IPART
New South Wales

Independent Pricing and Regulatory Tribunal

Review of fares for metropolitan and outer metropolitan bus services from January 2010

Government and private bus services in Sydney, Newcastle, the Central Coast, Wollongong, the Blue Mountains and the Hunter regions

Transport — Final Report
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ISBN 978-1-921628-27-6

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Foreword

This determination sets bus fares for the metropolitan and outer metropolitan regions for the 4 years from 2010 to 2013.

The determination aims to ensure that passengers make a fair contribution towards the efficient costs of providing bus services. It also aims to encourage passengers to make the best possible (or optimal) use of bus services. We have determined fares that in our view will lead to the optimal use of bus services. This optimal fare balances the interests of the community in having low bus fares and greater bus use against the cost to the community of providing bus services. To achieve these objectives we have developed a rigorous and transparent method for setting bus fares. Under this approach fares are set to recover the efficient cost of providing bus services to fare paying passengers minus the value of the external benefits that the use of these services provides to the broader community. These external benefits include reduced road congestion and air pollution.

We analysed the costs that bus operators and the RTA incur in providing bus services for fare paying passengers. Only those costs that are efficient and clearly associated with providing bus services will be recovered through fares. We find that fares will need to increase by slightly more than the rate of inflation in each of the next 4 years if passengers are to make a fair contribution to the cost of providing bus services. These fare increases will allow the government to recover around half of the total cost that it incurs in providing bus services. This is similar to the current level of cost recovery. We are not proposing to vary the structure of fares for this determination.

Over the past 4 years, the Government has made important changes to the way in which bus services are provided. NSW Transport and Infrastructure (NSWTI) which is responsible for providing bus services in NSW, has established contracts with the bus operators. Under these contracts, operators must provide specified services in a particular region or regions for an agreed payment. They must provide services to the standard required in the contracts, and must report regularly to NSWTI on their service performance.

These reforms have improved the delivery of bus services in NSW. However, our experience in undertaking this review indicates that there is scope to further strengthen the contract regime. In particular, NSWTI should enhance the reporting and monitoring of information required under the contract regime. This will provide important benefits for taxpayers and passengers by encouraging bus operators to

improve the standards of their services and the efficiency of their operations. It will also improve the quality of the information that is available to inform future contract negotiations.

We encourage NSWTI to ensure that all operators meet their reporting obligations. NSWTI should also regularly compare the performance of the operators with the targets set out in their contracts. We also encourage NSWTI to publish reports on this comparison and to ask operators to explain poor performance where it occurs. Without this information passengers and taxpayers cannot know what standard of service they are receiving in return for paying the cost of operating bus services. And operators will lack the information and incentives that they need to improve their performance in future.

James Cox

Acting Chairman
Chief Executive Officer

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1 Introduction and executive summary

The Independent Pricing and Regulatory Tribunal of NSW (IPART) has now completed its review of maximum fares for bus services provided under contracts with the State Government in the metropolitan and outer metropolitan regions of NSW. As part of this review, we developed a new more rigorous approach for setting bus fares. We have made a final determination using this approach.

Our final decisions are largely unchanged from the draft report. Actual inflation for 2009 was lower than the forecast we used in our draft report resulting in some fares increasing by less than we proposed in the draft report.

The purpose of this report is to set out and explain the determination, including the fare outcomes under the determination, and the decisions that led to these outcomes. The determination will apply for a 4-year period from January 2010.

1.1 Summary of fare outcomes

Under the determination, the price of bus fares in all 25 contract regions will increase by an average of 3.4% on 3 January 2010. This is equal to an increase of 14.0% in nominal terms in total over the 4-year determination period (or 6% above the expected rate of inflation). The price of:

- **Single trip tickets** will increase by between 10 and 20 cents on 3 January 2010 and by up to 20 cents in January of each year over the subsequent 3 years (depending on the length of the journey).
- **TravelTen, Private Bus Weekly** and **T-WayTen**[1] tickets will increase by between 40 cents and $1.60 on 3 January 2010 (depending on the length of the journey). Over the subsequent 3 years, most of these tickets will increase by between 80 cents and $1.60 in January of each year.
- **Weekly TravelPasses** will increase by between $1.00 and $2.00 on 3 January 2010 and by between $1.00 and $2.00 in January of each year over the subsequent 3 years.
- **Time-based fares** in Newcastle will increase by between 10 and 30 cents on 3 January 2010 and by between 10 and 40 cents in January of each year over the subsequent 3 years (depending on the length of time the ticket applies).

1 T-WayTens are for 10 bus trips on the Liverpool to Parramatta Transitway.

- **TimeTen** tickets in Newcastle will increase by 70 cents on 3 January 2010 and by between 90 cents and $1.00 in January of each year over the subsequent 3 years.

Box 1.1 Our review process

As part of our review process, we have undertaken public consultation and detailed analysis. In particular, we:

- Released an issues paper in May that outlined our proposed approach to the review and the key issues to be considered, and invited all interested parties to make a submission in response to this paper.
- Considered all submissions and stakeholder comments.
- Engaged consultants to provide expert analysis and advice on key aspects of the review. We engaged LECG to analyse and recommend the value of the external benefits of bus services to fare-paying passengers in the 4 largest contract regions, and provide advice on the optimal level for fares. We engaged Indec Consulting Pty Ltd (Indec) to estimate and recommend the efficient level of operator-incurred operating costs in the 4 largest regions.
- Published the consultants' reports on our website.
- Released a draft report and draft determination in October and invited comments from interested parties.
- Held a public hearing on 11 November 2009.

1.2 Approach used to set fares

The approach we used to set fares is significantly different from the approach we have used in the past. The new approach is more rigorous and robust, and is consistent with the approach used for the recent CityRail fare determination. It is also the approach we consider best for meeting our objectives for this determination, especially ensuring that passengers make a fair contribution to the efficient costs of providing bus services and encouraging the optimal use of bus services, while also complying with the Government's fare harmonisation policy.

This approach included:

- **Introducing a multi-year determination period**. We decided to set fares for a period of 4 years, from January 2010 to 31 December 2013. In our view, a longer determination period provides much needed certainty to Government and the future provider of the e-ticket regarding the fare structure that they must work within.

- **Setting fares in all 25 contract regions based on estimates of the efficient costs of providing contracted bus services to fare-paying passengers in the 4 largest regions.** The Government's fare harmonisation policy means there is no scope for us to set different fares in different regions. Therefore, we decided to base fares on detailed analysis of the efficient costs in the 4 largest regions (rather than all regions or a larger sample of regions) as this approach is most likely to result in fares that ensure the majority of passengers make a fair contribution to costs, and encourage the optimal use of bus services. This is because the 4 largest regions account for three-quarters of all bus trips made by fare-paying passengers and most of the bus routes in the 25 regions. Therefore, basing fares on the costs of bus services in these regions should result in appropriate fares for three-quarters of all fare-paying passengers. In contrast, basing fares on the average costs across all regions, or a larger sample of regions, would result in higher than appropriate fares for three-quarters of fare-paying passengers (because the smaller regions have higher costs per fare-paying passenger). We also found that there was not enough information on operating costs or assets in other regions that was comparable or reliable enough for this purpose.
- **Estimating the efficient costs of providing bus services to fare-paying passengers using a rigorous, transparent approach that is consistent with the approach we use in regulating other industries.** This approach took into account both operating and capital costs, and both operator and RTA costs incurred in providing bus services in the 4 largest regions. However, it included only those costs deemed to be efficient, and only those clearly associated with the provision of bus services. We consider this approach is most likely to ensure passengers make a fair contribution to costs and encourage optimal bus use, as it includes the full economic costs incurred in providing bus services, but ensures passengers are not required to fund inefficiencies in operators' work and management practices.
- **Deciding how much of the efficient costs passengers should fund through fares based on the estimated value of the external benefits of bus services in the 4 largest regions.** We also commissioned and considered advice on the optimal level of fares that would strike an appropriate balance between the share of costs paid by passengers and the Government.
- **Translating this decision into fares for the 4 largest regions, by deciding on the structure of fares and the level of fares (taking into account the forecast patronage growth in these regions)**.
- **Applying our decision on the level of fares to all the regions (in line with the Government's fare harmonisation policy).**
- **Considering whether this decision was reasonable and balanced in terms of its likely impact on passengers (eg, the affordability of fares), the environment and the Government.**

1.3 Efficient costs of providing bus services in the 4 largest regions

Table 1.1 summarises our final decision on the efficient costs of providing bus services for fare-paying passengers, and the components of this decision.

Table 1.1 Efficient costs of providing bus services for fare-paying passengers in the 4 largest contract regions ($ million, real 2009/10)

	2009/10	2010/11	2011/12	2012/13	2013/14
Efficient operating expenditure (operator and RTA)	501.0	500.1	498.7	495.8	490.6
Allowance for return on assets (operator and RTA)	49.3	62.0	70.5	73.0	74.0
Allowance for depreciation (operator and RTA)	51.7	62.5	70.8	76.8	81.9
Allowance for return on working capital (operator and RTA)	-3.0	-2.6	-1.9	-1.8	-1.6
Sub total	**599.0**	**622.1**	**638.1**	**643.8**	**644.8**
Less costs of providing services under SSTS	49.2	51.1	52.4	52.8	52.9
Less a portion of commercial revenues	27.7	26.8	25.8	25.8	25.8
Total efficient costs used in making the determination	**522.1**	**544.2**	**559.9**	**565.1**	**566.1**

Note: Totals may not add due to rounding.

In our view, passengers should make a fair contribution to the efficient costs incurred by both the bus operator and the Roads and Traffic Authority of NSW (RTA) in providing bus services. Therefore, we included an allowance for costs that will be incurred by the bus operator in providing contracted bus services in the 4 largest contract regions as well as an allowance for costs that will be incurred by RTA in providing and maintaining bus priority measures in these regions (such as bus only and bus lanes,[2] priority traffic signals and bus bays along major bus corridors).

1.3.1 Efficient operating expenditure in the 4 largest regions

In making our final decision on efficient operating expenditure, we considered Indec's analysis and recommendations on the level of operating and maintenance costs an efficient operator would incur in the 4 largest regions, given the particular service and performance standards set out in the contracts for these regions, and the specific operating environment within the regions.

2 Bus only lanes are a special form of bus lane restricted to buses, whereas bus lanes are specially marked lanes that can be used by buses, taxis, hire cars, emergency vehicles, motorcycles and bicycles.

We decided to allow for operator-incurred operating costs that are broadly in line with Indec's recommended level of achievable efficient costs in each year of the determination period. However, we adjusted these recommended levels to remove costs associated with the current operator's governance and procurement practices (including using Original Equipment Manufacturer (OEM) parts rather than generic parts). These costs are incurred because the current operator is a stated-owned corporation, and the Government and community require higher levels of governance and procurement in state-owned corporations than private companies. We consider that passengers should not be required to contribute to these costs.

The level of operator-incurred operating costs we allowed is lower than the current operator's forecast costs and progressively decreases in each year of the determination period. This is because the current operator requires time to implement changes that enable it to move from its present cost structure to a more efficient structure over the next five years.

We also considered RTA's forecast operating expenditure of $15 million per year on bus priority measures in the 4 largest regions, including priority traffic signals and the Public Transport Information and Priority System. We decided to include this expenditure. In our view, the bus priority measures will provide a direct benefit to passengers through shorter journey times. Therefore, they are an important part of the total efficient costs of providing bus services in the 4 largest regions, and should be included for the purpose of setting fares.

1.3.2 Allowance for a return on assets in the 4 largest regions

Our final decision on the allowance for a return on assets reflects our view that:

- The opening value of the assets used to provide bus services in the 4 largest regions is $601 million (as at 30 June 2009).
- $575 million of operator forecast capital expenditure and $188 million of RTA forecast capital expenditure will be rolled into the value of the assets over the determination period.
- An appropriate rate of return on these assets over this period is 7.2% per annum.

In determining the opening value of the assets, we valued operator assets at $601 million, using market value to value land based on its existing use and depreciated historical costs to value other operator assets. We 'drew a line in the sand' for RTA bus-specific assets, valuing them at zero. In our view, it is more important to ensure future RTA capital expenditure on bus services is included in the efficient costs to be recovered from passengers than to recover past expenditure which was not necessarily made with a view to being recovered in fares.

In rolling forward the value of the assets, we included all operator forecast capital expenditure. We included RTA forecast expenditure of $87.5 million on the Inner West Busway in 2010/11, and $25 million per year on other bus priority measures between 2009/10 and 2012/13.

In deciding on the appropriate rate of return, we determined that the weighted average cost of capital in the bus industry ranges from 5.8% to 8.7%, and that a rate of return equivalent to the mid-point of this range is appropriate for providing bus services.

1.3.3 Allowances for depreciation and a return on working capital in the 4 largest regions

In determining the allowance for depreciation, we used the straight line depreciation method. We established an appropriate depreciation rate for each group of new and existing assets based on the economic lives of the assets then multiplied the annual value of each group by the appropriate rate. For new assets, we depreciated:

- Operator buses based on an economic life of 17.5 years (5.7%).
- Operator buildings and improvements based on an economic life of 40 years (2.5%).
- Other operator assets (including plant and ticketing equipment) based on an economic life of 11.6 years (8.6%).
- RTA bus priority measures on an economic life of 20 years, in line with the useful life for traffic signals and within the range for the useful lives for traffic systems and pavement roads the RTA uses when depreciating these assets for accounting purposes (5.0%).
- The Inner West Busway based on an economic life of 75 years, taking into account the significant expenditure involved in duplicating the Iron Cove Bridge, and the useful lives of concrete and steel bridges and pavement roads the RTA uses when depreciating these assets for accounting purposes (1.3%).

For existing operator assets, we determined the remaining lives of each group of assets according to the proportion of the historical cost that is yet to be depreciated, and on the economic lives we applied to the equivalent new assets. This resulted in depreciation rates of 10.1% for buses, 4.1% for buildings and improvements, and 18.5% for other existing operator assets.

In determining the allowance for a return on working capital, we estimated the forecast levels of net working capital to provide bus services in the 4 largest regions in each year of the determination period, and multiplied these levels by the appropriate rate of return (discussed above). Our estimates of forecast net working capital were negative, so the allowance for a return on this capital was also negative.

1.4 Forecast patronage growth in the 4 largest regions

Our decision on forecast patronage growth over the determination period has a significant impact on the level of fares. This is because under the approach used to set fares, we based our decision on how much of the efficient costs should be funded through bus fares on the value of the external benefits, and this value is strongly influenced by the forecast number of bus trips by fare-paying passengers. We also set fare levels based on this forecast number. In general, higher forecast patronage growth leads to lower fares.

Our final decision is to assume patronage growth of 0.8% per annum over the determination period. This is slightly lower than the long-term average patronage growth of 1.0% per annum, and reflects our view that the ongoing impact of the global economic downturn on economic and employment conditions in Sydney are likely to have a dampening effect on this growth over the next few years. It is also consistent with the Transport Data Centre's view of forecast patronage growth.

1.5 Value of the external benefits of bus services in the 4 largest regions

The external benefits of bus services are the indirect benefits that accrue to the wider community (rather than individual passengers) as a result of the provision and use of these services – such as reduced road congestion, reduced traffic accidents and reduced air pollution. We consider that these external benefits justify government subsidisation of fares for these services, and that the level of government subsidisation should be related to the value of the external benefits.

For this reason, we estimated the value of the external benefits of bus services in the 4 largest regions over the determination period, and considered this value in deciding how much of the efficient costs passengers should fund through fares. Our final decision on this value is summarised on Table 1.2 below.

Table 1.2 Value of the external benefits generated by providing bus services to fare-paying passengers in the 4 largest contract regions ($ million, real 2009/10)

	2009/10	2010/11	2011/12	2012/13	2013/14
Avoided road congestion costs	$174.3	$175.7	$177.1	$178.5	$179.9
Reduced air pollution costs	$60.3	$60.7	$61.2	$61.7	$62.2
Avoided road accidents costs	$0.0	$0.0	$0.0	$0.0	$0.0
Adjustment for fuel excise & parking levy foregone	-$19.7	-$19.9	-$20.1	-$20.2	-$20.4
Total external benefits	**$214.8**	**$216.5**	**$218.2**	**$220.0**	**$221.7**

1.6 How much of the efficient costs should be funded by passengers through fares

To estimate how much of the efficient costs of providing bus services passengers should fund through fares, we subtracted the value of the external benefits from the efficient costs. We also subtracted the estimated cost to the NSW Government of providing concession fares to targeted groups within the community – such as those on aged and disability pensions. We accept that this further subsidisation is justified because the availability of affordable bus services generates additional social benefits that are not captured in our estimate of the external benefits. However, we don't consider that it is appropriate for full fare-paying passengers to contribute to the costs of providing concession fares.

Table 1.3 shows our final decision on how much passengers should fund through fares and our calculation of the average increase in fares required to recover this amount over the determination period.

Table 1.3 Amount passengers should fund through fares ($ million, real 2009/10) and its implications for fares

	2010	2011	2012	2013
Amount passengers should fund through fares	246.6	261.5	268.1	267.2
Annual real increase in fares [a]	1.6%	1.4%	1.4%	1.4%

[a] These fare increases exclude Pensioner Excursion Ticket fares.

Note: In addition to the increases shown above, fares will be adjusted by the change in the CPI each year.

1.7 Fare structure

After establishing the average fare increase required to recover passengers' share of the efficient costs, we translated this decision into new fares. To do this, we needed to decide whether to maintain the current fare structure or change it.

We examined the current fare structure, and stakeholders' comments on fare structure. We considered how well the current fare structure meets our objectives for this determination – particularly whether it needs to change in order to facilitate integrated electronic ticketing, and whether it ensures passengers make a fair contribution to costs.

We decided not to change the fare structure because:

- There is no evidence that the current distance-based structure of most fares will not be workable under an integrated e-ticketing regime, and we consider this fare structure has the potential to be more equitable than the alternatives under e-ticketing.
- We consider that the current relativities between the fixed and variable charges implicit in the current fare structure, and between the price of single and multi-trip tickets are appropriate.

- We consider that the relatively small number of existing fares with alternative structures (zone-based TravelPass products and time-based Newcastle fares) will transition smoothly into a distance-based e-ticketing regime provided they are set at a reasonable level.

1.8 Implications for the Government, the environment and passengers

As required by Section 28J of the *Passenger Transport Act 1990,* before finalising our determination we considered its implications for the affordability of fares and other social impacts, and for the environment and the Government.

In relation to the affordability of fares, we considered the employment and income profile of bus passengers, the relative cost of bus fares (including average weekly expenditure on bus fares), and the availability of concession and off-peak fares. We concluded that the modest annual average fare increases of 1.5% above inflation per year under the determination are not likely to significantly reduce the affordability of fares or have other unreasonable social impacts.

In relation to the environment, we took account of all the feasible pricing policy options to protect the environment. In our view, the potential for pricing policies such as the structure and level of bus fares to help protect the environment is limited. There is no evidence that any of the alternative price structures better encourages bus usage than others. In addition, the relatively inelastic demand for bus services means that different fare policies are unlikely to create significantly different environmental outcomes. Therefore, we concluded that our decisions on the structure and level of fares are unlikely to lead to a significant change (either positive or negative) in the use of buses. In considering the optimal level of fares we also considered the environmental benefits associated with bus travel.

In relation to the Government, we assessed how the determination is likely to affect the proportion of the total costs of providing bus services in all 25 contract regions the Government recovers through fare revenue. Based on our forecasts of total contract payments and farebox revenue over the determination period, we expect the level of cost recovery to be similar to the level achieved in 2008/09.

Table 1.4 Expected cost recovery over the 2010 determination period

	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14
Metropolitan regions						
Farebox as a % of total costs of contract payments	41.1	41.2	41.1	41.0	40.9	40.9
Farebox as a % of total costs less SSTS and concession funding	54.4	54.7	54.5	54.4	54.3	54.2
Outer metropolitan regions						
Farebox as a % of total costs of contract payments	14.5	14.4	14.2	14.1	13.9	13.8
Farebox as a % of total costs less SSTS and concession funding	29.5	29.3	29.0	28.7	28.4	28.1
All 25 regions						
Farebox as a % of total costs of contract payments	36.6	36.8	36.6	36.5	36.4	36.3
Farebox as a % of total costs less SSTS and concession funding	51.5	51.8	51.5	51.4	51.3	51.2

1.9 Implications for contract management

Over the past couple of years, the Government has progressively introduced new contractual arrangements for the provision of bus services in metropolitan and outer metropolitan areas. NSW Transport and Infrastructure (NSWTI), formerly the Ministry of Transport, is responsible for administering the bus service contracts. We consider that bus service contracts have the potential to deliver significant benefit for taxpayers and passengers by improving services and strengthening the incentives for operators to act efficiently. However, the current contract regime needs to be improved to ensure this potential is realised. We have made a number of recommendations that we consider would strengthen the contract regime (listed below). The reasons for these recommendations are discussed further in Chapters 3 and 6.

Recommendations

1 NSWTI should collect data on the actual costs of operating buses in each region from all operators, as required by the current service contracts.

2 NSWTI should regularly collect operational data, including the number of bus hours for each region from all operators.

3 NSWTI should collect service quality data and performance indicators (including the number of full buses) from operators, as required by the current service contracts.

4 NSWTI should act to enforce contract terms where reporting requirements are not met and require operators to explain the reasons for any areas of poor performance.

5 NSWTI should regularly compare and report performance of operators – this information should be made publicly available and operators should be held accountable for their performance.

6 NSWTI should ensure that service contracts explicitly provide for the fare regulator to be given access to all relevant data, even where that data is provided on a confidential basis.

7 NSWTI should require all bus operators to collect and submit complete and accurate data on load factors for buses in the regions they operate.

1.10 Structure of this report

The following chapters set out and discuss our final decisions and their implications in detail:

- Chapter 2 lists the new fares under the determination.
- Chapter 3 explains the approach we used to set these fares, and why we consider this approach to be the best approach for setting metropolitan and outer metropolitan bus fares.
- Chapter 4 provides an overview of our final decision on the efficient costs of providing bus services in the 4 largest regions.
- Chapters 5 to 8 discuss the individual components of this decision, including the efficient operating costs, the value of the assets used in providing bus services, and the allowances for a return on assets, depreciation and a return on working capital.
- Chapter 9 explains our final decision on forecast patronage growth in the 4 largest regions, and how this decision influences the value of the external benefits and the level of fares.
- Chapter 10 discusses our final decision on the value of the external benefits generated by the provision and use of bus services in the 4 largest regions.
- Chapter 11 sets out our final decision on how much of the efficient costs of providing bus services passengers should fund through fares, and the average fare increase required to recover this amount.
- Chapter 12 explains our final decision to maintain the current fare structure.
- Chapters 13 to 15 discuss the implications of the determination for the affordability of fares, the environment and the Government.

The determination itself is available on our website.

2 New fares

Under the 2010 determination, the prices of metropolitan and outer metropolitan bus fares (excluding the pensioner excursion ticket (PET)) increase by an average of 3.4% on 3 January 2010. This is equal to an increase of 14.0% in nominal terms over the 4-year determination period (or 6% above the expected rate of inflation).[3]

This means, based on our current estimate of forecast inflation, the price of:

- **Single trip tickets** will increase by between 10 and 20 cents on 3 January 2010 and by up to 20 cents in January of each year over the subsequent 3 years (depending on the length of the journey).
- **TravelTen, Private Bus Weekly** and **T-WayTen**[4] tickets will increase by between 40 cents and $1.60 on 3 January 2010 (depending on the length of the journey). Over the subsequent 3 years, most of these tickets will increase by between 80 cents and $1.60 in January of each year.
- **Weekly TravelPasses** will increase by between $1.00 and $2.00 on 3 January 2010 and by between $1.00 and $2.00 in January of each year over the subsequent 3 years.
- **Time-based fares** in Newcastle will increase by between 10 and 30 cents on 3 January 2010 and by between 10 and 40 cents in January of each year over the subsequent 3 years (depending on the length of time the ticket applies).
- **TimeTen** tickets in Newcastle will increase by 70 cents on 3 January 2010 and by between 90 cents and $1.00 in January of each year over the subsequent 3 years.

The sections below set out the our decision on the maximum fares for single, TravelTen, Private Bus Weekly, T-WayTen and time-based fares in Newcastle (in nominal terms). The maximum fares under our decision are based on the current fares for each ticket type, increased each year by the average increase in fares, which is approximately the same in every year of the determination. The increases in maximum fares shown below are slightly different for each ticket because each fare has been rounded (to the nearest 10 cents or dollar, depending on the ticket).

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3 'In nominal terms' means including the effect of inflation. The nominal fare increases and fare levels discussed in this report assume the current rate of inflation of 2.0% during 2010, 2011, 2012 and 2013. If the actual rate of inflation differs from these assumptions, actual fare outcomes in 2011 to 2013 may differ from those indicated in this report.

4 T-WayTens are for 10 bus trips on the Liverpool to Parramatta Transitway.

Our final decisions on fares are largely unchanged from the draft report. Actual inflation for 2009 was lower than the forecast we used in our draft report resulting in some fares increasing by less than we proposed in the draft report. Please note that fares for 2010 to 2013 are still based on forecast annual inflation rates of 2.0%. The actual fares in these years will be adjusted to reflect any difference between these forecast inflation rates and actual inflation, in accordance with our legal determination. Actual fares will also be rounded in accordance with NSWTI's rounding conventions.

We will publish an annual ticket schedule in December of the preceding year listing actual fares that will apply in 2011, 2012 and 2013.

Also note that we do not have a role in determining the rules associated with concession fares. Nor do we set fares for the PET or the travel under School Student Transport Scheme (SSTS). However, under current government policy, concession fares are set so that they are no more than half of the full fare.

2.1 Single trip tickets

The maximum prices for single adult tickets are shown in Table 2.1.

Table 2.1 Single adult fares

	2009	From Jan 2010	From Jan 2011	From Jan 2012	From Jan 2013	Cumulative change	Total change 2009-2013
Sections	**Fare ($ nominal)**		**Fare ($ nominal)**			**($ nominal)**	**(% nominal)**
1 to 2	1.90	2.00	2.00	2.10	2.20	0.30	15.8%
3 to 5	3.20	3.30	3.40	3.50	3.60	0.40	12.5%
6 to 9	4.20	4.30	4.50	4.60	4.80	0.60	14.3%
10 to 15	5.00	5.10	5.30	5.50	5.70	0.70	14.0%
16+	6.10	6.30	6.50	6.70	6.90	0.80	13.1%

Note: Fares from January 2011 to 2013 are presented in nominal dollars assuming an inflation forecast of 2.0%. Actual fares in these years will be adjusted for the difference between this forecast and actual inflation and rounded to the nearest 10 cents in accordance with IPART's legal determination and NSWTI's rounding conventions.

2.2 TravelTen, T-WayTen and private bus weekly tickets

We decided to continue to price TravelTen, private bus weekly and T-WayTen tickets based on the price of 10 single tickets less a 20% discount. The maximum prices for these multi-trip tickets are shown in Table 2.2.

Table 2.2 TravelTen, T-WayTen and private bus weekly adult fares

Sections	2009 Fare ($ nominal)[a]	From Jan 2010 Fare ($ nominal)	From Jan 2011 Fare ($ nominal)	From Jan 2012 Fare ($ nominal)	From Jan 2013 Fare ($ nominal)	Cumulative change ($ nominal)	Total change 2009-2013 (% nominal)
1 to 2	15.20/15.30	16.00	16.00	16.80	17.60	2.40/2.30	15.8/15.0%
3 to 5	25.60	26.40	27.20	28.00	28.80	3.20	12.5%
6 to 9	33.60/34.00	34.40	36.00	36.80	38.40	4.80/4.40	14.3/12.9%
10 to 15	40.00/40.80	40.80	42.40	44.00	45.60	5.60/4.80	14.0/11.8%
16+	48.80/49.30	50.40	52.00	53.60	55.20	6.40/5.90	13.1/12.0%

a T-WayTen fares are the higher of the two amounts shown.

Note: Fares from January 2011 to 2013 are presented in nominal dollars assuming an inflation forecast of 2.0%. Actual fares in these years will be adjusted for the difference between this forecast and actual inflation and rounded to the nearest 10 cents in accordance with IPART's legal determination and NSWTI's rounding conventions.

T-Way BusPlus tickets combine train and T-Way bus services to provide unlimited weekly travel to and from a destination via the Liverpool to Parramatta Transitway. The fare is calculated by combining the seven day rail pass fare and the T-Way fare. The T-Way component is calculated on number of sections travelled. The maximum prices for T-Way BusPlus weekly adult tickets are shown in Table 2.3.

Table 2.3 T-Way BusPlus weekly adult fares

Sections	2009 Fare ($ nominal)	From Jan 2010 Fare ($ nominal)	From Jan 2011 Fare ($ nominal)	From Jan 2012 Fare ($ nominal)	From Jan 2013 Fare ($ nominal)	Cumulative change ($ nominal)	Total change 2009-2013 (% nominal)
1 to 2	14.40	14.80	15.30	15.80	16.40	2.00	13.9%
3 to 5	26.70	27.40	28.40	29.40	30.40	3.70	13.9%
6 to 9	38.00	39.00	40.40	41.80	43.20	5.20	13.7%
10 to 15	54.60	56.10	58.00	60.10	62.10	7.50	13.7%
16+	69.30	71.20	73.70	76.20	78.90	9.60	13.9%

Note: Fares from January 2011 to 2013 are presented in nominal dollars assuming an inflation forecast of 2.0%. Actual fares in these years will be adjusted for the difference between this forecast and actual inflation and rounded to the nearest 10 cents in accordance with IPART's legal determination.

The T-Way weekly ticket provides for unlimited weekly travel on T-Way services within designated zones. The maximum prices for T-Way weekly adult tickets are shown in Table 2.4.

Table 2.4 T-Way weekly adult fares

Sections	2009 Fare ($ nominal)	From Jan 2010 Fare ($ nominal)	From Jan 2011 Fare ($ nominal)	From Jan 2012 Fare ($ nominal)	From Jan 2013 Fare ($ nominal)	Cumulative change ($ nominal)	Total change 2009-2013 (% nominal)
North (section 1-10)	38.00	39.00	40.40	41.80	43.20	5.20	13.7%
South (section 10-19)	38.00	39.00	40.40	41.80	43.20	5.20	13.7%
North + South (section 1-19)	69.30	71.20	73.70	76.20	78.90	9.60	13.9%

Note: Fares from January 2011 to 2013 are presented in nominal dollars assuming an inflation forecast of 2.0%. Actual fares in these years will be adjusted for the difference between this forecast and actual inflation and rounded to the nearest 10 cents in accordance with IPART's legal determination and NSWTI's rounding conventions.

2.3 One- and two-mode TravelPasses

The maximum prices for 1- and 2-mode TravelPasses are shown in Table 2.5. The prices for 3-mode TravelPasses were set in IPART's 2009 CityRail determination.

Table 2.5 Fares for one- and two-mode adult weekly TravelPasses

Sections	2009 Fare ($ nominal)	From Jan 2010 Fare ($ nominal)	From Jan 2011 Fare ($ nominal)	From Jan 2012 Fare ($ nominal)	From Jan 2013 Fare ($ nominal)	Cumulative change ($ nominal)	Total change 2009-2013 (% nominal)
Blue	34.00	35.00	36.00	37.00	39.00	5.00	14.7%
Orange	43.00	44.00	46.00	47.00	49.00	6.00	14.0%
Pittwater	58.00	60.00	62.00	64.00	66.00	8.00	13.8%
2-Zone	34.00	35.00	36.00	37.00	39.00	5.00	14.7%

Note: Fares from January 2011 to 2013 are presented in nominal dollars assuming an inflation forecast of 2.0%. Actual fares in these years will be adjusted for the difference between this forecast and actual inflation and rounded to the nearest dollar in accordance with IPART's legal determination and NSWTI's rounding conventions.

2.4 Bus tickets in Newcastle

The maximum prices for Newcastle time-based fares are shown in Table 2.6 and Table 2.7.

Table 2.6 Newcastle time-based fares

Sections	2009 Fare ($ nominal)	From Jan 2010	From Jan 2011	From Jan 2012	From Jan 2013	Cumulative change ($ nominal)	Total change 2009-2013 (% nominal)
		Fare ($ nominal)					
1 Hour	3.20	3.30	3.40	3.50	3.60	0.40	12.5%
4 Hours	6.20	6.40	6.60	6.80	7.10	0.90	14.5%
TimeTen 1 Hour	26.10	26.80	27.70	28.70	29.70	3.60	13.8%
All Day	9.50	9.80	10.10	10.40	10.80	1.30	13.7%

Note: Fares from January 2011 to 2013 are presented in nominal dollars assuming an inflation forecast of 2.0%. Actual fares in these years will be adjusted for the difference between this forecast and actual inflation and rounded to the nearest 10 cents in accordance with IPART's legal determination and NSWTI's rounding conventions.

Table 2.7 Two-mode Newcastle TravelPass

Sections	2009 Fare ($ nominal)	From Jan 2010	From Jan 2011	From Jan 2012	From Jan 2013	Cumulative change ($ nominal)	Total change 2009-2013 (% nominal)
		Fare ($ nominal)					
Newcastle Orange	34.00	35.00	36.00	37.00	39.00	5.00	14.7%

Note: Fares from January 2011 to 2013 are presented in nominal dollars assuming an inflation forecast of 2.0%. Actual fares in these years will be adjusted for the difference between this forecast and actual inflation and rounded to the nearest dollar in accordance with IPART's legal determination and NSWTI's rounding conventions.

2.5 Bus Tripper, Sports Special and school term pass

The maximum prices for BusTripper and Sports Special adult tickets are shown in Table 2.8. The maximum prices for the School term pass ticket are shown in Table 2.9.

Table 2.8 Bus Tripper and Sports Special adult fares

Sections	2009 Fare ($ nominal)	From Jan 2010 Fare ($ nominal)	From Jan 2011 Fare ($ nominal)	From Jan 2012 Fare ($ nominal)	From Jan 2013 Fare ($ nominal)	Cumulative change ($ nominal)	Total change 2009-2013 (% nominal)
BusTripper	12.70	13.00	13.50	14.00	14.50	1.80	14.2%
Sports special return	5.60	5.80	6.00	6.20	6.40	0.80	14.3%
Sports special single	3.20	3.30	3.40	3.50	3.60	0.40	12.5%

Note: Fares from January 2011 to 2013 are presented in nominal dollars assuming an inflation forecast of 2.0%. Actual fares in these years will be adjusted for the difference between this forecast and actual inflation and rounded to the nearest 10 cents in accordance with IPART's legal determination and NSWTI's rounding conventions.

Table 2.9 School term pass fares

Sections	2009 Fare ($ nominal)	From Jan 2010 Fare ($ nominal)	From Jan 2011 Fare ($ nominal)	From Jan 2012 Fare ($ nominal)	From Jan 2013 Fare ($ nominal)	Cumulative change ($ nominal)	Cumulative change (% nominal)
School term pass	45.10	46.30	47.90	49.60	51.30	6.20	13.7%

Note: Fares from January 2011 to 2013 are presented in nominal dollars assuming a market implied inflation forecast of 2.0%. Actual fares in these years will be adjusted for the difference between this forecast and actual inflation and rounded to the nearest 10 cents in accordance with IPART's legal determination and NSWTI's rounding conventions.

3 Approach used to set fares

We have developed a new approach for setting metropolitan and outer metropolitan bus fares from 2010, and used this approach to make our determination. In developing the approach, we reviewed our fare setting objectives for this determination, and established a set of assessment criteria that encapsulates these objectives.

The objectives and assessment criteria take into account the background and context for the determination – specifically the factors we are obliged to consider in making bus fare determinations, the current bus contracting regime, and the differences in the operating conditions and services provided in the 25 metropolitan and outer metropolitan bus contract regions. They also take account of relevant Government policies, including that the same fares should apply in all of the regions except Newcastle (fare harmonisation) and that public transport fares should facilitate the introduction of integrated, electronic ticketing in the future.

The section below sets out our final decisions on the approach used to set fares. The subsequent sections discuss our objectives and assessment criteria, describe the approach used to set fares in more detail, and explain how this approach meets each of our assessment criteria.

3.1 Decisions on the approach used to set fares

We decided to set fares based on our estimates of the total efficient costs and the external benefits of providing contracted bus services in the 4 largest contract regions. After considering the differences in the operating conditions and services provided across all regions, we concluded that focusing our analysis on the 4 largest regions will best meet our assessment criteria for this determination.

Using this approach, we will set bus fares for all 25 contract regions from January 2010 to 31 December 2013. By adopting this 4-year determination period, we hope to be able to commence our next review just after renegotiations for the next round of metropolitan service contracts, and so should have access to recent information on costs provided by operators as part of these negotiations.[5]

5 Provided the Government does not extend the current contracts beyond their original term.

1 IPART's final decision is that bus fares in all 25 contract regions will be determined based on our estimate of the efficient costs and external benefits of providing bus services in the 4 largest contract regions.

2 IPART's final decision is to adopt a 4-year determination period, from January 2010 to 31 December 2013.

Our final decisions on the approach used to set fares are unchanged from the draft report.

3.2 Our objectives and assessment criteria for the 2010 determination

In making bus fare determinations, we are required to consider the factors set out in section 28J of the *Passenger Transport Act 1990* and set fares in a way that achieves an appropriate balance between these considerations (see Appendix B). However, the Act does not tell us how to take these factors into account, or which factors to prioritise where the objectives implied in the factors conflict.

Therefore, we need to decide which factors are the most important and so should receive the most weight in our decision making. We also need to decide how best to ensure that our determination operates effectively. This means working within the constraints of the current contractual arrangements between the Government and operators, and various government policies that affect the determination.

To make the above decisions clear to stakeholders, we developed a set of assessment criteria to guide our decision-making on the appropriate approach for setting fares and the resulting fares (see Box 3.1). In our view, these criteria encapsulate and prioritise the objectives for the 2010 determination, given the various statutory obligations and practical factors we must consider in making our determination. We also consider that the approach for setting fares we have developed and used in making the determination is the one that best meets these criteria.

