In Australia, there is no comprehensive measurement of road use for local roads.
- The ABS annual *Survey of Motor Vehicles* estimates total vehicle kilometres travelled by State, for capital cities versus the rest of State, and for various vehicle types. But the survey report contains no information specifically for local roads.
 - Local governing bodies may conduct traffic counts for their own requirements. While some local government grants commissions classify local roads by road use (traffic volume), others do not because of concerns about the reliability of the data.
 - Austroads publishes data for total vehicle kilometres travelled by State and road type (highway, arterial and local). However, when local road use data from *RoadFacts 2005* were compared to road length, the results were hard to reconcile across States.
- 50 The only other data on road use of which we are aware are from a one off project conducted in 2004 by ARRB in which they sampled 46 councils across Australia⁷. The ARRB study provided estimates of the proportion of travel that was on local roads for particular vehicle classes. The key findings from this study were:
- 39 per cent of travel for light vehicles was on local roads;
 - 31 per cent of travel for medium vehicles was on local roads;
 - 15 per cent of travel for heavy vehicles was on local roads; and

⁷ *Estimation Of Vehicle Kilometres Travelled On Arterial And Local Roads*, June 2004. ARRB report prepared for the National Transport Commission.

- 37 per cent of travel for all vehicles was on local roads.
- 51 We examined the possibility of using the data from this survey in one of two ways to devise estimates of the use of local roads in each State:
- use the national level information on travel by vehicle class on local roads from the ARRB study to apportion the total kilometres travelled in each State by each type of vehicle from the ABS Survey of Motor Vehicles to local and other roads. However, such estimates assume that the proportion of travel on local roads is constant for all States, which is unlikely.
 - expand the road use observed from the local authorities sampled by ARRB in each State to produce State level estimates of road use on local roads. For this to be appropriate, the local authorities sampled in each State need to be representative of that State.
- 52 Table 4.4 compares the three possible road use measures:
- population;
 - local road usage calculated using the ABS Survey of Motor Vehicles; and
 - ARRB estimates using results from its 2004 survey for the National Transport Commission study.
- 53 In their draft report to the Commission, ARRB said that it has reservations about the road use measures it determined from its 2004 survey. For this reason, we have used population as a proxy for road use in many of our assessments.

Table 4.4 Comparison of alternative measures of road use

		NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aust
<u>Population^(a)</u>										
Estimated	('000)	6774.2	5022.3	3 964	2010.1	1542.0	485.3	325.2	202.8	20325.9
Distribution	(%)	33.3	24.7	19.5	9.9	7.6	2.4	1.6	1.0	100.0
<u>Local road usage using ABS survey^(b)</u>										
Estimated	(mvkt)	22 376	19 910	15 707	8 082	5 757	1 727	1 247	597	75 402
Distribution	(%)	29.7	26.4	20.8	10.7	7.6	2.3	1.7	0.8	100.0
<u>ARRB survey estimates of local road usage^(c)</u>										
Estimated	(mvkt)	28 063	17 930	16 552	10 441	6 917	2 583	1 278	1 175	84 939
Distribution	(%)	33.0	21.1	19.5	12.3	8.1	3.0	1.5	1.4	100.0

(a) ABS population estimates at June 2005.

(b) Based on ABS *Survey of Motor Vehicle Use*, Cat No 9208.0 for 12 months to 31 October 2004 and NTC report *Estimation of vehicle kilometres travelled on arterial and local roads*.

(c) Estimates provided by ARRB using survey results from *Estimation Of Vehicle Kilometres Travelled On Arterial And Local Roads*, June 2004.

BRIDGES ON LOCAL ROADS

- 54 The terms of reference ask the Commission to assess the relative needs of local government for expenditure on local road maintenance and preservation and, to the extent practicable, bridges on local roads. The Commission asked local government grants commissions for details of expenditure on bridge maintenance by local governing bodies and the number of bridges on local roads.
- 55 Tasmania and the Northern Territory did not separate bridge maintenance expenditure from local road maintenance expenditure. The data on maintenance expenditure for bridges on local roads (see Table 4.1) reveals that, on average, bridge maintenance was only 3.8 per cent of the total road maintenance expenditure across the States that provided data. However, expenditure in the ACT was 9.4 per cent.
- 56 All States, except the Northern Territory, provided the number of bridges. Some States also collected extra detail, such as bridge deck area, bridge length and construction material (timber, concrete or steel) for use in their assessments.
- 57 The Commission also obtained unpublished data on local bridges from Austroads and, as part of its consultancy, ARRB provided estimates of the number of bridges from its sources.
- 58 Data from the three sources by State are shown in Table 4.5.

Table 4.5 Bridges on local roads by State from different data source

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aust
	no.	no.	no.	no.	no.	no.	no.	no.	no.
Local government grants commissions	7 682 ^(a)	4 292 ^(a)	3 316 ^(b)	1 009 ^(c)	719 ^(a)	2 750 ^(d)	428 ^(e)	na	20 196
Austroads ^(f)	7 555	7 666	3 357	1 359	1 023	1 954	274	33	23 220
ARRB ^(g)	14 778	2 802	1 659	2 068	520	620	0	97	22 544

(a) Bridges and major culverts of six metres and over in length.

(b) Bridges only. There are another 14 912 major culverts over six metres in length.

(c) Includes footbridges but excludes culverts.

(d) Excludes bridges and precast pipe culverts less than 3 m in length.

(e) Includes structures with a single span of diameter 1.8m or greater or have a waterway area of 3 sq m or greater.

(f) Bridge data are unpublished and may reflect the responsibility in each State.

(g) ARRB claim that these figures are for bridges only.

Source: Local government grants commissions and ACT Department of Urban Services unpublished data.

Austroads unpublished data.

ARRB draft report to the Commission.

- 59 There is a lack of consistency across the data sources and also between the States. This is due in part to inconsistency in the definition of bridges used in the data collected by local government grants commissions. It appears that the distinction between bridges and culverts is not applied consistently across States, local governing bodies and collection agencies.
- 60 Given the lack of consistent data available across States on bridges and that expenditure on bridges appears to be less than 5 per cent of total local road maintenance expenditure (see

Table 4.1) the Commission assessed it was not practicable or material to make a separate bridge assessment. It has two possibilities for dealing with bridges:

- to exclude them from its assessments which is equivalent to assuming the interstate differentials in bridge maintenance expenditures are comparable to those for local road maintenance expenditures; or
- to assume that bridge maintenance expenditures would be the average per person amount in all States, which is equivalent to assuming that there are no differences between States in the need to incur bridge maintenance assessments.

