

# **COMMONWEALTH GRANTS COMMISSION**

**DISCUSSION PAPER CGC 2001/10**

## **URBAN TRANSIT A PROPOSED ASSESSMENT FOR THE 2004 REVIEW**

**A BRIEFING PAPER FOR A STAFF LEVEL CONFERENCE**

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## INTRODUCTION

1. This paper presents a Commission staff proposal for the assessment of the Urban Transit category for discussion at a staff level conference to be held in September 2001. While the Commissioners are aware of this proposal, it does not represent their considered opinion.

2. The proposed assessment measures the different needs of the States to provide subsidies to providers of urban transit services. It does not measure the relative costs of providing the services or the capacity of providers to raise revenue. It attributes differences in the needs of States to provide subsidies to:

- (i) differences in the standardised number of passengers using the services; and
- (ii) differences in the cost of delivering a standard set of subsidies.

3. All States provide subsidies for travel by students, the aged and other disadvantaged groups such as the unemployed. They also provide additional subsidies for all passengers to:

- (i) ensure a minimum level of service is delivered;
- (ii) reduce costs of urbanisation arising from congestion and environmental damage; and
- (iii) ensure appropriate levels of infrastructure are available to provide urban transit services.

4. The assessment recognises that the characteristics of the urban areas have an impact on passenger numbers, and thus the level of subsidy required.

5. It recognises that subsidies are provided both directly to providers and indirectly by the payment of debt charges and depreciation expenses incurred on urban transit infrastructure owned by the States but used by both public and private providers.

6. Conceptually the assessment is relatively simple. However, developing this approach into an adequate assessment will depend very much on the availability of data to measure the identified disabilities.

## BACKGROUND

7. *The 1999 Review Urban Transit Assessment.* In the 1999 Review, the Commission undertook separate Urban Transit assessments of gross expenditure and revenue. It looked at the total operations of urban transit bodies. The category included

transactions relating to the provision of urban transit services for capital cities and urban centres of 50 000 people or more. The transactions included:

- (i) the operating expenditure of most urban transit bodies, excluding depreciation, debt charges and superannuation;
- (ii) the subsidies paid to some urban transit authorities, such as the Brisbane City Council and private operators in Melbourne and Sydney; and
- (iii) fares and other revenue.

8. The Commission assessed standardised expenditure and revenue and presented the result as a net figure. A standardised level of service for each State was calculated. This took into account the characteristics of the urban population and urban form of cities in each State. Standardised expenditures were calculated by multiplying the standardised level of service by standardised costs. Standardised revenues were calculated by applying an Australian average revenue effort to the standardised level of service.

9. The model used to derive the standardised level of service assumed that demand for urban transit services depended on characteristics of the city to be served — population density, size of city, urban form and the level of car ownership. It was measured in terms of standardised passenger kilometres. Standardised cost depended on economies of scale, congestion, wage levels, fuel and power prices, and vandalism and security requirements.

10. States were critical of the assessment because they considered:

- (i) the data to be inadequate;
- (ii) the approach too complex; and
- (iii) the assessment model wrongly specified.

11. ***A Concessions and Other Payments Approach.*** In July 2000, the Commission released Discussion Paper CGC 2000/2, *Urban Transit - A Concessions and Other Payments Approach*. In that paper, the Commission outlined its proposal to develop an assessment method for urban transit during the 2004 Review that used a concessions and other payments (COP) type approach. Essentially, this meant that rather than attempt to assess relative State needs for the operations of urban transit services, the Commission would attempt to assess needs relating to the level of subsidy States pay government agencies, public trading enterprises and private organisations providing urban transit services.

12. The States provided their views on this proposal at a staff level conference in November 2000 and in written submissions. While they broadly supported the proposed COP assessment, they were concerned that:

- (i) a simpler assessment might not result from such an approach;

- (ii) commercial-in-confidence considerations would limit data availability; and
  - (iii) the approach would not adequately recognise disabilities affecting the cost to the States of urban transit provision.
13. This paper does four things.
- (i) It proposes a conceptual framework for the assessment of Urban Transit.
  - (ii) It presents an assessment for Urban Transit with calculations based on data currently held by the Commission.
  - (iii) It outlines the data required to implement the assessment more appropriately.
  - (iv) It discusses expected difficulties.

The principle purpose of the paper is to provide a basis for discussion at the staff level conference in September to help Commission staff develop an assessment method for recommendation to the Commission.

### **CONCEPTUAL FRAMEWORK**

14. Discussion Paper CGC 2000/02, *Urban Transit – A Concessions and Other Payments Approach*, outlined the Commission’s view that a COP approach to the assessment of Urban Transit in the 2004 Review should be used because:

- (i) it better reflects how States are currently providing and funding urban transit services; and
- (ii) the expectation is that the suggested method will be simpler and more transparent than the 1999 Review assessment method.

15. Under the concessions and other payments approach, the Commission assesses the needs relating to the net impact of services (usually provided by public trading enterprises or the private sector) on State budgets. The Commission’s standard budget includes the budget impact of those enterprises (not the detailed financial transactions), any direct payments made by governments for depreciation and debt charges relating to assets used in the provision of services and any other costs met directly by governments. The Electricity and Gas, and Water and Sewerage, categories are assessed in this way.

16. The COP approach assesses needs using a standard framework of:

$$\begin{aligned} &\text{Standardised expenditure (impact on budget)} \\ &= \text{standard subsidy} * \text{level of service disabilities} \\ &\quad * \text{cost disabilities.} \end{aligned}$$

Where:

- (i) the standard subsidy is the per capita average expenditure on the function;
- (ii) level of service disabilities are based on the relative numbers of pensioners and other population groups in receipt of the standard subsidy and/or a concession; and
- (iii) cost disabilities recognise influences that alter the relative cost of the standard subsidy, such as the physical environment or access to competitive markets.

17. To apply this approach to the urban transit assessment, it is necessary to understand:

- (i) what the concessions and standard subsidies are;
- (ii) how they are provided, and to whom; and
- (iii) whether there are any influences which mean that States need to incur different per person costs in providing these subsidies.

We thus explore what States are known to do in providing subsidies to urban transit providers, why they provide them and the factors influencing the size of the subsidies.

### ***How States Provide Urban Transit Services***

18. Over recent years, the States have changed the way they fund urban transit. Public service reform and the introduction of the National Competition Policy have had major impacts on how urban transit services are provided and funded.

19. The table below provides a summary of service provision by mode. It shows that urban transit service provision practices have some common characteristics.

- (i) Bus is the only mode of urban transit in the less populous States (Tasmania, ACT and Northern Territory).
- (ii) The private sector is the main provider of bus services in the more populous States, and there are plans to corporatise these services in most of the less populous States.
- (iii) Rail and light rail services are provided for large metropolitan areas — population level of approximately 500 000 and above.

- (iv) Rail services are provided by State governments (usually by corporatised bodies), with the exception of Victoria where the government has franchised all urban transit services, but retains ownership of the infrastructure.

20. When States contracted private operators to provide urban transit instead of PTEs, most retained the ownership of the assets used in the provision of services. They do this either directly or through a PTE which manages the assets. Victoria is the State that appears to have been most active in selling its urban transport infrastructure.

**Table 1** NATURE OF SERVICE PROVISION BY MODE OF TRANSPORT

Type	NSW	Vic	Qld	WA	SA	Tas	ACT	NT
Rail	State	Private	State	State	State	NA	NA	NA
Light rail	Private	Private	NA	NA	State	NA	NA	NA
Bus	State & Private	Private	Local Gov't & Private	Private	Private	State & Private	State	State
School Bus	State & Private	Private	Local Gov't & Private	Private	Private	State	State & Private	State & Private

Source: CGC Discussion Paper 2000/2 –*Urban Transit – A Concessions and Other Payments Approach* and State Submissions on Urban Transit.

### ***Subsidies Provided by States***

21. Table 2 shows the reported purposes for which State governments provide funding to urban transit providers. These purposes are usually identified in the contracts between the government and service providers. However, in most cases, due to the commercial-in-confidence nature of the arrangements, financial statements show only one payment rather than an amount attributable to each purpose. This makes it difficult to identify the proportion of the payment which relates to the different purposes.

22. All States provide subsidies to allow providers to offer concessional fares to students, the unemployed, the aged and other Commonwealth pension beneficiaries. Most States provide grants for operating purposes (general payments to providers that are State enterprises). In some States, the subsidies include an allowance for depreciation and a rate of return (eg payments to QR); in others, the State has maintained ownership of the assets and covers the depreciation and debt charges expenses from within the budget. Private operators generally receive payments for concessions, minimum services and capital works.

23. Some States have argued that subsidies are needed to ensure adequate services are provided for large urban populations, for whom expensive rail infrastructure must be provided, and to overcome problems relating to density and congestion. There is a debate between the larger States — who argue that high density and congestion increase costs and therefore increase the level of subsidy needed — and the smaller States — who

argue that high density and congestion increase revenue as well as costs and potentially reduce the level of subsidy required<sup>1</sup>.