The assessment criteria are slightly different to those we proposed in our Issues Paper. In general, stakeholders supported the proposed criteria, but some also suggested changes. After considering these suggestions, we decided to:

- Reorder the proposed criteria to give higher priority to informing future contractual arrangements and lower priority to facilitating the introduction of integrated ticketing. We agreed with the Hunter Commuter Council that informing contract negotiations should be a higher priority than facilitating integrated ticketing, as integrated electronic ticketing is unlikely to be introduced within this determination period.[6]

6 Hunter Commuter Council submission, 9 June 2009, p 1.

- Divide the first of the proposed criteria into two separate items. We considered the Lower Hunter Councils Transport Group's view that increasing the proportion of trips made by public transport should be a criterion.[7] However, we remained of the view that encouraging optimal use of bus services is appropriate because it takes into account the broad range of factors that need to be considered in setting the price of bus tickets (including the economic, environmental and social impacts). We decided to make this a separate criterion and list the factors that need to be taken into account, to clarify our interpretation of 'optimal use'. We have determined fares that in our view will lead to the optimal use of bus services. This optimal fare balances the interests of the community in having low bus fares and greater bus use against the cost to the community of providing bus services.

Box 3.1 Assessment criteria for the 2010 determination

The fare setting approach and resulting fares should:

1. Ensure bus passengers make a fair contribution to the efficient cost of providing bus services.
2. Encourage optimal use of bus services having regard to a broad range of factors including:
   - the efficient costs of providing bus services
   - the policy of fare harmonisation
   - the impact on the environment
   - the social impact
   - the level of external benefits.
3. Provide useful information to inform future contractual arrangements for bus services in order to achieve greater efficiency, provide appropriate incentives for new investment, minimise costs and improve services.
4. Facilitate the introduction of integrated ticketing by maintaining a simple fare structure to enable a smooth transition to the new e-ticket regime.
5. Be consistent with principles of regulatory best practice by:
   - ensuring that where possible, decisions are made by parties in the best position to make those decisions (to avoid regulatory micro-management)
   - being practical, pragmatic and feasible
   - being simple and understandable
   - being targeted at the regulatory objectives
   - being proportionate with the problem.

7 Lower Hunter Councils Transport Group submission, 9 July 2009, p 2.

We considered Western Sydney Community Forum's suggested additional criteria, including creating a world-class bus system for Sydney, and its view that facilitating integrated ticketing should be of the utmost importance.[8] However, we found that the additional criteria were not appropriate, given that our determination is not able to directly influence the level of investment in bus services. The determination can only indirectly influence this investment by encouraging optimal use of the existing services, and providing information that can be used when re-negotiating service contracts to create better incentives for efficiency and service improvements. In addition, as noted above, we have lowered the priority of facilitating integrated ticketing as it is not expected to be introduced within the 2010 determination period. Nevertheless, we agree that the smooth introduction of electronic ticketing is important and should remain a key objective of the determination.

3.3 Overview of the approach we used to set fares

The approach we used to set fares for the determination included the following steps:

1. For the 4 largest contract regions, we:
   a) established the efficient costs of providing the contracted bus services to fare-paying passengers over the determination period, based on detailed analysis of forecast costs and scope for efficiency gains
   b) forecast the likely patronage growth over the determination period
   c) estimated the value of the external benefits generated by providing bus services to fare-paying passengers (taking account of the forecast patronage growth)
   d) decided how much of the efficient costs should be funded by passengers through fares (taking into account the estimated value of the external benefits and the results of an optimisation undertaken by LECG), then calculated the increase in fare revenue required to recover this amount
   e) translated this decision into fares by:
      - deciding on what fare structure should apply
      - deciding on what level of fares should apply in each year (taking into account the forecast patronage growth).
2. Applied our decision on the level of fares to all the regions (in line with the Government's fare harmonisation policy).
3. Considered whether this decision was reasonable and balanced in terms of its implications for the affordability of fares and other social impacts, the environment, and the Government.

8 Western Sydney Community Forum, 25 June 2009, p 3.

3.4 How this approach will ensure passengers make a fair contribution and encourage the optimal use of bus services

Over the past couple of years, the Government has progressively introduced new contractual arrangements for the provision of bus services in metropolitan and outer metropolitan areas. These reforms established 25 contract regions. In each region, the Government has contracted 1 or more bus operators to provide specified bus services for agreed payments. These payments are not affected by the total fare revenue operators collect from passengers over the contract period, or by the level of fares we set. However, all the fare revenue operators collect goes to the Government to off-set some of the cost of the payments it makes to bus operators. (See Box 3.2 for more information.)

Box 3.2 Overview of the bus contract regime

NSW Transport and Infrastructure (NSWTI) is responsible for providing bus services in NSW. To deliver these services, NSWTI has in place contracts with a number of different bus companies (operators). Operators hold a contract to provide specified services in a particular region or regions. They must deliver these services to the standard required in the contracts, and must report on their service performance regularly to NSWTI.

The NSW Government pays the operators to provide the bus services specified in the contracts. The payments operators receive are intended to cover the fixed and variable costs of providing these bus services. Payments do not directly depend on the fares paid by passengers. NSWTI retains all the revenue generated by fares, to offset some of the costs of paying bus operators to provide bus services.

This means that IPART's fare determinations do not directly affect operators' revenue, and so cannot provide signals or incentives for an operator to increase its efficiency or restructure its services to better meet the needs of its passengers. Instead, these incentives are provided through the terms of the operator's service contract with NSWTI.

IPART has no role in setting or enforcing the service contracts, and therefore cannot set targets in relation to aspects of service (such as patronage, efficiency or service standards). Rather, IPART's role in setting maximum fares for metropolitan and outer-metropolitan bus services is effectively to allocate the cost of providing these services between bus passengers and taxpayers.

In our view, the 2 most important objectives for this determination are to ensure that passengers make a fair contribution to the efficient costs the Government incurs in providing bus services, and to encourage the optimal use of bus services. If fares are set too low, passengers will not make a fair contribution and taxpayers will be required to fund more of the costs of providing bus services. As a result, other important publicly funded services – such as health and education – may receive less funding.

However, if fares are set too high, fare-paying passengers may be discouraged from using bus services. This could have undesirable impacts on the environment (by increasing the number of trips made by private car), as well as undesirable social impacts (such as reducing the mobility of socially disadvantaged people, who are more likely to rely on bus services). It would also mean that taxpayer funding for bus services generates less than optimal benefits for society.

To meet these 2 assessment criteria, our approach to fare setting involves:

- establishing the efficient costs of providing the contracted bus services
- deciding how much of these costs it is appropriate for passengers to fund through fares
- setting fares so they will recover as much of this amount as possible without having unwanted impacts on bus patronage, the affordability of bus fares and the environment.

3.4.1 Establishing the efficient costs of providing the bus services

We decided to estimate the efficient costs of providing bus services based on our own analysis rather than the actual costs the Government incurs in providing the services, as this is more consistent with ensuring that passengers make a fair contribution. We have no evidence that the actual costs (ie, the cost of the Government's payments to bus operators) are a good proxy for the efficient costs. They may be higher, and we consider that passengers should not have to pay more as a result of poor decisions or inefficient operating practices made by bus operators or government. They may also be lower than the efficient costs, as not all the relevant costs of providing bus services are captured in the payments to operators. For example, we understand that some of these costs are incurred by the RTA. By undertaking our own detailed analysis of the forecast costs, and the scope for efficiency gains over the 2010 determination period we will obtain a better estimate of the efficient costs.

We also decided to base our estimate of the efficient costs on detailed analysis of the costs in the 4 largest contract regions, rather than in all regions or in a larger sample of regions. We consider this approach is the most likely to result in fares that ensure the majority of passengers make a fair contribution, and encourage the optimal use of bus services.

The Government's fare harmonisation policy means we must set consistent fares across 24 of the 25 regions,[9] even though bus services and the costs of providing them vary from region to region. For example, there are striking differences in terms of the number of people who use buses, what they use them for, how long their trips are, how congested the streets are, and how much it costs to provide bus services per passenger trip. (Appendix C provides an overview of these differences.)

9 Fares for bus services in Newcastle are different from all other regions.

The 4 largest regions – which include Sydney's eastern suburbs, northern beaches, inner west and lower northern suburbs – account for three-quarters of all bus trips made by fare-paying passengers in all regions, and most of the bus routes in all regions. Therefore, basing the estimate of the efficient costs on these 4 regions should mean that the estimate is relevant for three-quarters of all fare-paying passengers.

Stakeholders expressed mixed views on this aspect of our approach to fare setting. BusNSW, Hunter Commuter Council and Western Sydney Community Forum supported the focus on the 4 largest regions.[10] Some other stakeholders argued that additional regions should be included, mostly because they consider the different operating conditions and cost structures outside of the large urbanised regions should be taken into account in setting fares:

- NSW Transport and Infrastructure (NSWTI) expressed concern that the cost structure of the 4 largest regions is not representative of the industry as a whole due to the different (more urbanised) operating environment and economies of scale, and because the contracted bus operators in these regions are Government-owned. NSWTI suggested that 'as many operators as practical be incorporated'.[11]
- Action for Public Transport (APT) argued that 2 regions where the contracted bus operators were privately owned should be included for comparison with the 4 largest regions, and that ideally these regions should have different operating conditions.[12]
- The Blue Mountains Commuter and Transport Users Association supported a different approach for Blue Mountains buses due to the different operating conditions in that region. It also submitted that the Blue Mountains region should be included plus 1 other region that is similar to the Blue Mountains.[13]

IPART accepts that there are differences across regions, and provided that we could have obtained the information required, we could have estimated the efficient costs of providing bus services in all (or a larger sample) of the 25 contract regions. But under the fare harmonisation policy, we would still not have been able to set different fares in different regions to reflect these differences.

Rather, we would have had to derive the average efficient cost estimate for all regions, and set fares in all regions based on this average. In our view, this approach would be inconsistent with the 2 most important assessment criteria for this determination: ensuring passengers make a fair contribution and encouraging the optimal use of bus services. As noted above, setting fares based on the average efficient costs in all regions would lead to higher than appropriate bus fares for at

10 BusNSW submission, 1 July 2009, p 2, Hunter Commuter Council submission, 9 June 2009, p 1, Western Sydney Community Forum, 25 June 2009, pp 1-2.
11 Ministry of Transport (now NSWTI) submission, July 2009, p 2.
12 Action for Public Transport submission, 3 June 2009, p 2.
13 Blue Mountains Commuter and Transport Users Association submission, 24 June 2009, p 1.

least 75% of bus passengers (those making trips in the 4 largest regions).[14] This would not be fair, and would not send the right price signal to passengers to encourage optimal use of bus services.

In our view, if we were to focus on a larger number of regions, including the next largest region in terms of passenger numbers (region 4 – Sydney's Hills district), this would be the most consistent with our objectives. We considered whether it is possible to estimate the efficient costs in region 4 using information reported under the contracts. However, we found that there was not enough information on operating costs or assets that was comparable or reliable enough for this purpose. We also found that there was not enough reliable information on the number of passenger boardings.[15] We will reconsider whether to include 1 or more of the larger regions in our analysis for the next determination, subject to sufficient data being available.

Finally, we decided to estimate the efficient costs of providing bus services for fare-paying passengers only. This means we have explicitly excluded the costs associated with providing free travel to school students under the School Student Transport Scheme (SSTS). In our view, the cost of the SSTS should be met by taxpayers and not subsidised by other bus passengers. We consider this is consistent with the first 2 assessment criteria, because basing fares on an estimate of efficient costs that includes the costs of providing free travel to students would result in higher fares for fare-paying passengers, and so would not be fair or send the right price signals to passengers. In addition, as our purpose is to set fares, including costs related to providing services to non-fare-paying passengers would not be logical.

3.4.2 Deciding how much of the efficient costs it is appropriate for passengers to fund through fares

We decided to determine how much of the efficient costs it is fair for passengers to fund through fares by first deciding how much of these costs it is appropriate for taxpayers to fund (through Government subsidisation of bus fares) then deducting this amount from the total efficient costs. We also commissioned and considered advice on the level of fares that would strike an optimal balance between the share of costs paid by passengers and the Government.

We consider that the provision of bus services provides benefits to society as a whole, on top of the benefits to those who use the services. For example, when people choose to travel by bus instead of car, society benefits from the resulting lower air pollution and road congestion. We believe these 'external benefits' justify some level

14 This because costs per passenger are significantly higher in the smaller regions, while external benefits per passenger are likely to be lower. Therefore, including these regions when determining how much of the efficient costs passengers should fund would lead to a much higher amount. See Appendix C for more information.

15 There is no electronic recording of boardings outside the four largest regions – all boardings are recorded by bus drivers.

of government subsidisation of bus fares, and consider that this level should be related to the value society places on the external benefits.

We decided to estimate the value of the external benefits of providing bus services in the 4 largest contract regions to fare-paying passengers only. This is consistent with our approach to estimating the efficient costs of providing bus services. It is also consistent with the first 2 assessment criteria, for the same reasons as discussed in relation to estimating the efficient costs (see section 3.4.1 above).

To estimate this value, we engaged a consultant, LECG, to estimate the value of quantifiable sources of benefits. We also considered stakeholders views on additional sources of benefits. In addition, we commissioned and considered LECG's advice on how much passengers and government should contribute to optimise the costs and benefits of bus services. LECG formed its advice using optimisation modelling that took into account a wide range of factors to develop a view on the level of passenger contribution that will result in optimal benefits to individual users of bus services and to society, and optimal costs to individuals and taxpayers.

3.4.3 Setting fares so they will recover as much of this amount as possible without having unwanted impacts on passengers, taxpayers or the environment

As noted above, we consider that government subsidisation of bus services is justified to a level that is related to the value of the external benefits generated by those services, and that it is fair for passengers to fund the efficient costs of providing the services that are in excess of this level. However, we have not simply set fares to recover the amount in excess of the value of the external benefits.

While we based our decision on how much of the efficient costs passengers should fund through fares on the value of the external benefits, we took account of other factors when we translated this decision into fares, to ensure that the resulting fares are reasonable in the circumstances. These factors include the likely impact of the fares on bus patronage levels and the affordability of fares, which influence the environmental and social impact of the determination.

3.5 How this approach will inform future contractual arrangements

Under the Passenger Transport Act, we are required to consider the cost of providing bus services, and the need for greater efficiency in the supply of bus services so as to reduce costs for the benefit of passengers and taxpayers. We are also required to consider the service standards, including service quality. However, as Box 3.2 discussed, under the current bus contract regime, incentives for greater efficiency and improved service standards are created by the terms and conditions of bus operators' contracts with NSWTI. Our determinations do not affect operators' revenue, so we cannot use them to create additional incentives. Therefore, the best we can aim for is to inform the next round of service contract negotiations.

3.5.1 Efficiency in the supply of bus services

To meet this assessment criterion, as part of our analysis of the efficient costs of providing bus services we engaged a consultant, Indec, to benchmark our estimates for the 4 largest contract regions against those of bus operations in other states of Australia. The contracts in these 4 regions are all held by the Government-owned State Transit Authority (STA). We also invited private bus operators in other metropolitan and outer metropolitan regions to provide information on their current and forecast costs, so they could participate in the benchmarking exercise. This benchmarking was intended to:

- Provide the bus operators who participated with updated information on their relative efficiency, which they can use to inform future contract negotiations with NSWTI (and to improve their own performance).
- Identify costs that are not currently reflected in contract payments, but are incurred by operators (for example, where higher costs lead to service improvements that passengers value), to inform future contract negotiations in all regions.
- Provide information on the overall scope for efficiency savings, to inform future contract negotiations in all regions.

BusNSW provided a weighted average of hourly, kilometre and overhead costs per hour for eight metropolitan bus operators and nine outer metropolitan bus operators for 2008/09. But unfortunately only 1 private operator – Forest Coach Lines – offered to participate in the benchmarking. NSWTI has indicated that the next phase of contract negotiations may involve further consolidation of the number of metropolitan contract regions from 15 to 7. If this occurs, some bus operators will be operating within a potentially competitive environment when negotiating the next service contracts. Although we undertook not to publish or refer to information that could identify operators' individual data, this may be 1 reason why private operators were reluctant to participate.

We also sought cost and operational information reported under the bus service contracts directly from NSWTI. The information provided in response to this request showed that data reported by operators under the contracts is incomplete and in most cases is not comparable across the different operators.

Our findings on the relative efficiency of operating bus services in the 4 largest regions are discussed in Chapters 4 to 8. Indec's report is available on our website.

3.5.2 Quality of bus services

We also assessed whether the quality of bus services in the metropolitan and outer metropolitan area had improved since our last review (for the 2009 determination), based on the available information on measures of service quality. This included information reported by operators under their contract, the results of a recent bus customer satisfaction survey undertaken by the Independent Transport Safety and Reliability Regulator (ITSRR), and stakeholder comments. We found that there was little evidence to indicate that service quality had improved over the year 2008/09. In addition, the continued absence of transparent, publicly available information on bus operators' targets and performance in this area means that the contract regime is not as effective as it could be in creating incentives for improved performance.

Like last year, we found that there was a lack of reliable information on the quality of bus services provided, and this prevented us from undertaking a comprehensive analysis of the quality of bus services. Also like last year, operators failed to provide NSWTI all the information their bus service contracts require them to provide for the 2008/09 period.

NSWTI has previously stated that it does not publish service quality information because currently the information is self-reported and a robust method of collecting the information is not available.[16] In 2008, the then Ministry of Transport indicated that it was investigating how it could improve the quality of the information provided in the future. However, it appears that NSWTI has not been able to put in place an improved method of collecting service improvement data from operators in the intervening period. Several stakeholders argued that the current level of services do not justify any fare increases.[17]

As we have previously made clear, we consider independent, objective and transparent information is essential for accountability and good regulation. An effective service contract should provide for full transparency in relation to the quantity and quality of service bus operators provide, and any service targets they are required to meet. This will ensure that bus passengers and taxpayers know the level of performance they should expect under the bus contracts, and allow them to form a view of the adequacy of operators' performance and any trends in this performance.

We note that NSWTI partly funded the ITSRR to conduct a bus customer satisfaction survey. The results of this survey, which was designed to measure changes in the quality of bus services from a customer perspective, were released on 3 September 2009. We consider this survey to be a positive development as it provides independent information on passenger perceptions of service. The survey should be continued on an annual basis so that changes in these perceptions can be monitored

16 IPART, *Public hearing into fares for buses across NSW, private ferries and Newcastle ferry services,* Transcript, pp 10-11, November 2008.

17 For example, NSW Shadow Minister for Transport, 16 November 2009, p 1; Individual (M Fox); Individual (C Chessor); Individual (D Reynolds).

over time. We consider the collection of accurate customer service data by ITSRR or NSWTI remains a priority to monitor changes in contractual service standards over time.

Our analysis on bus operators' service quality performance for 2008/09 is summarised in Appendix D.

3.5.3 Increasing incentives to improve efficiency and service quality

We still consider that bus service contracts have the potential to deliver significant benefit for taxpayers and passengers by improving services and strengthening the incentives for operators to act efficiently. However, the contract regime needs to be improved to ensure this potential is realised.

We believe NSWTI must collect robust and consistent data from operators on both costs and service quality. At a minimum, this should include data on:

- actual costs of operators of operating services in each region
- comprehensive operational statistics for each region – including bus hours
- early or late departures from key bus stops along the length of all bus routes
- instances where commuters are unable to board their bus (including when the bus misses a stop) due to overcrowding
- frequency with which timetabled wheelchair accessible services run as non-wheelchair accessible
- customer satisfaction as measured by independent survey as well as the number and nature of complaints collected in a consistent format across all operators every month.

NSWTI must also ensure that all operators report this and any other data required under their service contracts. Where operators do not meet these reporting obligations, NSWTI should act to enforce the contract terms.

In addition, NSWTI should regularly compare the performance of operators based on the information reported under the contracts and require operators to explain the reasons for any areas of poor performance. Failure to adequately explain areas of poor performance should be grounds for further action. NSWTI should also regularly publish collected data against the relevant performance standards in contracts.

Finally, NSWTI should ensure that service contracts explicitly provide for the fare regulator to be given access to all relevant data that is reported by the operators under the contracts, in particular, information on actual costs, even where the data has been reported to NSWTI on a confidential basis.

Until these improvements are made, neither the Government, the public, nor the operators are able to assess the quality or cost effectiveness of the bus services being purchased under the current metropolitan bus contracts, or monitor the improvement or deterioration from 1 year to the next. We believe the lack of quality data to be a major impediment for operators working to provide quality services that meet the needs of their passengers. It is also an impediment for Government working on behalf of passengers and taxpayers to effectively manage the contracts which set and enforce the standards expected.

Recommendations

1 NSWTI should collect data on the actual costs of operating buses in each region from all operators, as required by the current service contracts.

2 NSWTI should regularly collect operational data, including the number of bus hours for each region from all operators.

3 NSWTI should collect service quality data and performance indicators (including the number of full buses) from operators, as required by the current service contracts.

4 NSWTI should act to enforce contract terms where reporting requirements are not met and require operators to explain the reasons for any areas of poor performance.

5 NSWTI should regularly compare and report performance of operators – this information should be made publicly available and operators should be held accountable for their performance.

6 NSWTI should ensure that service contracts explicitly provide for the fare regulator to be given access to all relevant data, even where that data is provided on a confidential basis.

3.6 How this approach will facilitate the smooth introduction of e-ticketing

The NSW Government is in the process of establishing an integrated electronic ticketing regime for Sydney's public transport. It has indicated that a mode-specific distance based fare structure is preferred.[18]

Even though e-ticketing is not expected to commence within the 2010 determination period, we consider it is important that the determination is flexible enough to ensure that e-ticketing can be introduced without major disruption or significant transitional issues. We do not need to determine the fares that will initially apply under e-ticketing, because we determine **maximum** fares for regulated bus services. The contract between NSWTI and each bus operator requires the operator to charge the maximum fare unless a discount to the maximum is agreed with the Director

18 Ministry of Transport proposal to 2008 review of metropolitan and outer metropolitan bus fares, August 2008, p 9.

General.[19] Therefore, when an integrated, electronic ticketing regime is established, the Government will be able arrange for operators to charge below the maximum level of fares set out in our determination.

However, the structure of fares under the determination could potentially make it more difficult to implement e-ticketing. Many stakeholder submissions raised concerns that the current fare structure is not able to accommodate integrated electronic ticketing. However, the available evidence suggests that this concern is not justified, and that distance-based fares should be workable under e-ticketing and have the potential to be more equitable than the alternatives.

Therefore, we decided it would not be appropriate to make radical changes to the existing fare structure in the lead up to e-ticketing without clear evidence that the existing fare structure is inappropriate. In our view, maintaining the existing fare structure and providing information in our report about the pros and cons of various approaches is the most appropriate way for us to facilitate the introduction of e-ticketing. We have also identified a range of other policy issues that will need to be resolved before e-ticketing is introduced. We hope that this information will encourage a more informed discussion and assist the Government to make these remaining policy decisions.

We also consider that a 4-year determination period is best under the circumstances. In our view, a longer determination period provides much needed certainty to Government and the future provider of the e-ticket regarding the fare structure that they must work within.

Most stakeholders supported aligning the end of the 2010 determination period with the end of the CityRail determination period, but were concerned that this may conflict with the objective of facilitating electronic ticketing.[20] Western Sydney Community Forum and NCOSS supported annual determinations until after electronic ticketing is introduced.[21] We agree with stakeholders that it would be good to consider rail and bus fares at the same time in the lead up to integrated electronic ticketing – a three-year determination would provide an opportunity for us to do this in 2012. However, at this stage we are disposed towards a 4-year determination period. In our view, this would provide a greater degree of certainty and allow us and other stakeholders to more fully consider the issues that are specific to bus fares. In addition, by the end of a 4-year period, the e-ticketing project should be significantly closer to introduction.

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19 Note that it is the NSWTI that retains fare revenue - under the gross contract model, operators are indifferent to the fares charged (except to the extent that it may affect their patronage payment). The fare revenue is used to partially off-set the cost of making contract payments.

20 Ministry of Transport submission, 1 July 2009, p 3, BusNSW submission, 1 July 2009, p 3, Action for Public Transport submission, 3 June 2009, p 4, Hunter Commuter Council submission, 9 June 2009, p 1, Lower Hunter Councils Transport Group submission, 9 July 2009, pp 1-2.

21 Western Sydney Community Forum, 25 June 2009, p 2, NCOSS submission, 16 July 2009, p 3.

3.7 How this approach is consistent with regulatory best practice

In deciding on the approach that best meets our objectives we have taken into account all of the circumstances that affect the determination (including Government policies) and its expected impact (on government, passengers and the environment). We consider that our approach to fare setting is the most practical and pragmatic way of achieving our objectives, and that this is consistent with regulatory best practice. It will ensure our determination is based on a rigorous approach that is appropriate in the circumstances and will provide certainty for passengers and Government.

We also consider our decision to adopt a 4-year determination period is consistent with regulatory best practice. Ideally, the next review of fares would take place immediately after the renegotiation of the service contracts. This would enable us to use the most recent information on costs and services provided by operators during negotiations when determining fares for the next determination. Depending on the extent of the market testing the Government undertakes, this could reduce the scope of our work in terms of assessing the efficiency of costs, as this should have been done by NSWTI. If the Government does not extend the contracts beyond their original term,[22] a 4-year determination would mean we would commence our next review after the completion of the current term for the metropolitan service contracts but before the end of the current outer metropolitan contracts.

22 Government may extend the existing contracts beyond their initial term.

4 Efficient cost of providing bus services in the 4 largest regions

As Chapter 3 discussed, the first step in our approach for setting fares was to establish the efficient costs of providing bus services for fare-paying passengers in the 4 largest contract regions. To do this, we made decisions on the four main cost components that will be incurred in providing the contracted bus services in these 4 regions during the determination period:

- efficient operating expenditure
- an allowance for a return on the assets used in providing bus services
- an allowance for a return of these assets (or depreciation), and
- an allowance for a return on working capital.

In our view, passengers should make a fair contribution to the efficient costs incurred by both the bus operator and the Roads and Traffic Authority of NSW (RTA) in providing bus services. Therefore, we included an allowance for costs that will be incurred by the bus operator in providing contracted bus services in the 4 largest contract regions as well as an allowance for costs that will be incurred by RTA in providing and maintaining bus priority measures in these regions (such as bus only and bus lanes,[23] priority traffic signals and bus bays along major bus corridors).

In addition, we made two deductions. The first was to ensure we only included costs associated with providing services for **fare-paying** passengers. We estimated how much of each cost component was related to providing free services to school students under the SSTS over the determination period, then deducted this amount. The second was to account for the fact that the operator earns commercial revenues from assets it would not have if it were not providing the contracted bus services (eg, revenue from sales of unregulated fares, charter and advertising on buses). We consider that some of this commercial revenue should be used to offset the costs passengers fund through regulated fares (as it is in other industries we regulate). Therefore, we estimated the operator's forecast commercial revenues over the determination period, then deducted a portion of this amount.

The section below provides an overview of our final decision on the total efficient costs of providing bus services for fare-paying passengers in the 4 largest regions, and the individual components of this decision. The subsequent sections provide a

[23] Bus only lanes are a special form of bus lane restricted to buses, whereas bus lanes are specially marked lanes that can be used by buses, taxis, hire cars, emergency vehicles, motorcycles and bicycles.

more detailed overview of each component. Figure 4.1 provides an overview of the approach we used to establish the efficient costs, and what we considered in applying this approach.

4.1 Final decision on efficient costs

3 IPART's final decision is that the efficient costs of providing bus services for fare-paying passengers in the 4 largest contract regions is as shown in Table 4.1.

Table 4.1 Efficient costs of providing bus services for fare-paying passengers in the 4 largest contract regions ($ million, real 2009/10)

	2009/10	2010/11	2011/12	2012/13	2013/14
Efficient operating expenditure (operator and RTA)	501.0	500.1	498.7	495.8	490.6
Allowance for return on assets (operator and RTA)	49.3	62.0	70.5	73.0	74.0
Allowance for depreciation (operator and RTA)	51.7	62.5	70.8	76.8	81.9
Allowance for return on working capital (operator and RTA)	-3.0	-2.6	-1.9	-1.8	-1.6
Sub total	**599.0**	**622.1**	**638.1**	**643.8**	**644.8**
Less costs of providing services under SSTS	49.2	51.1	52.4	52.8	52.9
Less a portion of commercial revenues	27.7	26.8	25.8	25.8	25.8
Total efficient costs used in making the determination	**522.1**	**544.2**	**559.9**	**565.1**	**566.1**

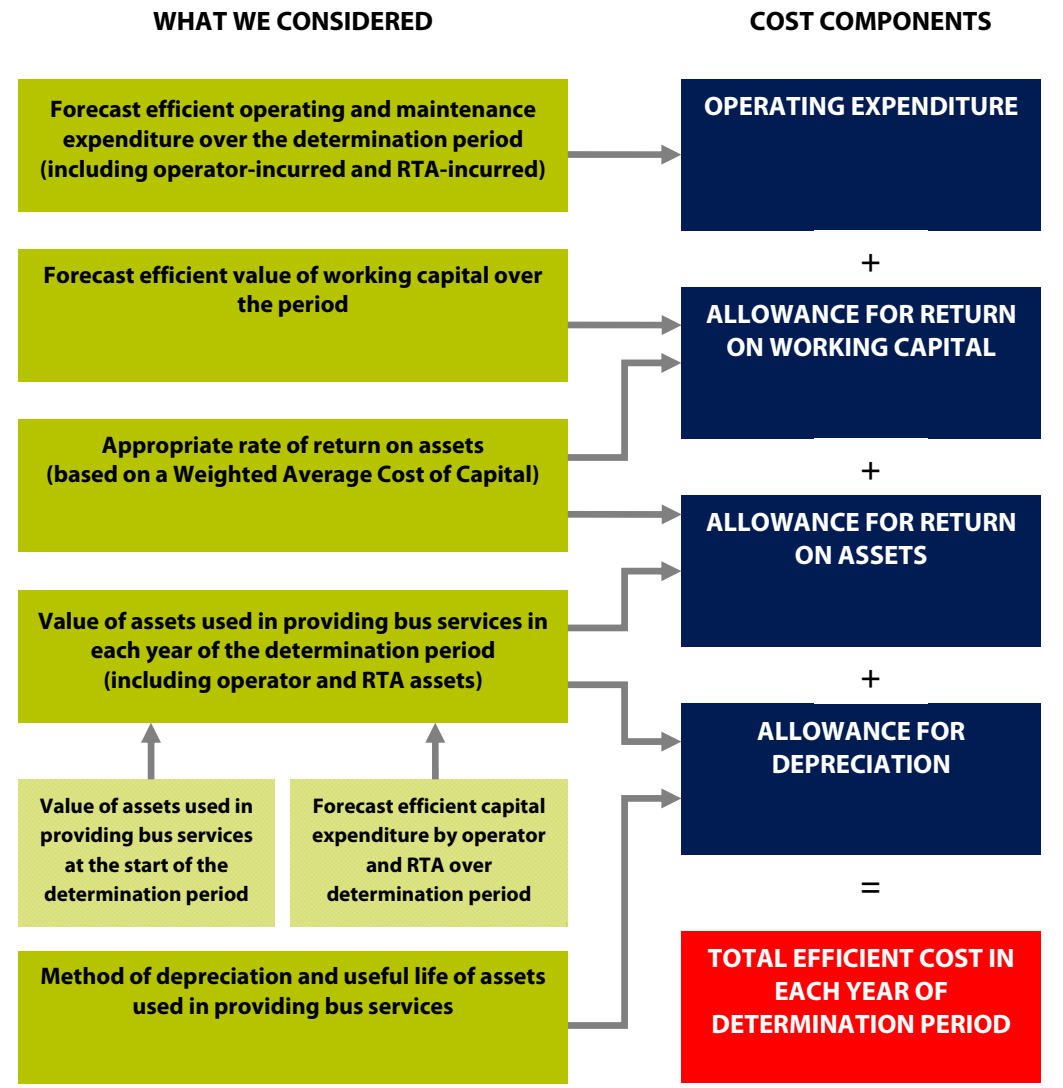
Note: Totals may not add due to rounding.

Our final decision on the efficient costs of providing bus services for fare-paying passengers in the 4 largest regions is unchanged from the draft report.

The approach we used to establish the efficient costs ensures that **all** costs associated with providing bus services in the 4 largest regions are measured and monitored in a rigorous and transparent way – including both operating and capital costs, and both operator-incurred and RTA-incurred costs. In addition, it ensures that these costs, and the impact that changes in them has on fares and taxpayers, are publicly disclosed. The approach is also consistent with the approach we use in regulating other network industries and businesses, including CityRail.

The inclusion of RTA-incurred expenditure in the efficient costs is important as it means the total costs of providing bus services are better captured, and creates a link between State Government expenditure on bus infrastructure (which provides benefits to users) and bus fares. The inclusion of this expenditure is also consistent with the assessment criteria for this determination, as it helps ensure passengers make a fair contribution to the total efficient costs of providing bus services and factor all relevant costs into their decision on how to travel.

Figure 4.1 Approach used to establish the efficient cost of providing bus services in the 4 largest contract regions



Some RTA-incurred expenditure relates to spending on the infrastructure and other assets involved in providing bus services, such as roads, bus lanes and bus-rail interchanges. In estimating the cost components we included only expenditure on assets clearly related to the provision of bus services. This included expenditure on bus priority measures such as bus lanes, priority traffic signals and bus bays along major bus corridors. It also included a portion of the expenditure on the Inner West Busway on Victoria Road.

In our view, not including RTA-incurred expenditure in the efficient costs of providing bus services would have been problematic. For example, it could have meant that:

- The pattern of ownership of assets could influence the level of bus fares. For instance, the costs associated with a bus lane owned by the operator would be included in the costs (and so would increase bus fares) but one owned by the RTA would not.
- The approaches used to calculate the value of the external benefits generated by bus services and the efficient costs of providing these services would be inconsistent. As the former would include the benefits associated with RTA-incurred expenditure, and the latter would exclude this expenditure, the value of the external benefits would be overstated relative to the costs.
- The treatment of the costs of providing bus services would be inconsistent with the treatment of costs for other types of regulated services. For example, in regulating the price of CityRail, water and energy services, we include the costs associated with all infrastructure used to provide the services.

We also considered stakeholder views on whether expenditure on priority measures such as bus bays, bus lanes and the public transport information and priority system (PTIPS) provide a sufficient benefit to bus passengers.[24] We consider that these measures help to create more efficient bus services and more reliable travel times for buses and should be included in the efficient costs of providing bus services In particular:

- PTIPS gives priority to buses by altering the sequencing and timing of traffic signals. This allows buses to better maintain their scheduled timetables giving bus passengers a more reliable service.[25]
- Bus lanes are located on roads that provide high frequency bus services and can only be used by buses, taxis, hire cars, emergency vehicles, motorcycles and bicycles.[26]
- Bus bays provide a safe boarding and alighting area for passengers as well as improving travel times for express buses that follow buses that pick up and drop off passengers at all stops. We acknowledge that they create some benefits for other road users as they remove buses from the general traffic flow. However, on balance, we consider that they should be included in the efficient costs of providing bus services.

We also note that since all fare revenue goes to NSWTI, including an allowance for RTA expenditure does not mean that operators will receive payment for this

24 APT submission, 8 November 2009, pp 5-6, Individual (I Fletcher) submission, 16 November 2009, p1.

25 Roads and Traffic Authority of NSW, *Bus priority traffic system (PTIPS),* Available from http://www.rta.nsw.gov.au/usingroads/buses/ptips2.html

26 Roads and Traffic Authority of NSW, *Bus lanes,* Available from http://www.rta.nsw.gov.au/usingroads/buses/buslanes.html

expenditure. Rather, Government may choose to allocate funds between RTA and NSWTI to reflect how these costs are recovered.

4.2 Efficient operating expenditure

Efficient operating expenditure includes the day-to-day costs incurred by the operator in operating its business and maintaining its assets, and by the RTA in maintaining bus priority measures. Our final decision on the value of this cost component represents approximately 80% of the total efficient costs of providing bus services over the determination period.

In making our final decision, we:

- Engaged Indec Consulting Pty Ltd (Indec) to estimate and recommend the efficient level of operator-incurred operating costs in the 4 largest regions, taking into account the particular service and performance standards set out in the contracts for these regions, and the specific operating environment within these regions.
- Accepted Indec's recommendations on the efficient level of operating expenditure that would be incurred by any operator servicing these regions including the achievable operating efficiency savings (with one small adjustment).
- Included an allowance for RTA-incurred operating expenditure to maintain bus priority measures in the 4 largest regions.

Chapter 5 discusses our final decision on efficient operating expenditure in detail.

4.3 Allowance for a return on assets used in providing bus services

As noted above, a range of assets are used in providing the contracted bus services in the 4 largest contract regions – such as buses, bus depots, bus lanes and bus bays. We consider it appropriate to include an allowance for a return on these assets to recognise the opportunity cost of the capital invested in them. This allowance represents compensation for the NSW Government for bearing the risks associated with providing bus services.

Our final decision on the allowance for a return on assets represents approximately 10% of the total efficient costs of providing bus services over the determination period. We reached this decision by separately estimating allowances for a return on operator assets and on RTA assets, then adding these together. In both cases, we used the following methodology:

1. Calculating a value for the assets used in providing the contracted bus services in the 4 largest regions in each year of the determination period by:
   - establishing the value of the assets at the start of the determination period
   - establishing the methodology for rolling forward the value of the assets to the end of the determination period, to reflect changes over this period

  - determining the level of forecast capital expenditure to be incorporated into the value of the assets each year when rolling this value forward.

2. Deciding on an appropriate rate of return for bus services in the 4 largest regions.
3. Multiplying the annual value of the assets by the appropriate rate of return.

Chapter 6 describes the final decisions related to the first of these steps in detail; Chapter 7 discusses the final decisions related to steps 2 and 3.