61 For this draft report, we have adopted the first approach because we consider that differences in requirements for road maintenance expenditure would more closely approximate the needs for bridge maintenance than assuming there were no differences in needs.

POPULATION

62 Population estimates for local governing bodies were obtained from DOTARS which in turn obtained them from the local government grants commissions. Most local government grants commissions use ABS estimates of estimated resident population as determined by ABS in their assessment models.

63 Estimates of State population were obtained from the ABS publications *Australian Demographic Statistics* (cat no 3101.0).

64 We have used population in a range of assessment models in the Review. In some cases it is used as a proxy for road use and in other cases it provides a proxy for local road length when combined with a measure of area. This is discussed in more detail in Chapter 5.

AREA

65 Area estimates for local governing bodies were obtained from DOTARS which in turn obtained them from the local government grants commissions. As indicated above, we have used population and area as proxies of local road length in some assessment models.

CONCLUSION

66 The data available on local road expenditure, local road use and the inventory of local roads and bridges to undertake the assessment of maintenance expenditure on local roads are far from ideal. This indicates that judgments about the most appropriate assessment methods need to balance conceptual considerations against considerations of the consistency and reliability of the available data.

67 The inadequacy of data that is critical to this Review, raises concerns about how well we will be able to satisfactorily fulfil the requirements of the terms of reference.

CHAPTER 5

APPLYING THE ASSESSMENT MODELS

- 1 This chapter provides the results of several alternative assessments and examines the advantages and disadvantages of them.

AN AVERAGE STANDARD APPROACH

- 2 The Commission applies an average standard approach in assessing the requirements of States to incur expenditure on maintaining arterial roads as part of its determination of State shares of the GST revenue.
- 3 In an average standard approach, all States are assessed against an average of the service all States actually provide. The average standard is a financial standard and is measured as the total expenditure across all States divided by the total population of all States. The assessment then explicitly allows for non-policy influences that affect the quantity of service that must be provided and the cost of each unit of service.
- 4 An average standard approach would allocate the available grants in a way that enables local government in each State to provide a comparable amount of road and bridge maintenance services to its population. It would derive a notional or assessed amount of maintenance expenditure for each State as:
 - the average amount per person spent on maintenance of local roads and bridges by all local authorities;
 - adjusted up or down for the effects of influences beyond the control of individual States and local authorities that result in above or below average levels of maintenance being required.
- 5 Each State's share of the grants available would be equal to its share of the aggregate notional maintenance expenditure across all States.
- 6 The general form of the model used to derive notional maintenance expenditure on local roads is set out in Box 1.

Box 1 Average standard approach: General form of model for local roads

Assessed expenditure per person for State i is assumed to be of the form

$$= E_{pp} \times [\delta \times RL_i + (1 - \delta) \times RU_i] \times PE_i$$

where

E_{pp} = total expenditure per person across all States

δ = the proportion of expenditure due to the size of the task

$1 - \delta$ = the proportion of expenditure due to road use

RL_i = the cost weighted road length for State i
 $= (URL_i \times URC + RUL_i \times RUC + REL_i \times REC)$

URL_i = length of urban road in State i

RUL_i = length of rural road in State i

REL_i = length of remote roads in State i

URC = relative cost of maintaining a km of urban roads

RUC = relative cost of maintaining a km of rural roads

REC = relative cost of maintaining a km of remote roads

RU_i = road usage for State i

PE_i = physical environment factor for State i

- 7 This model assumes that the amount of maintenance work required on local roads results from two main causes:
- the existence of the road itself, which leads to basic work to keep it in a serviceable condition regardless of the amount of use. The Commission's assessments of State maintenance expenditure on arterial roads are based on the assumption that 60 per cent of maintenance is attributable to road length; and
 - the level of use of the road which, depending on the types of vehicles, can increase the wear and tear on the road. The Commission's assessments of State maintenance expenditure on arterial roads are based on the assumption that 40 per cent of maintenance is attributable to road use and virtually all of that is attributed to heavy vehicles.
- 8 Under the model we have used, the cost of the maintenance tasks is affected by:
- whether the roads are in urban, rural or remote areas — in general, maintenance on urban roads is more expensive than on rural and remote roads because of the higher standard of the roads and the more complex work required to maintain them; and
 - the climatic and geographic environment (such as soil type, terrain, rainfall and salinity) where the roads are located — some climatic conditions lead to faster deterioration of road surfaces and some geographic conditions lead to more frequent and complex work.

- 9 This model does not include some of the allowances the Commission makes in its assessments of State expenditure on maintaining arterial roads. For instance, allowance has not been made for:
- the effect of differences between States in wage levels. In the State assessments those allowances reflect average labour price differences for all services. They are mainly due to capital city effects and it is not clear that the approach used to measure them could be applied to the narrower range of labour required on a State-wide basis for local road maintenance tasks; and
 - the effects of population dispersion and large urban areas. The effects of those influences are included in the relative cost weights applied to roads in urban, rural and remote areas.
- 10 Implementing the average standard model outlined in Box 1 requires data on:
- total maintenance and preservation expenditure across all local governing bodies in each State;
 - the length of local roads in each State based on a common definition of a local road, the data for each State needs to be sub-divided to show the length of local roads in urban, rural and remote areas of the State;
 - estimates of the Australian average proportion of maintenance on local roads that is attributable to their existence (or length) and that attributable to their use;
 - the Australian average cost of maintaining a kilometre of road in urban and rural areas relative to the average cost of maintaining a kilometre of road in remote areas; and
 - estimates of the impact of climatic and geographic conditions in each State on road maintenance costs relative to that for Australia as a whole.
- 11 Chapter 4 outlined some of the issues we faced in collecting comprehensive and comparable data on maintenance expenses, road length and road use. It concluded that there are serious concerns with the road length and use data.
- 12 We contracted the ARRB Group to provide advice on:
- the proportion of local roads in each State that are in urban, rural and remote areas;
 - the proportions of local road maintenance that could be attributed to road length and use;
 - the relative costs of maintaining local roads in urban, rural and remote areas; and
 - the relative impact of climatic and geographic conditions on maintenance expenditures.
- 13 Table 5.1 provides the proportions of local roads in urban, rural and remote regions of each State. These are based on local road lengths by State and by urban /rural /remote locations provided by ARRB in its draft report but adjusted so that the total length of local roads

matched the local road length data provided by the local government grants commissions¹. The Commission determined the length of local roads in each region within each State using the distribution in Table 5.1 and the total local road lengths provided by the local government grants commissions. However, some figures in Table 5.1, such as the proportion of local roads in urban areas in the Northern Territory, require further investigation².