**Table 2** REASONS FOR STATE GOVERNMENT FUNDING TO URBAN TRANSIT PROVIDERS

Funding Type	NSW	Vic	Qld	WA	SA	Tas	ACT	NT
General payment		Y	Y	Y	Y	Y <sup>(b)</sup>		Y
Concessions and special needs	Y	Y	Y	Y	Y	(Y)	Y	Y
Fare levels	Y <sup>(a)</sup>						Y	
Minimum level of service	Y <sup>(a)</sup>	See other				(Y)	Y	
Injection for operations	Y <sup>(a)</sup>						Y	
Capital grants		Y			Y			
Other		Y <sup>(c)</sup>		Y <sup>(d)</sup>				

(a) Private bus and ferry operators do not receive these payments. Payments to the State Rail Authority (SRA) for these purposes are not explicitly identified but are provided for through deficit funding.

(b) A general payment is made. The stated purpose of the payment is for the provision of concessions and minimum level of service. New contracts with providers are currently under negotiation and will more clearly specify the nature of CSO payments.

(c) Incentive and penalty payments for meeting service targets.

(d) Additional payment provided if patronage increases and an amount is transferred back if patronage decreases.

24. Most States specify the need for subsidies to guarantee a minimum level of service. Although this minimum level of service is not clearly defined, States want to ensure minimum standards of service in terms of route coverage and frequency of services in less densely populated urban areas. Victoria has contracted agreed standards and applies penalties to providers that do not meet the standard. It also offers incentives for improved services.

25. It is difficult to obtain information on how the size of subsidies are determined. Many are subject to contractual arrangements and information is commercial-in-confidence. Some States, for example Victoria and Western Australia, use number of patrons or service kilometres when determining the size of the subsidy.

26. Nonetheless, States generally seem to provide subsidies to both public and private providers to achieve a number of objectives.

<sup>1</sup> Western Australia cited a consultant's report showing that in highly urban areas, trains become more efficient than buses even before externalities such as pollution are taken into account. This is because trains have the capacity to move large numbers of people. South Australia refuted this argument saying that trains were more expensive until a very large population was reached. Western Australia and South Australia have also argued that people are prepared to pay more for train services, because they are preferred to buses.

- (i) Subsidies are provided to compensate service providers for the concessional fare rates available to some population groups.
- (ii) Pricing subsidies are provided to keep fares lower than a commercial level to ensure a certain level of patronage and to achieve governments' social and environmental objectives.
- (iii) Service level subsidies are provided to ensure the financial viability of uneconomic services (to provide a minimum level of service) and to encourage service improvement.
- (iv) General subsidies and other payments are provided, including operating subsidies, capital contributions and deficit gap payments. They have the effect of keeping fares lower than the commercial rate and encouraging efficient and effective service provision where the private sector may not be willing or able to undertake the investment needed.

27. **Conclusion.** Subsidy is the main mechanism used by States to fund urban transit services, through both public and private providers. Private providers tend to operate the less infrastructure intensive types of services (such as buses). Public providers tend to operate rail services. It is not clear that public and private operators are eligible for different types of subsidy, although the levels may differ. The types of subsidies provided seem to be more influenced by the needs of the transport mode and by government policy.

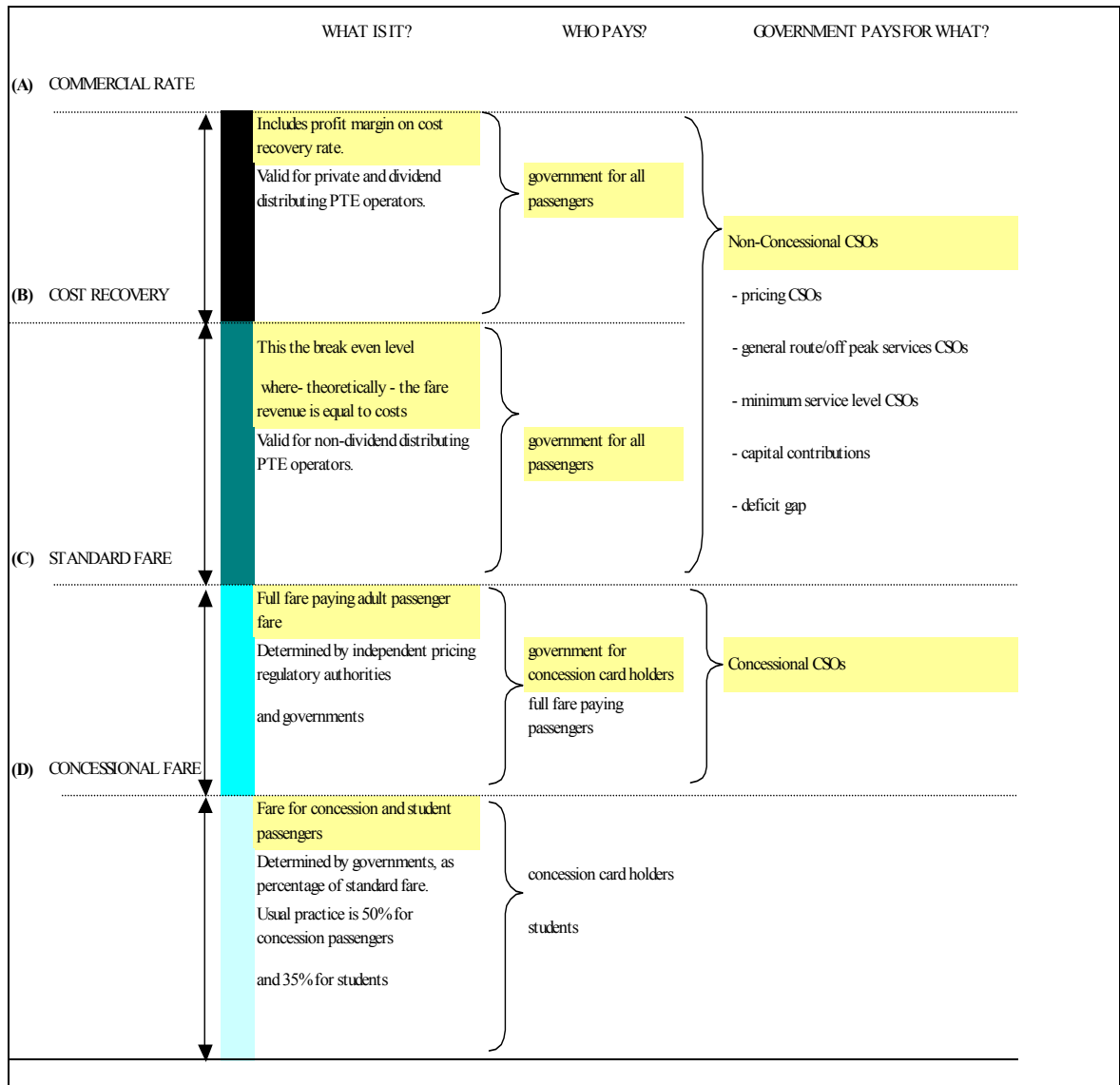
28. The standard policy seems to be to provide subsidies for a range of purposes including concessional fares, price reductions to reduce externalities such as pollution and congestion, and minimum level and other service level payments. These might best be grouped into concessional and non-concessional subsidies.

### ***Fare Structure And Determination Process***

29. Figure 1 presents a conceptual framework of the urban transit fare structure, what governments pay, and for what purposes.

30. Governments pay the difference between the standard fare and the concessional fare for *all concession* passengers, and the difference between the commercial fare and standard fare for *all* passengers. For non-dividend distributing PTEs, we understand that governments only fund the difference between the cost recovery level and the standard fare.

**Figure 1 URBAN TRANSIT FARE STRUCTURE**



Note: Non-concessional subsidies can be either the difference between the commercial rate and standard fare (A-C) in the case private of dividend distributing PTE, or the difference between cost recovery level and standard fare (B-C) in the case of non-dividend distributing PTEs.

31. Standard fares are usually determined by independent authorities which operate under State legislation<sup>2</sup> and set prices by considering the following criteria.

(i) Costs and efficiency

- the cost of providing the regulated services;

<sup>2</sup> The NSW Independent Pricing and Regulatory Tribunal Act 1992, the Victoria Office of the Regulator-General Act 1994, the ACT Independent Pricing and Regulatory Commission Act 1997, the Tasmania Government Prices Oversight Act 1995, the Queensland Competition Authority Act 1997, and the South Australia Independent Industry Regulator Act 1999.

- the need for greater efficiency in the supply of regulated services to reduce costs to consumers and providers;
  - the impact of government agencies arrangements on pricing policies; and
  - the need to promote competition in the supply of the services.
- (ii) Financial viability
- the appropriate rate of return on (public sector) assets; and
  - the impact on pricing of borrowing, capital and dividend requirements of the (government) agency.
- (iii) Consumer protection
- the protection of consumers from abuses of monopoly power in terms of price, pricing policies and standard services;
  - the effect on general price inflation;
  - the social impacts of the determinations; and
  - standards of quality, reliability and safety of the services.
- (iv) Environmental issues:
- the need to maintain ecologically sustainable development by appropriate pricing policies that take account of all the feasible options available to protect the environment; and
  - demand management and least cost planning.