4.4 Allowance for depreciation

The allowance for depreciation provides a means of spreading the net cost of the assets used in providing bus services over the estimated life of these assets. Our final decision on this allowance represents approximately 10% of the total efficient costs of providing bus services over the determination period.

To calculate this allowance, we used the straight line depreciation method. We then established an appropriate depreciation rate based on the economic lives of the main asset groups and then multiplied the annual value of each group by the appropriate rate:

- For existing operator assets we used remaining asset lives of:
  - 9.9 years for buses
  - 24.1 years for buildings
  - 5.4 years for all other assets.
- For new operator assets we used asset lives of:
  - 17.5 years for buses
  - 40 years for buildings
  - 11.6 years for all other assets.
- For new RTA assets we used asset lives of:
  - 20 years for bus priority measures
  - 75 years for the Inner West Busway.

Chapter 8 describes our final decision on the allowance for regulatory depreciation in detail.

4.5 Allowance for a return on working capital

Our final decision on the allowance for a return on working capital reduces the total costs of providing bus services in the 4 largest regions by less than 1% over the determination period. This decision reflects the fact that the current operator in the 4 largest regions forecasts a negative working capital position for each year of the determination period. Chapter 8 discusses our final decision on the allowance for a return on working capital in more detail.

4.6 Costs of providing services under the SSTS

Under the NSW Government's School Student Travel Scheme (SSTS), bus operators provide free services to students travelling to and from school. Operators receive compensation through their contract payments for providing these free services. We have no role in determining the level of these payments.

However, to ensure we included only the costs associated with providing services to **fare-paying** passengers, we deducted the estimated efficient costs attributable to the SSTS from the sum of the 4 cost components. The amounts we deducted in making our final decision are shown in Table 4.2. We consider these deductions are appropriate to ensure that fare-paying passengers do not cross-subsidise the cost of the SSTS.

Table 4.2 Efficient cost of SSTS ($ million, real 2009/10)

	2009/10	2010/11	2011/12	2012/13	2013/14
Costs of providing SSTS	49.2	51.1	52.4	52.8	52.9

To determine the amounts we deducted, we asked Indec to estimate and recommend the operator-incurred operating costs associated with school student travel in the 4 largest regions in 2008/09. Using these recommendations, we estimated the forecast efficient costs for SSTS (including operating and capital costs) based on the average costs per boarding and the number of SSTS boardings.

4.7 Commercial revenues

The operator of the 4 largest regions generates commercial revenues using assets that it would not have unless it were providing regulated bus services under contract with the NSW Government. For example, it generates revenue from:

1. The Energy Grants Credit Scheme (a fuel rebate).
2. Sales of unregulated fares (eg, tourist tickets such as Sydney Explorer and Sydney Pass).
3. Government training rebates, payment for providing free CBD services, passengers fines (for fare avoidance) and a small amount of sundry income.
4. The provision of charter services.
5. The sale of advertising space on buses.

We consider it appropriate to offset the total efficient costs by a portion of the commercial revenues generated using regulated assets. Therefore, we have estimated the forecast revenue the operator will generate from each of the above sources over the 2010 determination period, and deducted some of this revenue from the total costs.

The first three sources of revenue listed above are largely intended to offset the costs of providing bus services, so it is appropriate that 100% of this revenue be deducted. Revenue from the provision of charter services and the sale of advertising space on buses includes both a cost and profit component. We decided that 50% of advertising revenue and 50% of charter profits above and beyond the level of profits expected under our appropriate rate of return should be deducted from the costs used to set fares. We consider this appropriate, as operators are only able to earn this revenue through using buses that are funded via the contract payments. It is also consistent with how we treat this type of revenue in other industries.

5 Efficient operating expenditure in the 4 largest regions

Operating expenditure includes:

- operator-incurred operating and maintenance costs, such as wages paid to bus drivers, fuel, mechanical repairs and maintenance
- RTA-incurred operating expenditure required to maintain bus priority measures in these 4 regions.

In deciding how much efficient operating expenditure to include in our estimate of the total efficient costs, we considered Indec's analysis and recommendations on the level of operating costs an efficient operator would incur in the 4 largest regions, given the particular service and performance standards set out in the contracts for these regions, and the specific operating environment within these regions. We also considered information on RTA's forecast expenditure on bus priority measures in these regions. In doing so, we took into account the assessment criteria for this determination, particularly ensuring that passengers make a fair contribution to the efficient cost of providing bus services.

The sections below set out our final decision on efficient operating expenditure, and discuss our considerations in making this decision.

5.1 Final decision on efficient operating expenditure

4 IPART's final decision is that the efficient operating expenditure required to provide bus services in the 4 largest regions over the period 2009/10 to 2013/14 is as shown in Table 5.1.

Table 5.1 Final decision on efficient operating expenditure in 4 largest regions ($million, real 2009/10)

	2009/10	2010/11	2011/12	2012/13	2013/14
Operator-incurred costs	486.0	485.1	483.7	480.8	475.6
RTA-incurred expenditure	15.0	15.0	15.0	15.0	15.0
Total efficient operating expenditure	501.0	500.1	498.7	495.8	490.6

Our final decision on the efficient operating expenditure in the four largest regions is unchanged from the draft report.

5.2 Operator-incurred operating costs

To estimate the level of operating costs an efficient operator is likely to incur in providing the contracted bus services in the 4 largest contract regions, Indec undertook extensive analysis that involved examining:

- the forecast operating costs of the operator that currently holds the contracts for these regions (the current operator)[27]
- the particular service and performance obligations the current operator is required to meet (such as providing a certain number of services at certain times, ensuring that a certain proportion of bus services are provided by wheelchair accessible buses, and providing certain information to passengers)
- the particular operating environment in the 4 largest regions (such as the levels of traffic congestion and passenger density)
- the operating costs, service and performance obligations and operating environments of private bus operators in Australia and other countries.

Using this information, Indec calculated the costs that a hypothetical "efficient benchmark operator" would incur in providing the contracted bus services in the 4 largest regions. These costs were based on a weighted average of private bus operators' costs in metropolitan Sydney, Melbourne, Perth and Adelaide.[28] The weighted average costs were normalised to take account of some of the differences between these operators' operating environments and those in the 4 largest contract regions – such as differences in the average speed of buses (as a proxy for traffic congestion), the spread of service hours required to meet timetable requirements, the amount of fuel used, the level of charter work, and road tolls.

However, Indec found that these adjustments were not sufficient to account for all the differences between the current operator's service/performance obligations and operating environment and those of the efficient benchmark operator. Therefore, it undertook further analysis to identify whether the causes of difference between the current operator's forecast costs and the efficient benchmark operator's costs were due to:

- the particular service/performance obligations or operating environment in the 4 largest regions (and so would be experienced by any bus company contracted to operate services in these regions), or
- the current operator's inefficiency.

27 The current operator's forecast costs were provided on a confidential basis, and so are not provided in this report, or in Indec's report.

28 Indec selected Melbourne, Adelaide and Perth on the grounds that the operating conditions in these cities is the most similar to Sydney's.

Indec identified three sources of cost difference that resulted from the particular service/performance obligations or operating environment in the 4 largest regions. These included:

- hourly costs which are dictated by the operator's hours of service (for example driver costs)
- kilometre costs which are dictated by the operator's service kilometres (for example fuel, tyre and maintenance costs)
- overhead costs, such as administration, insurance and other depot costs. (See Box 5.1 for more information.)

It then quantified the efficient costs resulting from these sources and added them to the efficient benchmark operator costs to obtain the efficient operator-incurred operating costs in the 4 largest regions, as shown in Table 5.2.

Indec then identified the achievable efficiency savings in operating expenditure for an operator in these regions. These savings take into account the ability of any operator in these regions to make changes to its operating and management practices with the support of government. (More information on Indec's review, methodology and analysis can be found in its report,[29] which is available on our website.)

Table 5.2 Indec's recommendations on the achievable efficient operator-incurred operating costs in the 4 largest contract regions ($million, real 2009/10)

	2009/10	2010/11	2011/12	2012/13	2013/14
Efficient benchmark operator costs	375.8	383.0	388.6	394.6	400.7
Additional efficient costs incurred as a result of service/performance obligations or operating environment (hourly, kilometre and overhead costs):	67.9	68.6	69.2	69.9	70.6
Total efficient operator-incurred operating costs	443.7	451.6	457.9	464.5	471.3
Achievable efficient operator incurred operating costs	**493.2**	**492.4**	**491.0**	**488.1**	**483.0**

Source: Indec.

Note: Totals may not add due to rounding.

After carefully considering Indec's analysis and recommendations, we decided to accept its recommended achievable efficient operator-incurred operating costs in the 4 largest regions with one adjustment.

We note that Indec has had regard to whether the recommended efficient operating costs could be achieved if another bus company were the operator in these regions. In particular, Indec considered how quickly changes could be implemented to remove identified inefficiencies.

29 Indec, *Total cost review of regular bus services operated by Sydney Buses*, Report to IPART, October 2009.

Box 5.1 Sources of additional efficient costs in the 4 largest regions

Operating conditions in the 4 largest contract regions are characterised by high levels of traffic congestion, a high passenger density and a winding geographical topography that the efficient benchmark operator is not subject to. In addition, the current service contracts for these 4 regions require the operator to undertake additional activities that benefit passengers in these regions. Indec found that these characteristics result in additional efficient hourly, kilometre and overhead costs in these regions.

Hourly costs

The timetables in the 4 largest regions mean that the operator is required to provide a greater proportion of services late at night and on weekends and public holidays compared to the benchmark operator. In addition, the higher levels of congestion and higher passenger density mean that drivers in these regions are subject to more demanding conditions. As a result, the operator is required to:

- pay additional penalty rates to drivers operating late at night and on weekends and public holidays
- pay a shift allowance and provide more training to drivers so they can drive articulated buses (which can carry up to twice the number of passengers than a standard bus) and drive on the more congested, narrower streets in these regions
- pay a small number of bus depot parking drivers to park buses at the more congested depots used in these regions.

Kilometre costs

Kilometre costs largely comprise fuel and maintenance costs. The higher levels of congestion and passenger density in the 4 largest regions result in additional efficient kilometre costs due to:

- higher fuel, tyre, accident and maintenance costs caused by greater levels of starting and stopping
- higher maintenance costs associated with articulated buses and buses with central doors (required to carry greater numbers of passengers, and allow passengers to get off buses faster)
- higher bus maintenance costs due to the use of buses that run on compressed natural gas to reduce pollution emissions
- higher costs associated with maintaining reasonable standards of comfort and safety for passengers on more crowded buses and buses operating late at night (such as air conditioning, cleaning and CCTV costs).

Overhead costs

The particular operating environment in the 4 largest regions also results in additional efficient operating costs, as it means the operator must:

- use prepaid ticketing technology to enable passengers to board buses faster
- pay higher compulsory third party (CTP) insurance costs
- undertake more integrated traffic and transport planning, as well provide more information to passengers (such as timetables, information booths and management of special events)
- meet other costs required under the service contracts in these regions including revenue protection and security.

Indec identified that the ability of the current operator to move towards efficient levels is limited by several technological, managerial and government policy constraints. The current operator requires time to implement changes that enable it to move from its present cost structure to a more efficient structure over the next five years. To reflect this, Indec's recommended achievable efficient operating costs decrease gradually over the determination period. We consider this is appropriate.

However, we decided to make a further adjustment to Indec's achievable efficient costs to ensure that passengers are not paying for the operator's governance and procurement practices (including the use of Original Equipment Manufacturer (OEM) over generic parts). We recognise that the Government and the community in general require higher levels of governance and procurement in state-owned corporations than in private companies. However, we consider that passengers should not be required to contribute to the additional costs this involves. Therefore, we removed these costs from Indec's recommended achievable efficient costs in each year of the determination period.

5.3 RTA-incurred operating expenditure

Over the next five years, the RTA is forecast to spend $15 million per year (real 2009/10) to provide and maintain bus priority measures to improve bus services across the 4 largest contract regions. These measures include priority traffic signals, and the Public Transport Information and Priority System (PTIPS) which is intended to improve bus reliability by giving late running buses traffic signal priority.

We consider that these measures will provide a direct benefit to passengers through shorter journey times. Therefore, they are an important part of the total efficient costs of providing bus services in the 4 largest regions, and should be included in our estimate of these total costs for the purpose of setting fares.

APT argued that an allowance for PTIPS expenditure should not be included until it is proven that the program's objectives have been met. We consider that the PTIPS system provides direct benefits to passengers and so should be included in the total costs of providing bus services. PTIPS give priority to buses at traffic signals by altering the sequencing and timing of the signals. It uses global positioning systems and radio data communications to deliver information about buses and their location. This information is then used to forecast the arrival time of the bus at traffic signals ahead. Using this information, PTIPS can then alter traffic signal timing to:

- allow the bus to maintain its scheduled timetable
- give bus passengers a more reliable service
- allow bus operators to schedule their buses more efficiently.[30]

[30] Roads and Traffic Authority, http://www.rta.nsw.gov.au/usingroads/buses/ptips2.html

The RTA is also forecast to incur capital costs in providing bus priority measures; we have included these in estimating the value of the assets used in providing bus services in the 4 largest regions in each year of the determination period (see Chapter 7).

We have not included any costs associated with maintaining bus shelters. Local councils are responsible for providing and maintaining bus shelters and typically the costs related to maintenance is funded through advertising revenue.

6 Value of assets used in providing bus services in the 4 largest regions

One of the key inputs into our decisions on the allowances for a return on assets and depreciation is the value of the asset base used to provide the contracted bus services in each year of the determination period. As Chapter 4 discussed, we calculated the value of both operator assets and RTA assets. In both cases, this involved three steps:

1. Establishing the value of the assets at the start of the determination period (the opening value of the assets).
2. Establishing the methodology for rolling forward the value of the assets to the end of the determination period, to reflect changes in its value over this period.
3. Determining the level of forecast capital expenditure to be incorporated into the value of the assets each year when rolling forward this value.

The section below sets out our final decision on the value of the asset base in the 4 largest regions. The subsequent sections discuss each of the above steps in detail.

6.1 Final decision on the value of assets used in providing bus services in the 4 largest regions

5 IPART's final decision is that, for the purpose of calculating the efficient cost of providing bus services in the 4 largest contract regions, the value of the assets is as shown in Table 6.1.

Table 6.1 Final decision on the value of assets used in providing bus services in the 4 largest contract regions ($million, nominal)

	Opening value (as at 30 June 2009)	2009/10	2010/11	2011/12	2012/13	2013/14
Operator assets	601.3	737.3	840.5	876.9	905.0	923.6
RTA assets	0	24.6	138.5	163.0	187.1	184.1
Total asset base	601.3	761.9	978.9	1,039.9	1,092.1	1,107.7

Our final decision on the value of assets used to provide bus services in the 4 largest regions is unchanged from the draft report.

6.2 Establishing the opening value of the assets

The assets used to provide bus services in the 4 largest regions include operator assets such as buses and depot buildings and land, as well as RTA assets such as bus lanes, priority traffic signals and bus bays along major corridors. Several methods could potentially be used to establish the opening value of these assets (ie, as at 30 June 2009). For example, these methods include estimating the opportunity cost or scrap value of the assets, the historical cost of the assets, or the deprival value (which is the lower of the optimised depreciated replacement cost (ORDC) or the economic value).

Typically, the estimated value of the assets will vary, depending on which method is used. The lower bound of this range is zero. This value would result if you estimated the opportunity cost or scrap value of the assets, and found that all past capital expenditure was neither efficient nor prudent, and the existing assets were 'sunk assets' with no scrap value or opportunity cost. The upper bound of the range would result if you estimated the deprival value of the assets. This value is likely to equal the ORDC of the assets.

6.2.1 Final decision on the opening value of the assets

6 IPART's final decision is that the opening value of the assets used to provide bus services in the 4 largest contract regions is $601 million.

Our final decision on the opening value of the assets is unchanged from the draft report.

In making this decision, we:

- valued operator assets as $601 million at 30 June 2009, using depreciated historical costs to value most operator assets and market value to value operator land based on its existing use
- 'drew a line in the sand' for RTA assets, valuing them at zero at 30 June 2009, as we consider that it is more important to ensure that future RTA capital expenditure on bus services is included in the efficient costs to be recovered from passengers than to recover past expenditure which was not necessarily made with a view to being recovered in fares.

6.2.2 Valuing operator assets

7 IPART's final decision is that the opening value of operator assets is as shown in Table 6.2.

Table 6.2 Final decision on opening value of operator assets used to provide bus services in the 4 largest contract regions ($million, nominal)

	Final decision
Bus fleet	365.1
Land	105.6
Buildings	93.5
Other capital assets	37.1
Total	**601.3**

We consider that these values reflect the appropriate amount of capital required by the operator to provide the bus services stipulated by the service contracts in the 4 largest regions.[31] In making our decision we considered:

- the appropriate method for valuing the different categories of operator asset used to provide bus services in the 4 contract regions
- whether the number of buses in the operator's fleet was efficient for providing these services
- whether the operator's amount of depot space was efficient.

The following sections discuss these considerations in more detail.

Appropriate method for valuing the different categories of operator asset

We chose to value all operator assets except land based on their depreciated historical cost. We valued land at its market value, given its existing use as bus depots. In making this decision, we considered comments from stakeholders on the appropriate method for valuing assets used to provide bus services. NSWTI argued that this method should be consistent with that used in regulating other utilities. It also supported the inclusion of existing assets on the basis that they generally have a significant ongoing market value.[32] Action for Public Transport suggested using the book value of assets.[33] The Hunter Commuter Council supported using the deprival value approach.[34] One individual proposed that the appropriate asset value is the current market value of buses and depots plus 10% to account for other capital.[35]

31 We have not considered efficiency in the broader sense of the efficient network, routes and timetable, but what value of the asset held by bus operators is appropriate given the current services stipulated under the service contracts.

32 NSWTI submission, 1 July 2009, p 4.

33 Action for Public Transport submission, 3 June 2009, p 4.

34 Hunter Commuter Council submission, 9 June 2009, 9 June 2009, p 2.

35 R Banyard submission, 24 June 2009, p 3.

We also considered how the valuation of key asset categories (buses and land) varied according to the method used. For example:

- The market value of buses can vary depending on the strength of a secondary market for the particular bus type. Buses in the 4 largest regions have certain characteristics to suit the operating conditions in these regions (such as 2 doors to load/unload passengers more quickly) so the secondary market is not likely to be strong. This means using the opportunity cost or scrap value method would undervalue these assets.
- Newer buses have different characteristics than older buses, including fuel type, engine efficiency and fit-out. This means that the price of new buses would be a poor proxy for the replacement cost of older buses.
- Land can be valued based on either its current or alternative use (either with or without zoning requirements of the land). Bus operators typically value land on the basis of its current zoning as a special purpose bus depot. If it were valued according to its use as residential land then the value of the land would be higher (although the buildings would be worth very little or even have a negative value).

On balance, we concluded that the depreciated historical cost provides the best estimate of the value of operator assets other than land. This method is used by bus operators in calculating book value and provides an adequate measure of the value of assets used to provide bus services.

In addition, we concluded that the market value of land based on its current use provides the best estimate of the value of depot land. This method is used by bus operators in calculating book value. It results in a more appropriate value for our purpose (which is to determine the costs that bus passengers should contribute to through fares), as it reflects the value associated with the use of the land in providing bus services.

Efficient number of buses

We considered the size of the bus fleet in the 4 largest regions and concluded that it was an appropriate size to deliver the required number and frequency of services in these regions.

The efficiency of the size of a bus fleet is generally assessed by looking at the proportion of buses used to provide services during peak times. This is because the number of services (and so the number of buses required) during any given time is greatest during the peak. Over the past 3 years, approximately 90% of buses in the 4 largest contract regions have been in use during peak periods (or around 10% of buses have been 'spare').[36] This is better than the average for other metropolitan contract regions.

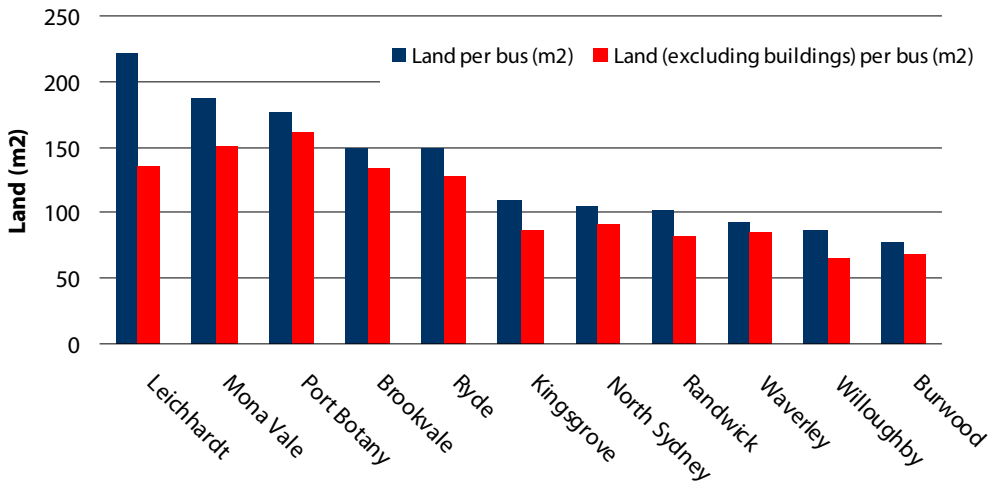
[36] Some spare buses are needed to cover bus breakdowns and maintenance.

Efficient amount of depot space

We considered whether the bus depots in the 4 largest regions are an appropriate size. Depots are used to house buses and staff facilities. The space required for each will depend on the types of buses stored there and facilities required for bus drivers. The location of the depot should reflect a trade-off between the amount of dead running required to get buses onto their routes from the depot and the cost of the land on which the depot sits.

There are 11 depots in the 4 largest regions. On average, they have 133 square meters of land per bus stored. However, this amount of land varies considerably across the depots, ranging from 78 square meters of land per bus, to over 200 square meters of land per bus (Figure 6.1). The variations in land area per bus are largely a result of whether or not the depot has a staff car park.

Figure 6.1 Land per depot in 4 largest contract regions (square metres)



Note:: Leichhardt depot redevelopment is not included in these statistics.
Data source: STA.

International guidelines suggest that between 50 and 100 square meters of space is required for bus storage.[37] However, the depots in the 4 largest regions also include space for other facilities, such as buildings for staff, car parks and washing and maintenance space, which have to be added to the amount of space required for bus storage. We also note that other Sydney metropolitan bus operators have significantly higher land areas for their bus storages.

Based on these considerations, and particularly the depot space used per bus by other operators, we consider the depot sizes in the 4 contract regions are generally efficient for the size of the fleet.

[37] The Public-Private Infrastructure Advisory Facility urban bus toolkit reports 50 square metres per bus, with buses having to exit sequentially or 100 square metres allowing each bus to be accessible. There would also need to be an allowance for bus washing areas and staff facilities.

6.2.3 Valuing RTA assets

8 IPART's final decision is to 'draw a line in the sand' for RTA assets used in providing bus services by valuing them at zero at 30 June 2009.

Our final decision on the opening value of RTA assets is unchanged from the draft report.

As Chapter 4 discussed, in estimating the cost components related to capital expenditure (ie, the allowances for a return on assets and depreciation), we decided to include only expenditure on RTA assets that is clearly related to the provision of bus services.

In determining the opening value of RTA assets, we consider that it is more important to ensure that future RTA capital expenditure on bus services is included in the efficient costs to be recovered from passengers than to recover past expenditure which was not necessarily made with a view to being recovered in fares. Therefore, we decided to 'draw a line in the sand' for RTA assets, and set their opening value at zero. This decision applies to all RTA assets related to bus services, including all of the bus and bus-rail interchanges in the 4 largest regions.

We have not considered the costs of bus-rail interchanges in this review. These assets allow bus passengers to access rail services and vice versa and thus are a joint cost to bus and rail passengers. Currently, rail passengers (and the NSW Government) pay for bus-rail interchanges. As part of the next CityRail review, we will consider whether some of these costs should also be recovered from bus passengers.

6.3 Establishing the methodology for rolling forward the value of the assets

Once we established the opening value of the assets used to provide bus services, we considered the methodology we would use to roll forward this value at the end of each year in the determination period, to reflect changes in this value. There are several reasons why this value might change, including when:

- the operator or RTA invests in new assets, or sells or retires existing assets
- the operator or RTA undertakes efficient and prudent capital expenditure to improve or extend the life of existing assets, and
- the impact of general inflation.

6.3.1 Final decision on methodology for rolling forward the value of assets

9 IPART's final decision is that the value of the assets will be rolled forward using the following methodology:

- Only capital expenditure deemed to be efficient and prudent will be incorporated. Forecast capital expenditure deemed to be efficient will be incorporated in the year that it is incurred, but will only be 'locked in' if we deem it to have been prudent when we make our next fare determination (ie, in 2014).
- Once assets are no longer used in providing bus services, their value can be deducted (although in general we are not disposed to do this).
- The value of regulatory depreciation of the assets will be deducted, consistent with previous IPART decisions.
- The movement in the CPI rather than an Asset Index will be used to adjust the value of the assets for general economy-wide price increases, consistent with previous IPART decisions.

Our final decision on the rolling forward the value of the assets is unchanged from the draft report.

This methodology is consistent with the approach we use in regulating other industries, including CityRail. In general, we would expect to use the same methodology in future reviews.

In our view, adopting a clear and consistent methodology (or set of rules) for rolling forward the value of the assets simplifies and improves the efficiency of the regulatory regime. Therefore, we are not disposed to revalue assets once their opening value has been established. However, we note that such a revaluation may be necessary at the next review in certain circumstances – for example, if there are significant changes to the number and boundaries of contract regions, or we decide to base fares on the efficient cost of providing bus services in all regions.

We also note that this methodology makes an important distinction between how we have established the initial value of the assets and how the assets will be valued over the determination period. Although the initial value of the assets was established based on the historical costs, the value of the assets over the determination period will reflect the economic value of the assets used to provide bus services.

6.4 Determining the level of forecast capital expenditure to be incorporated when rolling forward the value of the assets

In line with the methodology outlined above, to determine the level of forecast capital expenditure to be incorporated when rolling forward the value of the assets, we assessed the efficiency of operator forecast capital expenditure and RTA forecast capital expenditure on bus priority measures.

6.4.1 Final decision on forecast capital expenditure to be incorporated when rolling forward the asset base

10 IPART's final decision is to incorporate the forecast capital expenditure shown on Table 6.3 when rolling forward the value of the assets.

Table 6.3 Final decision on forecast capital expenditure to be incorporated when rolling forward the value of the assets ($million, real 2009/10)

	2009/10	2010/11	2011/12	2012/13	2013/14
Operator expenditure	176.4	148.3	87.5	83.6	78.9
RTA expenditure	25.0	112.5	25.0	25.0	0
Total	201.4	260.8	112.5	108.6	78.9

Our final decision on the forecast capital expenditure to be incorporated when rolling forward the value of the assets is unchanged from the draft report.

In making our final decision we:

- included all operator forecast capital expenditure
- included RTA forecast expenditure of $87.5 million on the Inner West Busway in 2010/11, and $25 million per year on other bus priority measures between 2009/10 and 2012/13.

The following sections discuss our considerations on operator and RTA forecast capital expenditure in more detail.

6.4.2 Operator forecast capital expenditure

To assist us in deciding what portion of operator forecast capital expenditure is efficient, we asked Indec to review this forecast expenditure for the period 2009/10 to 2013/14. Indec found that it was difficult to assess the efficiency of bus fleet disposition and deployment as the operator does not collect data on bus load factors on enough routes.[38] However, it did comment on the level of forecast expenditure on buses and depots.

Indec noted that most of the operator's forecast capital expenditure is for the acquisition of new buses to cover both fleet replacement and patronage growth. This expenditure is expected to increase the fleet by 98 vehicles from 1,879 buses in 2008/09 to 1,977 buses in 2013/14. Over the same period, the number of spare buses is expected to decline from 194 buses (or 10.3% of the fleet) in 2008/09 to 147 buses (or 7.4% of the fleet) in 2013/14. As noted above (in relation to the efficiency of the bus fleet size), the current proportion of spare buses during the peak in the 4 largest regions is better than the average in the other metropolitan regions. The forecast expenditure on buses will further improve the efficiency of the fleet size.

38 Load factors describe how full buses are at key loading/unloading points along a route.

Some of the operator's forecast capital expenditure is for buildings and improvement. This expenditure is expected to peak in 2009/10 at $40.2 million. The operator is also investing in additional depot capacity to accommodate the planned expansion of the fleet.

On balance, taking account of the available information, we decided to include all operator forecast capital expenditure when rolling forward the value of the assets over the determination period. However, we note that in the future, NSWTI should require operators in all contract regions to collect and submit complete and accurate data on load factors of buses across all regions. This will assist in our future assessments of efficient capital expenditure as well as our decision on whether capital should be 'locked in' in the asset value for the next determination period.

Recommendation

7 NSWTI should require all bus operators to collect and submit complete and accurate data on load factors for buses in the regions they operate.

6.4.3 RTA forecast capital expenditure

As previously discussed, we consider it appropriate to include an allowance for RTA expenditure that can be clearly attributed to providing bus services. Therefore, we considered RTA's forecast capital expenditure on the Inner West Busway and other bus priority measures in the 4 largest contract regions over the determination period.

Inner West Busway

The Inner West Busway is one of RTA's bus priority measures in the 4 largest regions. The project involves upgrading Victoria Road (including the duplication of the Iron Cove Bridge) and providing bus lanes during the morning and evening peak to improve the efficiency and reliability of bus services between Gladesville and Rozelle. The project also includes providing new cycle and pedestrian facilities. The Inner West Busway is scheduled to be completed by December 2010 at a cost $175 million (see Box 6.1). While the project is aimed at improving bus services, it will also provide benefits to motorists, cyclists and pedestrians.

We consider it appropriate that a portion of this expenditure be included in the value of the assets used in providing bus services, based on the benefits it will provide to bus users (particularly those who travel along Victoria Road). As noted by APT, the project involves building additional road lanes and duplicating the Iron Cove Bridge to provide benefits to other road users as well as buses.[39]

We have decided that 50% of this expenditure should be included. This is likely to represent a conservative estimate of the costs of the project that relate to the provision of bus services. We note that this portion of the expenditure is also shared between passengers and taxpayers depending on the external benefits of bus

[39] APT submission, 8 November 2009, p 6.

services. As discussed in Chapter 11, full fare paying passengers contribute around 50% of the total efficient costs of providing bus services. This means that fare paying passengers therefore contribute 25% of the cost of the Inner West Busway.

Although this project is currently under construction and expenditure is already being incurred, we decided not to incorporate the expenditure until 2010/11 when the project is expected to be completed. Bus passengers will not benefit from the expenditure until the project is completed, so in our view it is not appropriate to incorporate it until that time. This is consistent with our treatment of expenditure on major capital projects in other industries (such as the Epping to Chatswood Rail Link in the recent CityRail determination).

Other bus priority measures

RTA has allocated $25 million per annum in capital expenditure over 4 years from for the delivery of bus priority measures. This expenditure is predominately designed to improve bus services, so we consider it appropriate to include this expenditure when rolling forward the value of the assets. We note that there is no commitment to continue this expenditure beyond 4 years and have not included a value beyond 2012/13.

As with operating expenditure on bus stops and shelters, we have not included an allowance for local council capital expenditure related to bus stops and interchanges. The costs related to bus stop building incurred by councils are generally funded through advertising revenue that is greater than the costs incurred in building and maintaining bus stops.

Box 6.1 Inner West Busway

The NSW Government is currently constructing a busway on Victoria Road between Westbourne Street in Drummoyne and The Crescent in Rozelle. This dedicated bus lane in peak periods through Drummoyne and Rozelle will result in:

- faster and more reliable bus travel
- greater road safety
- improved facilities for pedestrians and cyclists.

The estimated cost of the busway is $175 million. It is expected to be completed in December 2010, weather permitting.

In Drummoyne the project will provide:

- a citybound bus lane through Drummoyne in the AM peak
- a citybound bus lane through Drummoyne to Terry Street, Rozelle in the PM peak
- a new citybound bus bay at Cary Street
- clearways during peak periods
- changed traffic arrangements in Drummoyne including a moveable median barrier.

Over Iron Cove, the project will provide:

- a new bridge
- a 4.3 metre wide cyclist and pedestrian path over the new bridge
- a 24-hour citybound bus lane over Iron Cove
- an outbound bus lane over Iron Cove in the AM peak.

In Rozelle the project will provide:

- an outbound bus lane from Clubb Street, Rozelle to the end of the new bridge in the AM peak
- clearways during peak periods
- changed traffic arrangements in Rozelle.

Source: NSWTI, Inner West Busway along Victoria Road, Available from: http://www.innerwestbusway.com.au/Aboutthproject.htm

7 Allowance for a return on assets in the 4 largest regions

The inclusion of an allowance for a return on the assets used in providing bus services recognises the opportunity cost of the capital invested in these assets in the 4 largest regions.

To calculate the size of this allowance, we determined an appropriate rate of return for providing bus services in the 4 largest regions, then multiplied the value of the assets in each year of the determination period by this rate.

The section below sets out our final decision on the allowance for a return on assets. The next section discusses our final decision on the appropriate rate of return and how we made this decision. (Our decision on the value of the assets used to provide bus services is discussed in Chapter 6.)

7.1 Final decision on the allowance for a return on assets

11 IPART's final decision on the allowance for a return on assets is as shown on Table 7.1.

Table 7.1 Final decision on the allowance for a return on assets in the 4 largest contract regions ($million, real $2009/10)

	2009/10	2010/11	2011/12	2012/13	2013/14
Return on assets	49.3	62.0	70.5	73.0	74.0

Our final decision on the allowance for a return on assets in the four largest regions is unchanged from the draft report.

7.2 Final decision on appropriate rate of return

12 IPART's final decision is that for the purposes of calculating the allowance for a return on assets, a real pre-tax rate of return of 7.2% is appropriate.

This final decision reflects our view that:

- the appropriate weighted average cost of capital (WACC) is in the range 5.8% to 8.7%
- a WACC at the mid-point of this range is appropriate for calculating the allowance for a return on the assets used in providing bus services in the 4 largest contract regions.

We consider that a WACC approach is appropriate for determining the rate of return on the assets used in providing bus services in the 4 largest regions. The stakeholders who commented on the rate of return, including NSWTI, generally supported using a WACC approach.[40] This approach is also consistent with one we use in regulating the water, energy and rail industries.

NSWTI also drew attention to the rate of return used in the bus service contracts. These contracts allow for a return on new buses calculated using the 20-day average of the 10-year Commonwealth Government Bond rate and a negotiated margin. However, in our view, the appropriate rate of return for new buses is not necessarily appropriate for all the assets (both operator and RTA assets) used to provide bus services in the 4 largest regions. In addition, we consider that this approach does not reflect the current market conditions and all risks associated with providing bus services in the 4 largest regions.

Our analysis indicates that the real pre-tax WACC is in the range of 5.8% to 8.7%. We consider that a WACC at the midpoint of this range is appropriate for the assets used to provide bus services, and therefore made a final decision to use a real pre-tax WACC of 7.2% to calculate the return on assets.

In calculating the WACC range, we considered the differences in risk involved in providing public transport services using buses rather than trains. In our view, these differences justify a lower equity beta range for bus services (0.7-1.0 for buses compared to 0.8-1.0 for CityRail). Bus companies generally have a lower proportion of fixed costs compared to rail companies, which means that hypothetically they are better able to adjust their operations according to the level of economic activity[41]. This characteristic results in a lower level of profit variability, which should be reflected in a lower equity beta range for buses.

The parameters we used to calculate the WACC range are shown in Table 7.2 and were based on market conditions as at 26 November 2009. (More information on how we determined the value of each of these parameters is provided in Appendix E.)

40 Hunter Commuter Council submission, June 2009, p 2, Ministry of Transport submission, July 2009, p 4.

41 We note that in practice, the operator of the four largest regions can only adjust its operations in accordance with the process stipulated under its service contract.

Table 7.2 Final decision on the range for the real pre-tax WACC for providing bus services in the 4 largest regions

Parameter	Value
Nominal risk free rate	5.5%
Inflation	2.8%
Market risk premium	5.5-6.5%
Debt margin	1.7-3.8%
Debt funding	60%
Gamma	0.5-0.3
Tax rate	30%
Equity beta	0.7-1.0
Cost of equity	9.4-12.0%
Cost of debt	7.2-9.4%
WACC (real pre-tax)	**5.8-8.7%**

Note: Input parameters for IPART final decision were as at 26 November2009.

8 Allowance for depreciation and return on working capital in the 4 largest regions

The allowance for depreciation on the assets recognises that these assets will be used to provide bus services until they wear out or are disposed of, and so allocates the costs incurred over the useful life of the assets. The allowance for a return on working capital recognises that some businesses incur costs in funding the short-term capital required for the day-to-day activities of the business (such as accounts payables, inventories and accounts receivables). Where this is the case, we consider it reasonable for them to earn a regulatory return on this capital.

The sections below set out our final decisions on each of these allowances, and discuss how we reached these decisions.

8.1 Allowance for depreciation

13 IPART's final decision is that the allowance for depreciation on the assets used in providing bus services in the 4 largest regions is as shown in Table 8.1.

Table 8.1 Final decision on the allowance for depreciation on the assets used in providing bus services in the 4 largest regions ($million, real $2009/10)

	2009/10	2010/11	2011/12	2012/13	2013/14
Depreciation	51.7	62.5	70.8	76.8	81.9

Our final decision on the allowance for depreciation on the assets used in providing bus services in the four largest regions is unchanged from the draft report.

In making this decision we:

- used the straight-line depreciation method (which takes an equal amount from the asset value in each year of the assets' economic life so that the real written down value describes a straight line over time)
- established an appropriate depreciation rate for the groups of **new** assets used to provide bus services in the 4 largest regions based on the economic life of the assets
- established an appropriate depreciation rate for the groups of **existing** assets used to provide bus services in the 4 largest regions based on the remaining economic life of the assets.