Table 5.1 Distribution of local roads in urban, rural and remote regions by State

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aust
	%	%	%	%	%	%	%	%	%
Urban	14.7	20.4	10.0	8.5	9.9	19.4	99.6	0.4	13.1
Rural	79.3	79.6	73.1	65.6	73.5	80.6	0.4	13.5	73.0
Remote	6.0	0.0	16.8	25.9	16.6	0.0	0.0	86.1	13.9
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source: Based on the distribution provided in the ARRB draft report but adjusted by the Commission because of differences in local road length data

14 In its draft report, ARRB also recommended the following values for the other parameters in the model:

- proportion of maintenance cost due to length (δ) = 0.90;
- relative costs for urban: rural: remote roads (URC: RUC: REC) = 4.60: 1.69: 1.00; and
- the road usage estimates and the physical environment factors (PE_i) for each State as shown in Table 5.2.

Table 5.2 Estimates of road usage and relative effects of physical environment

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aust
ARRB's road usage (mvkt)	28 063	17 930	16 552	10 441	6 917	2 583	1 278	1 175	84 939
Physical environment factor	1.28	1.10	1.16	1.06	0.92	1.29	1.00	1.16	1.13

Source: ARRB draft report estimates but modified to take into account revisions in local road length.

15 ARRB's road use estimate was based on results from a consultancy it undertook for the National Transport Commission³. For the study, ARRB estimated the proportion of vehicle kilometres travelled (mvkt) on arterial and local roads by the three main vehicle classes. These estimates were based on a representative selection of municipal councils' road lengths

¹ For all States, the length of local roads provided by ARRB was based on estimates in Austroads *RoadFacts 2000* and these estimates exceeded the local government grants commission estimates. The difference was subtracted from the ARRB estimates of the length of remote local roads for the State. If a State did not have remote local roads, it was deducted from the rural local road lengths. This adjustment was chosen because a large part of the discrepancy was expected to be local roads in unincorporated areas which are mainly local roads in remote areas.

² Darwin City Council has 468 km of local roads but the ARRB numbers show only 59 km of local road.

³ National Transport Council, 2004 *Estimation of vehicle kilometres travelled on Arterial and Local roads*, Melbourne.

and traffic information on various road classifications across Australia. ARRB obtained road usage data for local roads from the survey it conducted. However, it had concerns about the appropriateness of this as a road use measure.

- 16 The physical environment factors were provided by ARRB for each region in each State and incorporate the influences of the following four factors:
- terrain;
 - soils;
 - climate; and
 - salinity.
- 17 To calculate the effect of these factors, ARRB made a broad assessment for each factor having regard to the location and distribution of the urban, rural and remote roads within each State. To obtain a State physical environment factor (PE_i), the physical environment factor for each region in the State was weighted by the proportion of local roads in the region of the State and summed to obtain the weighted factor for the State.
- 18 **Cost weighted road length.** Because there are differences in the costs of maintaining roads in urban, rural and remote areas, the relative need to incur maintenance expenditure is affected by the differences between States in the proportion of their road networks located in those areas. To allow for those needs, the first step in applying the average standard model was to calculate cost weighted road length (RL_i) for each State. This was calculated using the distribution of local roads by State in Table 5.1, the relative costs for urban, rural and remote roads and the length of local roads in each State.
- 19 Table 5.3 provides per person relativities that express the cost weighted local road length per person in each State relative to the Australian cost weighted local road length per person. It shows that the more sparsely settled States (Northern Territory, Western Australia, South Australia and Queensland) have above average weighted road lengths per person (a relativity greater than 1). Conversely more densely settled States have below average road lengths (a relativity less than 1). These outcomes arise even after allowing for the higher per kilometre costs of maintaining roads in urban areas.
- 20 Table 5.3 also shows road use per person in each State relative to road use per person in Australia. Road use is above average in those States that have a relatively greater reliance on vehicles for transport, as suggested by figures on vehicle registrations per person.

Table 5.3 Per person relativities for cost weighted road length and for local road usage

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aust
Cost weighted road length	0.6989	0.9323	1.1017	1.7073	1.4430	1.0373	0.4112	1.2230	1.0000
ARRB's road usage	0.9913	0.8543	0.9992	1.2430	1.0734	1.2737	0.9407	1.3859	1.0000

Source: ARRB draft report

- 21 **Applying the average standard approach.** This model takes the total actual maintenance expenditure by all States (estimated as \$1 711.5 million in 2003-04) and calculates how much each State would have spent if they all provided the same standard of local road maintenance. It does so by combining the average maintenance expenditure per person, the cost weighted road lengths per person, road usage per person, the proportions of maintenance costs attributable to road length and road use and the physical environment factors using the formula in Box 1⁴. In doing so, we assumed that 90 per cent of the maintenance expenditure was due to road length and 10 per cent to road use.
- 22 In this way, the model has taken into account the main factors that affect the cost of providing local road maintenance — road length, the type of roads, road usage and environmental factors that are beyond the control of States and local governing bodies.
- 23 Because of ARRB’s concerns about its local road usage data, we used two different measures of local road usage to test the sensitivity of the results to the usage data. These were:
- ARRB’s local road usage measure; and
 - State population.
- 24 The sensitivity analysis indicated that the choice between the two measures of usage had little impact on the results, presumably because of the low weight applied to road usage.
- 25 Table 5.4 provides the estimates of maintenance expenditure by State under the average standard model and using ARRB’s data on local road usage. The Table also provides per person and per kilometre relativities that could be used to distribute a grant on the basis of the assessed expenditure.

Table 5.4 Assessed local roads expenditure under the average standard approach and using ARRB’s measure of local road usage

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aust
<u>ARRB road usage</u>									
Assessed expenditure (\$m)	467.3	378.1	372.2	262.9	148.8	49.3	11.2	21.7	1711.5
Assessed expenditure (%)	27.3	22.1	21.7	15.4	8.7	2.9	0.7	1.3	100.0
Per person relativities	0.8192	0.8942	1.1152	1.5533	1.1458	1.2068	0.4089	1.2683	1.0000
Per kilometre relativities	1.2320	1.1097	0.9565	0.8103	0.7489	1.3278	2.3108	0.5819	1.0000
Current local road shares ^(a)	28.5	20.2	18.4	15.0	7.2	5.2	3.1	2.3	100.0

(a) Distribution includes \$9 million in supplementary funding for South Australian councils in 2005–06.