32. In theory, the price determination process calculates the commercial fare, then the standard fare level, based on an assessment of what governments should pay for their social and environment objectives. However, in practice, this is not always the case. It appears the common practice is to use the current standard fare and, considering the above criteria, determine new standard fare levels for the assessment period.

33. Nonetheless, the theory of fare setting provides some guidance on the likely levels of subsidy States need to pay. States could choose, at a maximum, to subsidise the difference between the concessional fare and the standard fare and between the standard fare and the commercial rate. Alternatively, they could pay what the market offers.

### ***Subsidy Levels in Practice***

34. What States actually choose to subsidise depends both on government policies and on the outcomes of negotiations with service providers. The process of letting

contracts involves the agreement of State governments and providers on a price for the delivery of agreed standards of service.

35. Where governments agree to fund the deficits of service providers, they are choosing to pick up the full cost of the differences between commercial fares and standard and concessional fares. For example, Western Australian contracted bus operators are paid an agreed price to cover the gross cost of providing the service. All revenue accrues to the Government and most service contracts provide additional payments if patronage increases. In smaller country centres, Western Australia pays subsidies which are calculated to meet the deficit faced by the operators.

36. However, South Australia reported that in its latest round of private sector bids, a number of different bids were received for each area and the costs were higher in some areas than others. There was little explanation from the private sector contractors as to why that was the case. Victoria franchises services to those operators who can provide a level of services for the smallest subsidy. It hopes to end all subsidies to private sector bus contractors in the next ten years.

37. What these statements suggest is that it is too simplistic to say that subsidies equal the difference between costs and revenues raised. The way contracts are negotiated is more complex than this.

38. Abstracting then from costs and revenue raising capacity, to calculate a standardised level of subsidy for each State, we will need to identify:

- the standard objectives of governments (the reasons for which subsidies are paid); and
- the non-policy influences that result in different costs of providing the standard subsidies across States.

### ***Why do States Provide Different Per Capita Amounts of Subsidy?***

39. All State governments provide subsidies:

- (i) for concessional passengers in the form of concessional CSOs;
- (ii) for all passengers in the form of minimum level of service and pricing subsidies, including capital subsidies; and/or
- (iii) to cover operating deficits.

Why do the amounts of subsidies differ between States?

40. We believe that differences in the per capita size of subsidies come from:

- (i) the use made of the service by urban populations; and
- (ii) the per user subsidy.

41. The use of services in a State is affected by the size of its total urban population, the size of the different population groups that have access to subsidised fares, and the propensity of those groups to use services. The propensity of different groups to use urban transit services is influenced by the urban environment (including the urban form, the road systems and land use patterns) and by the standard fare level<sup>3</sup>.

42. The differences in the per user subsidy must be the result of government policy objectives, such as:

- the level of concessions to be provided to different groups;
- ensuring a minimum level of services is provided;
- overcoming urbanisation problems such as congestion and greenhouse gas emissions; and
- ensuring an appropriate modal mix is available to cope with problems of urban size.

43. For example, to encourage providers to run services that are uneconomically viable at night or in suburbs with low population densities, governments pay subsidies to providers to cover at least a proportion of the losses of the service providers. To reduce the costs associated with high levels of car use, governments provide subsidies to reduce the standard fares to encourage people to use public transport services. These objectives result in greater per fare subsidies.

44. Another element affecting per user cost is the need in larger cities to transport large numbers of people. In large cities, it seems to be standard policy to provide rail services as well as buses. Rail based services are provided in the five largest capital cities. These services require much greater capital infrastructure than bus services. To ensure this is provided, governments tend to pay capital or infrastructure subsidies.

## THE NEW APPROACH

45. The move to a concessions and other payments approach changes the composition of the category standard. It means that only the budget impact of subsidies for urban transit providers, including the expenses governments incur in depreciation and debt charges where they continue to own the urban transit infrastructure<sup>4</sup>, will be included in the category standard. This means that the assessment needs to reflect disabilities that impact

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<sup>3</sup> The NSW Independent Pricing and Regulatory Tribunal believes that '*lower public transport fares are not likely to attract car travellers away from their car*'. (IPART of New South Wales, *City Rail and STA Buses and Ferries, Public Transport Fares from 1 July 2001*, Determinations 1&2, 2001, June 2001, p.14.) To investigate this the Tribunal commissioned an independent study by the Centre for International Economics (CIE). The study found that '*changes in public transport fare levels are unlikely to have a major impact on patronage levels*' (IPART of New South Wales, *ibid*, p.15).

<sup>4</sup> These are an indirect type of subsidy.

on the size of subsidies rather than disabilities that influence gross expenditure and gross revenue (as was the case in the 1999 Review).

46. We can summarize the influences on State subsidy levels as follows.

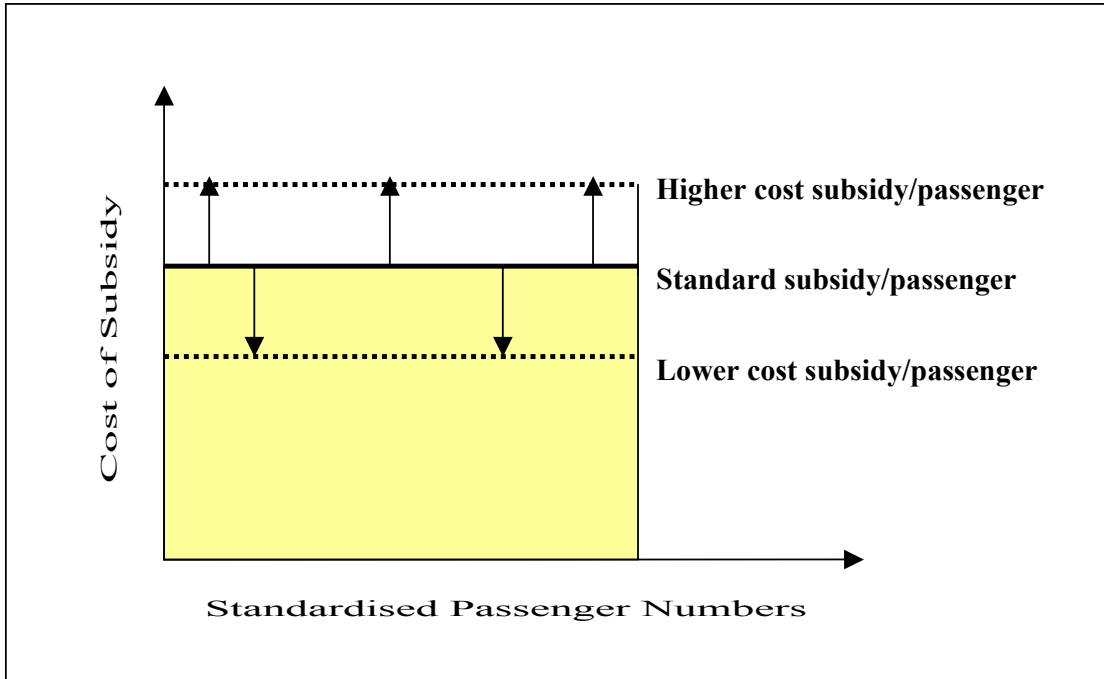
- (i) the size of the population groups to whom governments are prepared to offer subsidies (both concessional and non-concessional);
- (ii) the different propensity of each of these groups to use services because of urban characteristics such as land use patterns and topography;
- (iii) the level of subsidy offered to each of these groups, such as the aged, other pensioners, the unemployed, students, or the whole urban population; influenced by:
  - social policy objectives for concessional arrangements;
  - a commitment to provide minimum services;
  - the desire to overcome the effects of congestion and pollution; and
  - the need to provide greater infrastructure investment for the maintenance and development of rail based services.

47. The size of the subsidies will depend on a standardised level of passenger use per capita and a standardised subsidy per passenger. These will differ for concessional (to the aged, pensioners, students) and non-concessional subsidies (to all passengers). For concessional groups, the size of the subsidy will depend on group sizes, their propensity to use urban transit services and the relative cost of providing the subsidy for each concessional passenger (see Figure 2).