8.1.1 Method of depreciation

In general, we prefer to use straight line depreciation in determining the total costs of regulated businesses because this approach is simple to implement and is widely used by regulated and non-regulated businesses in their accounts.

We acknowledge that there are a number of depreciation methods that could be used. For example, some operators depreciate buses faster in the early years, reflecting the fact that buses tend to be allocated more route kilometres when they are new and less as they get older. On balance, we consider that it is simpler to apply a consistent method across all asset groups, and one that we use in calculating regulatory depreciation in other sectors.

8.1.2 Economic lives of new assets

To establish appropriate depreciation rates for the new assets used to provide bus services in the 4 largest regions, we considered the useful lives applied by the operator in these regions and the RTA, as well as the information in the service contracts. In accordance with straight line depreciation, we then used these lives to calculate an annual depreciation rate for each asset group.

Operator assets

The major operator asset categories for providing bus services are buses, land, buildings and improvements and other assets (plant and equipment, ticketing assets). Our final decision on the economic lives and corresponding depreciation rates for these asset categories (except land[42]) is shown in Table 8.2.

Table 8.2 Final decision on economic lives and depreciation rates for new operator assets

Asset category	Economic life (years)	Depreciation rate (%)
Buses	17.5	5.7
Buildings and improvements	40	2.5
Other assets	11.6	8.6

We decided to use an economic life of 17.5 years for new buses. The service contracts stipulate that the average age of an operator's bus fleet must be no greater than 12 years and that there should be no buses older than 25 years.[43] New buses purchased under the service contracts are depreciated over a period of 15 years,[44] while the operator of the 4 largest regions applies a useful life of between 15 and 20 years when depreciating buses for accounting purposes. On balance, we consider that an economic life of 17.5 years is consistent with the service contracts.

42 Land does not depreciate.
43 NSWTI, *Draft Metropolitan Bus System Contract,* p 61.
44 NSWTI submission, p 4.

For building and improvements, we decided to use an economic life of 40 years, as this is the useful economic life the operator of the 4 largest regions applies when depreciating buildings and improvements for accounting purposes.

For other assets (including plant and ticketing equipment), we decided to use an economic life of 11.6 years. This is based on a weighted average of the useful lives the operator of the 4 largest regions applies when depreciating other assets for accounting purposes.

RTA assets

The RTA's major new assets include bus priority measures such as bus lanes and priority traffic signals, as well as the Inner West Busway which includes the duplication of the Iron Cove Bridge on Victoria Road. We decided to apply different asset lives to these 2 asset groups to reflect differences in the nature of expenditure (Table 8.3).

Table 8.3 Final decision on economic lives and depreciation rates for new RTA assets

Asset class	Economic life (years)	Depreciation rate (%)
Bus priority measures	20	5.0
Inner West Busway	75	1.3

We decided adopt an asset life of 20 years for RTA expenditure on bus priority measures. This is consistent with the useful lives for traffic signals (20 years), and within the range for the useful lives of traffic systems (5-20 years) and pavement roads (20-50 years) the RTA uses when depreciating these assets for accounting purposes.[45]

We decided to adopt an asset life of 75 years for the Inner West Busway. This reflects significant expenditure on the duplication of the Iron Cove Bridge. This life is based on the useful lives of concrete and steel bridge structures (100 years) and pavement roads (20-50 years) the RTA uses when depreciating these assets for accounting purposes.[46]

8.1.3 Remaining lives of existing assets

We determined the remaining lives of existing assets according to the proportion of the historical cost that is yet to be depreciated, and on the economic lives we applied for equivalent new assets. This methodology is consistent with straight line depreciation. Our final decision on these asset lives and the corresponding depreciation rates is shown in Table 8.4.

45 RTA, *Annual Report 2008*, p 134.
46 RTA, *Annual Report 2008*, p 134.

Table 8.4 Final decision on economic lives and depreciation rates for existing operator assets

Asset category	Economic life (years)	Depreciation rate (%)
Buses	9.9	10.1
Buildings and improvements	24.1	4.1
Other assets	5.4	18.5

8.2 Allowance for a return on working capital

14 IPART's final decision is that the allowance for a return on working capital in the 4 largest regions is as shown in Table 8.5.

Table 8.5 Final decision on the allowance for a return on working capital in the 4 largest regions ($million, real $2009/10)

	2009/10	2010/11	2011/12	2012/13	2013/14
Return on working capital	-3.0	-2.6	-1.9	-1.8	-1.6

Our final decision on the allowance for a return on working capital in the four largest regions is unchanged from the draft report.

The allowance for a return on working capital recognises that some businesses incur costs in funding the short-term capital required for the day-to-day activities of the business (such as accounts payables, inventories and accounts receivables). If the business' net working capital is positive, it has invested capital to facilitate its day to day activities and so should earn a regulatory return on this capital. However, if the business' net working capital is negative, its trade creditors are providing working capital to the business, and so it should earn a negative regulatory return to offset the returns being earned by the business on the capital provided by other parties.

To make this final decision we:

- estimated forecast levels of net working capital to provide bus services in the 4 contract regions in each year of the determination period
- multiplied this by the appropriate rate of return for providing bus services in the 4 largest regions, as discussed in Chapter 7.

Our estimates of the forecast net working capital are shown in Table 8.6. The estimate for each year of the determination period is negative. This reflects low levels of accounts receivable relative to accounts payable, and is largely driven by bus operators receiving farebox revenue before travel occurs. Given this negative net working capital position, the allowance for a return on working capital is also negative.

Table 8.6 Forecast levels of net working capital used in calculating the allowance for return on working capital ($million, real $2009/10)

	2009/10	2010/2011	2011/12	2012/13	2013/14
Accounts receivable	13.7	14.0	14.3	14.6	14.9
Inventory	10.7	11.6	9.3	9.2	8.7
Accounts payable	57.7	62.5	50.2	49.7	46.8
Net working capital	-33.3	-37.0	-26.7	-25.9	-23.3

Note: Totals may not add due to rounding

These levels are based on forward estimates for the elements of net working capital relating to bus services in the 4 contract regions. These are:

- accounts payable at 30 days of operating and capital expenditure
- accounts receivable at 20 days of revenue
- inventory at 6 days of operating and capital expenditure.

These assumptions are based on historical information for providing bus services in the 4 contract regions.

9 Forecast patronage growth in the 4 largest regions

After we established the efficient costs of providing bus services in the 4 largest contract regions, we considered the likely patronage growth in these regions over the determination period. Our decision on forecast patronage growth is important, as it affects our decision on the value of the external benefits of bus services (discussed in the next chapter) and has a major impact on the level of fares (discussed in Chapter 2).

The decision on forecast patronage growth affects the value of the external benefits because these benefits primarily arise when people choose to use bus services instead of cars. Therefore, generally speaking, a higher forecast number of passenger journeys over the determination period will lead to a higher value for the external benefits. In turn, a higher value for the external benefits will lead to lower fare increases, because it suggests that a higher share of the Government's costs in providing bus services should be recovered from taxpayers rather than passengers.

The decision on forecast patronage growth affects the level of fares because we set this level based on the forecast number of tickets sold for each fare type. In general, higher forecast patronage growth will lead to lower fare increases, because it means that passengers' contribution to the efficient costs of providing the services can be recovered from a higher number of ticket sales.

The section below sets out our final decision on the forecast patronage growth in the 4 largest contract regions over the determination period. The subsequent sections discuss the factors we considered in reaching our final decision.

9.1 Final decision on forecast patronage growth

15 IPART's final decision is to assume forecast patronage growth of 0.8% per annum over the determination period.

Our final decision on forecast patronage growth in the 4 largest regions is unchanged from the draft report.

We considered recent trends in bus patronage levels, and a range of factors that can influence bus patronage, including population growth and patterns of settlement, economic and employment conditions, service improvements, the relative attractiveness of alternative transport modes, and the likely impact of fare increases

resulting from our determination. We also considered the forecast patronage growth suggested by the Transport Data Centre's (TDC) modelling.

We concluded that it is reasonable to assume patronage growth of 0.8% per annum over the determination period. This is just below the long-term average growth of 1.0% per annum and is the mid-range estimate of patronage growth forecast by the TDC.

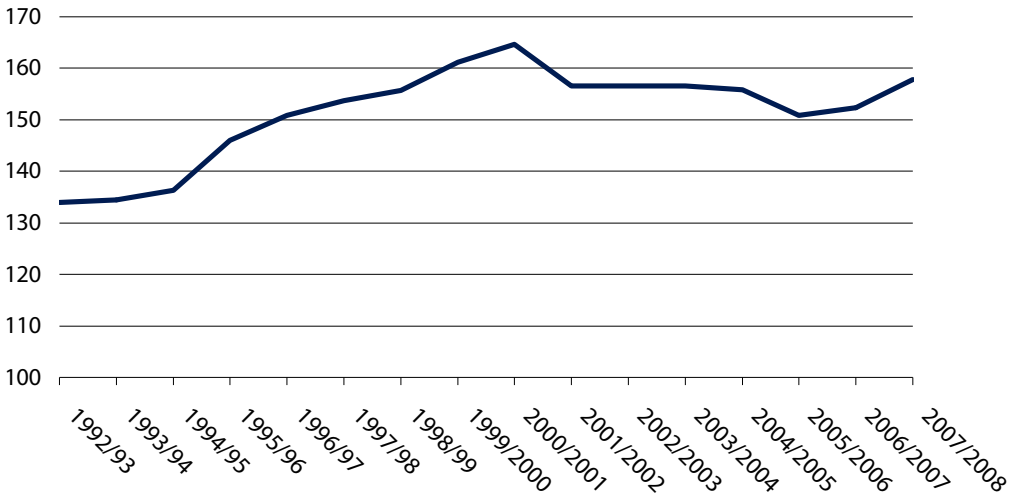
9.2 Recent trends in bus patronage levels

We considered the recent historical trends in patronage levels as these trends can provide a reasonable indication of future growth, provided that historical patterns of population settlement, macroeconomic conditions and travel behaviour remain reasonably consistent. However, we didn't rely solely on these, as many factors can affect patronage.

Over the last 15 years, the total number of bus passenger journeys undertaken in the 4 largest contract regions grew by 16.4%, which represents average patronage growth of 1% per annum.[47] As Figure 9.1 shows, most of this growth occurred over the period up to 2000/01, when the average growth rate was 2.6% per annum, and patronage peaked around the time of the Sydney Olympics.

On balance, we consider that the historic trends suggest it is reasonable to expect patronage growth of around 1.0% per annum, in line with the long-term average growth over the last 15 years. However, we also need to consider the likely impact of other factors, as discussed in the following sections.

Figure 9.1 Annual patronage in 4 largest contract regions 92/93-07/08 (millions)



Data source: NSWTI, STA.

47 Excluding journeys taken by school students under the school student travel scheme (SSTS).

9.3 Population growth and patterns of settlement

NSWTI advise that the most reliable determinant of bus patronage for a particular route is the population of people living, number of people with employment and other patronage generating activities (for example schools and shopping centres) within a defined distance of the bus route. Therefore, it would be logical to consider the expected population growth along bus routes in forecasting future patronage.[48]

Unfortunately, data on population growth along specific bus routes is not available. The best proxy we were able to obtain was Australian Bureau of Statistics (ABS) data on population growth in the Sydney Statistical Division (an area significantly larger than the 4 largest bus contract regions). These data indicate that over the 2007/08 financial year, the population of this area increased by 55,000 or a total of 1.3%.

Population growth does not occur uniformly across the Sydney metropolitan area. Factors such as government planning policies, growth in employment centres, and housing availability and affordability influence growth in particular areas. For example, recent ABS data show that in 2007/08, over half of Sydney's local government areas experienced a growth rate greater than the average local government area in Sydney of 1.1%, and 1 in 5 experienced a growth rate of over 2.0%.[49] However, most of the local government areas with the highest growth are outside the 4 largest bus regions.

Although we consider that local population growth will continue to be a significant determinant of bus patronage growth in Sydney, we do not expect that in the 4 largest regions, population growth will cause it to deviate from its historical average over the determination period.

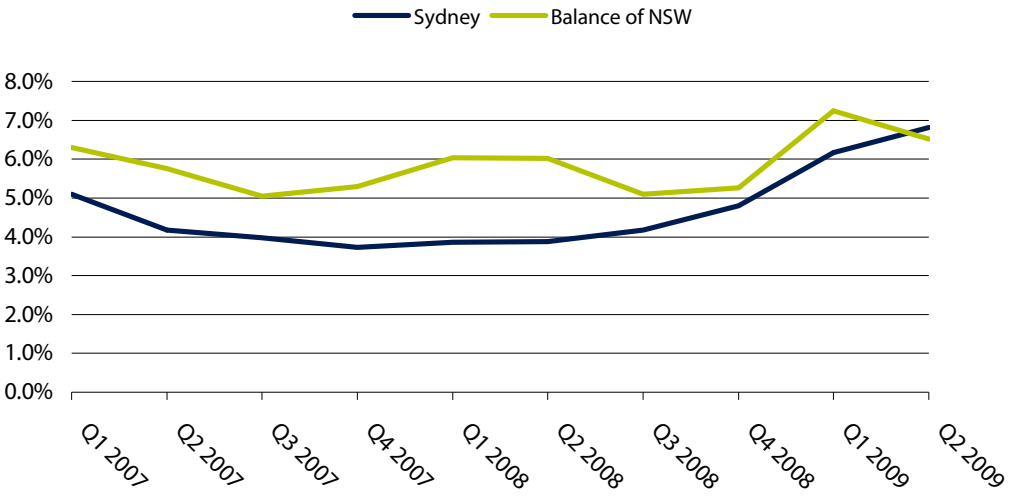
9.4 Economic and employment conditions

Several stakeholders, including NSWTI, BusNSW and APT, submitted that economic and employment conditions have an important influence on bus patronage levels.

While Australia appears to be weathering the worldwide economic downturn better than many countries, it is possible that it will continue to experience a decline in growth and employment for at least part of the 2010 determination period. Recent employment data for NSW and Sydney indicate that unemployment began to rise significantly in the first half of 2009. In Sydney, it increased from an average of 3.9% across the first quarter of 2008, to an average of 6.9% across the second quarter of 2009.[50]

48 NSWTI correspondence, 2 October 2009.
49 Australian Bureau of Statistics 3218.0 - Regional Population Growth, Australia, 2007-08.
50 Australian Bureau of Statistics 6202.0 Labour Force, Australia, August 2009.

Figure 9.2 Unemployment rate for Sydney and the balance of NSW



Note: Data presented as quarterly averages.
Data source: Australian Bureau of Statistics 6291.0.55.001 Table 02.

The majority of bus journeys are not made for work purposes – the TDC's household travel survey found that around three-quarters of bus trips are made for non-work purposes, such as education, social/recreation or shopping.[51] Nevertheless, this higher unemployment is important, given that a significant proportion of Sydney commuters usually travel by bus. For example, the TDC's most recent Journey to Work data indicate that in 2006, 22.3% of those surveyed travelled to work by bus.

While it is not possible to predict the precise effect on bus patronage, we consider that economic and employment conditions are likely to have a dampening effect on bus patronage growth over the 2010 determination period, compared with the long-term historical average.

9.5 Service quality improvements and transport policy

A significant number of stakeholders noted the importance of service quality in influencing bus patronage. For example, BusNSW suggested that improvements such as integrated bus networks, bus priority measures (such as bus lanes) and integrated electronic ticketing could be expected to lead to higher patronage.[52] Western Sydney Community Forum submitted that improvements to make public transport easier to use – such as better information, improved connectivity, improved accessibility, and better quality infrastructure – would increase patronage.[53] Several stakeholders, including the Lower Hunter Councils Transport Group[54] and NCOSS[55],

51 TDC, *Household Travel Survey 2005 – IPART request.*
52 BusNSW submission, 1 July 2009, p 9.
53 Western Sydney Community Forum submission, 24 June 2009, p 6.
54 Lower Hunter Councils Transport Group submission, 9 July 2009, pp 6-7.
55 NCOSS submission, 16 July 2009, p 8.

also suggested that recent and planned improvements to services and service quality should mean that future increases in patronage are higher than historical growth.

NSWTI submitted that improvements in the quality of bus services resulting from recent government efforts to undertake integrated network planning, increase capacity and harmonise fares have had the greatest impact on patronage growth in recent years, and have been shown to increase patronage on certain routes regardless of economic conditions.[56]

We considered information provided by NSWTI related to the likely impact of integrated network planning and new infrastructure on bus patronage over the 2010 determination period.

Integrated network planning

Better network planning can influence patronage growth on certain networks in certain regions.[57] NSWTI submitted that an integrated bus network can increase bus patronage, as it offers multiple travel opportunities to individuals and ensures all residents have access to direct and frequent services to regional centres. It reported that as part of its Integrated Network Planning scheme, it has recently completed a review of all bus networks in NSW, and restructured some routes to better meet demand. The new routes have been implemented or are in the process of being approved and implemented.

Public Transport Information and Priority System

The RTA is currently implementing the Public Transport Information and Priority System (PTIPS) as a technological solution to improving bus travel times along strategic bus corridors. PTIPS uses satellite technology to identify late-running buses and communicates with the RTA's traffic management system to direct traffic signal priority to late-running buses.

PTIPS is currently being rolled out across the Sydney bus fleet. The Sydney Buses fleet will be PTIPS-enabled before the end of 2009 with private bus fleets to follow.[58]

New infrastructure

New transport infrastructure – such as new roads and tunnels, rail lines or metro lines – provides alternative transport options for passengers who may have previously travelled by an alternative route or transport type.

The RTA indicated that the Inner West Busway project is currently scheduled for completion in December 2010. The Inner West Busway is expected to improve transport for up to 200,000 commuters travelling along Victoria Road to the city and

56 NSWTI submission, 1 July 2009, p 7.
57 NSWTI submission, 1 July 2009, p 7.
58 NSWTI correspondence, 16 September 2009.

back each week by decreasing travel time and increasing reliability. We understand that there will be no other new major transport infrastructure projects coming on line during the determination period.

The Epping to Chatswood rail line is not yet running at its normal running capacity and is expected to displace some bus travel once it is fully operational. On the other hand, the possible completion of the Inner West Busway may lead to an increase in bus patronage along bus routes in that area.

On balance, service enhancements such as those brought about by significant investment in new infrastructure are likely to have a positive impact on patronage. However, we don't consider that minor improvements in bus service quality along established routes are likely to have a major influence on patronage growth over the 2010 determination period unless significant improvements in travel time can be demonstrated.

9.6 Relative attractiveness of alternative modes of transport

Another factor that can influence how many people use bus services is the relative attractiveness of the alternative modes of transport – especially private cars. In general, travelling by car is considered to be more convenient and comfortable than travelling by public transport. However, a range of factors can make public transport more attractive, including the level of road congestion (which can mean travelling by car is time-consuming and stressful) and the price of petrol (which can mean travelling by car to work is very expensive).

Over the last several decades, the level of traffic on Sydney's road network (measured in terms of the total vehicle kilometres travelled (VKT)) has increased. This trend is expected to continue in the next decades, leading to competing demand for scarce road space. For example, the Bureau of Transport and Regional Economics (BTRE) estimates that about the same volume of traffic will be added to Sydney's roads over the next 15 years as was added in the past 15 years. This represents an increase in traffic of 35% to 37%.[59]

Several stakeholders submitted that road congestion is one of the factors that influences people's choice to take public transport over a private vehicle. This may be less so for bus services than train services, as buses are largely subject to the same traffic conditions as private vehicles. However, the introduction of bus lanes and transit lanes in recent years has increased the attractiveness of bus travel in peak times and we expect the continuing investment in PTIPS and the Inner West Busway to have a positive effect. But overall, we don't consider road congestion alone will have a major influence on bus patronage growth over the 2010 determination period unless significant improvement in bus travel times can provide an incentive to change modes.

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59 Bureau of Transport and Regional Economics, *Estimating urban traffic and congestion cost trends for Australian Cities, Working Paper No 71*, 2007, p xv.

It is difficult to estimate the effect of fuel price changes on demand for public transport and more particularly the demand for bus travel. However, the TDC has indicated that in its view, fuel prices play a minor role in the demand for bus services in the Sydney metropolitan area. We tend to agree with this view. Although the higher than average growth in bus patronage in recent years coincided with significant increases in fuel prices, we consider that the impact of other factors, including recent service enhancements and strong employment growth would have had a more significant impact.

9.7 Fare increases that result from this determination

We considered whether our decisions on fares will affect bus patronage growth over the 2010 determination period. As we have noted in previous reports, the demand for bus services is relatively inelastic, and many factors influence peoples decisions to use bus services. Therefore, modest fare increases are unlikely to have a significant impact on bus patronage.

In 1996, we commissioned Professor David Hensher of the Institute of Transport Studies to estimate the effect price has on demand for all public transport fares in the Sydney region.[60] The level to which patronage withstands price changes is referred to as price elasticity of demand. Hensher found that the price elasticity of demand for bus travel was around -0.38.[61] This suggests that a 1% increase in fares would reduce patronage by 0.38%, other things being equal. Table 9.1 and Table 9.2 show some of the results of the study.

Table 9.1 Price elasticity of commuters' demand for bus, rail and car travel

	Bus	Rail	Private cars
Bus	-0.383	0.009	0.005
Rail	0.004	-0.250	0.009
Private cars	0.007	0.015	-0.014

Source: Hensher and Raimond (1996).

Table 9.2 Impact of changes in price on commuters' demand for bus, rail and car travel

Change in price	Impact on bus travel	Impact on rail travel	Impact on car travel
10% increase in bus fares	- 3.83%	+ 0.04%	+ 0.07%
10% increase in car costs	+ 0.05%	+ 0.09%	- 0.14%

Source: Hensher and Raimond, *Estimation of Public Transport Fare Elasticities in the Sydney Region*, 1996.

Although this study is now more than 10 years old, available evidence suggests that elasticities have not changed significantly over this time. A more recent elasticity

60 Hensher and Raimond, *Estimation of Public Transport Fare Elasticities in the Sydney Region*, 1996.
61 IPART, *Estimation of Public Transport Fare Elasticities in the Sydney Region*, October 1996.

study we commissioned from Booz and Co for the recent CityRail review suggested very similar outcomes to the Hensher study of 1996.[62]

Given the above, we consider that modest fare increases are likely to have a less than proportionate impact on bus patronage growth.

9.8 Transport Data Centre modelling

In its submission, NSWTI noted that forecasting demand for public transport services can be difficult, and suggested our decision on forecast demand for bus services should be informed by the work of its Transport Data Centre (TDC) in this area. The TDC maintains data sets related to travel, demographic and employment trends in NSW. The model also incorporates planned changes to the transport networks (ie, new or changes to roads, changes to train timetables and infrastructure, integrated bus networks) through regular consultation with transport agencies.

These data sets support the Sydney Strategic Transport Model (SSTM) which the TDC uses to provide reliable and up-to-date information on current and future travel patterns and employment and population trends.

Modelling for future patronage demand allows for the adjustment of known or expected future conditions. However, in times of economic uncertainty accurate prediction of future conditions can present some difficulty. Many conditions such as fuel prices are highly volatile and difficult to predict. The risk associated with relying on forecasts of patronage growth will depend largely on the sensitivity of the model being used to the different assumptions it relies on – that is, to what extent small variations in the input data (like fuel prices) change the forecast patronage numbers.

While the TDC considers the reliability of the long-term strategic forecasts for outputs such as patronage growth generated by the SSTM is high, it acknowledges that the reliability decreases for short-term forecasts such as the one we need for this determination. This is particularly the case when there is expected to be short-term volatility in data sets such as employment growth.

We asked the TDC to provide us with patronage growth forecasts for the 4 largest contract regions, for the other metropolitan regions and for the outer metropolitan regions. Given the uncertainty surrounding the current economic climate, we also asked it to provide these patronage growth forecasts for a range of employment growth scenarios.

The TDC ran three scenarios using annual average employment growth rates of 0%, 0.9% and 1.3% over the period 2006 to 2016. TDC's estimate of 0.9% annual employment growth to 2016 is based on population growth of 1.0% per year produced by the Department of Planning (2005), coupled with a slight decline in the

62 Hensher and Raimond, *Estimation of Public Transport Fare Elasticities in the Sydney Region*, 1996.

participation rate due to an aging population (based on advice from a range of economic and labour force forecasters).

The TDC's modelling predicts average bus patronage growth of between 0.4% and 0.9% per annum in the 4 largest contract regions, depending on the employment growth scenario.

Table 9.3 TDC's forecast average annual patronage growth

	Employment growth		
	0%	**0.9%**	**1.3%**
4 largest regions	0.4%	0.8%	0.9%
Other Sydney metro regions	1.1%	2.0%	2.1%
Outer metro regions	0.5%	0.8%	0.9%
Total	0.7%	1.3%	1.4%

Note: Model calculates total growth over period 2006 to 2016. Average annual growth derived from total.
Source: Transport Data Centre custom model run.

APT indicated that it was surprised that TDC's forecast was as low as 0.4% to 0.9% per annum. We note that this forecast is not far removed from the long-term average patronage growth of 1.0% per annum. It is also in line with what we expect, given our view that the global economic downturn and its effect on employment growth is likely to restrain patronage growth. However, we anticipate that the attractiveness of bus travel, particularly for commuters travelling in peak times is likely to improve should projects such as the Inner West Busway, integrated network planning and PTIPS deliver on improved travel times for these services.

As noted in Chapter 3, we focused on the four largest regions as the basis for setting fares and as a result have used the TDC forecasts of patronage growth in these regions. However, the TDC modelling predicts higher average annual bus patronage growth in the other Sydney metropolitan regions and in the outer metropolitan regions (Table 9.3). We understand that this is due to higher forecast job growth in the outer western suburbs of Sydney, as well as higher than average expected population growth for many of the local government areas in Western Sydney.

On balance, we expect patronage growth to remain close to but not as high as the long term annual average of 1.0%. Accordingly, we consider that it is reasonable to adopt a conservative estimate of patronage growth over the determination period equal to the mid-range forecast as modelled by the TDC of 0.8% per annum.

10 External benefits of bus services in the 4 largest regions

After making our decision on forecast growth in the patronage of bus services over the determination period, we estimated the value of the external benefits that will be generated by these services over this period. This estimate was an important factor in our decision on how much of the efficient costs passengers should be required to fund through bus fares (see Chapter 11).

The external benefits of bus services are the indirect benefits that accrue to the wider community (rather than individual passengers) as a result of the provision and use of those services.[63] For example, these benefits include reduced road congestion, reduced traffic accidents and reduced air pollution.

There is general agreement in Australia and other jurisdictions that the external benefits generated by public transport services (including bus services) justify government subsidisation of the fares for these services. IPART shares this view. We also consider that the level of government subsidisation should be related to the value of the external benefits generated by the services concerned.

To estimate this value, we commissioned a consultant, LECG, to analyse and recommend the value of the external benefits of bus services to fare-paying passengers in the 4 largest contract regions. LECG's analysis focused on quantifying the net external benefits generated when people choose to travel by bus rather than private car (or the costs that would be imposed on the community if the existing bus services were not available or were significantly more expensive). We also considered the views stakeholders raised in submissions about additional external benefits generated by bus services, including improved mobility and access for certain members of the community, agglomeration benefits, reduced noise and better land use.

The section below sets out our final decision on the estimated value of the external benefits of bus services in the 4 largest contract regions. The subsequent sections discuss our considerations in reaching this decision.

63 These benefits are known as external benefits, because they are external to those who use the services.

10.1 Final decision on value of external benefits

16 IPART's final decision is that the value of the external benefits of bus services in the 4 largest contract regions is as recommended by LECG in its final report on bus externalities and set out in Table 10.1.

Table 10.1 Final decision on the value of the external benefits generated by providing bus services for fare-paying passengers in the 4 largest contract regions ($2009/10, millions)

	2009/10	2010/11	2011/12	2012/13	2013/14
Avoided road congestion costs	$174.3	$175.7	$177.1	$178.5	$179.9
Reduced air pollution costs	$60.3	$60.7	$61.2	$61.7	$62.2
Avoided road accidents costs	$0.0	$0.0	$0.0	$0.0	$0.0
Adjustment for fuel excise & parking levy foregone	-$19.7	-$19.9	-$20.1	-$20.2	-$20.4
Total external benefits	$214.8	$216.5	$218.2	$220.0	$221.7

Note: Totals may not add due to rounding

Our final decision on the value of external benefits generated by providing bus services for fare-paying passengers in the 4 largest regions is unchanged from the draft report.

We decided to base our estimate on LECG's recommendations. Although we recognise that there are significant social benefits associated with bus services, we did not attempt to quantify these benefits or to factor them into our decision on the estimated value of the external benefits. Had we done this the effect would have been for taxpayers to subsidise bus services more extensively on the basis that they provide social benefits to some disadvantaged users. In our view, improving access for less mobile or low-income passengers is best achieved through ensuring that investment in bus services meets the needs of these passengers and that a well-targeted concession program is in place.

10.2 LECG's recommendations

LECG estimated the value of the external benefits of providing bus services in the 4 largest contract regions. This involved quantifying the external costs avoided when people travel by bus instead of car in circumstances where the existing bus services are available and reasonably priced, and adjusting this value for the reduced taxation benefits when people travel by bus instead of car.

Almost three-quarters of all travel in Sydney is by car. Reducing bus fares is likely to increase bus usage but would not result in all those currently using cars switching to buses. This is because people make decisions based on more than the relative price. Factors like convenience, physical accessibility and the availability of public transport that goes where and when people need to go also influence choices between modes of transport.

The first step in LECG's approach was to understand how sensitive people in the Sydney metropolitan area are to changes in bus fares (demand profile) and how they choose to travel given the options available to them. To do this, it obtained information from the TDC. Based on the current network of buses, LECG asked the TDC to:

- provide information on how many people currently travel by car, train and bus, how long their trips are, and how much time these trips take
- model what would happen if the existing bus services were not available or were significantly more expensive – in particular, how many extra people would travel by car and train under these circumstances, how long their trips would be and how much time they would take.

Box 10.1 The external benefits of public transport services, and why these benefits justify government subsidisation of fares

When people make decisions on how to travel, they consider the costs and benefits to themselves – they will travel by bus when the costs and benefits of bus travel mean it is the best option for them. People do not usually take into account the costs and benefits to other people that are created by their decision. The costs and benefits that other people experience as a result of someone's decision on how to travel are called external costs and benefits because they are external to the decision maker.

The external benefits of bus use primarily result from people choosing to travel by bus instead of driving a car because it avoids the external costs associated with car travel. There are no external benefits from people catching a bus if they chose to catch the bus instead of walking, cycling or catching the train because unlike car travel, these alternative forms of transport do not impose costs on other people.

To get people to take into account the external costs and benefits in their decisions, the relative prices of bus and car travel can be altered to include the value of the external cost. This can either be done by increasing the cost of car travel or by reducing the cost of public transport.

If there were a system of road use pricing that priced car travel equal to the internal and external costs it imposes, then it would not be necessary to take the external costs of car travel (ie, the external benefits of bus travel) into account in deciding on the optimal bus fare and subsidy levels. However, without such as system, government subsidisation for bus (and other public transport) services that is related to the value of the external costs of car use/external benefits of bus use is generally regarded as the next-best approach for encouraging optimal choices between modes of transport.

Using this information, LECG estimated the marginal external cost of the extra car travel that would occur if buses were not available or were significantly more expensive. Specifically, LECG estimated:

- the costs associated with increased traffic congestion (a function of how many extra people travel by car and the change in the speed of car trips)
- the costs of increased car pollution (a function of how many people travel by car and how far they travel) less the cost of pollution caused by buses
- the costs of accidents (a function of how many extra people travel by car and the change in the speed of car trips).

LECG also estimated the additional revenue society would receive from collecting more revenue from the fuel excise and parking space levies if buses were not available or were significantly more expensive. It then totalled these costs, and subtracted these benefits to derive an estimated value for the net external benefits of bus services.

LECG's estimate of external benefits per bus passenger journey and the components of this estimate are summarised in Table 10.2. The components are discussed in details in the sections below. If you want more information, LECG's final report on its analysis and recommendations is available on our website.[64]

Table 10.2 LECG's estimate of the net external benefit of bus services for fare paying passengers in the 4 largest regions – $ per bus passenger journey ($2009/10)

Source of benefit	Adult (full fare)	Concession/ pensioner	Average (4 largest regions)
Avoided road congestion costs	$1.74	$0.00	$1.13
Reduced air pollution costs	$0.39	$0.39	$0.39
Avoided road accidents costs	$0.00	$0.00	$0.00
Reduced fuel excise & parking levy	-$0.13	-$0.13	-$0.13
Total external benefits	**$2.00**	**$0.26**	**$1.39**

Note: Calculated using modelling results obtained from the TDC's Sydney Strategic Travel Model.
Source: LECG, *Value of Sydney bus externalities and optimal Government subsidy - Final Report*, September 2009.

10.2.1 Avoided road congestion costs

The availability of reasonably priced bus services makes it possible for many people in the metropolitan and outer metropolitan regions to travel by public transport rather than use their own car. Thus, the provision and use of these services reduces the number of individual cars on the road. Fewer cars mean less road congestion, which benefits bus passengers and other road users by reducing their travel time and fuel costs.

64 LECG, *Value of Sydney bus externalities and optimal Government subsidy - Final Report*, September 2009.

LECG estimated the value of avoided road congestion costs using data on traffic patterns for a typical work day provided by the TDC. This data indicates that around 50% of bus trips would be made by car if bus services were not available.[65] LECG also took into account that:

- the value of avoided road congestion also differs by the time of travel, as avoided road congestion has a higher value to society in peak periods when congestion is a major problem
- different types of passengers (eg, school students, concession cardholders/ pensioners, and adults paying full fares) are likely to travel at different times of the day.

LECG found that the reduced road congestion costs in these regions are worth $1.13 per fare-paying passenger journey (or $174.3 million per year in 2009/10). This is the same as the estimate in LECG's draft report, but has been modified to remove the contribution of non-fare paying passengers and to incorporate the most recent available information (2009/10 dollars and costs).

10.2.2 Reduced air pollution (including greenhouse gas emissions) costs

Every litre of fuel consumed by motorised transport (including buses) contributes to air pollution, including greenhouse gas emissions. This pollution imposes a cost on society. For example, the Bureau of Transport and Regional Economics estimated that in 2000, pollution from motor vehicles in Sydney was responsible for over 500 premature deaths and over 1000 hospital admissions per annum.[66] These health impacts of motor vehicle pollution were estimated to cost the community between $600 million to $1.5 billion per annum.[67]

The health impacts of air pollution depend on the level and type of pollutants that are produced when fuel is burnt. Fuels such as unleaded petrol and diesel produce harmful pollutants such as particulate matter, nitrogen oxides, sulphur oxides and volatile organic compounds. The quantity of pollutants that are emitted depends largely on the type of fuel, such as unleaded petrol, diesel, or compressed natural gas, as well as other factors such as engine type and engine efficiency. In addition, some pollutants have a greater impact on health costs than others.

65 Based on TDC modelling of work trips across the metropolitan area.

66 Bureau of Transport and regional Economics, *Health Impacts of Transport Emissions in Australia: Economic Costs - Working Paper 63,* 2005.

67 Bureau of Transport and regional Economics, *Health Impacts of Transport Emissions in Australia: Economic Costs - Working Paper 63,* 2005.

LECG quantified the value of the reduction in air pollution and greenhouse gas pollution when bus services are used instead of cars in the 4 largest contract regions. It also quantified the value of the additional air pollution and greenhouse gas pollution generated by buses themselves. It took into account that:

- most buses run on diesel (some on gas) and most cars run on unleaded petrol
- for a given distance, buses use more fuel than cars and per litre of fuel, diesel is more polluting than petrol
- a typical bus carries more people than a typical car
- around 50% of people who catch the bus would drive if they did not catch the bus (estimated by the TDC).

LECG found that the estimated value of reduced air pollution and greenhouse gas pollution costs is 39 cents per fare-paying passenger trip, or a total of $60.7 million per year in the 4 largest contract regions. (This is based on reduced air pollution and greenhouse gas pollution due to cars worth 55 cents per passenger trip, and added air pollution and greenhouse gas pollution due to buses worth around 20 cents per passenger trip.)

10.2.3 Avoided road accident costs

Statistics on transport-related deaths show that rail and bus are the safest forms of land transport in Australia.[68] Bus travel results in significantly fewer deaths than car travel.[69] The rate of serious injury[70] for bus occupants is also lower than for car occupants[71] (although the evidence also suggests that having heavier vehicles on the road actually increases the severity of accidents for other road users).

While these data suggest that increased use of bus services rather than cars is likely to lead to avoided road accident costs, LECG recommended no external benefit associated with avoided road accidents be credited to bus services. Based on its own analysis, LECG found that it is likely that motorists already on the road do not experience any increased risk of accidents when more people decide to drive instead of catching the bus. (The increased risk experienced by making the decision to travel by car instead of bus is an internal cost rather than external cost.) LECG also found that the total external cost of road accidents may even be lower without bus services

68 Australian Transport Safety Bureau, *Discussion Paper – Cross modal safety comparisons*, 1 January 2005, p 1.

69 Australian Transport Safety Bureau, *Discussion Paper – Cross modal safety comparisons*, 1 January 2005, pp 1-2.

70 Serious injuries for each 100 million vehicle kilometres travelled, which accounts for variation in the number of different types of vehicles in use in Australia *and* their frequency of travel. Comparison of rates on a passenger-kilometre basis was expected to show an even lower rate for buses relative to other vehicle types, but the relevant data was not available.

71 Jesia G Berry and James E Harrison Australian Institute of Health and Welfare, *Serious injury due to land transport accidents, Australia, 2003–04*, Canberra AIHW cat. no. INJCAT 107, p 20, October 2007.

than with them because heavier road congestion slows the traffic down and reduces the severity of accidents.