- 26 The interstate distribution of the assessed maintenance expenditure in Table 5.4 provides the estimate of the interstate distribution of the local road grants. The per person relativities are the weights that would be applied to State population to determine a State’s share. A value less than one indicates that the State will receive less than its per person share of the grants.

⁴ Calculations were also done in which the main variables were expressed in per kilometre terms rather than per person terms.

A value greater than one indicates that the State will receive more than its per person share of the grants. Per kilometre relativities have a similar interpretation but are in respect of the average grant per kilometre of local roads.

- 27 Table 5.4 shows that for all States except Tasmania, if the per person relativity is greater than one, then the per kilometre relativity is less than one and vice versa. For Tasmania, both relativities are above one implying that Tasmania would receive more than its per person and per kilometre share of the grants.
- 28 As noted in Chapter 4, the model has not taken account of expenditure on bridges on local roads. This is because in total that expenditure is only around 4 per cent of total expenditure on local roads and bridges and data on the relative size of the maintenance task are not reliable. The current approach is equivalent to assuming that the appropriate interstate distribution of expenditure on bridges is the same as that for roads.
- 29 **Summary.** The suitability of this model depends on the reliability and comparability of the data it uses. The parameter estimates provided by ARRB (especially the proportion of maintenance affected by road length and use, the relative costs of maintaining urban, rural and remote area roads and the relative effects of the physical environment) have been provided by experts in the roads field and may be regarded as the best available. The road length and road use data were discussed in Chapter 4. Again they are the best available. The data on local road length are used in allocating funds among local authorities in each State, but there are concerns about their interstate comparability because decisions States make in allocating responsibility for local roads between State and local government authorities are not the same.
- 30 The estimates of the use of local roads were based on ARRB road use data (about which the ARRB has expressed concerns) and some further assumptions. However, sensitivity testing, using population as an alternative measure indicated they had a minimal effect on the results.
- 31 Issues of data reliability raise concerns about the overall reliability of the estimated shares of the grant produced by this model. However, the Commission will undertake further sensitivity testing to decide whether those concerns have material effects on the outcomes.

AN INDICATORS MODEL

- 32 Given the difficulties with the data used in the average standard approach, we examined a simple indicators model based on road length and population.
- 33 A similar model is used by the Queensland Local Government Grants Commission in its allocation of local roads grants among local authorities. It was also used in previous years by the Australian Government to allocate local roads funds among States.
- 34 The use of a simple broad indicators model was supported by several submissions to the Review and they suggested combining State population and local road length. The Victorian submission proposed an interstate distribution for the local road grants in which a 20 per cent

was given to local road lengths and 80 per cent to population⁵. Queensland's submission supported a 100 per cent weight be given to population. The South Australian submission proposed an equal weighting for State shares of population and local road length.

35 In the Commission's assessment of maintenance costs for arterial roads, a 60 per cent weight was applied to road length and a 40 per cent weight to use. These weights approximate the weights applied to road length and use by the Queensland Local Government Grants Commission. However, a much lower weight to road use would be consistent with advice from ARRB on the relative importance of length and use on maintenance costs.

36 Implicitly, the broad indicators model assumes that:

- one of the following is true:
 - the cost of maintenance and preservation tasks is not materially affected by the type of local road — a local road in an urban area carrying a high traffic volume costs the same to maintain per kilometre as a local road in a remote area carrying irregular traffic; or
 - each State has approximately the same proportions of local roads in urban, rural and remote locations; or
 - the choice of type of road is a council decision and should not affect grant allocations;
- road use depends primarily on the size of the local population — the impact of through traffic and freight transport on maintenance and preservation expenditure can be ignored;
- there are no factors beyond the control of local governing bodies that have a materially different influence on local road expenditure between States (that is, disabilities such as climate, terrain, sub-soil condition have no material influence on expenditure); and
- maintenance costs for bridges on local roads do not have a materially different effect on expenditure between States.

37 The simplicity of such a model might have particular effects on the extreme case of the ACT. For instance, almost all local roads in the ACT are urban local roads, which are much more expensive to maintain than other roads. In other States, urban local roads make up less than 21 per cent of all local roads. This may lead to some underestimation of the ACT's share⁶. The use of the cost weighted road lengths, obtained using the weights suggested by ARRB and used in the average standard approach, may be a preferable approach to the use of unweighted road length.

⁵ These shares were calculated by regressing the State share of the grant, obtained by NIEIR in their paper on the notional service provision model, against State population and road length shares.

⁶ The NT may be at the other extreme. Data in Table 5.1 for the NT show that the length of urban roads is less than 1 per cent. This does not appear to be correct so we will be checking these numbers.

- 38 Table 5.5 shows two interstate distributions in which road length is given a 90 per cent weight and population a 10 per cent weight. In one model we used actual local road lengths and in the other we used the cost weighted road lengths developed for the average standard model.
- 39 An indicators model may be appropriate when the indicators that are chosen have material effects on interstate differences in maintenance expenditure, they can be measured with an acceptable level of reliability and the quality of data for other indicators does not justify more sophisticated models.

Table 5.5 Assessed local road expenditure under the indicators approach

		NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aust
Road length	(%)	22.2	19.9	22.7	19.0	11.6	2.2	0.3	2.2	100.0
Cost weighted road length	(%)	23.3	23.0	21.5	16.9	10.9	2.5	0.7	1.2	100.0
Population	(%)	33.3	24.7	19.5	9.9	7.6	2.4	1.6	1.0	100.0
<u>90: 10 weighting to road length: population</u>										
Assessed expenditure	(\$m)	398.4	349.0	383.6	308.9	191.8	37.5	7.1	35.2	1711.5
Assessed expenditure	(%)	23.3	20.4	22.4	18.1	11.2	2.2	0.4	2.1	100.0
Per person relativities		0.6984	0.8252	1.1493	1.8252	1.4770	0.9180	0.2593	2.0615	1.0000
Per km relativities		1.0504	1.0241	0.9858	0.9522	0.9654	1.0100	1.4651	0.9459	1.0000
<u>90: 10 weighting to cost weighted road length: population</u>										
Assessed expenditure	(\$m)	415.8	397.1	364.3	277.0	181.6	42.2	12.9	20.5	1711.5
Assessed expenditure	(%)	24.3	23.2	21.3	16.2	10.6	2.5	0.8	1.2	100.0
Per person relativities		0.7290	0.9390	1.0916	1.6366	1.3987	1.0336	0.4701	1.2007	1.0000
Per km relativities		1.0963	1.1654	0.9362	0.8538	0.9141	1.1373	2.6565	0.5509	1.0000
Current local road distribution ^(a)	(%)	28.5	20.2	18.4	15.0	7.2	5.2	3.1	2.3	100.0

(a) Distribution includes \$9 million in supplementary funding paid to South Australian councils in 2005–06.