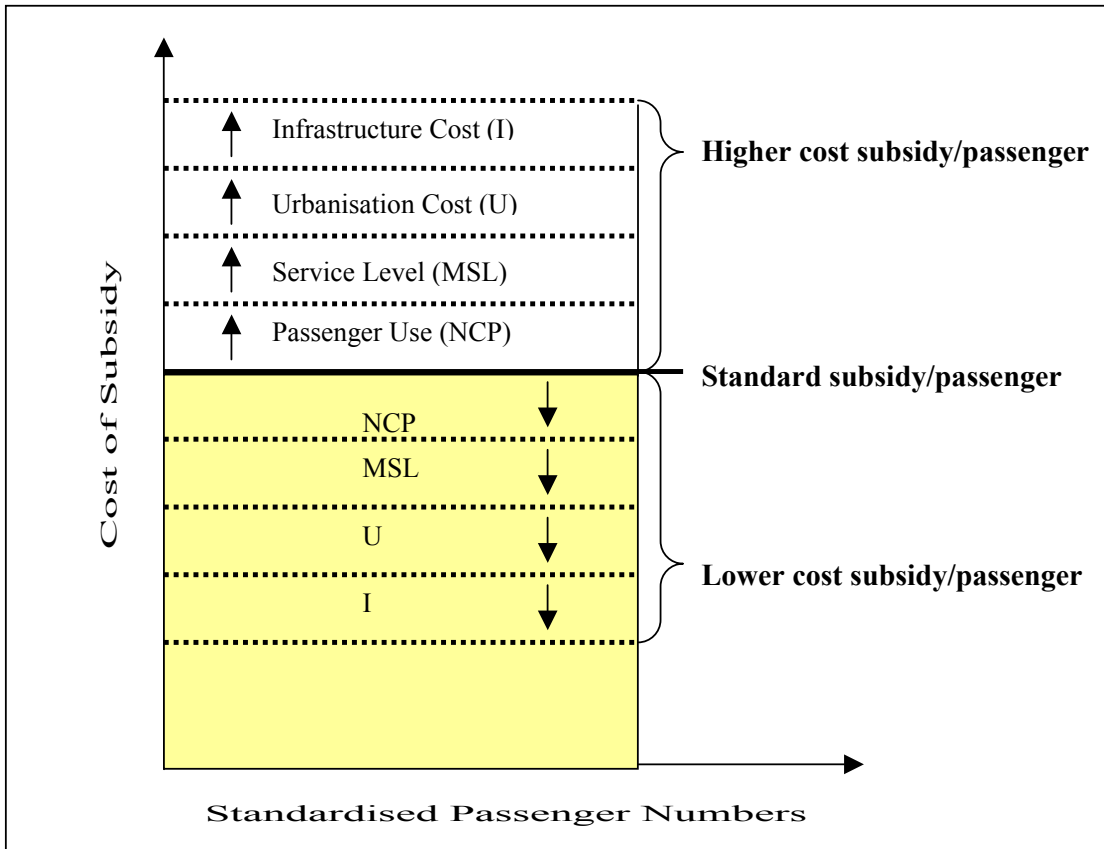
48. Figure 3 shows that how State governments' subsidies will vary according to their special circumstances, determined by any combination of passenger groups size, propensities, minimum service levels and urbanisation and infrastructure costs.

49. For non-concessional groups, the size of the subsidy will depend on the size of the urban population, the propensity of different groups in it to use urban transit services and the relative cost of providing the per passenger subsidy. As governments appear to have a standard policy of providing subsidies for minimum service levels, urbanisation disabilities and infrastructure, the standardised relative need for such subsidies will influence the size of the standardised subsidy to be paid in each State.

**Figure 2** INFLUENCES ON CONCESSIONAL SUBSIDIES



**Figure 3** INFLUENCES ON NON-CONCESSIONAL SUBSIDIES



50. Thus, we propose to calculate the standardised subsidies for urban transit as:

$$\text{Standardised (Stz) Subsidy} = \text{Stz concessional subsidy} + \text{Stz non-concessional subsidy}$$

Where

$$\text{Stz concessional subsidy} = \text{Size of concessional group} * \text{propensity to use urban transit} \\ * \text{level of subsidy per fare}$$

Where level of subsidy per fare is the relative cost weight for each type of concessional group

$$\text{Stz non-concessional subsidy} = \text{Urban population} * \text{propensity to use urban transit} \\ * \text{level of subsidy per fare}$$

Where level of subsidy per fare is determined by the relative needs of each States for minimum services, urbanisation and infrastructure subsidies

51. As shown in Figures 2 and 3, we propose to adjust the standard level of subsidy for differences in use and the relative cost of that use per passenger:

$$\text{Standardised Subsidy/capita} = \text{Standard concession/capita} * [C * P * R] \\ + \text{Standard subsidy/capita} * [NC * P * (w_1MS + w_2U + w_3I)]$$

Where

- C = concessional group size;
- P = group propensity to use urban transit;
- R = relative cost of concession;
- NC = urban population;
- MS = relative need for minimum service subsidies;
- U = relative need for urbanisation subsidies;
- I = relative need for infrastructure subsidies; and

$w_1, w_2, w_3$  are weights representing the relative proportion of the total non-concessional subsidy represented by each subsidy type.

## THE PROPOSED ASSESSMENT

### *Scope and Definition of the Category Standard*

52. In previous reviews, the definition of this category referred to expenditure on urban transit for population centres greater than 50 000 persons<sup>5</sup> and specifically listed those urban centres for which expenditure was to be included. We think the standard should be defined to include all subsidies paid to urban transit providers in any urban centre, regardless of size. This would also change the definition of the **Non-urban Passenger Transport** category also to include urban transit services provided **between** urban centres.

53. The Urban Transit category definition proposed in this paper is:

This category comprises subsidies paid to either government agencies, PTEs or private providers for the provision of urban rail, bus, tram or ferry services within urban areas. It includes any direct expenses incurred on depreciation, debt charges or other purposes. Any payments made by providers for access to infrastructure will be offset against the expenses. The cost to government of administering the subsidy payments will not be included.

54. The treatment of any dividends paid by providers needs to be considered further. In the 1999 Review, these were included in the revenue category Contributions by Trading Enterprises. It is possible that these, like payments for the use of infrastructure, should be offset. The treatment of the cost of administering subsidy payments also needs further consideration. COP categories in the 1999 Review did not include these costs and we have adopted that approach. We will need to consider the conceptually correct and practical treatment of these expenses.

55. Discussion papers on the Concessions and Other Payments group of categories and on the standard budget and data for the 2004 Review will be released later this year. There may be general issues in those papers that will impact on this category.

### *A Standard Level of Service*

56. **Threshold.** Both the 1993 and 1999 Review assessments were based on a standard policy of providing urban transit to population centres greater than 50 000 persons. Although the current provision of urban transit services largely matches this definition, some States provide urban transit services in urban centres below 50 000 people. Current practice in Tasmania and the Northern Territory is to fund urban transit services in much smaller settlements (eg. Burnie-Somerset in Tasmania and Alice Springs in the Northern Territory). However, New South Wales, Victoria and Queensland do not always fund

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<sup>5</sup> We think the size of urban centres is more relevant in determining the policy standard and in measuring disabilities. For example, the standard State policy on the size of urban centre in which subsidies are paid will enable us to measure, say, the number of people to whom States need to provide subsidies.

services in all settlements above 50 000 (eg. Maitland in New South Wales; Bendigo, Ballarat and Geelong in Victoria; Rockhampton, Cairns and Townsville in Queensland).

57. At the last staff level conference, States showed little enthusiasm for lowering the standard threshold. They cited the current difficulty in adequately comparing the provision of the service in Maitland (population 50 108) and Sydney. For purposes of discussion, we have maintained the 50 000 threshold as the standard policy in the assessment outlined below.

58. **Definition of urban centre.** In the 1999 Review, the Commission included Urban Centres or Localities (UCL) as defined by the Australian Bureau of Statistics with populations above 50 000 persons. It also included the Sunshine Coast Statistical Subdivision because the Queensland Government was subsidising bus services in that region and it decided that it should be considered as one UCL. At that time, and in subsequent updates, Tasmania sought the inclusion of the Burnie-Devonport Corridor and Queensland submitted several other UCLs that should be considered in scope for similar reasons.

59. In these preliminary calculations, we have limited the list of non-capital city UCLs included in the assessment to that used in the 1999 Review. That is not to say that the Commission has yet formed a view on this issue. If States believe that any group of UCLs should be included in the assessment, then they should advance their arguments.

60. **Split UCLs.** A further issue that may arise is the issue of urban areas split by State borders — for example, recent media reports indicate increasing co-operation in Albury-Wodonga. We would appreciate information on the impact of this co-operation, if any, on the assessment of States' needs to subsidise service providers in that area.

61. **Standard provisions.** The new COP approach includes the standard levels of payments by governments for concessions and for non-concessional payments for:

- service level agreements;
- urbanisation effects; and
- infrastructure payments.

62. The proposed assessment aims to measure the disabilities that impact on the size of the subsidies paid for these reasons. The analysis of the provision of urban transit systems and funding arrangements (and the 1999 Review assessment) suggest that breaking the subsidies into several components will help recognise States needs. The components are:

- (i) concessions;
- (ii) non-concessional payments; and
- (iii) national capital influences.

63. There will be no head office component because the category will not include any State central office type expenditure.

64. For the first two components, we are proposing to recognise parallel disabilities. They are:

- the size of the relevant group of passengers;
- their relative propensity to use urban transit services because of their different travel patterns and the different characteristics of urban areas; and
- cost factors influencing per passenger subsidies.