In submissions and at the public hearing, several stakeholders argued that LECG had not properly considered the external benefits of reduced road accidents. The main argument raised was that bus travel is safer than car travel so getting people out of cars into buses creates a benefit to society that should be taken into account in fare setting.[72]

However, we decided to accept LECG's recommendation. After considering all the available information (including submissions) we concluded that although the total cost of accidents is lower for people who travel in buses than those in cars, it is not necessarily the case that there are significant external benefits associated with increasing bus travel.

One reason for this is that only some of the costs associated with accidents are borne by the community, and only these external costs are relevant to fare setting. In particular, costs covered by insurance or borne directly by the individuals involved in accidents are internal costs, and so are not relevant given our purpose in estimating the value of the external benefits of bus services (which is to help us determine how much government subsidisation of bus services is justified, and therefore how much of the efficient costs of providing these services passengers should be required to fund through fares).

Another reason for our conclusion is that LECG's approach to estimating the external benefits is a marginal approach. Under this approach, an increase in the external accident cost associated with extra car travel will only exist when the addition of extra car journeys increases the average external cost of accidents for all journeys.

A paper produced by the Bureau of Transport and Regional Economics (BTRE) in 2005 discusses the various approaches to valuing the external cost of accidents. While the paper concludes that the estimation of accident externalities is complex and requires more research, it notes that marginal approaches are more sophisticated than the alternatives, which tend to oversimplify the situation.[73] The paper also lends support to LECG's view that the overall impact of increasing road use on external accidents is unclear. The paper notes that rate of accidents is influenced by the number of 'vehicle passings' (essentially, the number of cars on the road) and the severity is influenced by vehicle speed – these two factors work in opposite directions as increased traffic tends to reduce vehicle speed.

Overall, while we recognised that the results of LECG's analysis may not be what many stakeholders expected, we consider that LECG's approach was reasonable and likely to be the most appropriate method for the purpose of setting fares. Therefore,

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72 BusNSW submission, 1 July 2009, p 6, NCOSS submission, 16 July 2009, pp 4-6, APT submission, 8 November 2009, WSCC comments at public hearing, pp 22-23.

73 Bureau of Transport and Regional Economics *External Accident Costs of Motor Vehicles Revisited*, Staff paper given by Lyn Martin to the 28th Australasian Transport Research Forum, September 2005.

we have accepted LECG's recommendation and made a final decision not to include a value for avoided road accidents costs in the estimated value of the external benefits of bus services.

10.2.4 Reduced fuel excise and parking levy

In considering the level of subsidy for buses, LECG updated its analysis to take into account the existing fuel levies and other usage-related taxes on car travel. As noted above, LECG focused on the notion that the key problem in pricing various forms of transport is that there is a difference between the private (financial) cost of car travel and the social and economic costs, including the external costs. This problem can be addressed through taxes, such as a tax on car usage, or a subsidy for buses and other public transport (see Box 10.1).

The fuel levy and other taxes related to car usage raise the cost of a car trip over and above the private cost to the individual, which off-sets some of the external costs they impose on the community when they choose to drive their car. These taxes make people take into account some of the costs they impose on other people when they decide how they will travel. LECG took the view that because these taxes increase the price of car use relative to bus use, they reduce the extent to which the Government needs to subsidise bus fares to achieve optimal use of buses. (See Box 10.2 for an excerpt from LECG report that explains this issue in more detail.)

Box 10.2 LECG's rationale for adjusting for reduced fuel excise and parking levy revenue

In a first-best world, the users of each transport mode would pay a price equal to the marginal social cost (including external costs) caused by their decision to travel by that mode. In such a world, there would be no justification for charging bus users a price below the marginal cost of bus service, other than to assist disadvantaged members of society.

It is well known, however, that motorists do not face the full marginal external costs of their modal choice. The lynchpin of the public transport fare optimisation work done by LECG for IPART over the past 2 years is the notion that by getting passengers out of cars, public transport helps to reduce the external costs of motoring. This reduction in external cost is an external benefit to bus usage which is relevant to the optimal bus fare—as long as motorists do not face their full marginal social costs.

While motorists do not face the full marginal external costs, they do pay some taxes that are directly proportional to the amount of driving they do. These taxes raise the out-of-pocket cost of motoring so that this price moves towards (but does not reach) the marginal social cost of automobile use. By doing so, these taxes reduce the marginal external benefit of public transport, which is dependent on the gap between the marginal social cost and price of motoring.

In light of this point, [13 cents per bus passenger journey,] representing the road user taxes faced by motorists, will be netted off the marginal external cost of automobile travel in order to calculate the net marginal external benefit of bus travel. … Failure to make any adjustment for the road user taxes would lead to artificially low bus fares.

Source: LECG, *Value of Sydney bus externalities and optimal Government subsidy - Final Report*, September 2009, p 14.

The fuel excise is presently set at around 38 cents per litre, and is applied to petrol and diesel. Around 9 cents per litre is spent on road maintenance and replacement, leaving around 29 cents per litre as a contribution towards the external costs of car use. Based on average fuel consumption figures and the TDC's estimate of the distance travelled by cars, LECG calculated that if all car travellers in Sydney chose to travel by bus or train, there would be a loss in annual tax revenue (net of road costs) of around $745 million. In 2008-09, the NSW parking levy raised $51.5 million in revenue.

Including both fuel excise and the parking levy, LECG calculated that the marginal external cost of this lost taxation revenue per bus passenger journey is approximately 13 cents. It recommended that this value be subtracted from the total value of the external benefits, as it represents the external cost of car travel that has already been taken into account when people decide how to travel and therefore should not be included in the external benefits of buses.

We agree with LECG that the external benefit should be adjusted to take the revenue from these charges into account. If it is not adjusted the relative prices of bus and car travel would not send the right price signal to travellers, and therefore, would not result in the optimal use of bus services.

10.3 Stakeholders' views on additional external benefits

In submissions, stakeholders argued that the provision of bus services generates external benefits in addition to the ones LECG included in estimating the value of these benefits. These additional external benefits include social benefits resulting from improved access and mobility, agglomeration benefits, reduced noise pollution and better land use.

The sections below discuss stakeholders' arguments and explain why we decided not to attempt to quantify these benefits and include them in our estimate of the value of the external benefits.

10.3.1 Social benefits resulting from improved access and mobility

Several stakeholders submitted that external social benefits are generated by expanding access to public transport through lower fares for people who have few alternative travel options – in particular, people who are less mobile or have lower incomes.[74] BusNSW also provided a supplementary submission and a copy of a recent journal article written by John Stanley and David Hensher on the value of mobility.[75]

We considered these stakeholders' views. We note that BusNSW argued that the value of the external social benefits includes the consumer surplus of bus services of $3 billion per year that Stanley and Hensher estimated. The consumer surplus of bus services represents the benefits of bus travel to the individuals making bus trips (that is, the internal or private benefits). We agree that it is important that investment in bus services takes into account the full costs and benefits that the investment would create, including the value of the consumer surplus.

The Stanley and Hensher paper may assist in planning for service standards and access. In our view, these benefits should be considered by the Government when it determines how and when to invest in transport infrastructure and when it decides which bus services should be provided in each region. However, the paper acknowledges that generalised cost estimates such as that used by LECG are more appropriate for small changes in travel opportunities such as a moderate change in fares. As a result, we don't believe the benefits estimated by Stanley and Hensher

74 Hunter Commuter Council submission, 9 June 2009, p 2, NCOSS submission, 16 July 2009, pp 4-6, Western Sydney Community Forum, 25 June 2009, p 5, Lower Hunter Councils Transport Group submission, 9 July 2009, pp 2-3, BusNSW submission, 1 July 2009, p 6, Action for Public Transport comments at public hearing, 11 November 2009, pp 19-20.

75 BusNSW supplementary submission, 21 August 2009.

can be used as a proxy for the change in external social benefits arising from a change in fares, and we don't accept that these benefits should be taken into account in setting fares.

We also accept that bus services provide a benefit to society by improving access to transport for those who are less mobile and have lower incomes, and consider that these benefits may be significant. In our view, these benefits are likely to be greater for bus services than for rail services as a lower proportion of bus trips are work-related trips, and buses tend to serve local areas by providing access from suburban homes to local places of work, shops and social venues.

However, we consider that these social benefits are best recognised through a targeted concession program rather than increasing government subsidisation of bus fares for all passengers, including those who are outside of these groups. This approach directs the subsidy towards the particular and identifiable groups in society that benefit from improving access to transport. The approach is also more consistent with our assessment criterion of ensuring passengers make a fair contribution to the efficient costs of bus services.

Under the current regulatory framework, concession policy and service is determined by the Government, not by IPART. Our view is that the social benefits of improving mobility **for specific groups** are best considered by the Government when it determines the availability of services and formulates its concession policies, rather than through an increase in the subsidy **for all passengers**. This approach enables the Government to deliver a suitable regime that is tailored to the needs of particular groups.

We note that the NSW Government currently funds an extensive concession program for metropolitan and outer metropolitan buses. We estimate that funding for concession bus travel in the 4 largest contract regions (excluding free school student travel) was around $60 million last year. Almost half of all bus passengers in these regions travel on some form of concession ticket. There are a number of different concession tickets available. Access to them depends on the particular circumstances of the traveller and the level of concession varies across these groups. Table 10.3 shows the current concession tickets available, the level of discount and who has access to them.

Table 10.3 Concession tickets available on metropolitan and outer metropolitan buses

Type of ticket	Nature of concession
SSTS	Free travel for school and TAFE students between home and school/TAFE
Child concession	Children aged 4 to 15 years travel for half adult fare
Student concession	(Eligible) Full time tertiary students (university and TAFE) travel half price
Apprentice concession	First, second and third year apprentices are eligible for half fare travel
Trainee concession	Trainees are eligible for half fare single and weekly tickets
Jobseeker concession	Half fare single tickets are available for people on the following benefits: ▼ Youth Allowance (jobseeking) ▼ Newstart Allowance, Newstart Allowance Incapacitated ▼ Parenting (Partnered) ▼ Partner Allowance, Widow Allowance ▼ Exceptional Circumstances Relief Payment ▼ Sickness Allowance ▼ Special Benefit ▼ Jobseeker beneficiaries placed on the Community Support Program or the Job Placement, Employment and Training scheme
Vision impaired	Free travel on all bus services for vision impaired person plus attendant
Companion card	Entitles people with significant and lifelong disabilities to bring an attendant with them on public transport free of charge
PET	$2.50 travel all day, all modes for pensioners, seniors and war widows & widowers
Family fare scheme	Fare paying adult with children pays half fare for one child only, all other children travel free
Family Funday Sunday	For $2.50 per person, families (group related by family that includes at least one adult and one child under 18 yrs) can enjoy a day of unlimited travel on buses, trains and ferries every Sunday

Source: NSW Transport and Infrastructure website <www.transport.nsw.gov.au>

10.3.2 Agglomeration benefits

NSWTI submitted that the provision of bus services contributes to 'agglomeration benefits' which should be considered in estimating the value of external benefits. The availability of affordable bus services is one of the factors that facilitate the creation of a larger and deeper labour market in the Sydney area, broader customer bases for businesses and the potential for learning, information exchange and knowledge sharing.[76] These benefits are known as agglomeration benefits.

76 Ministry of Transport submission, 1 July 2009, p 5.

We considered the question of whether agglomeration benefits should be included in the value of the external benefits in detail as part of our recent determination on CityRail fares. We considered the findings of the Eddington Transport Study undertaken in the UK, and a similar study undertaken in Victoria in relation to the East West Link. We particularly noted the Eddington Study's findings that:

- The key economic benefit associated with agglomeration is improved productivity due to:
  - better matching of labour market skills through access to a pool of skilled workers as a result of denser labour markets
  - connection to suppliers and markets
  - information spillovers and growth in ideas.[77]
- A high proportion of benefits generated by transport infrastructure are related to travel time savings to users (ie, internal benefits).[78]
- The role of transport infrastructure in facilitating productivity benefits associated with agglomeration is not clear. It seems likely that transport services alone cannot generate agglomerations but can play a role in facilitating their expansion by reducing travel time and costs, and bringing workers, firms and consumers closer together.[79]

We concluded that any benefits associated with agglomeration are not readily quantifiable and that the role of transport services in attaining them is not established.[80] Although CityRail services were likely to have contributed to the development of a dense labour market in the CBD, they were unlikely to be the main driver. We also noted that the Sydney CBD is likely to have developed as a major financial services centre without CityRail services and that many of the agglomeration benefits generated by the financial services industry are private benefits and do not justify government subsidisation of passenger rail services.[81]

In relation to bus services in the Sydney metropolitan and outer metropolitan regions, we consider the agglomeration argument is significantly weaker than it was for CityRail. This is because CityRail services are predominately used by commuters travelling to and from the CBD, whereas bus services are less focused on the CBD and commuter services, and provide more local services. They also carry fewer passengers than CityRail services.

77 See the Eddington Transport Study Main Report, December 2006, p 26.
78 Ibid, p 23.
79 Ibid, p 26.
80 IPART, *Review of CityRail fares, 2009-2012 - Final Report and Final Determination*, December 2008, pp 102-103.
81 IPART, *Review of CityRail fares, 2009-2012 - Final Report and Final Determination*, December 2008, pp 102-103.

10.3.3 Reduced noise pollution and better land use

NCOSS submitted bus services provide external benefits through reduced noise pollution and by facilitating integration of land use and transport strategies.[82] However, in our view, buses are not likely to avoid a significant amount of noise pollution as they also contribute to road noise.

In addition, the integration of land use and transport strategies is more closely related to the availability of public transport. Availability includes how extensive the network is in terms of geography and frequency of services. This is governed by the service contracts between NSWTI and bus operators, and is not directly affected by our determination on the level of fares.

In terms of the benefits arising from proximity to public transport, we consider that higher property values associated with access to bus services are private benefits as the benefits accrue to the home owner not to society as a whole. In our view, no allowance should be made for these benefits.

82 NCOSS submission, 16 July 2009, pp 4-6.

11 How much of the efficient costs should be funded by passengers through fares

The next step in our approach for setting fares was deciding how much of the efficient costs of providing bus services should be funded by fare-paying passengers. To do this, we considered how much government subsidisation of bus services is justified over the determination period, given the value of the external benefits generated by these services (discussed in Chapter 10) and other factors. We then subtracted this amount from the total efficient costs of providing bus services over this period (discussed in Chapter 4). This gave us an estimate of the amount passengers should fund through fares.

Before making our final decision, we ensured that this estimated amount would not lead to fare outcomes that are inconsistent with our assessment criteria for this determination – particularly encouraging the optimal use of buses. To do this, we calculated the average increase in bus fares that would be required to recover the estimated amount through fares in the 4 largest regions, and compared the results with LECG's analysis of the optimal level for average bus fares.

The sections below set out our final decision on the amount passengers should fund through fares, and discuss how we made this decision in more detail.

11.1 Final decision on amount passengers should fund through fares

17 IPART's final decision is that passengers in the 4 largest regions should contribute the amounts shown in Table 11.1 in each calendar year of the determination towards the efficient costs of providing bus services in these regions.

Table 11.1 Final decision on the amount passengers should fund through fares ($2009 millions) and its implications for fares

	2010	2011	2012	2013
Amount passengers should fund through fares	246.6	261.5	268.1	267.2
Annual real increase in fares required to recover this amount[a]	1.6%	1.4%	1.4%	1.4%

[a] These fare increases exclude PET fares .

Note: In addition to the increases shown above, fares will be adjusted by the change in the CPI each year.

Our final decision on the amount passengers should fund through fares is unchanged from the draft report.

11.2 Estimating the amount passengers should fund through fares

As Chapter 10 discussed, we consider that government subsidisation of bus fares is justified because bus services generate external benefits, and that the level of subsidisation should be related to the value of the external benefits. Therefore, to estimate how much of the efficient costs of providing bus services passengers should fund through fares we subtracted the value of the external benefits in the 4 largest contract regions from the efficient costs of providing bus services in these regions.

In addition, we note that the NSW Government's policy of providing concession fares to targeted groups within the community – such as those on aged and disability pensions and unemployment benefits – provides further subsidisation of bus fares. It could be argued that this further subsidisation is justified because, as many stakeholders have pointed out, the availability of affordable bus services generates additional social benefits that are not captured in our estimate of the external benefits. We don't consider it appropriate for fare-paying passengers to contribute to the costs of providing concession fares. Therefore, we also subtracted the estimated cost to the Government of providing concession fares in the 4 largest regions from the efficient costs of providing bus services in these regions.

Fares are determined on a calendar year basis (fares apply from January to December) but our estimates for the costs and external benefits were calculated on a financial year basis. To estimate the amount of revenue that passengers should fund through fares in each calendar year, we converted our estimates of the costs and external benefits from financial years to calendar years.[83] Table 11.2 shows the resulting efficient costs, external benefits, estimated Government cost of providing concession fares and amount that passengers should fund through fares.

[83] We have allocated costs to calendar years by assuming that 49% of the costs for each financial year occur between 1 July and 31 December, and 51% occur between 1 January and 30 June. This is consistent with actual expenditure patterns in the four largest regions in recent years. We have also converted the costs from 2009/10 prices to 2009 prices by subtracting forecast inflation for the six month period 1 January to 30 June 2010.

Table 11.2 Estimated amount passengers should fund through fares in the 4 largest regions ($2009, millions)

	2010	2011	2012	2013
Total efficient costs of providing bus services for fare-paying passengers	527.7	546.4	556.9	560.0
Less value of external benefits	213.5	215.2	216.9	218.6
Less estimated Government costs of providing concession fares [a]	67.6	69.8	71.9	74.1
Estimated amount passengers should fund through fares	**246.6**	**261.5**	**268.1**	**267.2**

[a] We estimated this by calculating the difference between the fares that concession passengers actually pay and the fares they would pay if they made the same number of trips but did not have access to a concession.
Note: Totals may not add due to rounding.

As discussed in Chapter 3, the next step of our approach is to work out what fares passengers will need to pay to ensure that they make a fair contribution towards the costs of providing services. Once we estimated the amount of costs that passengers should fund through fares in each year of the determination period, we calculated the increase in fares that would be required to cover this amount based on our estimate of how many tickets will be sold in each year of the determination (Box 11.1).

Box 11.1 Calculating the required fare increase

Once we estimated the amount of costs that passengers should fund through fares in each year of the determination period, we used a financial model to calculate the annual percentage increase in fares required to cover this amount. The model:

- calculates the revenue required from fares in each year of the determination (see Table 11.2)
- takes the existing fares and tickets as a starting point and then estimates the number of each type of ticket that will be sold in each year of the determination based on our estimate of the annual growth in patronage (see Chapter 9), which is applied to the starting point
- calculates the fare increases required to make the net present value (NPV) of revenue from fares equal to the NPV of the passenger share of costs over the determination period – this requires a forecast of patronage and ticket sales over the determination period
- the individual fares are then calculated after we've considered whether any changes to fare structure are required and are then rounded (see Chapters 2 and 12).

11.3 Checking that this amount would not lead to fare outcomes inconsistent with encouraging optimal use of buses

Before we made our final decision on the amount passengers should fund through fares, we checked that our estimate of this amount would not lead to fare outcomes that are inconsistent with our assessment criteria for this determination – especially encouraging the optimal use of bus services.

First, we calculated the average fare increase required to recover the estimated amount. We estimated that fares would need to increase by an average of around 1.5% per year (plus an adjustment for inflation).[84] Over the 4-year determination period, this represents a total increase above inflation of 6%.

Next, we compared this result with an analysis of the optimal level for bus fares, prepared for us by LECG. This analysis involved using a theoretical framework to identify the optimum value for average bus fares. The optimisation approach explicitly recognises that optimal fares are those that strike the best balance between the various costs and benefits of bus services. The optimal fare is not necessarily the lowest fare (Box 11.2). This optimal fare balances the interests of the community in having low bus fares and greater bus use against the cost to the community of providing bus services.

84 Because the rate of inflation over the determination period is more uncertain than is typically the case, we propose to adjust fares for inflation each year based on change in the CPI over the previous year.

Box 11.2 LECG's optimisation approach

LECG's optimisation is based on the idea that there is a particular level of fares at which total welfare is maximised – the optimal level of fares. The optimisation is a mathematical analysis developed by LECG to identify this optimal level of fares for bus services in metropolitan and outer metropolitan NSW.

LECG defines welfare as the sum of consumer surplus (the benefits to bus passengers), producer surplus (the benefits to NSWTI from fares), and externalities (the benefits to third parties), less the welfare costs of taxation – in other words, the combined value of all the benefits and costs that bus services create for all of the different groups that are affected by them.

There is a trade off between these benefits:

- Low fares increase the consumer surplus and externalities (by maximising bus use) but reduce the producer surplus and create significant tax distortions.
- High fares mean higher producer surplus (lower costs to taxpayers) and less tax distortion but reduce the consumer surplus and externalities.

The optimisation process aims to identify the optimal level of fares. At this level, any fare increase would lead to a greater loss of consumer surplus and externality than the gain in producer surplus and reduction in tax distortion, and any decrease in fares would lead to a greater loss of producer surplus and increase in tax distortion than the gain in consumer surplus and externality.

In order to identify the optimal level of fares, LECG's approach quantified the relationship between fares and patronage, between patronage and consumer surplus, between patronage and producer surplus, and between patronage and external benefit. It then took into account these relationships to quantify the welfare impact of fare changes and to find the level of fares that maximises welfare, having regard to the trade offs involved.

Source: LECG, *Value of Sydney bus externalities and optimal Government subsidy - Final Report,* September 2009, pp 63-64.

Because it takes account of the interdependency of the various costs and benefits, LECG's optimisation is more complex than its valuation of the external benefits. For example, the optimisation recognises that the value of the external benefits generated by bus services depends on how many people choose to use the services (rather than a private vehicle) and in turn, the levels of patronage can depend on the price of fares and particularly changes in these fares.

The optimisation is highly sensitive to both the marginal cost of bus services and whether the journey relates to work or non-work travel. We asked Indec to provide information on the efficient marginal cost of bus services for the 4 largest regions to improve the reliability of LECG's optimisation. This marginal cost is heavily influenced by how full bus services are. For example, the cost of an extra passenger travelling on an existing bus service would be small but the cost of an extra passenger who wants to travel on a service that has no room for him/her would be

high because an extra bus would need to be run. Indec sought information on how full existing bus services are at different times of day so that it could properly estimate marginal cost. However, it could not obtain enough information to estimate the efficient marginal cost with any precision. Without a good estimate of the efficient marginal cost, LECG undertook its own analysis based on contract payments. LECG decided to assume that the marginal cost was equivalent to the average cost of the Government's current contract payments per passenger. LECG's optimisation also used its recommendations on the external benefits of bus services, which include its recent adjustment for the taxes paid by motorists for driving a car (see Chapter 10). It also decided to conduct its analysis for all 15 metropolitan contract regions[85] and focus on fares for work-related trips only, and made a number of other assumptions.

Although the optimisation focuses on the fare that is charged to fare-paying bus passengers, it is affected by the fact that a significant proportion of bus trips are made by school students travelling fare-free under the school student transport scheme (SSTS). LECG's analysis includes SSTS passengers in the optimisation, as they make an important contribution to the costs and external benefits. However, LECG adjusted its calculation of the current average fare and optimal fare so the optimisation problem is solved for fare-paying passengers only. (More detail on LECG's methodology can be found in its final report[86], which is available on our website.)

The results of LECG's optimisation suggest that the optimal value for average bus fares in the metropolitan regions in 2008/09 is $2.08. To reach this value, an average increase in fares of 8% would be required. The optimisation analysis is based on a single year only and does not include forecast optimal fares.

Table 11.3 Results of LECG's optimisation

	Average fare paid per bus journey ($)
Current value	1.93
Optimal value	2.08
Increase required	8%

Note: The above table reflects fares for work journeys in the 15 metropolitan regions only.
Source: LECG final report.

85 LECG's analysis was completed on a whole of system basis in order to be consistent with the TDC's Sydney Strategic Transport Model (SSTM), and it was concerned about the reliability of the SSTM results when focusing on a smaller number of regions.

86 LECG, *Value of Sydney bus externalities and optimal Government subsidy – Final Report,* September 2009.

While we have some concerns about the accuracy of the estimate of marginal costs, and some of the other assumptions used in this analysis, we consider LECG's optimisation provides useful information. We note that the average fare increase suggested by this approach is not vastly different to the average increase required to recover our estimate of the amount passengers should fund through fares.

In our view, the results of LECG's optimisation suggest that on average, the optimal value for bus fares is higher than the current value. This suggests that our estimate of the amount passengers should fund through fares, and the average increase in fares required to recover this amount is reasonable and is not inconsistent with encouraging optimal use of buses.

12 Fare structure

Section 28J of the Passenger Transport Act requires us to set **maximum fares** for buses, not just determine how much current fares can change. Therefore, once we decided how much of the efficient costs of providing bus services passengers should fund through fares, the next step was to translate this decision into fares. One of our primary considerations in doing this was what fare structure should apply over the 2010 determination period.

We examined the current fare structure, and stakeholders' comments on fare structure. We considered how well the current fare structure meets our assessment criteria for this determination – particularly whether it needs to change in order to facilitate integrated electronic ticketing, and whether it ensures passengers make a fair contribution to costs.

The sections below summarise our final decision on the fare structure for bus services over the 2010 period, and explain why we reached this decision. The final section in this chapter discusses the key issues we consider the Government should resolve in the lead up to e-ticketing.

12.1 Final decision on fare structure

18 IPART's final decision is not to change the current fare structure for the 2010 determination.

Our final decision on fare structure is unchanged from the draft report.

This final decision means that in each year of the 2010 determination period, each existing section-based bus fare will be adjusted in line with our decision on the overall percentage change in prices for that year, and then rounded to the nearest 10 cents. The price of Newcastle time-based fares will also be adjusted using this approach. Bus-only and bus/ferry TravelPasses will increase by the same percentage change in prices but will be rounded to the nearest dollar.

Our primary reasons for maintaining the current fare structure are that:

- We consider that retaining the distance-based structure of most fares is simpler and more equitable than the alternatives and should be workable under an integrated e-ticketing regime.

- We consider that the current relativities between the fixed and variable charges implicit in the current fare structure, and between the price of single and multi-trip tickets are appropriate.
- We consider that the relatively small number of existing fares with alternative structures (zone-based TravelPass products and time-based Newcastle fares) should be retained until they are transitioned smoothly into a distance-based e-ticketing regime.

12.2 The existing fare structure is simpler and more equitable than the alternatives and should be workable under e-ticketing

We considered whether the existing fare structure needs to be radically changed to meet our objectives for the review, including facilitating the introduction of integrated electronic ticketing in the future. Even though an e-ticketing regime is not expected to commence for several years, there needs to be enough flexibility in the current determination to ensure it can be introduced without major disruption or significant transitional issues.

The NSW Government is in the process of establishing an integrated electronic ticketing regime for Sydney's public transport. It has indicated that a mode-specific distance based fare structure is preferred.[87]

NSWTI submitted that there would be no benefit in altering the current fare arrangements ahead of the implementation of e-ticketing.[88] However, most other stakeholder submissions asked us to consider adopting alternative fare structures. Many expressed a strong preference for a zone-based or time-based fare structure. Some argued that a zone-based fare structure is the only practical option under electronic ticketing and that a distance-based fare structure is undeliverable using available technology.[89] Others submitted that a zone-based structure is fairer and would encourage greater use of public transport.[90]

After considering the current fare structure and the pros and cons of alternative structures, we concluded that there is no justification for making radical changes to the existing fare structure in the lead up to the introduction of e-ticketing, given that there is no clear evidence that a distance-based fare structure would not be workable under e-ticketing. We also concluded that distance-based fares have the potential to be both simpler and more equitable than the alternatives under electronic ticketing, and thus are more consistent with our assessment criteria for the determination.

87 NSWTI submissions to IPART's 2008 review of metropolitan and outer metropolitan bus fares, August 2008, p 9.
88 NSW Transport and Infrastructure submission, 1 July 2009, pp 7-8.
89 BusNSW submission, 1 July 2009, p 11; R Lutherborrow submission, 3 June 2009, p 3. R Lutherburrow submission, 9 November 2009, p 3.
90 Action for Public Transport submission, 3 June, pp 6-7, Council of Social Service of NSW submission, 16 July 2009, p 7.

12.2.1 Current fare structure

Most bus fares in metropolitan and outer metropolitan NSW are distance-based. Their price includes an implicit flagfall (or fixed component), plus a distance charge based on the number of 'sections' travelled. Each section is equivalent to around 1.6 kilometres. These fares apply in all contract regions except Newcastle.

Under the current determination (released in December last year), the flagfall is roughly equivalent to $1.50 per trip and the distance charge is around $0.35 per section. There are five section bands and a cap on the maximum fare payable that applies for bus journeys of more than 15 sections.

Multi-trip tickets are available at a discount price compared to single trip tickets, but their availability varies across the different contract regions. These tickets include:

- TravelTens and T-WayTens. These pre-purchased tickets allow passengers to make 10 bus trips of a specified distance. They are priced at a discount of 20% compared with 10 single tickets.[91] They are available in Sydney Buses areas and T-Ways only.
- Private bus operator weeklies. These tickets allow passengers to make unlimited trips on a route between a nominated origin and destination over 7 days. They are available in metropolitan regions serviced by private operators. They are priced at a discount of 20% compared with 10 single tickets.
- Single and multi-mode TravelPasses. These zone-based tickets allow unlimited travel on certain services within a given zone and period of time. They are available in Sydney Buses areas only (except for Pensioner Excursion Ticket, which is available on all services) and in Newcastle.

The Newcastle bus contract region is the only region for which the harmonised fares discussed above do not apply. Historically, the structure of Newcastle fares has been time-based not distance-based. These fares allow passengers to make an unlimited number of bus trips within the time period of the ticket.

12.2.2 The pros and cons of alternative fare structures

The main options for fare structure are distance-based, zone-based, time-based and flat fares. As noted above, many stakeholders who made submissions argued that zone-based and time-based fare structures are preferable to the current distance-based structure. The most common views were that:

- fares for bus, train and ferry travel should be the same
- fares should be based on zones, rather than the distance travelled.

91 Except for some T-WayTen tickets – which are in the process of being transitioned from a 15% discount to a 20% discount.

After considering stakeholders' views and examining the pros and cons of the alternative options, we concluded that there is no compelling case for any one type of fare structure. We understand that they are all feasible under electronic ticketing provided that a consistent set of rules is applied. From a regulator's point of view, which is preferable depends on the fare setting objectives, and the circumstances in which they are applied (see Box 12.1). From a passenger's point of view, there are likely to be 'winners and losers' under all approaches.

The 'winners and losers' under different approaches depend on how the current and proposed structures affect passengers with different travel behaviours and demographics. For example, factors such as how quickly distance charges increase and the placement of zone boundaries have varying impacts on passengers making trips of different lengths. However, under any fare structure, we consider that fares should be set to ensure that passengers make a fair contribution to the efficient costs of providing services.

Fares under zone-based or time-based structures would not be lower than current levels for all passengers; for some passengers, fares are likely to be significantly higher. To achieve the same level of cost recovery, flat and zone-based fares result in passengers that travel short distances or make fewer trips (for example, a single bus trip to and from work) paying more so that passengers who travel long distances or use multiple modes of transport pay less. In addition, a zone-based system would lead to large fare increases for passengers travelling short distances across zone boundaries.

The characteristics of bus use (see Appendix C) indicate that bus users, particularly bus users who do not have ready access to rail and ferry transport, would be the most heavily impacted by moving to a zone or time-based system. Bus users typically travel shorter journeys - the most popular ticket (the 1-2 section) corresponds to journeys less than 3.2 kilometres in length. Compared with train users, bus users typically do not travel to and from the CBD, but may travel to the shopping strip in the next suburb and are therefore, more likely to make short trips across zone boundaries.

At this stage, the Government has indicated that it is focusing on introducing an integrated e-ticketing regime via a smart card that can be used on all modes of transport and that can accommodate different fare levels for different modes. We consider that this is a practical and sensible approach given the current suite of fares that is available in metropolitan and outer metropolitan Sydney.

Under the Government's approach it is not necessary for fares for all modes of public transport in Sydney – including buses, trains and ferries – to be set at the same level to facilitate electronic ticketing. For example, in Washington DC an electronic ticket can be used for travel on trains and buses which have different fare structures and providers.[92] In addition, we are not convinced that setting the same fare for all

[92] Washington's SmarTip® card can be used on both buses (Metrobus) and rail (Metrorail). Flat fares apply to buses while distance-based fares apply to rail.

modes of transport is the best approach. We consider it is not likely to be consistent with other assessment criteria for this determination – particularly with ensuring passengers make a fair contribution, and encouraging the optimal use of bus services. For example:

- If fares for all modes were set at the same level, bus fares would likely increase, as the fares would need to take account of the higher cost of providing ferry and train services. This would not be fair for the many bus passengers who never use ferry or train services.
- In addition, bus fares could not to be set to send the price signals required to encourage optimal investment in bus services. Rather, charging the same fare for all modes of transport could distort travel and investment decisions, and so could result in a higher cost transport system for everyone.

However, the Government's approach to e-ticketing would make it possible to address one of stakeholders' main objections to the current fare arrangements – namely that passengers who need to change buses or modes to complete their trip are required to purchase separate tickets for each part of the trip and so pay a flagfall component for each part – without changing the fare structure.

We note that in the past, zone and time-based fare structures were introduced in many cities (including Sydney) as a means of allowing people to purchase a single fare for use on different modes of transport. This was because it was too complicated to have different fares for different modes of travel with paper-based ticketing. However, as discussed above, this will not be a problem with electronic ticketing.

Where they exist, zone-based fare structures tend to be used as a form of distance-based pricing where people pay more for travelling across more zones.[93] This makes them less equitable than the current section-based bus fare structure, because passengers can be charged significantly different fares for trips of equal distance, depending on where their trip's start and finish points sit in relation to arbitrary zone boundaries. For example, those who live or work near zone boundaries are often disadvantaged relative to a section-based approach. In some cities, this source of inequity has been addressed by the introduction of short distance tickets that allow people to make short trips across zone boundaries at a reasonable price. However, this adds complexity to the fare structure.

In addition, the establishment of zone boundaries is likely to be contentious and can have unintended consequences, including distorting travel behaviour and affecting property values. Further, once they are established, zone boundaries cannot be easily modified in response to changes in where people need to travel – for example, when new centres of population and employment emerge.

[93] Zones are often, though not always, based on concentric circles which assume travel is to or from a central point so that fares rise as more zones are crossed.

We also note that in the United States and Europe, very simple fare structures, such as flat fares, are increasingly replacing zone and distance-based fares to meet the objective of increasing patronage. We don't consider this approach is appropriate in Sydney area, where the length of trips varies widely due to its sprawling shape and relatively low population density. This would mean that people who travel short distances have to pay more than their current fare so those who travel long distances can have access to cheap public transport. We don't consider that this would encourage optimal use of bus services, as it would discourage the use of public transport for a lot of passengers.

Box 12.1 What makes a good fare structure

Economic criteria

Economic considerations are strongest for the overall level of cost recovery rather than the fare structure. However, economic criteria tend to favour approaches that increase fares as costs increase. Therefore, distance-based fares are the most aligned with economic efficiency criteria.

Social or equity considerations

For the same amount of fare revenue collected, different fare structures have different social consequences. For example, some will raise or lower the price of long-distance trips relative to short-distance trips, raise or lower prices for people living in lower or higher income areas, and impact differently on people who use public transport regularly or occasionally. Social criteria do not favour one type of broad fare structure over others, but are affected by factors like how quickly distance charges increase and placement of zone boundaries.

Environmental criteria

Buses benefit the environment because they encourage people who would travel by car to use the bus instead. A distance-based structure is more closely aligned with the alternative cost of car travel. For regular users, periodical zone tickets mean that the incremental cost of making an extra bus trip within the period is zero. However, for infrequent users, the cost of making one trip is likely to be higher. Price is only one component of the choice of how to travel – other factors like service frequency and destination are also important.

Ease of use and ease of implementation

Distance-based, zone-based or flat fares should all be straightforward to implement under electronic ticketing, provided a consistent set of rules is applied.

Structure	Strengths	Weaknesses
Flat	▼ Simplicity ▼ Low ticket issuing costs ▼ No scope for overriding	▼ People who travel short distances pay relatively more so that people who travel longer distances pay less ▼ Pay more to transfer service unless rebate included
Distance- based	▼ Strong relationship between fare and distance travelled ▼ Generally perceived to be 'fair'	▼ Pay more to transfer services unless rebate or discount is included
Time-based (no zones)	▼ Simplicity ▼ Transfer between services with no penalty	▼ Ticket value may be affected by late or cancelled services ▼ Weaker relationship between fare and distance travelled
Zone-based	▼ Fare broadly based on distance travelled ▼ Relatively easy to understand – depending on zone structure ▼ Transfer between services with no penalty	▼ 'Boundary problems' (i.e. passengers travelling a short distance across a zonal boundary) ▼ Zones do not approximate distance very well, cannot adapt to changing travel patterns

12.3 Current relativities between fixed and variable charges and the price of single and multi-trip tickets are appropriate

We also considered whether the current fare structure should be modified to better meet other assessment criteria for our determination, or to better facilitate electronic ticketing. In particular, we considered the relativities between:

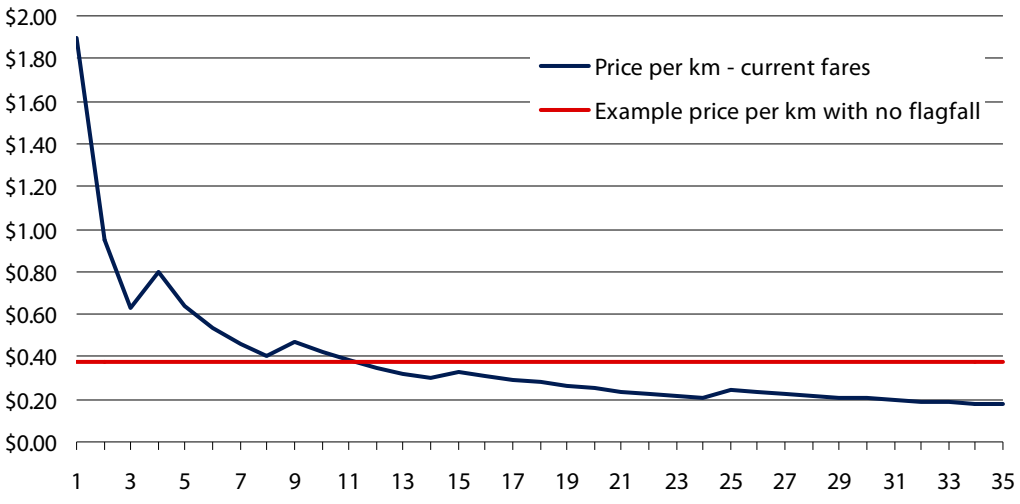
- the fixed vs variable charge implicit in the current fare structure
- the price of single trip tickets vs for the price for multi-trip tickets (ie, TravelTens and T-WayTens).