Source: Population from ABS *Australian Population Statistics* June quarter 2005 cat no 3101.0.

Local road length from DOTARS as advised by local government grants commissions and the ACT Department of Urban Services.

REGRESSION MODELS

- 40 In view of the Commission's concerns about the consistency of the road length data, we also examined some regression models for local road expenditure. Those models were based on indicators, other than road length, which could be regarded as proxies for the size and cost of the road maintenance task and which could be reliably measured.

- 41 These models may be regarded as extensions of the indicators model. In building some of them we have used data for individual local governing bodies to assess the effect of the variables tested across the range of local governing bodies.
- 42 In these models, expenditure on local road maintenance and preservation, provided by each local governing body to their local government grants commissions, was regressed against variables such as area, population and population density⁷. The regression models were estimated using data for almost all local governing bodies across all States.
- 43 Attachment B explains the adjustments the Commission made to local government grants commission data to obtain more consistent estimates of local road maintenance expenditure. Data were not available for some local governing bodies — for instance, where local road expenditure was not available or where local governing bodies had no defined area. Data for all local governing bodies in the Northern Territory were excluded because of concerns about the quality of the expenditure data.
- 44 These models were generally built on the hypothesis that:
- local road maintenance expenditure is a function of the length of local roads and their use;
 - the length of local roads for a local governing body is broadly determined by its area and population; and
 - the use of local roads in a local governing body is broadly determined by its population.
- 45 Area, population and population density were favoured as explanatory variables in these models because consistent estimates of these variables are available.

Regression Model A

- 46 The Commission initially examined a simple linear regression model of the form:

$$E = \alpha_0 + \alpha_1 \times P + \alpha_2 \times A + \alpha_3 \times (P / A) \quad (\text{A})$$

where

α_0 , α_1 , α_2 and α_3 are parameters to be estimated

That is, local road maintenance expenditure (E) for a local governing body is determined by its population (P), area (A) and population density (P / A).

- 47 Population density was included in Model A because we assumed that the relationship between expenditure and area and population would not be of a simple linear form, particularly given the range of area and population for local governing bodies⁸. Including population density is intended to pick up any interaction between the population and area of a local governing body on its local road expenditure.

⁷ In the regression models that follow, expenditure is measured in dollars, population in thousands of people, area in sq km and density in thousand people per sq km.

⁸ Population varies from less than 100 people for some Indigenous local governing bodies to around 920 000 people for Brisbane City Council. Area varies from 2 sq kms for the Shire of Peppermint Grove to 378 533 sq kms for the Shire of East Pilbara.

48 The estimated equation for Regression Model A is:

$$\text{Estimated (E)} = 1,181,418 + 52.36 \times P + 3.39 \times A - 538.27 \times (P / A)$$

Number of observations = 587

$$R^2 = 0.73$$

All coefficient estimates, except for the coefficient of area, are significant at the 1 per cent level. The coefficient of area is not significant at the 5 per cent level.

49 With this model, we expected the estimate of the regression constant to be around zero and area to have a significant coefficient. However, the constant is estimated as 1 181 417 and is significant at the 1 per cent level. This outcome may suggest the model is poorly specified.

50 The value of the regression constant implies that all councils including the small Indigenous community councils incur a fixed cost of over \$1.1 million for their local road maintenance each year. This appears to be an over-estimate, which in turn could over-estimate the grant share of States, such as the Northern Territory, which have a high number of small councils.

51 Examination of the detailed results also suggest that this model noticeably underestimates the requirements of local authorities in central business areas of major cities and some very large local authorities with large expenditures on roads, such as Brisbane City Council, Gold Coast City Council and Wyong Shire Council.

52 These results suggest that the relationship between maintenance expenditure and the other variables is not linear.

53 The estimated equations for expenditure derived by Model A (and the other regressions models we examined) were used to prepare indicative estimates of State local road maintenance expenditure for:

- 668 local governing bodies with population and area data;
- the ACT; and
- local governing bodies in unincorporated areas of the Northern Territory without a designated land area..

54 Before we could estimate the expenditure of Northern Territory local governing bodies in unincorporated areas, which do not have a designated land area (mostly Indigenous community councils), we had to derive a notional area for them. This was done by assuming that the relationship between road length and area observed in other Northern Territory remote area councils applied to these community councils.

55 The estimated expenditure shares using Model A is given in Table 5.6.

Table 5.6 Assessed local road expenditure proportions using regression model A

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aust
	%	%	%	%	%	%	%	%	%
Assessed expenditure:									
Model A	27.1	18.5	21.9	14.7	8.6	3.3	1.0	4.8	100.0
Current local road grant allocation ^(a)	28.5	20.2	18.4	15.0	7.2	5.2	3.1	2.3	100.0

(a) Distribution includes the \$9 million in supplementary funding paid to South Australian councils in 2005–06.

Regression Model B

56 We examined a further model in which the effects of area and population on maintenance expenditures were assumed to be non-linear functions of area and population. In this model, a logarithmic transformation is applied to the variables⁹.

57 This model took the form:

$$\ln(E) = \gamma_0 + \gamma_1 \times \ln(A) + \gamma_2 \times \ln(P) \quad (B)$$

where

γ_0 , γ_1 and γ_2 are parameters to be estimated by regression.

58 Under this approach, if the regression coefficient γ_2 is positive and area is held constant, a one per cent increase in population increases maintenance expenditure by γ_2 per cent. That is, maintenance expenditure increases with increases in population but the rate of increase in expenditure slows with further increases in population. This suggests that given increases in population are likely to have a greater effect on maintenance expenditure in remote areas than they will in metropolitan areas.

59 The estimated regression equation for Regression Model B is:

$$\text{Estimated } (\ln(E)) = 8.67 + 0.521 \times \ln(P) + 0.124 \times \ln(A)$$

Number of observations = 587

$$R^2 = 0.66$$

All coefficients are significant at the 1 per cent level¹⁰.