65. The proposed structure is summarised in Table 3.

**Table 3** URBAN TRANSIT ASSESSMENT STRUCTURE

Expenditure component	Component weight	Factors
	%	
Concessional Subsidies		Concessional Passenger Use
Non-concessional Subsidies		Passenger Use (a) Service Levels Urbanisation Infrastructure
National Capital		National Capital
(a) Adjusted for passenger group and city specific propensities to use the service because of the urban characteristics of State urban centres		

## CATEGORY COMPONENTS

### *Concessional Subsidies*

66. This component captures payments made by States to provide concessional fares for different groups of passengers. The size of the payment for a State will reflect:

- (i) the number of passengers in each group;
- (ii) the propensity of the groups to use urban transit; and
- (iii) the difference between the standard fare and the concession fare.

67. The population groups that are eligible for concession fares vary considerably between States. The list for each State is at Attachment A. We consider that, at the extreme, there are two possible approaches to determine the standard groups who are eligible for concessions.

- (i) Work through Table A-1, determining the standard for each group. While for groups such as children or aged pensioners this is relatively easy, calculating a standard proportion of veterans' wives appears to us to be pursuing a spurious level of accuracy.
- (ii) Look for broad population groups that cover the area, such as children, students, aged and unemployed persons. This approach is simpler and more transparent, and would provide a fair assessment of needs.

68. In this proposed assessment, we have divided the eligible population into two groups:

- (i) children and students; and
- (ii) other concession passengers, defined as the aged and the unemployed.

69. Commission staff seek State views as to the benefits of developing a more precise standard group eligible for concessions.

70. The rates and types of concession rates vary from State to State. Table 4 summarises the concession fares as a proportion of standard fares in each State. Although proportions vary greatly, an appropriate average policy to be used as a basis for the assessments would appear to be 35 per cent of the standard fare for students, and 50 per cent for other concession groups.

**Table 4** CONCESSION AND STUDENT FARES AS A PROPORTION OF FULL ADULT FARE

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT
	%	%	%	%	%	%	%	%
Concession – maximum	50	56	50	48	50	100	52	50
Concession – minimum	14	43	49	41	47	43	27	25
Student – maximum	50	49	50	48	50	100	52	50
Student – minimum	50	31	33	41	33	35	35	29

71. Since State governments pay the difference between the standard fare and the concessional fare, the proposed approach calculates the standardised need for concessional subsidies by using group numbers, group specific propensities for public transport use and differential cost weights (that is, the extent of the concession) to reflect the standard rate of subsidy for each group. Any higher costs due to differences in the costs of providing the service will be recognised in the subsidies provided to all groups.

72. We have used 1996 Census data to determine the size of the concession passengers in urban areas with over 50 000 population by adopting the following definitions.

- (i) **Concession** passengers include persons in the age group 65+ and not in the labour force, and unemployed persons in the age group 15+.
- (ii) **Students** include all persons in the age group 5-14, and persons in the age group 15-24 and not in the labour force (unemployed persons are not in the labour force).

73. Table 5 shows the distribution of concession groups and the percentage they make up of the total prospective passenger base in each State.

**Table 5** CONCESSION GROUPS BY STATE ('000)

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aust
Non-student Concessions	617.6	501.5	304.5	158.7	183.9	36.2	31.3	6.1	1 839.8
(%)	16.9	17.7	17.8	15.9	20.5	20.3	11.6	10.0	17.4
Students	742.7	575.4	347.5	214.1	175.3	37.0	62.3	12.7	2 167.0
(%)	20.4	20.3	20.3	21.4	19.5	20.8	23.1	21.0	20.4
Total concession groups	1 360.3	1 076.9	652.1	372.8	359.2	73.2	93.6	18.8	4 006.8
(%)	37.3	38.0	38.1	37.3	40.0	41.1	34.7	31.0	37.8
Urban population in centres over 50 000	3 646.2	2 833.0	1 712.9	998.5	899.0	178.0	269.6	60.5	10 597.7

Source: ABS, CDATA96.

74. Group specific propensities for public transport use were estimated in the 1999 Review by dividing the total number of journeys undertaken by public transport by each group (Australia-wide) by the Australian size of the group (see Table 6).

**Table 6** STANDARD GROUP PROPENSITY TO USE PUBLIC TRANSPORT

Item	Non-concession	Non-student concession	Student	Total urban population
Group average propensity	0.21	0.35	0.27	0.24
Relative propensity	.8750	1.4583	1.1250	1.0000

75. Capital city specific propensities (see Table 7) were also estimated as the relative average propensity of residents of each city to use public transport, assuming a standard level of service is provided at a standard level of operating efficiency and a standard level of fare is charged. In this context, the standard levels of service and efficiency are an average of the actual levels in each of the States.

**Table 7** CITY SPECIFIC PROPENSITIES TO USE PUBLIC TRANSPORT<sup>(a)</sup>

	Sydney	Melbourne	Brisbane	Perth	Adelaide	Hobart	Canberra	Darwin	Australia
	2.07	1.27	0.61	0.52	0.70	0.39	0.53	0.31	1.00

(a) A non-concession person in Sydney is, on average, 2.07 times more likely to use public transport than the Australian average person (see 1999 Review Urban Transit assessment).

76. Standardised public transport usage of a concession group (i) in a State (j) is calculated by using Equation 1. Table 8 shows the results:

$$PT_{ij} = C_{ij} * P_i P_j \quad (1)$$

Where:

PT = number of public transport trips;

C = number of people qualified for concession;

P = Public transport use propensity;

i = concession group (e.g. students, age pensioners, unemployed, etc.); and

j = State.

77. Standardised public transport use by a concession group in Australia is calculated by using Equation 2.

$$\sum_j^n PT_{ij} = \sum_j^n C_{ij} * \sum_j^n P_i P_j \quad (2)$$

78. As the State capital city propensity has been used to apply to all group members in all urban centres greater than 50 000 in each State, the factors produced will not be correct — for example, the New South Wales factor will be clearly overstated. We will need to estimate propensities for other urban centres or use the propensities in smaller urban centres as proxies.

**Table 8** STANDARDISED CONCESSION PASSENGER TRIPS

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aust
	000	000	000	000	000	000	000	000	000
Concession	449.4	223.9	65.3	29.0	45.3	5.0	5.8	0.7	824.3
Students	415.4	197.4	57.3	30.1	33.2	3.9	8.9	1.1	747.2
Total concession	864.8	421.3	122.6	59.1	78.4	8.9	14.7	1.7	1571.5

79. Standardised trips were cost weighted using standard concession rates for the two concession groups (governments pay 50 per cent for concession passengers and 65 per cent for students) (see Table 9).

**Table 9** COST WEIGHTED ADJUSTED CONCESSION PASSENGER TRIPS

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aust
	000	000	000	000	000	000	000	000	000
Concession	224.7	112.0	32.7	14.5	22.6	2.5	2.9	0.3	412.2
Student	270.0	128.3	37.2	19.5	21.6	2.5	5.8	0.7	485.6
Total concession	494.7	240.3	69.9	34.1	44.2	5.0	8.7	1.0	897.8

80. Based on the cost weighted standardised concession passengers, factors for each States were calculated by dividing cost weighted concession passenger trips by State population (see Table 10).

**Table 10** CONCESSION PASSENGER USE FACTORS

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aust
Concession Passenger Use Factor	1.62800	1.07610	0.42576	0.39487	0.60761	0.21315	0.57663	0.11409	1.00000

### *Non-Concessional Subsidies*

81. State governments provide funds for urban transit services to subsidise at least some of the differences between the commercial fare and the standard fare for all passengers.

82. We have identified the following influences as explaining the non-policy differences between States in the size of their non-concessional subsidies:

- (i) **Passenger Use.** The size of subsidies will differ because of the relative size of the different passenger groups (non-concession, concession and student passengers) in urban centres with over 50 000 population, and their propensity to use public transport as a result of group and urban characteristics.
- (ii) **Service Level.** The size of subsidies will differ if States have more urban centres greater than 50 000, or more parts of them, where a minimum level of service cannot be provided in a financially viable way.
- (iii) **Urbanisation costs.** State governments will need to provide larger subsidies to overcome the costs of urbanisation, such as congestion and pollution, where urban populations are large and densely

concentrated. This is usually achieved through subsidies designed to reduce standard fares to make the use of urban transit more attractive.

- (iv) **Infrastructure costs.** Governments also subsidise capital expenditures and/or other operating costs. Where populations are large and more densely settled, governments need to provide larger subsidies for the dedicated use of railway tracks and high investment/maintenance costs of rail services.

### **Passenger Use**

83. This factor measures the differences in subsidy levels due to the size of different passenger groups and their propensity to use urban transit services

84. These groups have been defined as:

- **non-concession passengers** — all persons aged 25 to 64, excluding the unemployed;
- **concessions** (same as for Concessional subsidies); and
- **students** (same as for Concessional subsidies).