12.3.1 Fixed vs variable charges

In our view, the current fare structure provides an appropriate balance between fixed and variable charges, given the proportion of costs that are fixed, the potential impact on passengers of changing this relativity and the scope for flagfall rebates under the new electronic ticketing regime.

Currently, bus tickets have an implicit flagfall. This means that although the fare is based on the distance travelled, the fare does not increase directly with the length of the trip – it is higher on a per kilometre basis for shorter trips than for longer trips (see Figure 12.1). If there was no flagfall component then fares would rise proportionately with the distance travelled. This means that there would have to be a greater increase in longer distance fares, for the same level of fare revenue received.

Figure 12.1 Current price per kilometre travelled – adult single bus tickets



Data source: IPART calculations based on current published fares.

Because the flagfall is a fixed price per bus trip, it represents a contribution by passengers to the fixed costs of providing bus services. Fixed costs are costs that are not dependent on the number of services run; variable costs are costs that change in proportion to the services provided. Fixed costs include overheads, depots, depreciation of existing buses and payments for new buses. Variable costs include bus overhead costs (like registration and insurance, ticketing costs), bus hourly costs (for example, the wage paid to the bus driver) and bus kilometre costs (for example, diesel costs). Most of the non-operator costs (those incurred by the RTA) are also fixed – like those involved in providing and maintaining bus lanes.

Two submissions preferred no flagfall be included in bus fares,[94] indicating that this would help with integrating modes of travel as a passenger would not have to pay the flagfall twice if changing to another mode (or another bus).[95] Western Sydney Community Forum also raised concerns about the cost of longer journeys in the western suburbs particularly when the journeys include multiple flagfalls.[96]

We consider that it is appropriate to continue to include a flagfall component in the ticket price because it better reflects the cost structure of providing bus services and reduces the relative fare for longer distance trips. We also note that all passengers travelling 16+ sections (or more than 24 kilometres) pay the same fare.

However, we are sympathetic to the view that many passengers who change buses within a single journey effectively pay 2 flagfalls.[97] Under the existing paper-based fares, passengers can avoid this by purchasing a weekly TravelPass. However, for passengers who make only a small number of trips per week this ticket may be too expensive.

The introduction of electronic ticketing will make it significantly simpler to implement a flagfall rebate for passengers who need to change buses to complete their journey. We consider that this is the most appropriate way to make such a change, and that the Government should consider this issue further in relation to the proposed e-ticket (see section 12.5).

94 Blue Mountains Commuter and Transport Users Association submission, 24 June 2009, p 3; R Banyard submission, 24 June 2009, p 4.

95 Blue Mountains Commuter and Transport Users Association submission, 24 June 2009, p 3; R Banyard submission, 24 June 2009, p 4.

96 Western Sydney Community Forum comments at public hearing, 11 November 2009, p 26.

97 Currently there are designated transfer points for some journeys where passengers may change buses without penalty but not all passengers benefit from these.

12.3.2 Price of single trip tickets vs price of TravelTens and T-WayTens

For our 2005 determination, we decided to set a uniform discount for all TravelTen tickets of 20% of the price of 10 single tickets. Among other things, this decision was based on submissions from stakeholders and the practice of discounting in other jurisdictions.[98] For last year's determination, we accepted the Ministry of Transport's (now NSWTI) proposal to set T-WayTen tickets at the same level as TravelTens. We decided to hold the price of T-WayTens constant in nominal terms until the 2 tickets were aligned, and then to maintain equality between the 2 tickets going forward. This year, we received no submissions on this issue in response to our Issues Paper. We consider that a 20% discount for TravelTens and T-WayTens best meets our objectives for the determination.

12.4 Existing fares with alternative structures should be retained without significant changes until the e-ticketing regime is established

We considered whether the existing fares with a zone and time-based structure (TravelPass products and time-based fares in Newcastle) should be changed as part of this determination. However, we decided to retain these fares because we anticipate that they can be replaced with fares offering similar advantages under a distance-based electronic ticketing system without causing inconvenience or price shocks to passengers, provided they are set at a reasonable level. In addition, until electronic ticketing is introduced, TravelPass products provide the only single ticket option for multi-modal travel.

TravelPasses allow unlimited travel for one, two or three modes of travel within a specified zone for a specified period of time (weekly/quarterly/ yearly). TravelPass options include:

- Three-mode TravelPasses, which have five fare levels (Red, Green, Yellow, Pink Purple) relating to concentric rail zones, and can be used on rail, buses and ferries. The red TravelPass (the cheapest three-mode TravelPass) cannot be used on longer ferry journeys (Manly, Rydalmere, Parramatta) and has restricted bus zones.
- Two-mode TravelPasses, which have three fare levels (Blue, Orange, Pittwater) and can be used for unlimited bus and ferry journeys in their specified zones.
- Two-zone bus-only TravelPasses (one-mode), which can be used by bus passengers who cross more than one bus zone. These are primarily used by bus passengers who need to change buses, or undertake long bus trips. They cannot be used to enter the City zone.

In our recent determination on CityRail fares, we set the price for TravelPasses that include rail travel (three mode TravelPasses). In this determination, we will set the

98 IPART, *Report on the determination of fares for Sydney Metropolitan Bus Services from 3 January 2006*, December 2005, p 22.

price of TravelPasses that involve bus-only and bus and ferry travel (Blue, Orange, 2-zone and Pittwater TravelPasses).

12.4.1 Three mode TravelPasses

In setting the price of three-mode TravelPasses as part of our 2009 CityRail fare determination, we examined the level of discount embedded in the price of these tickets relative to other ticket types. We found that the level of discounting exceeded the level of frequency discounts included in distance-based train and bus weekly tickets for journeys of a similar distance. In addition, as TravelPasses offer unlimited travel during a specified period, some passengers can attain even greater discounts when they use the TravelPass for more than 10 trips.

To bring the frequency discount for TravelPasses more in line with that for other products, we considered the typical usage of three-mode TravelPasses. We assumed that most three-mode TravelPass users undertake 10 train journeys, 10 bus journeys and zero ferry journeys per week. In line with these assumptions, we determined three-mode TravelPass fares so that, by the end of the 4-year determination period, they will equal the price of the average rail weekly fare within the relevant zone, plus the price of a 1-2 section TravelTen bus ticket.[99] Both these products already have frequency discounts embedded in their price.

We did not include a 'flag-fall rebate' in setting three-mode TravelPass fares compared to the alternative single mode options, as suggested by some stakeholders. In our view, such a rebate would not be cost reflective. Instead, we took a conservative view of the usage assumptions underlying the TravelPass fares and discounts.

One stakeholder argued for extending three-mode TravelPasses for use on private buses.[100] We consider that there may be some merit to this proposal. As this may require us to revisit the typical usage that is assumed when setting these fares, we will further consider this proposal as part of our next review of three-mode TravelPasses, which is due to commence in 2012.

12.4.2 One- and two-mode TravelPasses

We considered the prices of one- and two-mode TravelPasses last year, based on our determination of three-mode TravelPasses. We considered whether to price two-mode TravelPasses based on assumptions about typical **usage** of these tickets, consistent with the approach we used to set the price of three-mode TravelPass tickets.[101] However, we decided that this is not an appropriate method for these tickets. In determining the three-mode TravelPasses, we assumed that these tickets

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99 IPART has used the fare set for TravelTens in 2009 inflated by the annual change in CPI for each year of the CityRail determination.

100 C O'Toole submission, 9 November 2009, p 1.

101 IPART, *Review of CityRail fares - Final report and determination*, December 2008, Chapter 13.

were not used on ferry services. Ferry services are significantly more expensive and their inclusion in the pricing of TravelPass tickets raises the price significantly. It would be unreasonable to assume that two-mode TravelPass holders use ferry services but three-mode TravelPass holders do not. If ferry travel was included in the price of two-mode TravelPasses, the resulting price would be higher than the price of a three-mode TravelPass for the same area.

If two-mode TravelPasses were priced at a level close to three-mode tickets, the main losers would be passengers who use these tickets for bus-only travel. There are many circumstances in which bus-only users might purchase the two-mode TravelPass in preference to a TravelTen.

We consider that the cost of one and two-mode TravelPasses should change in line with the recommended changes in bus fares. In our view, raising the price of one and two-mode TravelPasses by more than the average increase in bus fares (for example, to maintain relativity with three-mode TravelPasses) would not meet our objectives for the 2010 determination.

For these reasons, our final decision is to maintain the current relativity between one and two-mode TravelPasses and TravelTens.

12.4.3 Newcastle time-based tickets

Our final decision is to maintain the current structure of these tickets, and to increase them in line with the overall increase in bus fares in the other metropolitan and outer metropolitan regions. The Blue Mountains Commuter and Transport Association supported fare harmonisation for Newcastle.[102] However, most submissions favoured retaining time-based tickets.[103] Consistent with our approach for the other 24 metropolitan and outer metropolitan regions we do not intend to make changes to the fare structure or change the pricing relativities between Newcastle and the other regions in the lead up to electronic ticketing.

12.5 Key issues the Government needs to resolve in the lead up to e-ticketing

The Government can introduce the e-ticket in any form it believes best meet its objectives, provided that the fares are not higher than the maximum levels determined by IPART. The Public Transport Ticketing Corporation (PTTC) is responsible for the procurement and implementation of the electronic ticket.

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[102] Blue Mountains Commuter and Transport Users Association submission, 24 June 2009, p 3.

[103] For example, Ministry of Transport submission, 1 July 2009, p 6, Action for Public Transport submission, 3 June 2009, p 6, S Aitchison submission, 24 June 2009, NCOSS submission, 16 July 2009, p 7, Hunter Commuter Council submission, 9 June 2009, p 2, Robert Coombs MP Member for Swansea submission, 13 July 2009, Lower Hunter Councils Transport Group submission, 9 July 2009, pp 4 & 6.

As noted above, bus fares are largely already based on a simple distance-based structure.[104] Nevertheless, the Government will need to decide on a number of aspects of the e-ticket and these may be affected by the existing fare structure. The sections below discuss some key issues that will arise under an e-ticket regime, and how they may be affected or limited by the existing fare structure for paper-based ticketing. We hope that this information will encourage a more informed discussion that will assist the Government to make some of the remaining policy decisions prior to introducing e-ticketing.

12.5.1 Measuring distance travelled

As currently envisaged, the e-ticket will require passengers to 'tag on' and 'tag off' so that the distance travelled can be measured.[105]

Distance can be based on the number of sections or the number of kilometres. The fares can continue to be charged in section bands (ie, 1-2 sections, 3-5 sections) or kilometre bands (like rail fares) or there may be a different fare for each section or kilometre. Given the current fare structure, an initial implementation based on the existing sections would be the simplest approach and the most straightforward to implement alongside the existing paper based tickets.

The Government also needs to decide how to charge for distance (for example, as the crow flies or route distance travelled – both could be measured to the nearest bus stop). In his submission, R Williams noted that passengers may have to travel by indirect routes to get to their destination, so distance should be measured as the crow flies.[106] This approach is not linked to costs, whereas route distance travelled is. However, it may be considered more equitable to charge as the crow flies, particularly for loop routes that service train stations. Either approach should be able to operate alongside the existing paper-based tickets. However, in order to retain the existing fare revenue, the per kilometre (or per section) distance charge would need to be higher under an as the crow flies approach than under route distance travelled approach.

12.5.2 Catering for changes between bus, train or ferry services during one journey

Currently, when passengers change buses or use more than one mode of transport to complete a single journey, they are charged a flagfall for each service, as well as for the distance they travel. This makes it more expensive to complete a journey using more than one bus or mode of transport than making the same journey on one bus.

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104 Rail fares are more complicated due to the number of differently discounted periodical tickets – this was considered by IPART in its 2008 CityRail fare determination released in December.

105 Public Transport Ticketing Corporation (PTTC), *Request for Expressions of Interest Electronic Ticketing System for the Greater Sydney region*, August 2008, p 8.

106 R Williams submission, 24 June 2009, p 3.

As many stakeholders have pointed out, this is inequitable. In addition, removing this source of inequity is one of the main reasons stakeholders favour a zone or time-based fare structure. However, as noted above, electronic ticketing will enable this to be addressed without changing the fare structure: by providing a rebate equal to the second flagfall.

Although we believe it is appropriate to retain different fares for buses, trains and ferries because of the different costs and environmental benefits involved, we consider it appropriate to include a flagfall rebate in the e-ticket regime so that passengers who are not able to make their journey on a single bus are not required to pay multiple flagfalls. The economic case for a flagfall rebate on multi-modal travel is not clear, we consider it likely to be justified on equity grounds.

Before any flagfall rebate could be introduced, a range of issues would need to be resolved. These include (but are not limited to):

- Whether the flagfall rebate is provided for bus-to-bus switching only, or also for multi-modal switching (bus-train, bus-ferry, ferry-train).
- If a flagfall rebate is included for switching between different modes of transport, whether the rebate is based on the flagfall for the second service or an estimate. It may be better to estimate the same flagfall for all modes and provide a rebate of this amount, as with this approach the order in which the different modes are used wouldn't affect the outcome (eg, a morning trip to work by bus then train would cost the same as the afternoon train then bus trip home).
- How the lost revenue is divided between CityRail, Sydney Ferries and NSWTI.[107]
- What should be the maximum number of minutes/hours between leaving one service and boarding the next.

12.5.3 Discounting structure under electronic ticketing

Currently passengers receive a 20% discount for pre-purchasing 10 tickets (TravelTens and T-WayTens) and weekly tickets on private bus services. As a result, discounts are not based on frequency of use but are based on pre-paying for trips. The Government needs to consider whether to apply a discount for frequency of use (and what that discount will be) and/or whether to apply a discount for pre-purchasing trips. The Government will need to introduce the e-ticket with a consistent discounting structure.

[107] NSWTI effectively collects farebox revenue for bus services and uses it to off-set some of the costs of providing bus services.

13 Implications for the NSW Government

As previous chapters have discussed, the Government pays bus operators to provide bus services in the metropolitan and outer metropolitan contract regions by making monthly contract payments. All fare revenue collected by operators is returned to the Government to recover the costs of the contract payments. But it does not recover all these costs. The unrecovered portion represents the Government's subsidisation of bus fares.

Under our approach, the level of government subsidisation reflects our view on the value of external benefits to the broader community (and not just passengers) that are provided by bus services. The majority of fare-paying passengers – those travelling in the 4 largest regions, who account for three-quarters of all fare-paying passenger trips across all 25 contract regions – will pay bus fares that reflect the efficient costs and external benefits of the bus services they use.

The Government has a number of social policies that involve the provision of free or reduced fares to some passengers. These policies include:

- providing free bus travel for school students (under the School Student Transport Scheme)
- providing discounted bus travel to targeted passengers (such as low-income and less mobile passengers)
- requiring fares be set at the same levels in all contract regions (the fare harmonisation policy).

We consider that the cost of these social policies should be paid for by taxpayers rather than passengers. This is in addition to the subsidies noted above that are justified by the external benefits.

While our approach has made the funding arrangements for the social policies more transparent, it does not represent a significant change to current practice.

We considered how the final decision on fare levels would affect the NSW Government. We considered the implications for cost recovery for bus services in all 25 contract regions and the level of government funding for related social policies. The section below provides an overview of the expected impact on cost recovery, and the subsequent sections discuss our analysis in more detail.

13.1 Overview of the determination's expected impact on cost recovery

The determination is unlikely to reduce the level of cost recovery across all 25 metropolitan and outer metropolitan regions. Based on our forecasts of contract payments and farebox revenue, we expect the level of cost recovery to be similar to the level achieved in 2008/09 in each year of the determination period.

Table 13.1 Actual and expected cost recovery over the 2010 determination period

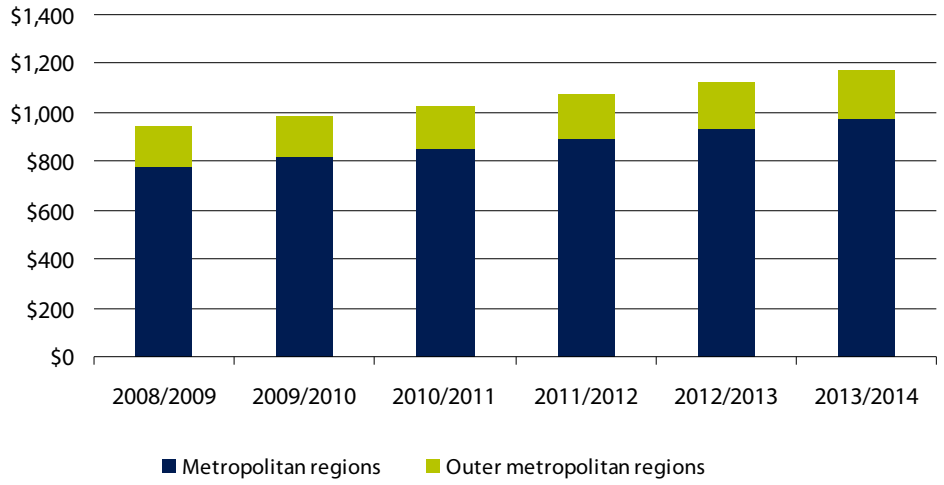
	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14
Metropolitan regions						
Farebox as a % of total costs of contract payments	41.1	41.2	41.1	41.0	40.9	40.9
Farebox as a % of total costs less SSTS and concession funding	54.4	54.7	54.5	54.4	54.3	54.2
Outer metropolitan regions						
Farebox as a % of total costs of contract payments	14.5	14.4	14.2	14.1	13.9	13.8
Farebox as a % of total costs less SSTS and concession funding	29.5	29.3	29.0	28.7	28.4	28.1
All 25 regions						
Farebox as a % of total costs of contract payments	36.6	36.8	36.6	36.5	36.4	36.3
Farebox as a % of total costs less SSTS and concession funding	51.5	51.8	51.5	51.4	51.3	51.2

Note: Based on expected increase in contract payments of 4.5% per year in nominal terms, and continuation of current SSTS and concession policies. Values for 2008/09 are actual.

13.2 Expected contract payments

In our view, the total cost the Government incurs in providing bus services in the metropolitan and outer metropolitan regions is likely to increase by slightly more than the rate of inflation. For the purpose of assessing the impact of the determination on cost recovery, we have used a forecast of 4.5% increase in contract payments in each of the next 4 years (Figure 13.1). This represents an increase of 2.5% above the expected rate of inflation in each year. We believe this is a conservative estimate, and note that it is broadly consistent with the historical increase in contract payments.

Figure 13.1 Forecast contract payments ($ nominal, millions)



Contract payments are made up of a number of components. We expect each component to increase each year according to changes in a particular multiplier. The multipliers depend largely on the following factors:

- the number of service kilometres
- the Consumer Price Index (CPI)
- the Wage Price Index (WPI)
- non-wage labour indices (payroll tax, workers compensation and superannuation)
- fuel (diesel) prices
- the cost of buses.

The vast majority (over 80%) of contract payments are determined by changes in the CPI, WPI and non-wage labour indexes or some combination of these. Other factors are less important. Diesel prices influence around 10% of contract payments and the cost of buses represents around 7% of contract payments.

Our estimate of the change in each of these factors is discussed below.

13.2.1 Service kilometres

Data provided by NSWTI, suggests that there has not been a trend for the number of service kilometres to change over the course of the contracts to date. We also understand that there are no plans for significant changes to service kilometres in the future.

We do not expect that there will be significant increases in service kilometres in the future, unless the demand for bus services increases sharply. And as discussed in Chapter 9, we expect that the general demand for bus services will rise slowly over the next 4 years. If service kilometres were increase to meet demand, this would be offset by an increase in farebox revenue.

13.2.2 CPI, WPI and non-wage labour cost indexes

We expect that the CPI, WPI and non-wage labour cost indexes will increase only moderately over the next few years. Specifically:

- Recent forecasts for the WPI are for lower wage growth over the next two years of just over 3%.[108] This is slightly lower than recent historical growth.
- Changes in rates of payroll tax and superannuation are closely linked to wage growth unless shifts in government policy occur (for example, an increase in the superannuation guarantee rate). We are not aware of any information to suggest that these rates will increase significantly over the coming years.
- Rates of change in workers compensation are difficult to predict. However, in recent years premiums for the bus industry have fallen.
- Rates of change in the CPI are also expected to be lower.[109]

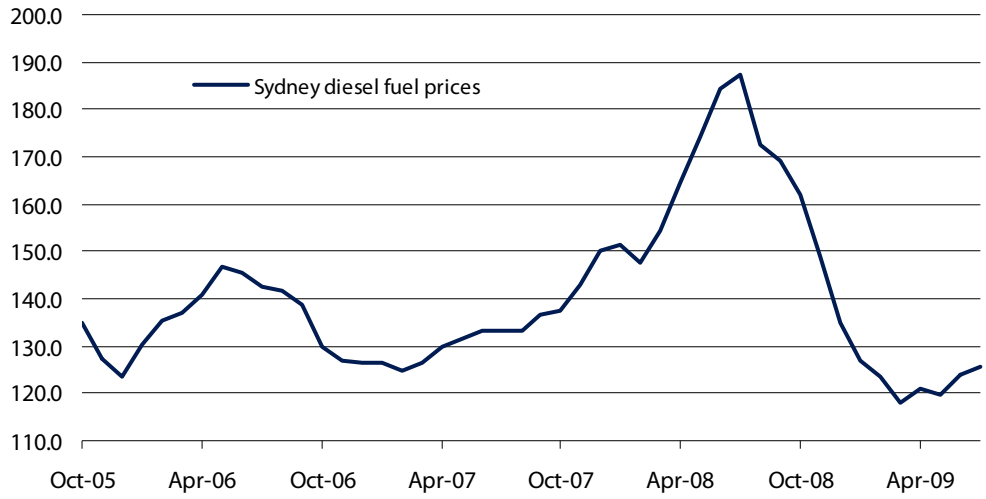
13.2.3 Fuel prices

It is very difficult to predict changes in fuel prices. Based on historical prices, it is hard to reach any conclusion on how the Sydney diesel price will change in the coming years (Figure 13.2). However, given that the fuel component of contract payments is only around 10% of total payments, we consider that fuel prices would need to increase steadily and significantly to drive a large real increase in contract payments.

108 Australian Government Budget strategy and outlook, Budget paper No. 1, 2009/10, Statement 2 Economic Outlook <www.budget.gov.au/2009-10>

109 Australian Government Budget strategy and outlook, Budget paper No. 1, 2009/10, Statement 2 Economic Outlook <www.budget.gov.au/2009-10>

Figure 13.2 Sydney diesel prices since October 2005 (cents per litre)



Data source: FUELtrac Sydney diesel pump price.

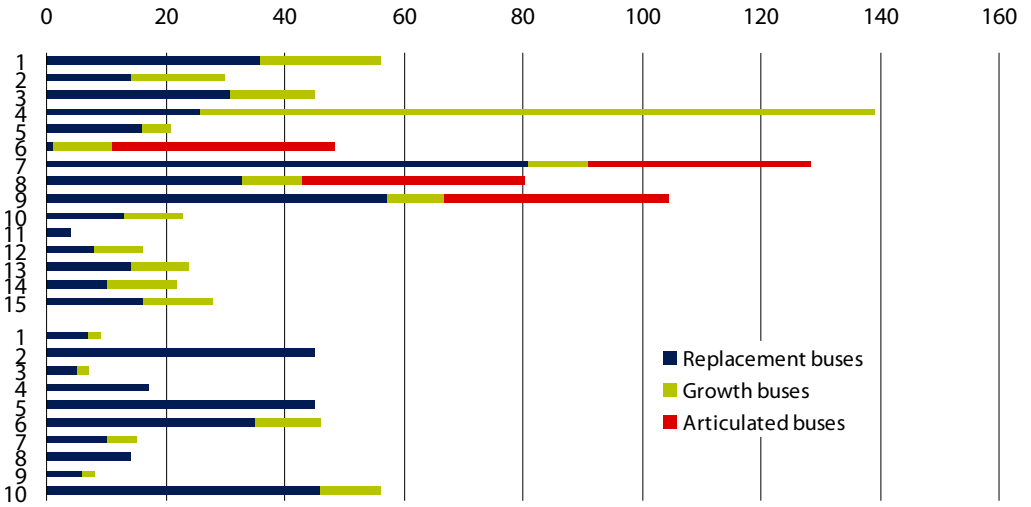
13.2.4 Cost of buses

The cost of buses is included in contract payments through new fleet payments for new bus purchases and through depreciation payments for older buses.

The NSW Government is investing in new buses for use in metropolitan and outer metropolitan regions (see Box 13.1). NSWTI has indicated that over the determination period, a total of 1,032 new buses will be purchased, 150 of which are high capacity articulated buses. NSWTI provided a breakdown of new purchases by purpose (growth or replacement) and by region (Figure 13.3).

The total capital cost of these buses is estimated at $488 million. The contracts provide for bus operators to purchase buses for their regions. Contract payments are then adjusted to include a monthly 'lease payment' (new fleet payment) for these buses. New fleet payments are based on repayment for the full capital cost (indexed annually by CPI) in monthly instalments over a 15-year period. The payments are based on the 10-year Commonwealth bond rate plus a negotiated margin, which differs for each operator.

Figure 13.3 Forecast new bus purchases – 2009/10 to 2012/13 (number of buses)



Note: NSWTI has advised of 40 new growth buses and 150 new articulated buses across the 4 largest regions, the above assumes that these buses are allocated equally across the 4 largest regions . Numbers 1 to 15 represent metropolitan regions and numbers 1 to 10 represent the outer metropolitan regions (the region numbers correspond to the map in Appendix A.

Data source: NSWTI.

Although the number of new buses being purchased is significant, the spreading of government payments over a 15-year period means that the increase in new fleet payments is only likely to average between 2% and 5% per annum in real terms, depending when the new buses come into service. Despite these increases, we consider new fleet payments will remain a relatively minor component of total annual contract payments.

Depreciation payments should decline over the next 4 years as existing fleet is replaced.[110] This decline in depreciation payments for older buses should offset new fleet payments to some extent.

[110] Depreciation payments are made for fleet in existence at the commencement of the contract only.

Box 13.1 Government investment in bus services

All passenger bus services in NSW are now delivered through contracts with the NSWTI. This has provided an opportunity for the Government, particularly in the metropolitan and outer metropolitan areas, to introduce comprehensive new service plans and to manage a systematic replacement and growth of the bus fleet.

The key drivers for bus purchases include:

- replacing life expired buses
- meeting the growth in passenger demand
- a focus on increasing capacity on key commuter corridors which have experienced strong growth – averaging six% for 2008-09 (to the end of March), but up to 31% on the Castle Hill to City corridor and
- the development of new metro bus services.

Since the commencement of the new contract framework in 2004-05, over 850 new buses have been delivered to metropolitan and outer metropolitan operators. This includes around 100 buses to meet increased passenger numbers. The total metropolitan and outer metropolitan fleet is now around 4,000 buses. The acquisition costs associated with the bus fleet are funded through the bus contracts with NSWTI and form part of the capital program.

Major investments in 2009-10 include:

- $54.6 million for 130 growth buses for private operators (as part of a total of 260 new buses over two years)
- $49.8 million for 90 replacement buses for the State Transit Authority (STA)
- $49.8 million for the capital program of the STA which includes work towards a new depot in Western Sydney and recommissioning the Tempe depot
- $45.6 million for 114 replacement buses for private operators
- $37.8 million for 50 articulated buses for the STA (as part of a total of 150 new buses over 2 years) and
- $19.7 million for 40 growth buses for the STA.

Source: NSW Budget Paper No. 4 - Infrastructure Statement 2009-10, p 3-5 and 3-6.

13.3 Expected change in farebox revenue

Changes in farebox revenue depend on the number of passengers who make bus trips (patronage growth) and the level of fares. To estimate how farebox revenue will change under the determination, we assumed the following forecast patronage growth suggested by the TDC's modelling:[111]

- 0.8% per year for the 4 largest regions
- 2.0% per year for the remaining 11 metropolitan regions[112]
- 0.8% per year for the 10 outer metropolitan regions.

Based on this patronage growth and our final decision to increase fares by 6% in real terms over next 4 years, we expect overall farebox revenue to increase by between 4.3% and 5.2% in nominal terms in each year of the determination period (Table 13.2).

Table 13.2 Forecast farebox revenue ($ nominal, millions)

	2009/10	2010/11	2011/12	2012/13	2013/14
Metro	336.7	350.3	365.4	381.2	397.7
Outer metro	23.5	24.2	25.1	26.0	26.9
Total	360.2	374.6	390.5	407.2	424.6
Annual change	4.9%	4.0%	4.3%	4.3%	4.3%

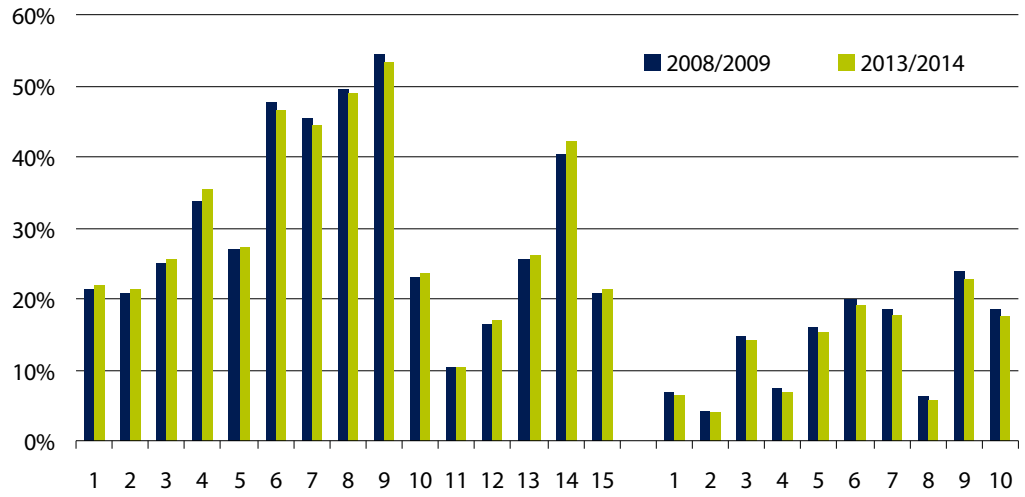
Note: Includes all fares paid but excludes the Government contribution for concession passengers. Assumes forecast inflation of 2% per annum. Totals may not add due to rounding.

As a proportion of total contract payments, we expect farebox revenue to stay roughly at its current level (Figure 13.4).

111 As Chapter 9 discussed, the TDC ran three scenarios using annual average employment growth rates of 0%, 0.9% and 1.3% over the period 2006 to 2016. For this analysis, we adopted the second scenario (0.9% employment growth).

112 The higher forecast patronage growth in these regions is largely due to higher forecast job and population growth in many of the local government areas in the outer suburbs of Sydney.

Figure 13.4 Farebox revenue as a percentage of total contract payments



Note: Contract payments are total contract payments and include costs of SSTS and concession policies. Numbers 1 to 15 represent metropolitan regions and numbers 1 to 10 represent the outer metropolitan regions (the region numbers correspond to the map in Appendix A.

13.4 Expected impact on government funding for social policies by region

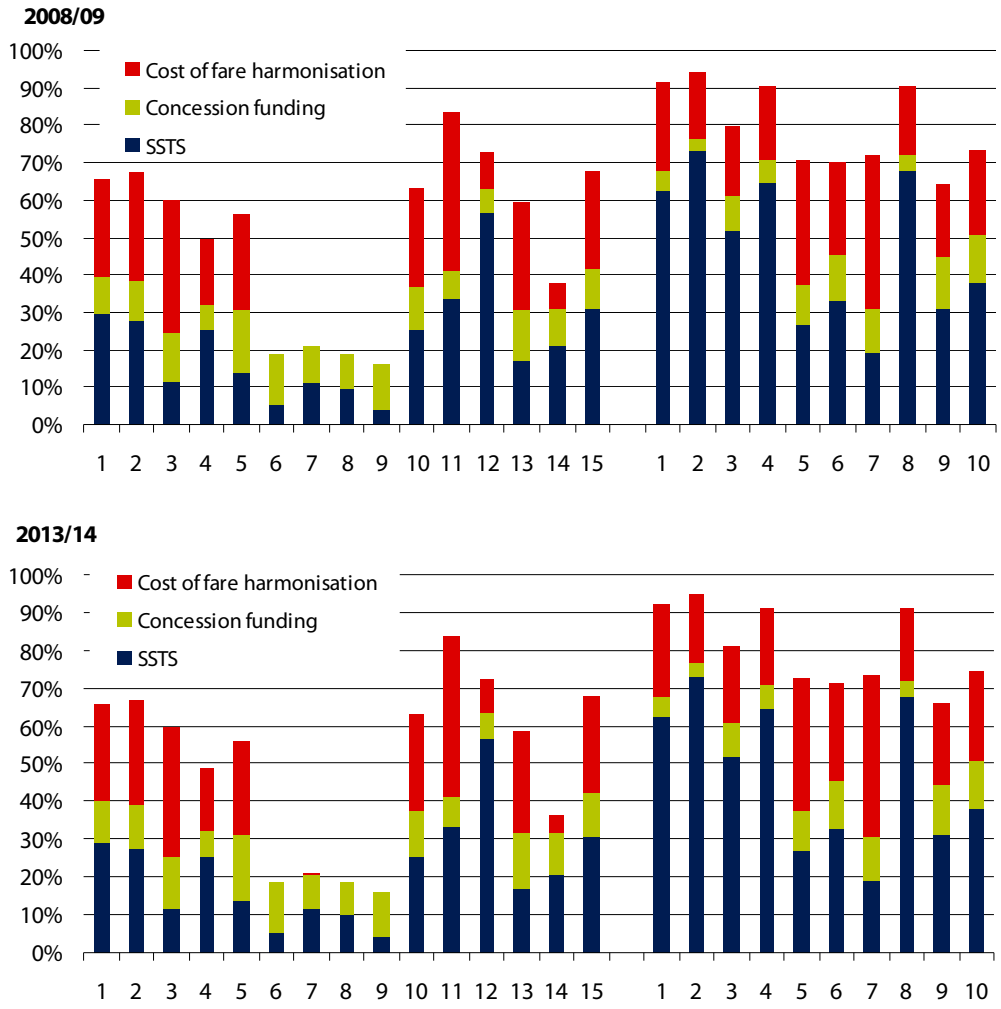
The level of government (or taxpayer) subsidisation includes the cost of social policies to provide free or reduced fares to some bus passengers. These policies include:

- providing free bus travel for school students (under the School Student Transport Scheme)
- providing discounted bus travel to targeted passengers (such as low-income and less mobile passengers)
- requiring fares be set at the same levels in all contract regions (the fare harmonisation policy).

The costs of meeting these policies are affected by the cost of contract payments, the level of patronage and the change in fares. Under the approach we used to set fares, the costs of these policies are not recovered through bus fares.

The costs vary significantly between contract regions, but are not expected to change significantly over the determination period. Figure 13.5 shows the cost of these policies at the beginning and end of the determination period.

Figure 13.5 SSTS, concession payment and fare harmonisation costs as a percentage of total contract payments



Data source: NSWTI – data reported by operators under the service contracts. Numbers 1 to 15 represent metropolitan regions and numbers 1 to 10 represent the outer metropolitan regions (the region numbers correspond to the map in Appendix A.

13.4.1 Cost of the school student transport scheme (SSTS)

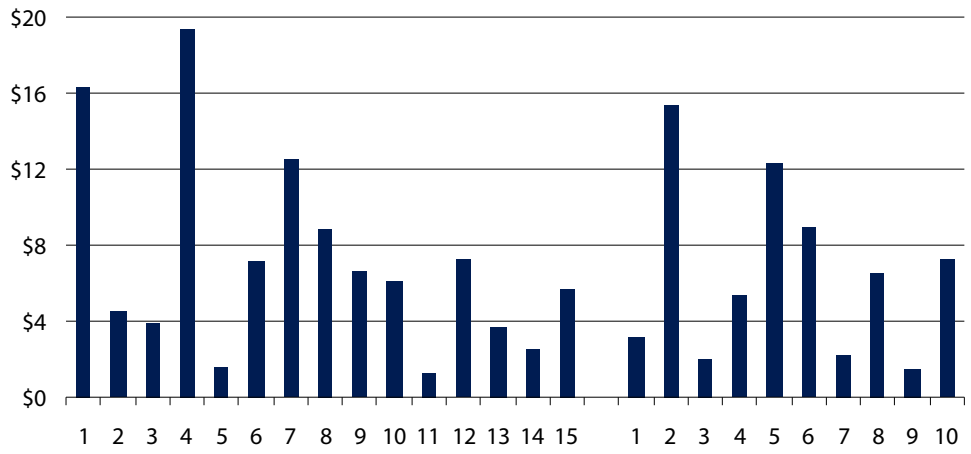
Under the SSTS, the Government provides free school student travel across the metropolitan and outer metropolitan regions. Contract payments to bus operators cover services for fare-paying passengers and school students, but the proportion of payments associated with school student travel is not separately identified.

To make the determination, we asked our consultant, Indec, to estimate the Government's costs in providing free bus services to school students in the 4 largest regions. We also asked our consultant, LECG, to estimate the external benefits associated with these passengers' use of bus services. Both the costs and benefits were excluded in the fare setting process (see Chapter 3).