60 With this model, the estimated expenditure for a local governing body can be calculated as:

$$\text{Estimated } (E) = 5825.5 \times P^{0.521} \times A^{0.124}$$

⁹ The logarithmic transformation has some benefits econometrically in that the variance of the error terms is more likely to be constant for different values of the explanatory variables and the coefficients are easier to interpret.

¹⁰ The value of R^2 of model B cannot be compared with that from model A because of the logarithmic transformation of the expenditure variable in B. However, the square of the correlation between the predicted and actual value of expenditure for model B can be compared. For model B, the value of the correlation squared is 0.43.

- 61 This model appears to provide a conceptually superior explanation of the underlying effects of population and area on road maintenance expenditures than Model A. However, examination of the results of this model suggest it may also underestimate the expenditures of some large local authorities and those with relatively low populations and/or small areas but which have high levels of traffic. These include local authorities responsible for the central business districts or other major business areas of the large metropolitan areas.
- 62 The estimates of local road maintenance expenditure for a State derived from regression Models A and B, which are based on estimates of the expenditure for individual local governing bodies, may be affected by State Government policies on the size and number of councils. This is most easily seen in Table 5.6 where the large number of small councils in the Northern Territory and the high fixed costs estimated for each combine to produce a larger share for the Northern Territory under Model A than other assessment models. The potential for State policies to influence the outcome is not consistent with a policy neutral approach.
- 63 The estimated expenditure shares using Model B are given in Table 5.7.

Table 5.7 Assessed local road expenditure using regression model B

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aust
	%	%	%	%	%	%	%	%	%
Assessed expenditure:									
Model B	30.4	19.9	19.9	13.8	8.7	3.9	0.8	2.6	100.0
Current local road grant allocation ^(a)	28.5	20.2	18.4	15.0	7.2	5.2	3.1	2.3	100.0

(a) Distribution includes the \$9 million in supplementary funding paid to South Australian councils in 2005–06.

- 64 We also examined whether the results of Model B would be affected if we recognised that local governing bodies could be in urban, rural or remote areas. For this, we classified the local governing bodies into urban, rural or remote according to the Australian Classification of Local Government (ACLG). There were 236 councils classified as urban, 309 as rural and 42 as remote. Model B was re-estimated for each of the urban, rural and remote groupings and the estimated distribution of expenditure across States was recalculated. The resulting distribution of estimated expenditure was similar to that obtained from Model B. This suggests that Model B is reasonably robust and generally unaffected by whether a council is in urban, rural or remote areas.

Regression Model B1

- 65 Two additional regression models were estimated to try to improve the policy neutrality of the models — that is, to overcome the impact of the number and size of local governing bodies in each State on the resulting distribution of expenditure. In the first model, local governing bodies were grouped according to their State and their ACLG classification. For each State, there were up to 22 groups — the number of categories in the ACLG. For each group, data

for population, area and local road maintenance expenditure were summed across all local governing bodies in the group. This produced a total of 88 groups.

66 Model B was re-estimated but with those 88 observations. We have called this Model B1.

67 The estimated regression equation for Regression Model B1 is:

$$\text{Estimated } (\ln(E)) = 8.17 + 0.60 \times \ln(P) + 0.15 \times \ln(A)$$

$$\text{Number of observations} = 88$$

$$R^2 = 0.75$$

All coefficients are significant at the 1 per cent level.

68 With this model, the estimated expenditure for a local governing body can be calculated as:

$$\text{Estimated } (E) = 3533.3 \times P^{0.60} \times A^{0.15}$$

69 The estimated expenditure shares for Model B1 are given in Table 5.8.

Table 5.8 Assessed local road expenditure using regression model B1

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aust
	%	%	%	%	%	%	%	%	%
Assessed expenditure:									
Model B1	27.7	20.9	20.9	13.7	8.7	4.1	1.5	2.5	100.0
Current local road grant allocation ^(a)	28.5	20.2	18.4	15.0	7.2	5.2	3.1	2.3	100.0

(a) Distribution includes the \$9 million in supplementary funding paid to South Australian councils in 2005–06.

Regression Model B2

70 In this model, local governing bodies were grouped according to their State and whether they were classified as urban, rural or remote based on their ACLG classification. For each State, there were up to 3 groups. For each group, data for population, area and local road maintenance expenditure were summed across all local governing bodies in the group. This produced a total of 15 groups.

71 Model B was re-estimated but with those 15 observations. We have called this Model B2.

72 The estimated regression equation for Regression Model B2 is:

$$\text{Estimated } (\ln(E)) = 6.09 + 0.70 \times \ln(P) + 0.25 \times \ln(A)$$

$$\text{Number of observations} = 15$$

$$R^2 = 0.96$$

All coefficients are significant at the 1 per cent level

73 With this model, the estimated expenditure for a local governing body can be calculated as:

$$\text{Estimated } (E) = 441.4 \times P^{0.70} \times A^{0.25}$$

74 The estimated expenditure shares for Model B2 are given in Table 5.9.

Table 5.9 Assessed local road expenditure using regression model B2

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aust
	%	%	%	%	%	%	%	%	%
Assessed expenditure:									
Model B2	29.0	21.8	22.1	15.2	6.4	2.9	1.1	1.6	100.0
Current local road grant allocation ^(a)	28.5	20.2	18.4	15.0	7.2	5.2	3.1	2.3	100.0

(a) Distribution includes the \$9 million in supplementary funding paid to South Australian councils in 2005–06.

75 All the regression approaches require the following assumptions:

- the estimated regression equation provides an estimate of maintenance expenditure that aligns with the average standard of local roads in Australia. That is, there is no bias in the estimated expenditure for a particular class of local governing body (such as local governing bodies in a particular State or a particular region across all States) due to the policies of the local governing bodies or of State governments;
- road use depends primarily on the size of the local population — the impact of through traffic and freight transport on maintenance and preservation expenditure can be ignored;
- there are no factors beyond the control of local governing bodies that have a material influence on local road expenditure between States (that is, disabilities such as climate, terrain, sub-soil condition have no material influence on expenditure);
- maintenance costs for bridges on local roads have a similar influence on interstate differences in expenditure as maintenance costs of local roads.

76 Some of the assumptions also apply to the other approaches we have examined and reflect the necessity for the assessments to be a simplified reflection of the most important influences on interstate differences in maintenance expenditure.