**Table 11** PASSENGER GROUPS

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aust
	000	000	000	000	000	000	000	000	000
Non-concession	2285.9	1756.1	1060.8	625.7	539.8	104.9	176.0	41.8	6 590.9
%	62.7	62.0	61.9	62.7	60.0	58.9	65.3	69.0	62.2
Concession	617.6	501.5	304.5	158.7	183.9	36.2	31.3	6.1	1839.8
%	16.9	17.7	17.8	15.9	20.5	20.3	11.6	10.0	17.4
Students	742.7	575.4	347.5	214.1	175.3	37.0	62.3	12.7	2 167.0
%	20.4	20.3	20.3	21.4	19.5	20.8	23.1	21.0	20.4
Urban population in centres over 50 000	3646.2	2833.0	1712.9	998.5	899.0	178.0	269.6	60.5	10 597.7

85. By using the same propensities (group and city specific) and the same method used in the concessional subsidies component, standardised passenger trips were calculated for all population groups including non-concession passengers (see Table 12).

86. The passenger size factor is calculated by dividing standardised passenger trips by the State population and scaling the result to the Australian average (see Table 13).

**Table 12** STANDARDISED TRIPS FOR NON-CONCESSION PASSENGERS

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aust
	000	000	000	000	000	000	000	000	000
Non-concession	1012.0	477.0	138.4	69.6	80.8	8.7	19.9	2.8	1809.3
Concession	449.4	223.9	65.3	29.0	45.3	5.0	5.8	0.7	824.3
Students	415.4	197.4	57.3	30.1	33.2	3.9	8.9	1.1	747.2
Total	1876.8	898.3	261.0	128.7	159.2	17.6	34.7	4.5	3380.8

**Table 13** PASSENGER USE FACTOR

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aust
Passenger use factors	1.64027	1.06844	0.42225	0.39624	0.58159	0.19877	0.60981	0.13309	1.00000

***Service Level***

87. State governments usually have service level agreements with urban transit services providers. These agreements relate to quality, timeliness and frequency of services and can reflect particular State government objectives; that is, service level agreements vary to reflect the special circumstances of urban transit needs.

88. Minimum service level is a disability at the urban centre level rather than the State level. Therefore, together with the size of urban centres, the number of urban centres in a State that come within the scope of the assessment becomes important. It has been assumed that no minimum service disabilities apply to rail, or if they do, they can be proxied by bus service standards.

89. Bus services information has been used in this assessment to derive Australian average service levels. A State's need to provide more or less than the average service level represents its service level disability.

90. Research undertaken for the 1999 Review explored the issue of measuring minimum service level. In *1996 Reports on Research in Progress Volume 1*, the then Commission formed the view that if minimum service levels are required, the policies adopted by the States in the provision of bus services to urban population should have some similarities. In a number of respects, this proved to be so. Some of the important similarities were:

- (i) most States ensured that 95 per cent of urban residences were within 400-500 metres of a bus stop;
- (ii) all States commenced weekday operations at either 6.00 or 6.30 am, except Tasmania which employed a policy which ensured arrivals at work by 8:00 am;

- (iii) the spacing between stops for residential service routes did not vary much from 300 metres; and
- (iv) where private providers operated, the public sector service policies applied equally to them.

91. In Table 14, the estimates of service level for each State, based on data from the various sources, are set out for urban transit services provided by buses. The lack of comparability of the data has obvious implications for these calculations — they should be considered as little more than illustrating the possibilities of the approach. In particular, the result for Victoria appears anomalous. This reflects the fact that figures on vehicle kilometres relate only to public sector urban transit services.

**Table 14** ESTIMATES OF LEVELS OF SERVICE, BUSES

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT
Vehicle kilometres (vk) '000	71 000	6 037	30 685	48 500	40 096	10 504	20 900	2 997
Route kilometres (rk) '000	1.919	0.883	0.875	1.953	1.150	0.425	1.938	na
Population (p) '000	3 360	2 762	1 146	1 019	957	194	278	68
Area (a) '000 hectares	175	164	101	87	67	20	24	7
Population density (p/a)	19.23	16.82	11.39	11.65	14.28	9.46	11.82	9.38
Frequency (vk/rk)	36 998	6 837	35 069	24 834	34 866	24 715	10 784	na
Coverage (rk/a) * 10.0	10.98	5.38	8.70	22.34	17.15	20.73	82.38	na
Level of service measure (vk/p)	21.13	2.19	26.79	47.61	41.88	54.18	75.18	44.11

1. Vehicle kilometres and route kilometres are sourced from the CGC data returns for most States, or the Government Trading Enterprises Performance Indicators 1989-90 to 1993-94 Volume 2, or the City Transit Year Book 1996, or Janes Urban Transit Systems 1996-97. Queensland bus data are for services provided by the Brisbane City Council.
2. Population data are ABS UCL counts — for New South Wales, the population includes Sydney and Newcastle; for Tasmania, the population includes Hobart and Launceston; for the other States, the population refers only to the capital city.
3. Vehicle kilometres are all kilometres travelled by the revenue vehicle fleet for all purposes (that is, for normal service running, including schools, charter, special events, non-revenue kilometres positioning and dead running, and for maintenance and depot running). Revenue vehicle fleet is calculated as the difference between the total vehicles in stock less vehicles that are awaiting disposal, vehicles used for heritage purposes and training vehicles where these vehicles are not configured for operations.

92. Approaches to comparisons of service standards should reflect all the services provided, otherwise interstate differences in policies on the level of privatisation will influence the results. Clearly, our ability to obtain consistent data on services provided by private sector operators is a crucial consideration. The report by Hensher and Daniels<sup>6</sup> holds statistics on private and public bus operations, including vehicle kilometres, although

<sup>6</sup> Hensher and Daniels, *Productivity Measurement in the Urban Bus Sector: 1991-92*, Institute of Transport Studies, Graduate School of Business, the University of Sydney, August 1993.

it does not address the issue of service effectiveness. This study may provide further information relevant to Victorian private bus operations.

93. A rough estimate of the proportion of total services provided by the non-State sector in each State can be based on the information in Table 15. By applying these proportions to the vehicle-kilometres data for buses, a new set of level of service measures can be developed. However, it should be noted that the results are highly sensitive to the proportions assumed for private and public sector provision.

94. Table 16 shows the re-estimated data for each State for public and private services. It also shows the calculation of a standardised level of service for each State, assuming Australian standard frequencies and route coverage. In the second last line of the table, Australian standard frequencies and route coverage are applied to each States area per capita to generate standardised vehicle kilometres per capita. From these, a service level factor has been calculated.

**Table 15** BUS SERVICES, STATE AND NON-STATE -1996

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT
	%	%	%	%	%	%	%	%
State Bus Sector	50	10	0	100	100	75	90	33
Non-State Bus Sector	50	90	100 <sup>(a)</sup>	0	0	25	10	66

(a) All local government services are treated as private, and the ratio of local government provided services to private services is about 80:20.

**Table 16** ESTIMATES OF LEVELS OF SERVICE, BUSES

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aust
Vehicle kilometres (vk) '000	142 000	60 370	38 356	48 500	40 096	14 005	23 222	9 082	375 632
Route kilometres (rk) '000	3.84	8.83	1.09	1.95	1.15	0.57	2.15	Na	19.58
Population (p) '000	3 360	2 762	1 146	1,019	957	194	278	68	9 784
Area (a) '000 hectares	175	164	101	87	67	20	24	7	645
Population density (p/a)	19.20	16.84	11.35	11.71	14.28	9.70	11.58	9.71	15.17
Frequency (vk/rk)	36 998	6 837	35 069	24 834	34 866	24 715	10 784		19 180
Coverage (rk/a) * 10.0	0.22	0.54	0.11	0.22	0.17	0.28	0.90		0.30
Level of service measure (vk/p)	42.26	21.86	33.47	47.60	41.90	72.19	83.53	133.56	38.39
Standardised level of service measure									
[vk/p={ (vk/rk)*(rk/a) }*(a/p)]	30.33	34.58	51.33	49.72	40.77	60.04	50.28	59.95	38.39
Factor	0.79005	0.90069	1.33688	1.29510	1.06199	1.56381	1.30955	1.56151	1.00000

95. We think further work on this factor is necessary. The information needs to be updated to reflect the current practices, and data for public and private buses need to be obtained.

### ***Urbanisation Costs***

96. This factor measures the cost of overcoming problems associated with highly urbanised areas and their physical characteristics.

97. To measure the composite impact of urbanisation costs, we propose two approaches.

- (i) The first aims to use some key transport indicators, such as; per person trip rate; trip distance; travel time and the public transport mode share. It assumes that the current travel behaviours of people and the overall performance of transport systems in urban areas are the outcomes of these characteristics and influence the size of subsidies paid by governments. ABS data on travel behaviours in urban areas (household survey data) are not available for all States (see Table 17) and this issue will need to be discussed.
- (ii) An alternative approach is to use an estimate of the cost of overcoming congestion in urban areas to estimate the size of subsidies required. The Bureau of Transport and Communications Economics (BTCE) conducted a study to estimate the costs of reducing congestion to an economic level in State capital cities<sup>7</sup>. A commercial traffic simulation package was adapted to estimate external and marginal costs of citywide traffic. Despite the limitations of data and the model, the study estimated the congestion costs for six State capitals (see Table 18).