Estimating these costs and benefits was relatively straightforward for the 4 largest regions because there was a reasonable amount of information on SSTS patronage and costs. However, reliable and recent information on the number of school students who travel under the SSTS was not available for the other regions. Therefore, to estimate the cost of the SSTS for all 25 regions, we have made some assumptions about the number of students travelling under the SSTS in each contract region.

Based on these assumptions, we estimated that the annual cost of the scheme in 2008/09 was approximately $172 million. Under our approach to fare setting, fare-paying passengers will not contribute to these costs through fares. Therefore, the Government will fund the entire cost of this scheme.

Figure 13.6 Total contract payment for SSTS in 2008/09 ($ nominal, millions)

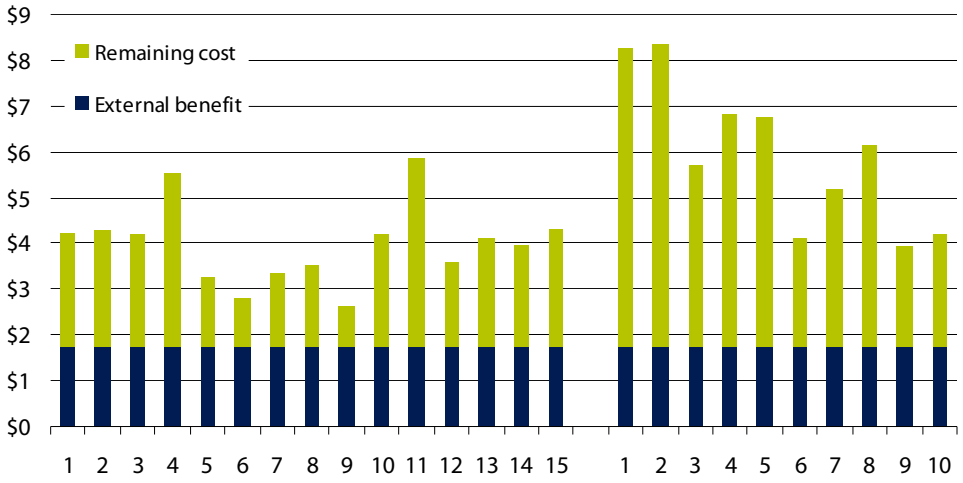


Data source: NSWTI, IPART estimates. Numbers 1 to 15 represent metropolitan regions and numbers 1 to 10 represent the outer metropolitan regions (the region numbers correspond to the map in Appendix A.

LECG provided information on the external benefits associated with free school student bus travel for the 15 metropolitan regions. This enabled us to compare the level of government subsidisation for school student bus travel with the external benefits of this travel. For the purpose of this analysis, we applied LECG's estimated of the value of the external benefits to all regions – both metropolitan and outer metropolitan. As the external benefit is predominately related to reduced road congestion, we expect that the benefit in many of regions would be significantly lower than this.

The comparison suggests the level of subsidisation is higher than justified by the value of the external benefits of approximately $68 million. However, there may be additional social benefit reasons for subsidising school student travel that are not captured in LECG's valuation of the external benefits.

Figure 13.7 Contract cost per SSTS passenger compared with the value of the external benefit per SSTS passenger 2008/09 ($ nominal)



Note: Contract costs per SSTS passenger are IPART estimates. Numbers 1 to 15 represent metropolitan regions and numbers 1 to 10 represent the outer metropolitan regions (the region numbers correspond to the map in Appendix A).

Data source: NSWTI, LECG, *Value of Sydney bus externalities and optimal Government subsidy – Final Report,* September 2009.

13.4.2 Cost of the Government's concession program

As Chapter 10 discussed, the NSW Government currently funds an extensive concession program which provides free or discounted bus fares to certain groups of passengers, such as those on low incomes. We estimate that the cost of providing concession fares (excluding free school student travel) in all 25 metropolitan and outer metropolitan regions in 2008/09 was around $99 million.

The Government pays for providing concession fares by not collecting as much fare revenue as it would from a full-fare paying passenger. Therefore, as fare and patronage levels increase over the 2010 determination period, the Government's funding for concession fares will also increase (Table 13.3). This funding is higher on a per passenger basis outside the 4 largest regions as fewer passengers in the other regions pay the full adult fare.

Table 13.3 Government contribution for concession/PET fares (nominal $ m)

	2008/09	2009/10	2010/11	2011/12	2012/13	2013/14
Contribution	99.3	104.7	109.3	114.4	119.7	125.3
Annual change		5.4%	4.4%	4.7%	4.7%	4.7%

Note: Based on current Government concession policy.

13.4.3 Cost of fare harmonisation policy

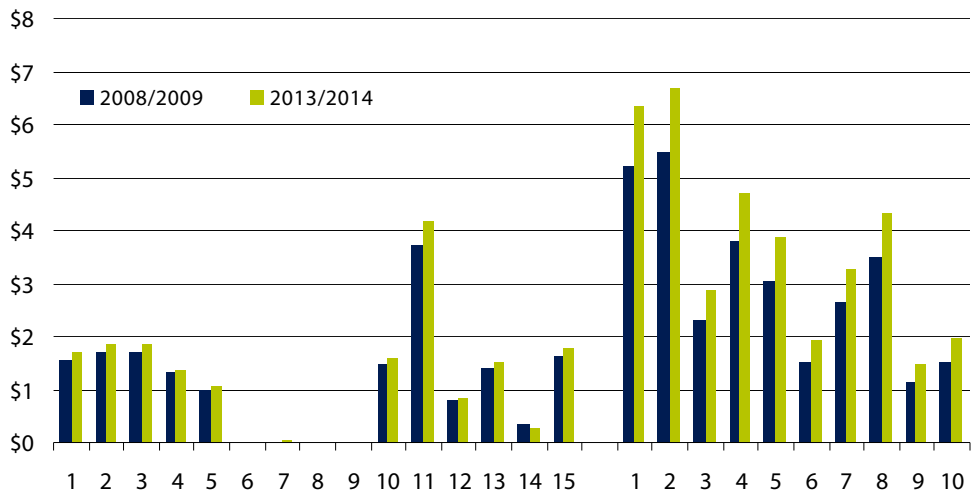
Under the Government's fare harmonisation policy, the level of bus fares for single trips of equivalent distance are the same in 24 of the 25 contract regions. However, the costs and external benefits of providing bus services in the regions differ, due to differences in the service and passenger characteristics in each region. We estimate that the cost of the fare harmonisation policy was around $109.4m in 2008/09. This figure is equal to the value of Government funding that is not attributable to the external benefit, cost of SSTS or concession policy, outside the 4 largest regions.

We have set fares based largely on the difference between the efficient costs and external benefits in the 4 largest regions. As previously discussed, we consider that this approach is appropriate because these regions account for the majority of trips made by fare-paying passengers. Therefore, our approach ensures that the fares for the majority of fare-paying passengers reflect the efficient costs and external benefits of the bus services they use.

However, because of the particular characteristics of the 4 largest regions, the difference between the efficient costs and external benefits on a **per passenger** basis in these regions is significantly lower than in the other regions. As a result, fares for passengers outside the 4 largest regions are lower than the difference between the costs and external benefits of the bus services they use. Therefore, the Government subsidisation for these passengers' fares is higher than for those in the 4 largest regions. This higher level of subsidisation represents the cost of the Government's fare harmonisation policy.

Figure 13.8 and Figure 13.9 show our estimates of the cost of the Government's fare harmonisation policy by region – total and per passenger. For the purpose of this analysis, we applied LECG's estimate of the value of the external benefits to all regions – both metropolitan and outer metropolitan. As the external benefit is predominately related to reduced road congestion, we expect that the benefit in many of the regions would be significantly lower than this.

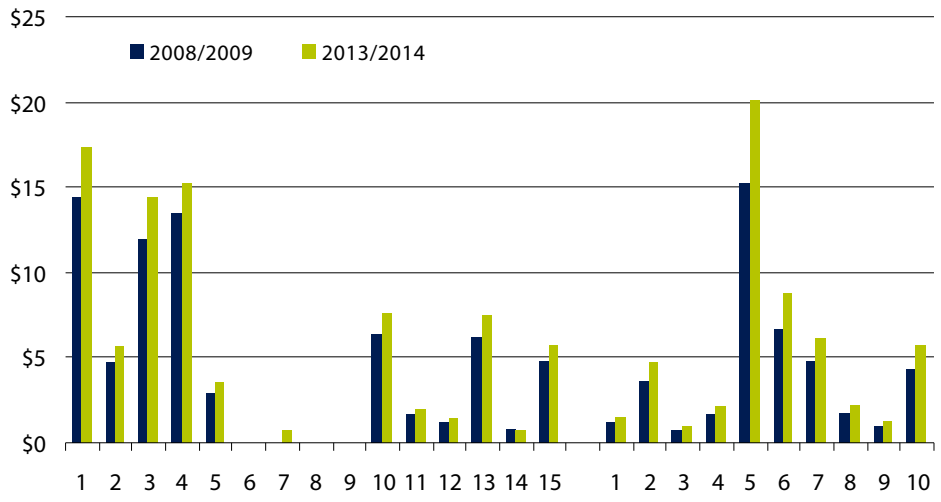
Figure 13.8 Total estimated cost of fare harmonisation policy due to revenue foregone ($nominal, millions)



Note: Estimated based on total cost of contract payment, less value of external benefits, less farebox revenue, less Government subsidy for SSTS and concession funding. Numbers 1 to 15 represent metropolitan regions and numbers 1 to 10 represent the outer metropolitan regions (the region numbers correspond to the map in Appendix A. Estimates have only been provided for regions where revenue foregone is positive.

Data source: NSWTI, IPART calculations.

Figure 13.9 Total estimated costs of fare harmonisation policy per passenger due to revenue foregone ($ nominal)



Note: Estimated based on total cost of contract payment, less value of external benefits, less farebox revenue, less Government subsidy for SSTS and concession funding. Numbers 1 to 15 represent metropolitan regions and numbers 1 to 10 represent the outer metropolitan regions (the region numbers correspond to the map in Appendix A. Estimates have only been provided for regions where revenue foregone is positive.

Data source: NSWTI, IPART calculations.

14 Implications for the environment

Section 28J of the *Passenger Transport Act 1990* requires that we consider ecologically sustainable development in determining fares for bus services. In particular, Clause 5 (d) provides that in making a determination, we must consider, among other things:

> …the need to maintain ecologically sustainable development (within the meaning of section 6 of the *Protection of the Environment Administration Act 1991)* by appropriate pricing policies that take account of all of the feasible options to protect the environment.

Section 6 of the *Protection of the Environment Act 1991* (PEA Act) defines ecologically sustainable development in terms of process rather than outcomes, stating that it requires 'the effective integration of economic and environmental considerations in decision-making processes'.[113] It also sets out principles and programs that are likely to achieve economically sustainable development. One of these is particularly relevant to our determinations – namely improved valuation, pricing and incentive mechanisms so that environmental factors are included in the value of assets and services.

The sections below provide an overview of how we met these requirements in making our determination, then discuss this in more detail.

14.1 Overview

In making our determination, we took account of all the feasible pricing policy options to protect the environment. We considered all environmental issues raised in submissions to the review, but no but no stakeholders suggested that alternative pricing policies would better protect the environment.

In our view, the potential for pricing policies such as the structure and level of bus fares to help protect the environment is limited. There is no evidence that any of the alternative fare structures better encourages bus usage than others. In addition, the relatively inelastic demand for bus services means that different fare policies are unlikely to create significantly different environmental outcomes. We consider that our decisions on the structure and level of fares are unlikely to lead to a significant change (either positive or negative) in the use of buses.

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113 *Protection of the Environment Administration Act 1991*.

We integrated economic and environmental considerations by adopting an approach for setting fares that included valuing the external benefits of bus services (which include environmental benefits), and using this value to guide our decision on how much of the efficient costs of bus services should be funded by the Government.

14.2 Pricing policies that take account of all of the feasible options to protect the environment

We consider that two aspects of pricing policies for bus fares are relevant to protecting the environment: the structure of fares and the level of fares.[114] Logically, decisions on the structure and level of fares that encourage a significant number of people to switch from car usage to bus usage will help to protect the environment because bus usage has lower per person environmental costs.

14.2.1 Structure of fares

As Chapter 12 discussed, we considered fare structure and made a final decision to maintain the current fare structure for the 2010 determination. For most bus fares in metropolitan and outer metropolitan NSW, this fare structure is distance-based. Fares are based on 'sections' that are equivalent to around 1.6 kilometres. The more sections travelled, the higher the fare. Multi-trip tickets are available at a discount price compared to single rate tickets, but their availability varies across the different contract regions.

In our view, this final decision is not likely to encourage or discourage people to use buses instead of cars or trains. We note that this fare structure is consistent with the structure of CityRail fares. It is also similar to the way people typically think about the cost of car travel (ie, cost per km travelled).

As Chapter 12 also discussed, we considered other possible fare structures, including zone- and time-based fares and a flat fare structure. However, we found no evidence to suggest that one particular fare structure encourages greater bus patronage than another. It might be argued that some of the alternative structures, when combined with a very low level of fares, could encourage greater bus usage. But in our view, this is not a feasible option, because it would have unacceptable impacts on the Government and taxpayers.

[114] It could be argued that decisions on bus routes and service frequencies are also relevant to the protection on the environment. However, IPART does not make these decisions – they are made as part of the contract negotiations between the NSWTI and bus operators.

14.2.2 Level of fares

As Chapter 9 noted, there is no doubt that the level of fares is one of the factors that influences the patronage of bus services. However, previous analysis has found that bus patronage is relatively insensitive to changes in fares. In particular, this analysis estimated that the price elasticity of demand for bus travel was around -0.38.[115] This suggests that a 1% increase in fares would reduce patronage by only 0.38%, other things being equal.[116]

In addition, the level of fares is not the only factor that influences bus usage. Other important factors include household incomes, population, location of employment, service quality, and the price of alternative means of transport. These non-fare factors are important, and in our view may even outweigh the effect of the level of fares.

As bus patronage is relatively insensitive to fare changes, we consider that the modest fare increases resulting from our determination are unlikely to have a significant impact on the level of patronage, particularly in an environment of increasing traffic congestion, increasing rail fares, high fuel costs, increased tolls and CBD parking costs. Therefore, we do not expect our determination to have a significant effect on the environmental benefits that bus services provide.

14.3 Integration of economic and environmental considerations

We integrated economic and environmental considerations by adopting an approach for setting fares that included valuing the external benefits of bus services (which include environmental benefits). We then used this value to guide our decision on how much of the efficient costs of bus services should be funded by the Government. This placed economic and environmental impacts on a comparable footing, allowing for integrated decision making.

As Chapter 10 discussed, we estimated the value of the external benefits that will be generated by the provision and use of bus services over the 2010 determination period. This involved quantifying the external costs avoided when people travel by bus instead of car in circumstances where the existing bus services are available and reasonably priced.

The estimated value of the external benefits was an important factor in our decision on how much of the efficient costs passengers should be required to fund through bus fares (see Chapter 11) and consequently the level of fares.

115 IPART, *Estimation of Public Transport Fare Elasticities in the Sydney Region*, October 1996.

116 The price elasticity of demand indicates how sensitive bus users are to a change in the fare. It measures the percentage change in patronage as a result of a one% change in the fare.

The PEA Act notes that ecologically sustainable development can be achieved through improved valuation, pricing and incentive mechanisms for incorporating environmental factors into valuation of assets and services. Our approach explicitly valued environmental factors such as reduced greenhouse gas emissions and air pollution and incorporated these values into the valuation of the external benefits bus services. The approach used an incentive-based mechanism to generate behavioural change, namely the price of bus services.

Greenhouse gas emissions have been identified as a probable cause of climate change, which could lead to significant changes in environmental conditions on a global scale. If more journeys are undertaken by buses rather than cars then, all else being equal, there should be a reduction in greenhouse gas emissions as buses can carry a large number of people with a lower amount of fuel use per person than cars. However, the impact is less than one may think. Our consultant, LECG, estimated that the additional greenhouse gas emissions that would arise if there were no bus services in the 4 contract regions would cost $3.3 million per year.[117] Although this is a relatively minor contribution to the cost of greenhouse gases Australia-wide, it has been factored into our final decision on fares through the calculation of external benefits.

Air pollution is an environmental change that has consequences such as degraded human health. Typically, air pollution is lower when bus services are provided rather than car use. LECG estimated the additional cost of air pollution that would arise if there were no bus services in the 4 contract regions at $38.3 million.[118] This represents a significant change in fares, of about 23 cents per trip.

In considering the level of fares, we took into account the impact of both reduced greenhouse gas emissions and reduced air pollution in determining the modest increases in bus fares that will result from our determination.

However, almost three-quarters of all travel in Sydney is by car. Reducing bus fares is likely to increase bus usage but this would not result in all those currently using cars switching to buses. As noted earlier, this is because people make decisions based on more than the relative price. Factors like convenience, physical accessibility and the availability of public transport that goes where people need to go and when they need to go influences choices between modes of transport.

[117] LECG, *Value of Sydney bus externalities and optimal government subsidy,* report for IPART, p 7.
[118] LECG, *Value of Sydney bus externalities and optimal government subsidy,* report for IPART, p 7.

15 Implications for the affordability of fares and social impacts

After deciding on the fare increases required and applying this decision to derive the new fares for all 25 contract regions (see Chapter 2), we checked to ensure the decision was reasonable and balanced in terms of its likely effect on the affordability of bus services and other social impacts. To do this, we considered the employment and income profile of bus passengers, the relative cost of bus fares (including average weekly expenditure on bus fares), and the availability of concession and off-peak fares.

We concluded that the modest fare increases of around 1.5% per year (plus an adjustment for inflation)[119] under the determination are not likely to significantly reduce the affordability of fares or have other unreasonable social impacts.

15.1 Employment and income profile of bus passengers

This determination primarily affects users of bus services so we have focused our considerations on the characteristics of bus passengers. However, we have also noted that to some extent, users of ferry services are affected by our bus determinations if they travel using a bus/ferry TravelPass.

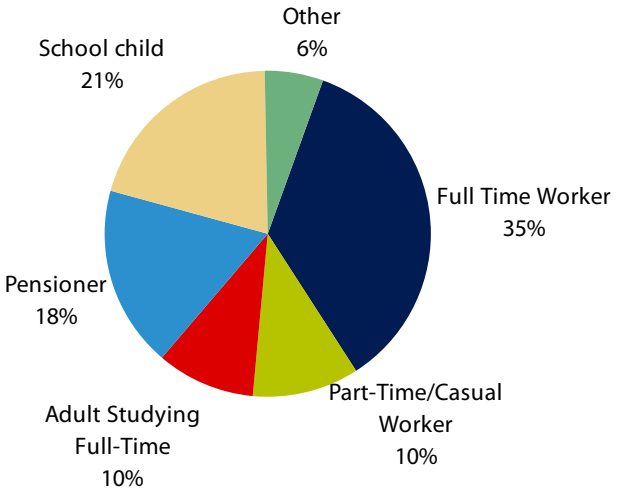
15.1.1 Labour force status of bus passengers

The results of the Transport Data Centre's (TDC's) 2007 Household Travel Survey[120] indicate that on weekdays, 35% of bus passengers in the greater Sydney metropolitan area are full-time workers, and 10% are part-time or casual workers. A significant proportion of bus passengers are pensioners and school children (18% and 21% respectively). These passengers are not working and are therefore likely to be able to access concession fares. (See Figure 15.1.)

[119] Because the rate of inflation over the determination period is more uncertain than is typically the case, we propose to adjust fares for inflation each year based on change in the CPI over the previous year.

[120] The most recent survey for which results are available.

Figure 15.1 Labour force status of bus passengers (2007)



Data source: TDC, Household Travel Survey 2007.

15.1.2 Income profile of bus passengers

The TDC's 2007 Household Travel Survey indicates that 80% of bus passengers belong to households with an annual income of more than $28,156. The average (or mean) household income of bus passengers is $95,665,[121] while the median household income is $78,011.[122] (See Table 15.1.)

Table 15.1 Annual incomes of bus passengers 2007 ($2009/10)

	Percentile 20	Percentile 40	Percentile 60	Percentile 80	Mean	Median
Household	28,156	62,099	95,808	159,464	95,665	78,011
Personal	3,619	14,475	28,156	62,816	35,008	17,733

Note: This table includes data for passengers aged over 15 only.

Source: TDC, Household Travel Survey 2007; adjusted to 2009/10 prices.

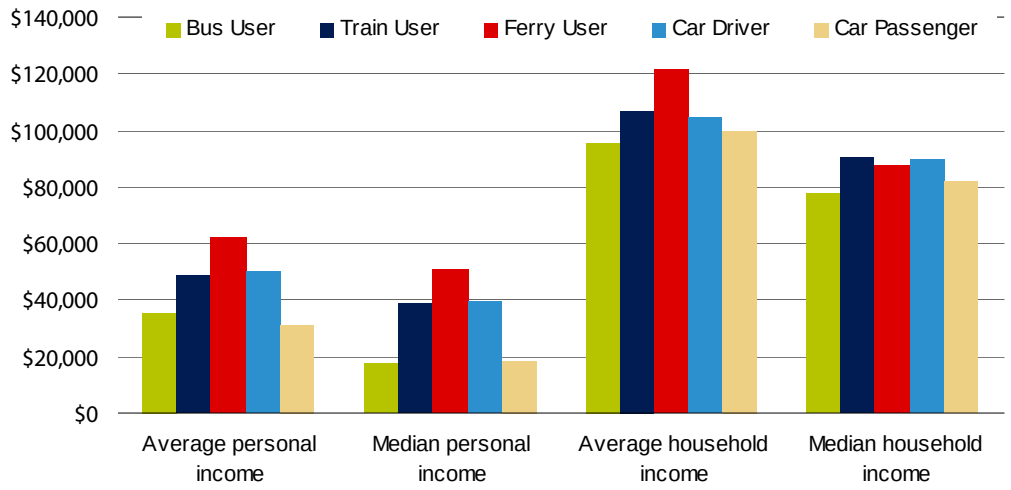
In our view, the median household income is the most appropriate figure to consider. This is because mean or average household income is more sensitive to outlying values. For example, the very high incomes of a small group of passengers will increase the mean, but not the median income figure. In addition, the personal income of bus passengers is often not the major source of income for their household. For instance, the table above shows that bus passengers' median household income is 4 times their median personal income. The reason for this is likely to be that school children older than 15 (many of whom would have no personal income) are counted in the survey.

121 Bus passengers are those who travelled by bus at least once.

122 The median income is the income in the middle of the distribution of survey customers, so that half the incomes are above the median, and half the incomes are below the median.

Bus passengers have lower average personal incomes and lower household incomes (both average and median) than travellers on most other modes of transport (Figure 15.2).

Figure 15.2 Passengers' personal and household incomes by transport mode, 2007 ($2009/10)



Data source: TDC, *Household Travel Survey 2007*; adjusted to 2009/10 prices.

Passengers using bus and ferry services

As noted above some ferry passengers may be affected by this determination on bus fares – ie, those that travel on bus/ferry TravelPasses. For this reason, we also considered the income levels of people who use both bus and ferry services.[123] The 2007 Household Travel Survey indicates that the average household income of bus/ferry users was $5,000 lower than for bus passengers. The median household income of bus/ferry users was $14,000 lower than for passengers who only used bus services. However, bus/ferry users had higher personal incomes than bus passengers. This is likely to reflect the lower number of school children over 15 who use both bus and ferry services, compared to the number using buses only. (Table 15.2.)

[123] The TDC defines a bus/ferry user as a person who has travelled on each of these modes at least once on their travel day. We note that not all bus/ferry users travel on bus/ferry TravelPasses.

Table 15.2 Annual incomes of bus/ferry passengers relative to bus passengers in 2007 ($2009/10)

		Percentile 20	Percentile 40	Percentile 60	Percentile 80	Mean	Median
Household	Bus	$28,156	$62,099	$95,808	$159,464	$95,665	$78,011
	Bus/ferry	$33,567	$48,054	$80,549	$158,971	$90,963	$63,913
Personal	Bus	$3,619	$14,475	$28,156	$62,816	$35,008	$17,733
	Bus/ferry	$11,262	$28,648	$50,838	$72,293	$47,821	$33,567

Note: This table includes data for passengers aged over 15 only.

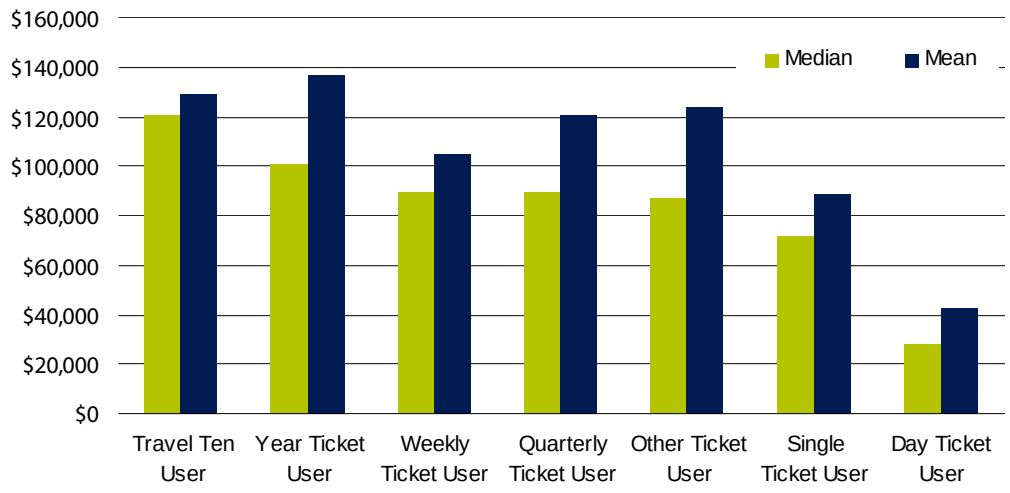
Source: TDC, Household Travel Survey 2007; adjusted to 2009/10 prices.

Passengers using different bus ticket types

As we set the fares for a number of different types of bus tickets – such as single tickets, TravelTens, and weekly bus and bus/ferry TravelPasses – we also considered the income profile of bus passengers using these different types of ticket.

The 2007 Household Travel Survey indicates that both the mean and median household incomes of bus passengers who use a TravelTen, weekly or longer periodical ticket are higher than those of passengers who use single or day tickets (Figure 15.3). This is probably because frequent users tend to be commuters, therefore are in paid employment. Day ticket users had the lowest household incomes, as this ticket category includes the pensioner excursion ticket.

Figure 15.3 Average and median household incomes by ticket type 2007 ($2009/10)



Data source: TDC, Household Travel Survey 2007; adjusted to 2009/10 prices.

15.2 Relative cost of bus fares

Metropolitan and outer metropolitan bus fares do not comprise a significant proportion of average incomes in NSW. In addition, these bus fares are fairly comparable to fares for other modes of public transport and with bus fares in other states.

15.2.1 Expenditure on bus fares relative to income

Currently, the price of a TravelTen ticket represents between 1.7% and 5.3% of the average weekly earnings in NSW (depending on the distance travelled), and around 1.2% and 3.9% of the average weekly earnings of those in full time employment.

Given the modest increases under the determination, the expenditure on bus fares relative to income is likely to change very little. Table 15.3 shows the current cost of TravelTen tickets in 2010 as a share of average weekly earnings in 2009.

Table 15.3 TravelTen tickets as a share of average weekly earnings (2009)

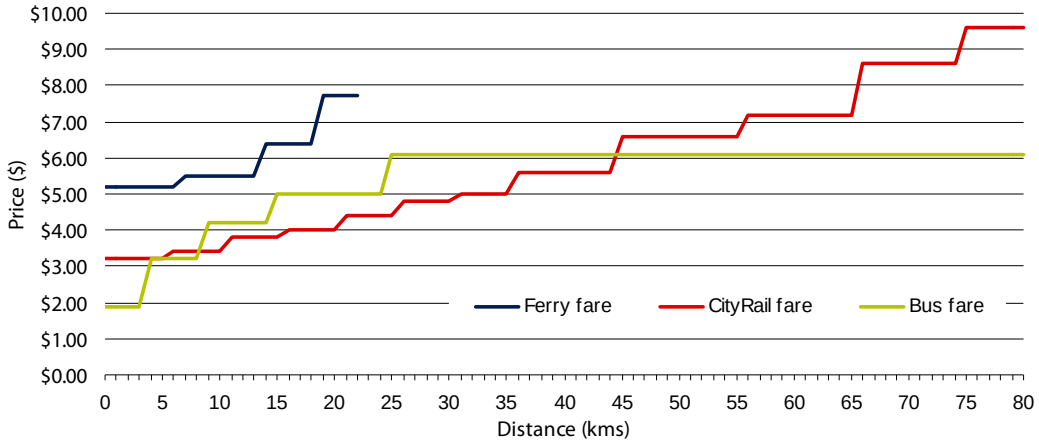
Distance travelled (number of sections)	Cost of TravelTen	Relative to average weekly earnings NSW (full-time, %)	Relative to average weekly earnings NSW (all, %)
1-2	$15.20	1.21	1.65
3-5	$25.60	2.04	2.78
6-9	$33.60	2.68	3.64
10-15	$40.00	3.19	4.34
16+	$48.80	3.89	5.29

Source: IPART; ABS Catalogue No. 6302.0.

15.2.2 How bus fares in NSW compare to fares for other modes and cities

Currently, bus fares in the greater metropolitan areas are below fares for ferries for trips of all distances that apply to both of these modes of transport. Bus fares are also lower than train fares for short trips (less than 7 kilometres) and long trips (greater than 45 km), but higher than train fares for medium length trips (8 to 45 kilometres). (Figure 15.4) We also note all bus passengers travelling more than 24 kilometres (16+ sections) pay the same fare.

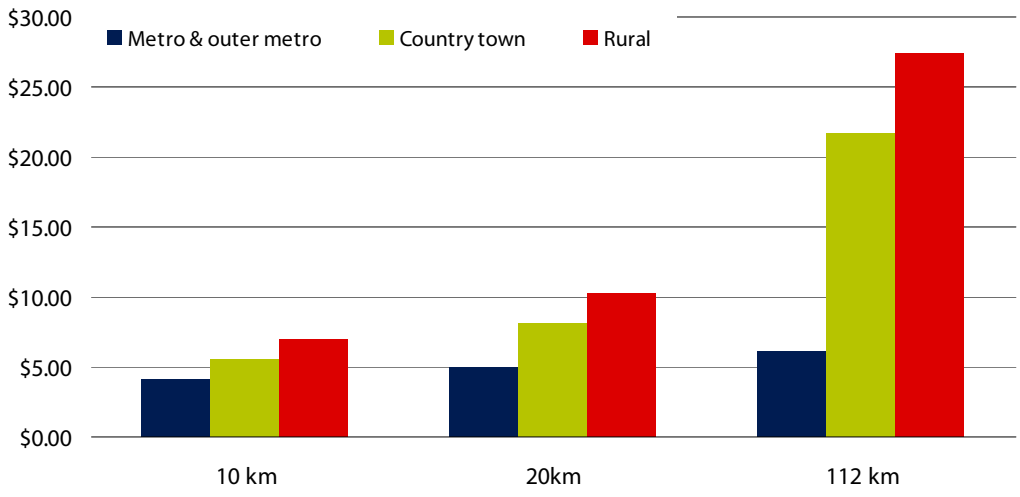
Figure 15.4 Current fares for public transport in NSW ($ nominal)



Data source: IPART determinations.

Bus fares in metropolitan and outer metropolitan Sydney are also significantly below fares in regional and rural NSW, particularly for journeys longer than 20 kilometres (Figure 15.5).

Figure 15.5 Current fares for bus services in NSW ($ nominal)



Comparisons of fares across different cities are more difficult due to the different types of ticketing structures used. The shortest journey ticket in Sydney is priced similarly to Brisbane (assuming the Brisbane passenger is using a Go Card). Bus tickets are cheaper in Sydney than in Melbourne for short distances and more expensive for longer distances:

- The cheapest ticket in Melbourne for use on buses (and other modes of transport) is the City Saver at $2.80. This allows a single trip within the city area. The next cheapest ticket is a two hour ticket, costing $3.70 for zone 1 (close to the city) or $2.80 within zone 2 (suburbs further away from the city).
- The cheapest ticket in Brisbane is a one zone single ticket costing $2.40. This allows travel in a fairly small area for a two hour period. The city area represents a single zone. Users of electronic tickets can undertake an equivalent journey for $1.92.
- The current cheapest ticket for bus travel in the Sydney greater metropolitan area is a $1.90 ticket for up to 3.2 kilometres (2 sections).

15.3 Availability of concessional tickets

We consider that the social impact of any fare increases should be considered in the context of the availability of concession fares and other social policies (for example, the Pensioner Excursion Ticket and School Student Transport Scheme) which may mitigate the impact of fare increases on particular groups.

The Government is responsible for determining social policy relevant to bus travel and for determining the eligibility criteria for concession fares. However, IPART does have a role in the implementation of such policies. For example, if the Government were to reduce the level of the concession and hence, want to raise concession fares, it would require a change to our fare determination.

As discussed in Chapter 10, the NSW Government currently funds an extensive concession program for metropolitan and outer metropolitan buses. There are a number of concession tickets available for bus travel including:

- free travel for school students under the School Students Travel Scheme (STSS)
- concession rates for pensioners and seniors of $2.50 to travel throughout the greater metropolitan area on any mode of transport for a single day (Pensioner Excursion Ticket, PET)
- free travel for children aged 3 or under
- half-price travel for the first child aged 4 to 15 and free travel for additional children under the Family Fare Scheme
- half-price travel for students and job seekers[124]
- free travel for people with certain disabilities.

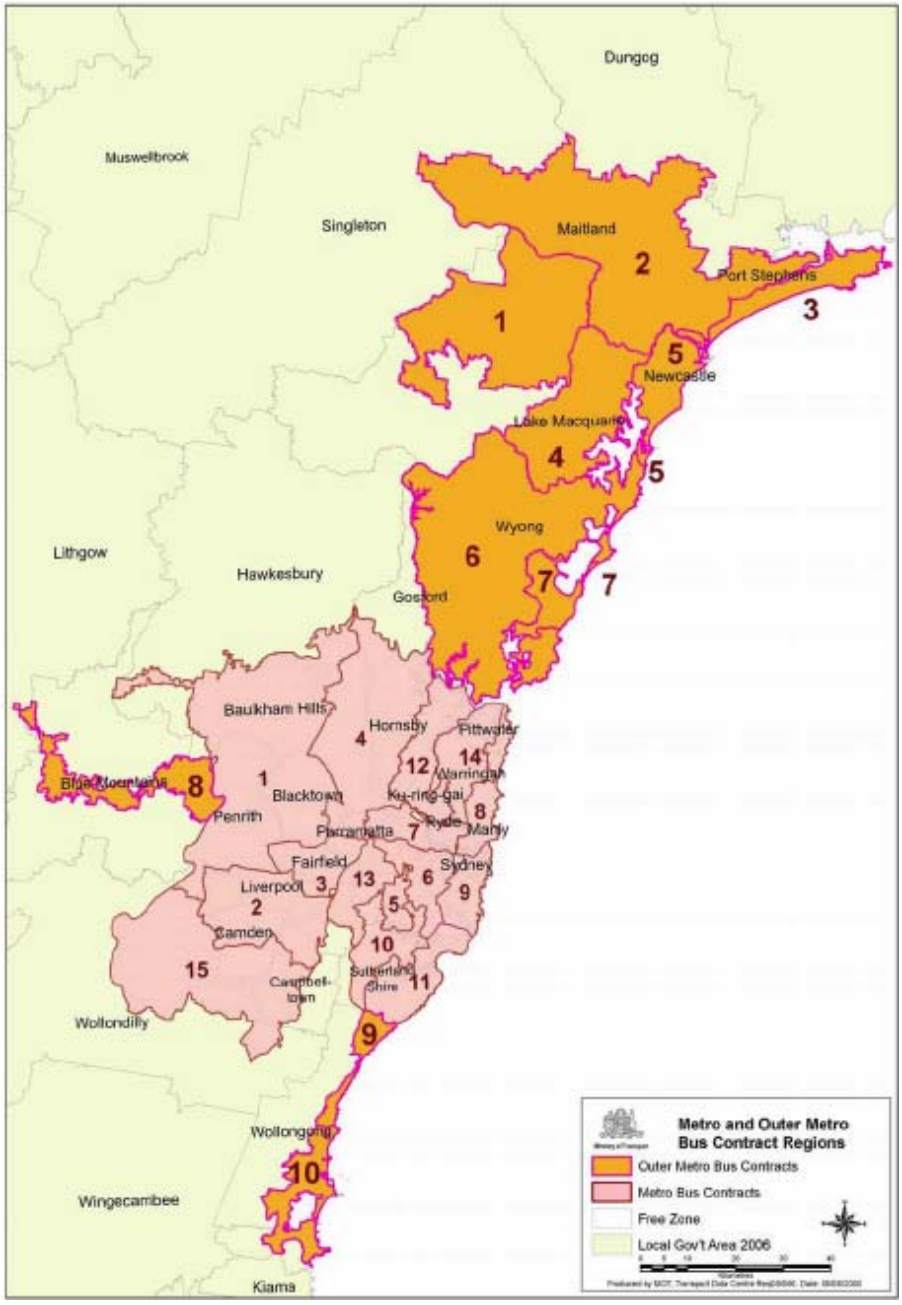
[124] Half price travel only for certain ticket types.

Almost half of all bus passengers travel on some form of concession ticket. Access to them depends on the particular circumstances of the traveller and the level of concession varies across these groups. Chapter 10 contains more information on the current concession tickets available, the level of discount and who has access to them. Our fare determinations impact on some of these concession fares, as they are linked to the prices we set, as set out above. However, we do not consider that the impact of the determination on these passengers is unreasonable. In our view, the current concession program will mitigate the impact of the proposed fare increases for lower income passengers.