77 The Commission has sought data from local government grants commissions for 2001–02, 2002–03 and 2004–05 so that it can estimate these equations over a longer time period.

COMPARISON OF ASSESSED EXPENDITURE UNDER THESE MODELS

78 Table 5.10 shows the State shares of assessed expenditure under each model outlined above, the distribution of the estimated maintenance expenditure and the current allocation of local road grants. For comparison purposes, the current interstate distribution of the Roads to Recovery grants is also provided¹¹.

¹¹ According to DOTARS, the interstate distribution of the Roads to Recovery grants was based on historical precedents, length of local roads and population.

- 79 This table shows that many of the models considered in this draft report produce broadly similar distributions of the grants between States.
- 80 These estimates must be regarded as preliminary as we still have questions about some of the data that has been used. For instance, we may need to adjust the road lengths in Queensland to include some district roads for which the State government is responsible but which would be treated as local roads in other States and to exclude some roads which are the responsibility of local government but which would be treated as State arterials in other States. There are also concerns about the estimate we have used of the proportion of local roads in urban areas of the Northern Territory. Adjustments to these data would have an impact on the distributions for the average standard approach and the indicators approach.
- 81 Table 5.11 shows the interstate allocation of local road grants available in 2005-06 (estimated at \$496.9 million plus \$9 million in supplementary funds for South Australia equals \$505.9 million) according to the distributions calculated for the seven models and the current local road grant distribution.

Table 5.10 Distribution across States of assessed local road expenditure under the seven models, actual expenditure, local road grants, and Roads to Recovery grants

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aust
	%	%	%	%	%	%	%	%	%
Average standard approach	27.3	22.1	21.7	15.4	8.7	2.9	0.7	1.3	100.0
<u>Indicators approach</u>									
90: 10 road length: population	23.3	20.4	22.4	18.1	11.2	2.2	0.4	2.1	100.0
90: 10 cost weighted road length: population	24.3	23.2	21.3	16.2	10.6	2.5	0.8	1.2	100.0
<u>Regression Models</u>									
Model A	27.1	18.5	21.9	14.7	8.6	3.3	1.0	4.8 ^(a)	100.0
Model B	30.4	19.9	19.9	13.8	8.7	3.9	0.8	2.6	100.0
Model B1	27.7	20.9	20.9	13.7	8.7	4.1	1.5	2.5	100.0
Model B2	29.0	21.8	22.1	15.2	6.4	2.9	1.1	1.6	100.0
Estimated actual expenditure	31.6	19.1	21.2	14.7	9.8	2.2	0.6	0.7	100.0
Current local road grants ^(b)	28.5	20.2	18.4	15.0	7.2	5.2	3.1	2.3	100.0
Current Roads to Recovery funding	28.3	20.8	20.8	15.0	8.3	3.3	1.7	1.7	100.0

(a) The high share for the Northern Territory with this specification results from the high fixed costs of more than \$1m that would apply to all councils irrespective of size.

(b) Distribution includes \$9 million in supplementary funding paid to South Australian councils in 2005-06.

Table 5.11 Allocation of grants across States of assessed local road expenditure under the six models and the current distribution of the local road grants

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aust
	(\$m)	(\$m)	(\$m)	(\$m)	(\$m)	(\$m)	(\$m)	(\$m)	(\$m)
Average standard approach	138.1	111.8	110.0	77.7	44.0	14.6	3.3	6.4	505.9
<u>Indicators approach</u>									
90: 10 road length: population	117.8	103.1	113.4	91.3	56.7	11.1	2.1	10.4	505.9
90: 10 cost weighted road length: population	122.9	117.4	107.7	81.9	53.7	12.5	3.8	6.1	505.9
<u>Regression models</u>									
Model A	137.1	93.6	110.8	74.4	43.5	16.7	5.1	24.3	505.9
Model B	153.8	100.7	100.7	69.8	44.0	19.7	4.0	13.2	505.9
Model B1	140.1	105.7	105.7	69.3	44.0	20.7	7.6	12.6	505.9
Model B2	146.7	110.3	111.8	76.9	32.4	14.7	5.6	8.1	505.9
Current local road grants ^(a)	144.2	102.4	93.1	76.0	36.3	26.3	15.9	11.6	505.9

(a) The estimated entitlement for 2005–06 is \$496.9 million. With the \$9 million in supplementary funding to South Australian councils, for all practical purposes the total local road grants for 2005–06 is \$505.9 million.

82 The allocations under the various models in Table 5.10 generally show:

- Tasmania, the ACT and the Northern Territory could face relatively large reductions in grants;
- Queensland and South Australia could received increased grants; and
- New South Wales, Victoria and Western Australia could face relatively small adjustments around their current grant allocations.

83 These results demonstrate that the current local road allocations do not align with an allocation based on relative needs for expenditure on local road maintenance.

84 The Commission would welcome the views of stakeholders on the various models it has considered. Arguments that extra variables should be included in the assessments would need also to provide advice on the availability and source of reliable and comparable data for each State.

CHAPTER 6

UPDATING STATE SHARES

- 1 The Terms of reference ask us to recommend how the interstate distribution of the local road grants could be updated in future years.
- 2 Under the current arrangements for local road grants, the State shares have been held constant. This contrasts with the arrangements for the general purpose grants where the State shares are updated annually on the basis of State shares of Australia's population¹.
- 3 In the Issues Paper, the Commission suggested that updating occur to ensure that the interstate allocation of the grants reflects the most recent conditions in the States. It was suggested that this could occur in two situations:
 - if the relative needs of States change because of differences in the growth of demand and supply of local roads; and
 - if improvements in the coverage and comparability of data would allow improved assessments of relative needs to be made.
- 4 Submissions to the review provided a range of views on updating. For instance:
 - the Local Government Association of Queensland said that the assessment model should use readily available information such as population, road length and road use. It said that these variables are likely to be the main drivers of change in relativities and using them would allow the distribution to be updated annually which would smooth out significant changes in State shares over time;
 - Western Australia said that updates to the data every three to five years would provide greater certainty of State shares and give local governing bodies greater certainty of local road funding; and
 - the Northern Territory suggested that key drivers such as population and road length could be updated annually and disabilities reviewed every five years.

¹ Under the Act, the State population used for a particular financial year is the ABS estimate of the population as at 31 December of the previous calendar year.