**Table 17** TRAVEL BEHAVIOUR CHARACTERISTICS PER PERSON PER DAY.

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT
Number of Trips	3.91	2.90	3.74	3.50			4.62	
Total distance Travelled (km)	37.3	19.6	22.6	27.0			42.5	
Travel Time (mins)	82	53	68	61			78.3	
Public Transport Mode Share (%)	11.2	5.6	4.8	6			4.97	

Source: States' household travel survey results.

<sup>7</sup> BTCE, *Traffic Congestion and Road User Charges*, Report 92, AGPS, Canberra, March 1996

**Table 18** CONGESTION COST ESTIMATES - BTE MODELLING RESULTS

	Sydney	Melbourne	Brisbane	Perth	Adelaide	Canberra
Congestion Cost (\$ billion)	6.00	2.70	2.60	0.60	0.80	0.05

Source: BTCE, Urban Transport – Looking Ahead, Information Sheet 14, Canberra, 1999.

98. The BTCE modelling is not entirely appropriate for our purposes. However, it provides a proxy for the costs of overcoming congestion in six capital cities. We have estimated costs for Hobart and Darwin, and used these results to calculate urbanisation disability factors (see Table 19 and 20).

**Table 19** CONGESTION COST ESTIMATES

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT
Congestion costs (\$ billion)	6.09	2.73	2.67	0.60	0.80	0.03	0.05	0.01

Note: Hobart and Darwin congestion costs estimates are based on judgement.

**Table 20** NON-CONCESSIONAL SUBSIDIES – URBANISATION FACTOR

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aust
Urbanisation Factor	1.38684	0.84604	1.12562	0.48142	0.76138	0.07355	0.22899	0.07716	1.00000

### *Infrastructure Costs*

99. This factor measures the need to provide greater infrastructure investment for the maintenance and development of rail based services compared with bus services.

100. The factors below are calculated using States' urban populations, weighted by the standard costs for services and the standard level of provision of urban transit infrastructure. The assumptions relating to calculation of standard costs and standard provision of urban transit infrastructure are provided in Table 21 and 22. They are drawn from the depreciation assessments of the 1999 Review.

101. The factor is calculated as follows.

- (i) Weighted population figures are calculated by multiplying State relevant population by the cost weight for infrastructure. For example, only the Sydney and Melbourne populations are assumed to be large enough to warrant rail systems with underground stations: these populations are therefore multiplied by the cost weight of 66 (see Table 23), added to the results of similar calculations which take account of need for above ground and light rail systems. The resulting

final weighted populations are used in calculating the infrastructure costs factors.

- (ii) These factors are weighted by 75 per cent to take account of the lower costs associated with redeveloping or updating already existing urban transit corridors, and for the effects of policy influences (see Table 24).

**Table 21** URBAN TRANSIT INFRASTRUCTURE COMPONENT – STANDARD COST OF URBAN TRANSIT INFRASTRUCTURE

	Cost per km	Cost per station	Cost per depot
	\$m	\$m	\$m
Underground heavy rail	50.00	3.00	5.00
Above ground heavy rail	5.00	2.00	5.00
Light rail	1.00	0.01	0.50
Bus	0	0.01	0.05

Source: Data provided by State Treasuries for the 1999 Review.

**Table 22** URBAN TRANSIT INFRASTRUCTURE COMPONENT

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aust
LENGTH OF TRACK (kms)									
Underground heavy rail	20	5	0	0	0	0	0	0	25
Above ground heavy rail	1010	360	200	100	120	0	0	0	1790
Light rail	5	350	0	0	10	0	0	0	365
Bus	3710	3370	960	1200	820	300	550	150	11060
NUMBER OF STATIONS									
Underground heavy rail	10	5	0	0	0	0	0	0	15
Above ground heavy rail	300	200	70	30	40	0	0	0	640
Light rail	5	175	0	0	5	0	0	0	185
Bus	1240	1120	320	400	270	100	180	50	3680
NUMBER OF DEPOTS									
Underground heavy rail	0	0	0	0	0	0	0	0	0
Above ground heavy rail	5	2	1	1	1	0	0	0	10
Light rail	0	2	0	0	0	0	0	0	2
Bus	4	3	1	1	1	1	1	1	13

Source: Data provided by some State Treasuries for the 1999 Review.

**Table 23** URBAN TRANSIT INFRASTRUCTURE COMPONENT,  
CALCULATION OF CONSTRUCTION COST WEIGHTS

	Track cost	Station cost	Depot cost	Total cost	Cost weight
	\$m	\$m	\$m	\$m	
Underground heavy rail	203.5	7.3	0.0	210.9	65.9
Above ground heavy rail	941.4	134.6	5.3	1,081.2	337.9
Light rail	38.4	0.2	0.1	38.7	12.1
Bus	0.0	3.1	0.1	3.2	1.0

Note: The cost is the standard cost of provision, multiplied by the standard infrastructure per million relevant population.

**Table 24** URBAN TRANSIT INFRASTRUCTURE COMPONENT –  
CALCULATION OF CONSTRUCTION COSTS FACTORS

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT	Aust
Population (millions)									
Capital City	3.28	2.87	1.29	1.10	0.98	0.13	0.30	0.07	10.00
Other Urban areas	0.77	0.25	0.62	-		0.07			1.70
Total	4.04	3.12	1.91	1.10	0.98	0.19	0.30	0.07	11.70
Population to which underground rate weight applies (2 million or more)	3.28	2.87	-	-	-	-	-	-	6.14
Population to which aboveground and light rail weight applies (0.5 million or more)	3.28	2.87	1.29	1.10	0.98	-	-	-	9.51
Population to which bus weights apply	4.04	3.12	1.91	1.10	0.98	0.19	0.30	0.07	11.70
Weighted population ('000) – using cost weights from Table 23	1366.6	1,194.8	453.8	385.0	343.3	0.2	0.3	0.1	3744.2
State Population	5.996	4.406	3.239	1.702	1.435	0.464	0.298	0.177	17.717
Ratio	227.9	271.2	140.1	226.2	239.3	0.4	1.0	0.4	211.3
Urban transit infrastructure costs – raw factors	1.07849	1.28318	0.66299	1.07049	1.13231	0.00198	0.00471	0.00188	1.00000
Infrastructure weight									0.75
Urban transit infrastructure costs factors = $[\{(h-1)*0.75\}+1]$	1.05887	1.21238	0.74724	1.05287	1.09923	0.25148	0.25354	0.25141	1.00000

### *National Capital Influences*

102. In the 1999 Review, a national capital factor was assessed because the costs of providing urban transit services in the ACT are higher relative to those of other States due to Commonwealth policies that prohibit parking fees being charged in some areas of Canberra. This encourages people to use private transport and reduces the patronage and fare revenue of the bus services.

103. In the 1999 Review, the Commission decided that a national capital allowance of \$1.5 million a year (\$4.87 per capita) was appropriate to allow for the ACT's forgone revenue. The approach presented in this paper assumes that there could be a similar effect on the level of subsidy necessary in the ACT. The national capital factor is taken directly from the 2001 Update.

104. We seek States views as to whether the situation in the ACT would necessarily lead to a greater subsidy.

### **COMPONENT WEIGHTS**

105. The current expenditure data of State Transport Authorities do not provide enough information to differentiate concessional and non-concessional subsidies. Some State, however, do provide enough information for us to assign the payment to either the concessional or non-concessional group. Table 25 presents the available information.

**Table 25** GOVERNMENT FUNDING – 1999-2000

	Concession		Non-concession	
	\$m	%	\$m	%
NSW – SRA – City Rail	152.7	46.4	176.4	53.6
NSW – STA – Bus	105.9	78.2	29.5	21.8
NSW - STA Ferry	7.9	32.2	16.6	67.8
NSW – STA – New Castle Bus	15.6	79.5	4.0	20.5
NSW – STA - Consolidated	129.4	72.0	50.2	28.0
NSW – SRA and STA – Consolidated	282.1	55.5	226.6	44.5
ACT – ACTION Bus	13.9	30.0	32.3	70.0

Source: NSW State Transit, Annual Report 1999-2000, pp.109-112; State Rail Authority of New South Wales, 1999-2000 Annual Report, p.79; Independent Competition and Regulatory Commission, Final determination, ACTION Pricing for the period 1 July 2001 to 30 June 2003, p.43.

106. Table 25 suggests there is a considerable variation between States and between modes within a State. For this calculation, we have adopted the following component weights:

- (i) Concessional Subsidies                      0.550;
- (ii) Non-Concessional Subsidies              0.449; and
- (iii) National Capital                            0.001.

### SUMMARY OF ASSESSMENT

107. The following formulas were used to calculate the contribution of each component to the overall category factor. In each case, the contributions are calculated as the expenditure component weight multiplied by the component factor (the bracketed terms in the formulas). Sub-component weights of non-concessional subsidies are assumed equal at this stage as further work is required to determine the weights.

$$\begin{aligned} \text{CSUB} &= 0.55 * \text{con} \\ \text{NSUB} &= 0.449 \{ (\text{pas}) * ((\text{urb} + \text{sl} + \text{inf}) / 3) \} \\ \text{NCAP} &= 0.001 * \text{n} \\ \text{Category Factor} &= \text{CSUB} + \text{NSUB} + \text{NCAP}. \end{aligned}$$

108. The results generated are not really indicative of the likely final outcome for this approach. We have used old data, data that were available and data that are not totally appropriate for the purposes we have used it. However, they illustrate the approach we would like to use and highlight the importance of particular data items.

**Table 26** URBAN TRANSIT NET EXPENDITURE ASSESSMENT —  
DERIVATION OF CATEGORY FACTOR

	NSW	Vic	Qld	WA	SA	Tas	ACT	NT
<b>CONCESSIONAL SUBSIDIES (CSUB) (Component Weight = 55.00 %)</b>								
Concession passenger use (con)	1.62800	1.07610	0.42576	0.39487	0.60761	0.21315	0.57663	0.11409
Component factor	1.62800	1.07610	0.42576	0.39487	0.60761	0.21315	0.57663	0.11409
Contribution to category factor	0.89540	0.59185	0.23417	0.21718	0.33419	0.11723	0.31715	0.06275
<b>NON_CONCESSIONAL SUBSIDIES (NSUB) (Component Weight = 44.90 %)</b>								
Passenger Use (pas)	1.64027	1.06844	0.42225	0.39624	0.58159	0.19877	0.60981	0.13309
Service Level (sl)	0.79005	0.90069	1.33688	1.29510	1.06199	1.56381	1.30955	1.56151
Urbanisation Costs (urb)	1.38684	0.84604	1.12562	0.48142	0.76138	0.07355	0.22899	0.07716
Infrastructure Costs (inf)	1.05887	1.21238	0.74724	1.05287	1.09923	0.25148	0.25354	0.25141
Component factor	1.76917	1.05388	0.45177	0.37371	0.56658	0.12515	0.36428	0.08385
Contribution to category factor	0.79436	0.47319	0.20285	0.16779	0.25440	0.05619	0.16356	0.03765
<b>NATIONAL CAPITAL (NCAP) (Component Weight = 0.10 %)</b>								
National capital (n)	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	61.05660	0.00000
Component factor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	61.05660	0.00000
Contribution to category factor	0.00000	0.00000	0.00000	0.00000	0.00000	0.00000	0.06141	0.00000
<b>CATEGORY FACTOR</b>	1.68976	1.06505	0.43701	0.38497	0.58858	0.17342	0.54212	0.10040

## CONCLUSIONS

109. This paper has presented a possible approach for the urban transit assessment as a basis for discussion at the September staff level conference. We are aware of many practical problems in implementing the assessment. These mainly relate to obtaining the data required to compile the standard, determine component weights and quantify the disability factors. If the data required to make this assessment more robust are not available, Commission staff would be interested in alternative suggestions from States.

110. We are also interested in State views as to whether we have adequately:

- (i) identified a standard group of concession recipients;
- (ii) determined the standard types of non-concessional subsidies paid; and
- (iii) reflected the underlying disabilities.

**Table A-1 AVAILABILITY OF CONCESSIONS**

<b>Type of concession</b>	<b>NSW</b>	<b>Vic</b>	<b>Qld</b>	<b>WA</b>	<b>SA</b>	<b>Tas</b>	<b>ACT</b>	<b>NT</b>
Children	Yes		Yes	Yes		Yes		Yes
Pensioner/Centrelink	Yes	Yes – Some	Yes	Yes	Yes	Yes	Yes - Some	Yes
Pensioner – other States	Yes	Yes		Yes	Yes	Yes	Yes?	
Retired Employees of transit authority	Yes							
Seniors Card	Yes	Yes	Yes	Yes	Yes	Yes	Yes	
Veterans	Yes	Yes	Yes	Yes	Yes	Yes		Yes
WWI Veterans	Yes	Yes	Yes	Yes	Yes	Yes		
Veterans wives		Yes						
War Widow/er	Yes	Yes – WWI			Yes	Yes		
Temporary Concession Card					Yes			
Repatriation Health Card					Yes			
Vision Impairment	Yes	Yes			Yes	Yes		Yes
Blinded Solider	Yes				Yes			
SA Department of Human Services					Yes			
Incapacitated ex-					Yes	Yes		

**Table A-1 AVAILABILITY OF CONCESSIONS**

<b>Type of concession</b>	<b>NSW</b>	<b>Vic</b>	<b>Qld</b>	<b>WA</b>	<b>SA</b>	<b>Tas</b>	<b>ACT</b>	<b>NT</b>
serviceman								
Entitlement card for special annual ticket (eg for Members of State parliament)					Yes			
Mobility pass					Yes			
Police						Yes		
St John Ambulance						Yes		
Students								
Full time tertiary	Yes		Yes	Yes	Yes	Yes	Yes	
Secondary	Yes		Yes	Yes	Yes	Yes	Yes	Yes
Primary			Yes		Yes	Yes	Yes	Yes
Apprentice 1 <sup>st</sup> /2nd Year	Yes							
Australia Traineeship	Yes							
Partners/dependents of those who are entitled to concessions					Yes			

**Table A-2 - NATURE OF CONCESSIONS**

Type of concession	NSW	Vic	Qld	WA	SA	Tas	ACT	NT
Children	Under 4 free. Between 4 and 16 half fares for some tickets and child rate for others. Child rate is???		Under 5 Free. Children 5-14 half fare.	Under 5 free if accompanied by someone over the age of 15.	Under 5 free.			4 and under free. 5-14 half fare.
Pensioner/Centerlink	Eligible pensioners - pensioner rates	Half fare for Newstart, Youth Allowance, Widow Allowance, Sickness Allowance, Special Benefit.	Half fare	Adult Concessions for aged, invalid, widower, unemployed, low income, sickness benefits.	47-50% of full fare depending on type of ticket for unemployed, sickness/disability and aged.	Adult Concessions	Concessions for New Start, Youth Allowance, Partner Allowance, Sickness Allowance, Parenting Payments, Special Benefit, Widow Allowance.	Flat fare
Pensioner - other States	ACT/Vic - pensioner rates and half fares on some tickets. Other States - a concession.	Half fare	Half Fare	Adult Concessions				Full fare

**Table A-2 - NATURE OF CONCESSIONS**

Type of concession	NSW	Vic	Qld	WA	SA	Tas	ACT	NT
Retired Employees of transit authority	Eligible pensioners - pensioner rates and half fares							
Seniors Card	Pensioner excursion rates and half fares	Half fare	Half Fare	Adult Concessions	47-50% of full fare depending on type of ticket for unemployed, sickness/disability and aged.	Adult Concessions	Concessions in off-peak periods only.	Full fare
Veterans	Free	Free?	Half fare	Adult Concessions?	Adult Concessions	Free		Flat fare
WWI Veterans	Free	Free	Free	Adult Concessions?	Adult Concessions			Flat fare
Veterans wives		Free for WWI widows						
War Widow/er	NSW and Vic - Pensioner Excursion and half fares.	Free for WWI widows half fare for others.			Adult Concessions	Adult Concessions		
Temporary Concession Card								
Repatriation Health Card								

**Table A-2 - NATURE OF CONCESSIONS**

Type of concession	NSW	Vic	Qld	WA	SA	Tas	ACT	NT
Vision Impairment	Free	Free			Free	Free		Free
Blinded Solider	Free	Free (attendant can also travel free)			Free			Free
SA Department of Human Services					Adult Concession			
Incapacitated ex-serviceman		Free			Free			
Entitlement card for special annual ticket (eg for Members of State parliament)								
Mobility pass								
Police						Free on presentation of badge.		
St John Ambulance						Free when dressed in uniform		
Students								

**Table A-2 - NATURE OF CONCESSIONS**

Type of concession	NSW	Vic	Qld	WA	SA	Tas	ACT	NT
Full time tertiary	half fare		Half fare	Concession	47-50% of full fare depending on type of ticket for unemployed, sickness/disability and aged.	Off-peak day tripper. Otherwise full fare.	Concessions	Half fare
Secondary	half fare		Half fare	Concession	33-50% of full fare depending on type of ticket for unemployed, sickness/disability and aged.	Student Concession. Free if parents are on a pension, recipients of a health care card or low income earners.	Free travel	Half fare
Primary	half fare		Half fare		33-50% of full fare depending on type of ticket for unemployed, sickness/disability and aged.	Student concession. Free if parents are on a pension, recipients of a health care card or low income earners.	Free travel	Half fare
Apprentice 1 <sup>st</sup> /2nd Year	half fare on some services							
Trainee Australia Trainee ship	half fare on some services							

**Table A-2 - NATURE OF CONCESSIONS**

Type of concession	NSW	Vic	Qld	WA	SA	Tas	ACT	NT
Partners/Dependents of those who are entitled to concessions					47-50% of full fare depending on type of ticket for the dependents of people on unemployment, and sickness/disability pensions.			