- 5 As the approach to updating State shares will depend on the form of the assessment model recommended, we only make cursory observations at this time.
- 6 There are two ways that the Commission could present its recommendation for the distribution of the local road grants between States. It could:
- provide per person relativities for the distribution of the grants. This is the usual approach by which the Commission makes recommendations on the interstate distribution of the GST revenue; or
 - provide the distribution in the form of State shares.
- 7 These two approaches could result in different outcomes in terms of updating. Providing per person relativities would allow the State shares to be updated each year to reflect movements in the estimates of State population and would be consistent with the approach for the general purpose funds. State shares would not involve updating.
- 8 The Commission would not support updating per person relativities or State shares, until better and more consistent local road data becomes available.

CONSISTENT DATA ON LOCAL ROADS

- 9 This review has been hampered by the lack of reliable and consistent local road data across States. Consistent estimates across States of the following data would assist future updates:
- the length of local roads for each State with local roads defined consistently across States;
 - the number and deck area of bridges on local roads with 'a bridge' defined consistently across States;
 - estimates of local road usage in each State; and
 - the maintenance and preservation expenditure by local governing bodies on local roads and bridges on local roads in each State.
- 10 The Commission experiences similar difficulties in obtaining reliable and consistent estimates of arterial road length across States for its assessment of State road expenses. If governments seek reliable needs based interstate allocations of roads funding substantial improvements in the consistency of data on road lengths and use are essential. A vital aspect of the data will be the application by all States of a consistent classification of all roads by type or purpose.
- 11 This should be an important issue for all States because considerable amounts of State funding are affected. The Commission's assessments of State expenses on arterial roads redistribute some \$300 million of GST revenue each year. The annual distribution of \$500 million in local road grants and potentially a further \$300 million in Roads to Recovery funding could also be affected.

ATTACHMENT A

SUBMISSIONS IN RESPONSE TO THE ISSUES PAPER

Sub no.	Submitted by
01	Victoria Grants Commission/Victorian Government
02	Western Australian Local Government Grants Commission/Western Australian Government
03	Tasmanian Government
04	Queensland Government
05	South Australian Government
06	Local Government and Shires Associations of New South Wales
07	Local Government Association of South Australia
08	Local Government Association of Tasmania
09	Municipal Association of Victoria
10	Withdrawn
11	Department of Transport and Regional Services
12	Local Government Association of Queensland
13	Western Australian Local Government Association
14	Local Government Association of the Northern Territory
15	City of Boroondara Council
16	Northern Territory Government
17	New South Wales Treasury
18	Australian Capital Territory Treasury

ATTACHMENT B

ASSUMPTIONS USED TO ARRIVE AT ESTIMATED STATE EXPENDITURE FOR LOCAL ROADS

- 1 In order to estimate total expenditure by local governing bodies on maintenance for local roads and bridges by State, it was necessary to make some adjustments to data that was provided by local government grants commissions. These adjustments are as follows:

New South Wales

- 2 Expenditure was provided by council as a single figure for each road type called 'Operating Expenses', which was not able to be broken down by maintenance, renewal or capital expenditure.
- 3 Based on the information for other States that provided sufficient data to measure the relative size of maintenance and renewal to operating expenses, 75 per cent of the total expenditure was considered to have been due to maintenance or renewal.

Victoria

- 4 Expenditure types reported were:
 - existing assets:
 - maintenance,
 - capital renewal, and
 - capital upgrade.
 - new assets:
 - capital expansion.
- 5 Only maintenance and capital renewal for existing assets were included in estimated expenditure.

Queensland

- 6 The publication *Queensland Local Government Comparative Information 2003/04*, published by the Queensland Department of Local Government, Planning, Sport and Recreation, provided expenditure on maintenance and renewal on local roads for councils.
- 7 A number of councils did not supply complete expenditure data but did report road length. On the basis of total road length, 8.6 per cent of expenditure data was missing, so the reported expenditure figure for Queensland was increased by 9.5 per cent.

Western Australia

- 8 Local road expenditure data was classified as:
- existing (maintenance and renewal), and
 - new roads (capital upgrade and capital expansion).
- Only expenditure classified as 'Existing' was included.
- 9 Western Australia reported 9 850 kilometres of 'Unformed' local roads (8 per cent of all local roads), but considered the maintenance expenditure on unformed roads to be negligible.

South Australia

- 10 Expenditure data was classified as:
- sealed roads:
 - maintenance,
 - capital renewal,
 - upgrade and
 - capital expansion.
 - unsealed roads
 - existing assets and
 - new assets.
- Only expenditure on maintenance and capital renewal for sealed roads and expenditure on existing assets for unsealed roads were included.
- 11 South Australia reported 9 031 kilometres of 'Unformed' local roads (12 per cent of all local roads). While the maintenance expenditure on unformed roads was believed to be included, it was not able to be separately identified.

Tasmania

- 12 Data was sourced from the publication *Measuring Council Performance in Tasmania 2003-04*, published by the Tasmanian Department of Premier and Cabinet.

- 13 Road expenditure data was categorised as maintenance and capital, by road type. Expenditure on bridge maintenance was understood to be included in the total figures, but not able to be separately identified.

Northern Territory

- 14 The data provided were labelled as either 'Total road expenditure' or 'Total maintenance costs'. Only 'Total maintenance costs' — assumed to be a subset of 'Total road expenditure' — are included in the local roads expenditure. In some cases there were obvious discrepancies in the allocations between maintenance and total.
- 15 Not all councils provided data to the Northern Territory Grants Commission. Councils with 38 per cent of total road length were missing expenditure data. The Northern Territory expenditure figure was therefore increased by 61 per cent.
- 16 Expenditure on bridge maintenance was understood to be included in the total figures, but not able to be separately identified.

Australian Capital Territory

- 17 Data was provided for a number of road related categories, including separately identified Local Road Maintenance, and Bridge and Culvert Maintenance. Administration overhead costs were provided separately, and allocated to categories on the basis of direct expenditure.

ACRONYMS

ABS	Australian Bureau of Statistics
ACLG	Australian Classification of Local Governments
ALGA	Australian Local Government Association
ARRB	ARRB Group Ltd
CGC	Commonwealth Grants Commission
CPI	Consumer price index
DOTARS	(Australian Government) Department of Transport and Regional Services
FAG	Financial assistance grant
GFS	Government finance statistics
GST	Goods and services tax
mvkt	million vehicle kilometres travelled
NIEIR	National Institute of Economic and Industry Research
NRTC	National Road Transport Commission (now the NTC)
NTC	National Transport Commission
PSMA	Public Sector Mapping Agencies
vkt	vehicle kilometres travelled