Appendices

A Map of metropolitan and outer metropolitan contract regions

Figure A.1 Metropolitan and outer metropolitan contract regions



Data source: Ministry of Transport fare proposal, August 2008, p 47.

A Map of metropolitan and outer metropolitan contract regions

Table A.1 Metropolitan bus operators by region

Contract region	Operators
1	Busways Blacktown, Westbus, Hawkesbury Valley Buses
2	Interline Buses, Busabout
3	Hopkinsons Metrolink, Oliveri's Metrolink Buses, Westbus, Busabout
4	Hillsbus
5	Punchbowl Buses
6	Sydney Buses (STA) – Southern Region
7	Sydney Buses (STA) – Western Region
8	Sydney Buses (STA) – Northern Region
9	Sydney Buses (STA) – Eastern Region
10	Veolia Transport NSW
11	Caringbah Buses, Crowthers Buslink, Maianbar and Bundeena Bus Service
12	Shorelink
13	Veolia Transport NSW
14	Forest Coaches
15	Busways Campbelltown

Source: Ministry of Transport website <www.transport.nsw.gov.au>

Table A.2 Outer metropolitan bus operators by region

Contract region	Operators
1	Rover Motors
2	Hunter Valley Buses
3	Port Stephens Coaches
4	Toronto Bus Services, Sugar Valley Coaches, Morisset Bus Service
5	Newcastle Buses (STA)
6	Busways
7	Red Bus Services
8	Pearce Omnibus
9	North Wollongong Area Management (Dions Buses)
10	Premier Illawarra

Source: Ministry of Transport website <www.transport.nsw.gov.au>

B Legislative Requirements

B.1 Requirements of the Passenger Transport Act

Section 28J of the Passenger Transport Act states that:

1. This section applies to any service contract for a regular bus service that authorises or otherwise permits the holder (or a person providing the service for the holder under a subcontract or other arrangement) to charge passengers of the service a fare for the use of the service.
2. The Independent Pricing and Regulatory Tribunal (the Tribunal) is to conduct investigations and make reports to the Minister on the following matters:
   a) the determination of appropriate maximum fares for regular bus services supplied under service contracts to which this section applies,
   b) a periodic review of fare pricing policies in respect of such services.
3. In respect of an investigation or report under this section, the Minister may require the Tribunal to consider specified matters when making its investigations.
4. Division 7 of Part 3 of the Independent Pricing and Regulatory Tribunal Act 1992 is taken to apply to an investigation under this section in the same way as it applies to an investigation under Part 3 of that Act.
5. In making a determination under this section, the Tribunal is to consider the following matters:
   a) the cost of providing the services concerned,
   b) the protection of consumers from abuses of monopoly power in terms of prices, pricing policies and standards of service,
   c) the need for greater efficiency in the supply of services so as to reduce costs for the benefit of consumers and taxpayers,
   d) the need to maintain ecologically sustainable development (within the meaning of section 6 of the Protection of the Environment Administration Act 1991) by appropriate pricing policies that take account of all of the feasible options to protect the environment,
   e) the social impact of the determination,
   f) standards of quality, reliability and safety of the services concerned (whether those standards are specified by legislation, agreement or otherwise) and any suggested or actual changes to those standards,

g) contractual arrangements prevailing in the industry,

h) such other matters as the Tribunal considers relevant.

Protection of the Environment Administration Act – section 6(2)

Section 6 of the Protection of the Environment Administration Act (1991) states that:

2. For the purposes of subsection (1) (a), ecologically sustainable development requires the effective integration of economic and environmental considerations in decision-making processes. Ecologically sustainable development can be achieved through the implementation of the following principles and programs:

   a) the precautionary principle—namely, that if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.

In the application of the precautionary principle, public and private decisions should be guided by:

   i) careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment, and

   ii) an assessment of the risk-weighted consequences of various options,

   b) inter-generational equity—namely, that the present generation should ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations,

   c) conservation of biological diversity and ecological integrity—namely, that conservation of biological diversity and ecological integrity should be a fundamental consideration,

   d) improved valuation, pricing and incentive mechanisms—namely, that environmental factors should be included in the valuation of assets and services, such as:

      i) polluter pays—that is, those who generate pollution and waste should bear the cost of containment, avoidance or abatement,

      ii) the users of goods and services should pay prices based on the full life cycle of costs of providing goods and services, including the use of natural resources and assets and the ultimate disposal of any waste,

environmental goals, having been established, should be pursued in the most cost effective way, by establishing incentive structures, including market mechanisms, that enable those best placed to maximise benefits or minimise costs to develop their own solutions and responses to environmental problems.

Table B.1 indicates where the relevant Passenger Transport Act requirements are addressed within IPART's report.

Table B.1 IPART's consideration of Section 28J Passenger Transport Act matters

Clause 5	
a) cost of providing the service	Chapters 4-8
b) protection of consumers from abuse of monopoly power	Chapter 3
c) need for greater efficiency so as to reduce costs	Chapter 4 & 5
d) need to maintain ecologically sustainable development	Chapter 14
e) social impact of the determination	Chapter 12 & 15
f) standards of quality, reliability and safety of the services	Chapter 3, Appendix D
g) contractual arrangements prevailing in the industry	Chapter 3, 4 & 13

B.2 Section 15 requirements of the IPART Act

Section 15 of the IPART Act states that:

(1) In making determinations and recommendations under this Act, the Tribunal is to have regard to the following matters (in addition to any other matters the Tribunal considers relevant):

(a) the cost of providing the services concerned,

(b) the protection of consumers from abuses of monopoly power in terms of prices, pricing policies and standard of services,

(c) the appropriate rate of return on public sector assets, including appropriate payment of dividends to the Government for the benefit of the people of New South Wales,

(d) the effect on general price inflation over the medium term,

(e) the need for greater efficiency in the supply of services so as to reduce costs for the benefit of consumers and taxpayers,

(f) the need to maintain ecologically sustainable development (within the meaning of section 6 of the *Protection of the Environment Administration Act 1991*) by appropriate pricing policies that take account of all the feasible options available to protect the environment,

(g) the impact on pricing policies of borrowing, capital and dividend requirements of the government agency concerned and, in particular, the impact of any need to renew or increase relevant assets,

(h) the impact on pricing policies of any arrangements that the government agency concerned has entered into for the exercise of its functions by some other person or body,

(i) the need to promote competition in the supply of the services concerned,

(j) considerations of demand management (including levels of demand) and least cost planning,

(k) the social impact of the determinations and recommendations,

(l) standards of quality, reliability and safety of the services concerned (whether those standards are specified by legislation, agreement or otherwise).

(2) In any report of a determination or recommendation made by the Tribunal under this Act, the Tribunal must indicate what regard it has had to the matters set out in subsection (1) in reaching that determination or recommendation.

(3) To remove any doubt, it is declared that this section does not apply to the Tribunal in the exercise of any of its functions under section 12A.

(4) This section does not apply to the Tribunal in the exercise of any of its functions under section 11 (3).

Table B.2 indicates where the relevant section 15 requirements are addressed within IPART's report.

Table B.2 IPART's considerations of section 15 matters

Section 15	
a) cost of providing the service	Chapter 4 - 8
b) protection of consumers from abuse of monopoly power	Chapter 3
c) appropriate rate of return and dividends	Chapter 7 & Appendix E
d) effect on general price inflation	Chapter 13 - 15
e) improved efficiency in supply of services	Chapter 3 - 5
f) ecologically sustainable development	Chapter 14
g) impact on borrowing, capital and dividend requirements	Chapter 13 & Appendix E
h) additional pricing policies	Chapter 12
i) need to promote competition	Chapter 3
j) considerations of demand management	Chapter 9 & 12
k) the social impact on customers	Chapter 11 & 15
l) standards of quality, reliability and safety of the services	Chapter 3 & Appendix D

C Contract regions in the metropolitan and outer metropolitan area

The 4 largest contract regions are fairly similar to each other. However, there are several differences between these regions and the other regions in the metropolitan and outer-metropolitan area. The differences include:

- operational differences – in terms of the number of passengers and the proportion that are fare paying, CBD vs regional focus, kilometres travelled
- differences in costs and external benefits across regions – in terms of costs per passenger and differences between costs and external benefits.

The following sections discuss some of these differences in more detail, based on operational information for 2008/09 reported under the bus service contracts.[125]

C.1 Operational differences

There are significant differences in the services provided in different contract regions. These differences include:

- the number of passengers and the proportion that are fare paying
- area of operation (CBD vs regional focus)
- kilometres of operation
- length of trips.

C.1.1 Number of passengers

Seventy four per cent of trips made by fare paying passengers are made in the 4 largest contract regions (those serviced by Sydney Buses). The next largest contract regions measured by fare paying passenger numbers after the 4 largest regions are (in order of size):

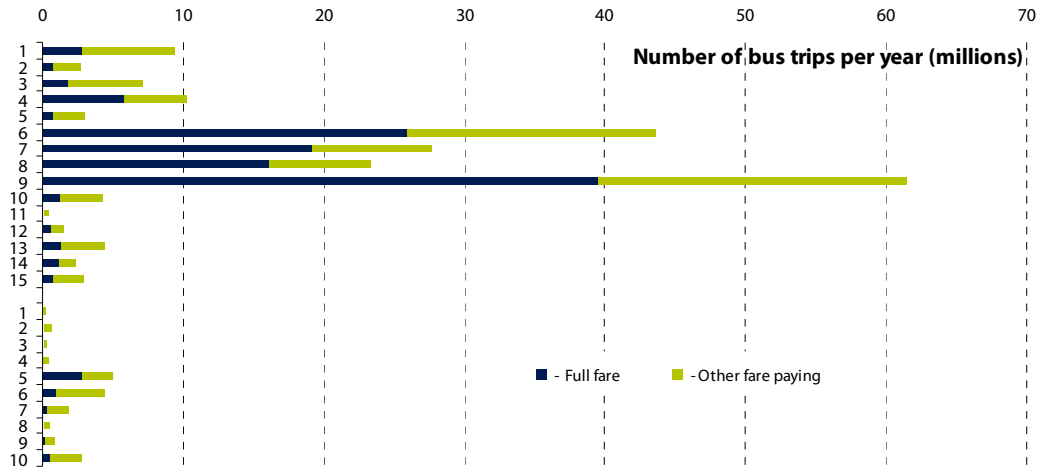
- metro region 4 – serviced by Hillsbus (4% of the total)
- metro region 3 – serviced by Westbus, Busabout, Hopkinson's Metrolink, Oliveri's Metrolink Buses (3% of the total).

[125] We have estimated full year data based on reported data for July 2008 to April 2009.

The remaining 19 regions make up less than 20% of the total number of fare paying passenger journeys – most of these regions have relatively small numbers of fare paying passengers, and of the fare paying passengers in these regions, most travel on concessions.

Figure C.1 shows the number of bus trips made in each contract region by fare paying passengers in 2008/09. The first 15 regions listed are the metropolitan regions and the final 10 are the outer metropolitan regions (the numbers correspond to the map in Appendix A). The chart also shows how many of the trips were made by passengers who paid the full fare and how many were made by passengers who paid less than the full fare (other fare paying). The chart does not include the number of bus trips that were made by school students travelling for free under the SSTS.

Figure C.1 Bus trips made by fare paying passengers in 2008/09 (millions)



Note: Separate data on half fare concession tickets for outer metropolitan region 5 (OM 5) was not available - trips made on these tickets are included in the above chart as full fare paying.

Data source: NSWTI – data reported by operators under the service contracts.

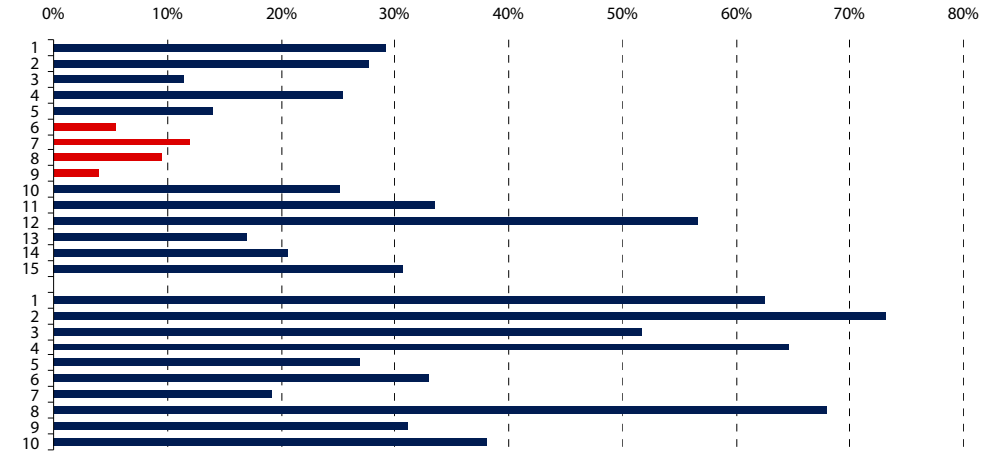
The 4 largest contract regions stand out as having significantly more fare paying passengers than the other regions – in fact, even the smallest of these 4 regions has more than twice as many passengers as the next largest region.

While the regions outside the largest 4 regions have a significantly lower number of fare paying passengers, they each have significant numbers of school students that travel fare-free under the School Student Transport Scheme (SSTS)[126]. In many of these regions (in particular the outer metro regions), the number of SSTS passengers exceeds the number of fare paying passengers.

[126] The School Student Transport Scheme (SSTS) provides free travel for school students across all regions and operators include an allowance in their contact payments to provide these services free of charge.

Figure C.2 shows the proportion of total trips in each contract region that were made by non-fare paying school students in 2008/09. Again, the first 15 regions are the metropolitan regions and the final 10 are the outer metropolitan regions corresponding to the numbers on the map in Appendix A. The 4 largest regions are shown in red. For the 4 largest contract regions the average is less than 10% of the total number of trips occurring in those regions. In most of the other regions school students make up a much higher proportion of the total number of passengers – in some regions, school students make up more than 70% of passengers.

Figure C.2 Proportion of trips in each region that are made by school students fare-free (2008/09)



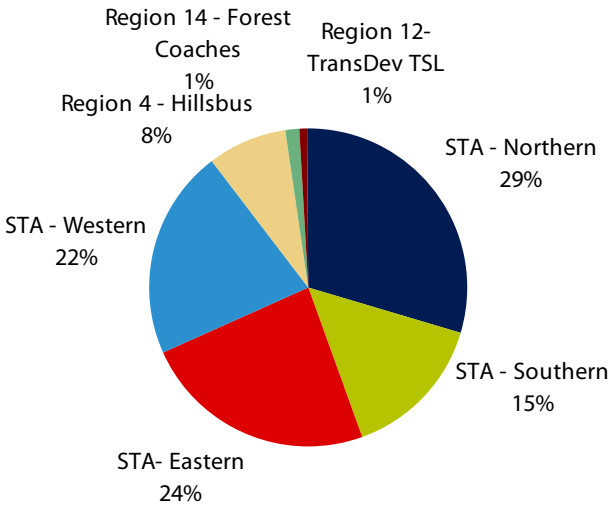
Data source: NSWTI – data reported by operators under the service contracts and IPART estimates. Numbers 1 to 15 represent metropolitan regions and numbers 1 to 10 represent the outer metropolitan regions (the region numbers correspond to the map in Appendix A).

C.1.2 CBD vs. regional centre focus

The larger contract regions tend to have more routes that are focused on delivering passengers to and from the Sydney CBD. Combined with the significantly higher proportions of full fare paying passengers on these services, this suggests that significantly more passengers on these services are likely to be commuters travelling to and from the CBD in peak periods in these regions. Bus services in these regions differ from an operational point of view as they need to have more services available in peak periods in order to meet their contractual obligations.

The 4 largest contract regions (regions 6 to 9, operated by SydneyBuses) capture more than 90% of the CBD focused routes (Figure C.3). The only other regions servicing the CBD are metropolitan region 4 (operated by Hillsbus), metropolitan region 12 (operated TransDev-TSL) and metropolitan region 14 (operated by Forest Coaches).

Figure C.3 Where the CBD focused routes come from



Note: CBD includes Sydney CBD, Central and North Sydney CBD. These figures do not account for the number of services on each individual route.

Source: NSWTI and published data on individual operator routes.

Other contract regions mainly service regional centres that do not feed into the CBD. However, services in many of the other metropolitan regions provide buses from suburban areas to CityRail stations for passengers to complete their commute into the CBD. Table C.1 summarises the areas serviced by each of the 15 metropolitan contract regions.

Table C.1 Metropolitan contract service areas

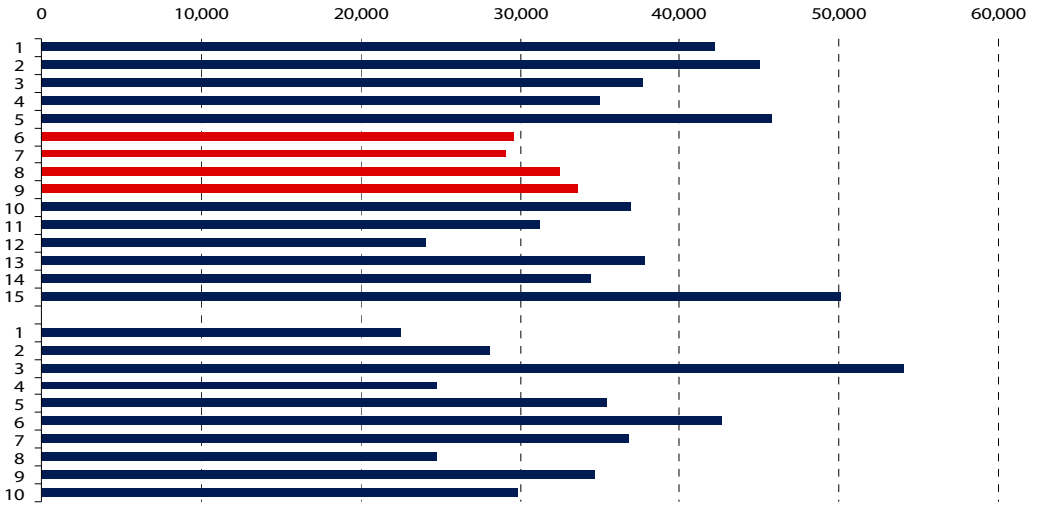
Region	Service area
1	Services the regional centres of Penrith, Richmond, Mt Druitt, St Marys, Blacktown and Rouse Hill
2	Services the regional centres of Liverpool, Minto, Campbelltown, Macquarie Fields, Glenfield and Hoxton Park.
3	Services the regional centres of Bonnyrigg, Cabramatta, Liverpool, Fairfield, Parramatta, Westmead, Prairiewood and Wetherill Park.
4	Services the regional centres of Rouse Hill, Kellyville, Castle Hill, Pennant Hills, Baulkham Hills, Parklea, Glenwood, Blacktown, Seven Hills, Epping and Parramatta and the CBD.
5	Services the regional centres of Hurstville, Bankstown, Penshurst, Beverley Hills and Strathfield.
6	Services the regional centres of Lidcombe, Strathfield, Burwood, Five Dock, Ashfield, Marrickville, Kogarah, Leichhardt, Newtown, Balmain, Glebe, Pyrmont and the CBD.
7	Services the regional centres of Crows Nest, Chatswood, Ryde, Epping, Macquarie Park, Eastwood, Artarmon and the CBD.
8	Services the regional centres of North Sydney, Neutral Bay, Mosman, Manly, Dee Why, Brookvale, Mona Vale, Palm Beach and the CBD.
9	Services the regional centres of Kings Cross, Paddington, the Airport, Botany, Maroubra, Coogee, Bondi Beach, Bondi Junction, Randwick, Double Bay and Redfern and the CBD.
10	Services the regional centres of Hurstville, Miranda and Bankstown, and covers Miranda, Sylvania, Engadine, Sutherland, Menai, Illawong, East Hills, Revesby, Bankstown.
11	Services the regional centres of Miranda, Caringbah, Woolooware and Cronulla.
12	Services the regional centres of Turramurra, Pymble, Gordon, Hornsby, Berowra and Roseville, Chatswood and CBD.
13	Services the regional centres of Parramatta and Bankstown and covers Parramatta, Auburn, Granville, Fairfield East, Liverpool, Georges Hall, University Of Western Sydney, Regents Park, Bankstown.
14	Services the regional centres of Chatswood, North Turramurra, Belrose and the CBD.
15	Services the regional centres of Campbelltown, Minto and Camden.

Source: NSWTI (available from http://www.transport.nsw.gov.au/busreform/network-reviews.html).

C.1.3 Kilometres travelled – per bus and per passenger

Congested operating conditions, higher passenger density and the nature of the bus network in the 4 largest regions mean that each bus completes a lower number of service kilometres each year than is typically the case in the remaining metropolitan and outer metropolitan contract regions (Figure C.4), although some of the other regions have a similar number of service kilometres per bus. The first 15 regions in the chart are the metropolitan regions and the final 10 are the outer metropolitan regions corresponding to the numbers on the map in Appendix A. The 4 largest regions are shown in red.

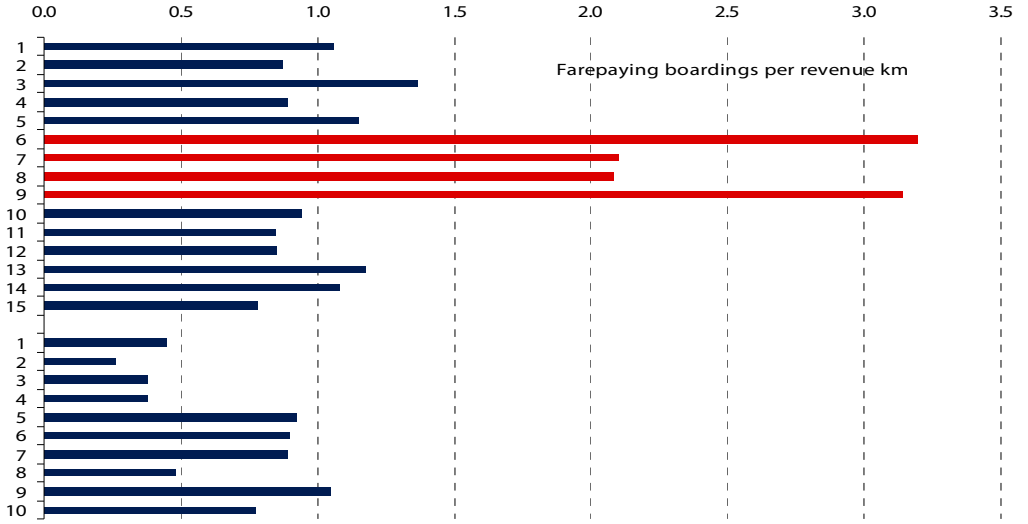
Figure C.4 Service kilometres per bus in each region (2008/09)



Data source: NSWTI – data reported by operators under the service contracts. Numbers 1 to 15 represent metropolitan regions and numbers 1 to 10 represent the outer metropolitan regions (the region numbers correspond to the map in Appendix A)

The 4 largest regions also service the more densely populated regions in Sydney and this is reflected in the number of boardings per service kilometre, which is significantly higher in the 4 largest regions. Figure C.5 shows that on average the 4 largest contract regions have double or triple the number of boardings per service kilometre compared to the remaining regions. The first 15 regions are the metropolitan regions and the final 10 are the outer metropolitan regions corresponding to the numbers on the map in Appendix A. The 4 largest regions are shown in red.

Figure C.5 Number of boardings per kilometre (2008/09)



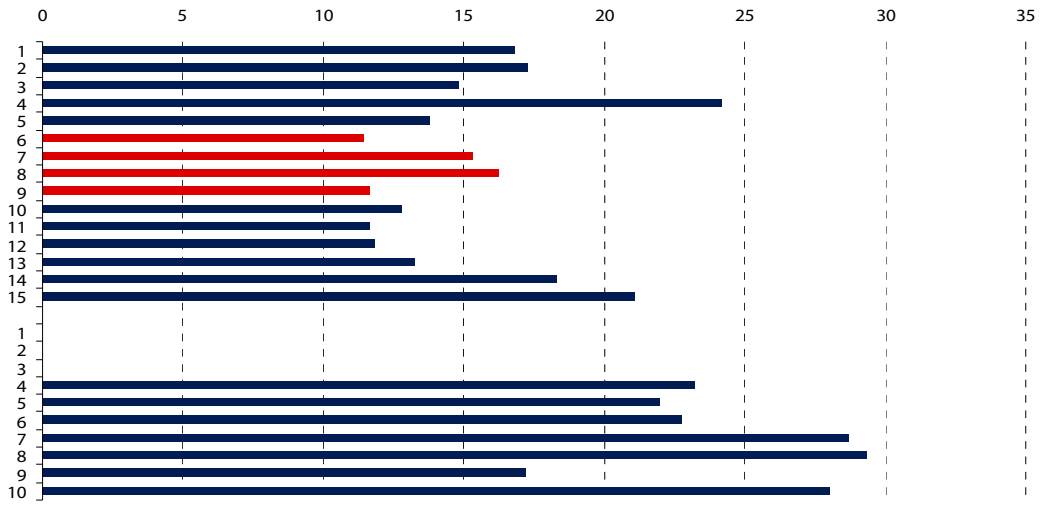
Note: Based on boardings made by fare paying passengers per revenue kilometre. Numbers 1 to 15 represent metropolitan regions and numbers 1 to 10 represent the outer metropolitan regions (the region numbers correspond to the map in Appendix A).

Data source: NSWTI – data reported by operators under the service contracts.

C.1.4 Length of journeys

The average length of passenger journeys ranges significantly across the regions. The 4 largest contract regions are towards the bottom of the range. Figure C.6 shows the differences across the regions. The first 15 regions listed are the metropolitan regions and the final 10 are the outer metropolitan regions corresponding to the numbers on the map in Appendix A). The 4 largest regions are shown in red. Of the other larger regions in terms of the number of fare paying passengers, region 4 (the Hills district of Sydney) has a long average trip length because approximately a third of its routes transport passengers from the Hills district to the Sydney CBD. Note that we have not included reported results for three of the outer metropolitan regions because in our view the reported data is not sufficiently reliable.

Figure C.6 Average timetabled trip length in kilometres (2008/09)



Note: Average timetabled trip length is based on the total number of kilometres reported for each region divided by the number of timetabled trips. No results are shown for outer metropolitan regions 1 to 3 as the data is unreliable. Numbers 1 to 15 represent metropolitan regions and numbers 1 to 10 represent the outer metropolitan regions (the region numbers correspond to the map in Appendix A).

Data source: NSWTI – data reported by operators under the service contracts.

C.2 Differences in costs and external benefits across regions

C.2.1 Cost to Government of providing service (contract payments)

As noted in Chapter 3, NSWTI pays each operator to provide bus services in a contract region. NSWTI then uses the fare revenue it receives to off-set the cost of making these payments. The cost of making contract payments differs across regions, due in part to the different operational conditions discussed above. The higher number of passenger boardings and service kilometres in the 4 largest contract regions means lower cost to Government per passenger.

Even under fare harmonisation the average fare paid by passengers varies from a high of $2.90 to a low of $1.20 as a result of the proportion of passengers who travel on concession tickets. The cost to Government varies more significantly than the average fare collected. The costs are lower in the 4 largest regions (6-9), where they are between $2.50 and $3.60 per passenger trip. In the two highest-cost outer metropolitan regions the costs paid by Government to the bus operators is over $8.00 per passenger trip based on our estimate of the annual cost of the SSTS in these regions.

Figure C.7 shows the average contract cost per fare paying passenger journey in 2008/09 compared with the average fare paid. The difference between these two measures is much lower in the 4 largest regions and is significantly higher in some of the outer metropolitan regions. The first 15 regions on the chart are the metropolitan

regions and the final 10 are the outer metropolitan regions corresponding to the numbers on the map in Appendix A. The 4 largest regions are shown in red.

Figure C.7 Average contract cost per fare paying passenger journey and average fare paid in each region in 2008/09

Data source: NSWTI – data reported by operators under the service contracts. Numbers 1 to 15 represent metropolitan regions and numbers 1 to 10 represent the outer metropolitan regions (the region numbers correspond to the map in Appendix A).

C.2.2 Relativity between costs and external benefits

As noted above, there is significant variation in the costs in different contract regions. As IPART's objective is to determine fares that are optimal for most passengers, we are of the view that fares for the majority of passengers should approximate the difference between efficient costs and external benefits of bus services for those passengers.

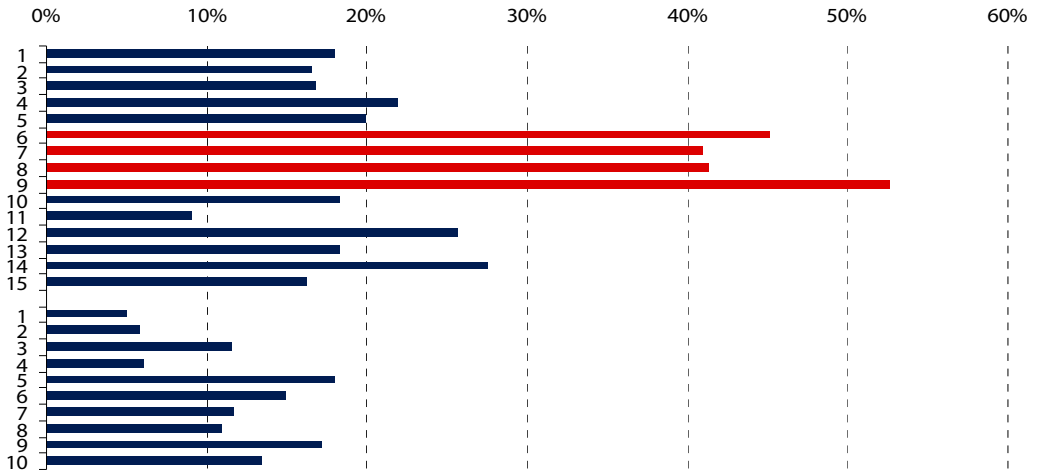
The impact of including additional contract regions for fare setting can be illustrated using contract payments and passenger numbers for 2008/09 together with LECG's estimated external benefit.[127] Figure C.8 shows the external benefit as a proportion of the contract cost in each region.[128] The first 15 regions are the metropolitan regions and the final 10 are the outer metropolitan regions corresponding to the numbers on the map in Appendix A. The 4 largest regions are shown in red. The combination of

[127] Although LECG was not able to estimate a separate external benefit for each contract region individually, LECG noted that the external benefit on a per passenger journey basis in its final report could be validly applied to all regions.

[128] These figures are estimates based on contract payments for fare paying passengers – they are not based on efficient costs.

lower costs per passenger and higher external benefits per passenger[129] in the 4 largest regions mean that the external benefit is a significantly higher proportion of contract costs than it is in any of the other regions. As a result, the fares determined using our approach to fare setting would be lower than if any, or all, of the other contract regions were included for fare setting.

Figure C.8 External benefit as a proportion of contract costs per fare paying passenger (2008/09)



Data source: NSWTI and LECG, *Value of Sydney Bus externalities and optimal Government subsidy – Final Report*, September 2009. Numbers 1 to 15 represent metropolitan regions and numbers 1 to 10 represent the outer metropolitan regions (the region numbers correspond to the map in Appendix A).

[129] The benefits differ per region based on LECG's recommendations that the external benefit per passenger bus journey differs by passenger type (adult fare paying, other fare paying and school student) – see LECG, *Value of Sydney Bus externalities and optimal Government subsidy – Final Report*, September 2009.

D Our analysis of change in the quality of bus services provided

As Chapter 3 discussed, IPART is required to consider service standards in making our fare determinations. However, the quantity and quality of bus services operators are required to meet are established in their contracts with NSWTI. This means that operators' incentives for maintaining or improving service quality are not directly affected by our determinations.

Nevertheless, we have analysed the available information on increases in patronage and bus operators' performance against the key performance indicators (KPIs) provided by NSWTI for 2007/08 and 2008/09. We also examined customer feedback data from the 131 500 infoline for both years, the findings of a customer satisfaction survey conducted by the Independent Transport Safety and Reliability Regulator, and stakeholder comments on service quality. We consider that NSWTI should use our analysis to inform future contract negotiations, and to strengthen the incentives for operators to improve service quality created by future contracts.

Only a few submissions commented on service standards directly. However, a significant number stated that the quality of service provided was a key factor influencing growth in patronage.[130]

As Chapter 3 discussed, we were disappointed to find that performance information against a number of KPIs was still not available for all regions, despite the fact that operators are required in their contracts to provide this information to NSWTI. We were also disappointed to find that, based on information that was available, there is little evidence to suggest that service performance improved over the year 2008/09.

D.1 Operators' performance against key performance indicators

In general, individual bus operators reported on their performance against the same KPIs as they did last year. Again, only a few KPIs were reported by all 25 bus operators in the metropolitan and outer metropolitan contract regions. In addition, because there is still no robust, standardised collection methodology, we found it difficult to directly compare operators' performance against these KPIs. We consider it is particularly important that the information provided from year to year be

[130] NSWTI submission 1 July 2009, p 7; BusNSW submission, 1 July 2009, p 9; Action for Public Transport submission, 3 June 2009, p 6; R Banyard submission, 24 June 2009, p 4; Western Sydney Community Forum, 25 June 2009, p 7; NCOSS submission, 16 July 2009, p 8; Lower Hunter Councils Transport Group submission, 9 July 2009, pp 6-7.

standardised across operators and be consistent so a time series can be constructed. This will allow for an analysis of trends in service quality over time.

When considered on a region-by-region basis, the available KPI information suggests that service quality varies significantly between regions, and very little has changed from last year to this.

Table D.1 summarises the range of service outcomes across regions for selected KPIs for 2008/09. The sections below discuss the outcomes against the KPIs for on-time running and wheelchair accessibility in detail. Definitions of the KPIs are included in the glossary attached to this report.

Table D.1 Service outcomes across regions for selected KPIs

	Minimum	Maximum	Median
Number of trips (000's)			
2007/08	45.1	1,654.9	374.5
2008/09	48.5	1701.1	378.6
Service kilometres (million km)			
2007/08	0.5	19.1	4.5
2008/09	0.5	19.7	4.6
Timetabled accessible/number of trips (%)			
2007/08[a]	N/A	N/A	N/A
2008/09	22.1	44.7	35.4
Cancelled trips/ number of trips (%)			
2007/08	0.00	0.47	0.02
2008/09	0.01	0.10	0.02
Incomplete routes/ number of trips (%)			
2007/08	0.001	1.137	0.009
2008/09	0.00	8.16	0.01
Late buses/ number of trips (%)			
2007/08	0.1	1.5	0.3
2008/09	0.0	1.1	0.3

a This data was incorrectly reported and is not comparable with data for 2008/09.

Source: NSWTI.

D.1.1 Leaving the depot on-time

Operator measures of on-time running are largely limited to recording whether the bus leaves the depot on time. As we have previously noted, we don't consider this to be a good indicator of the bus network's actual on-time running performance or the level of service actually experienced by passengers.[131] We also note that in one of the submissions to this review, a stakeholder argued that problems with timetabling mean that buses can run early and late at different points throughout a journey but this goes largely undetected and uncorrected due to poor monitoring. In our view, the inadequacy of this measure makes it difficult for anyone to form a reasonable view of the change in on-time running performance. NSWTI is currently trialling a new method for manually collecting on-time running data.[132] Ultimately, this data will be collected using the GPS based Public Transport Information and Priority System (PTIPS) that will be installed across the Sydney Buses fleet by the end of 2009.

In 2008/09, the number of services running on time decreased slightly as a proportion of total services across all regions, and across outer metropolitan regions in particular.[133] This is the third consecutive year in which on-time running performance has experienced a slight decline. The proportion of late services was still very small relative to the total number of services – over 99% of services were reported to have left the depot on time, comfortably above the NSWTI's target of 95% across the network.

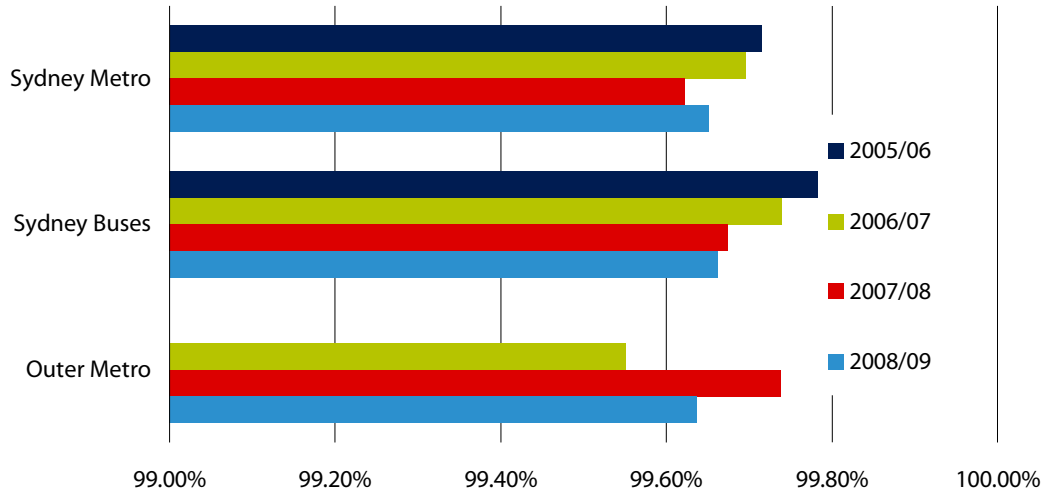
Figure D.1 summarises operators' reported 'on-time running' performance (whether the buses left the depot on time) over the last few years. Prior to 2007/08, on-time running included early and late buses (measured by when they left the depot). For this reason, the 2007/08 figures reported separately for early and late services have been aggregated.

131 IPART, *Review of Fares for metropolitan and outer metropolitan bus services from 2 January 2008*, December 2007.

132 NSWTI correspondence 16 September, 2009.

133 The on-time running figures include early as well as late buses, however the number of early buses are very small when compared with late buses.

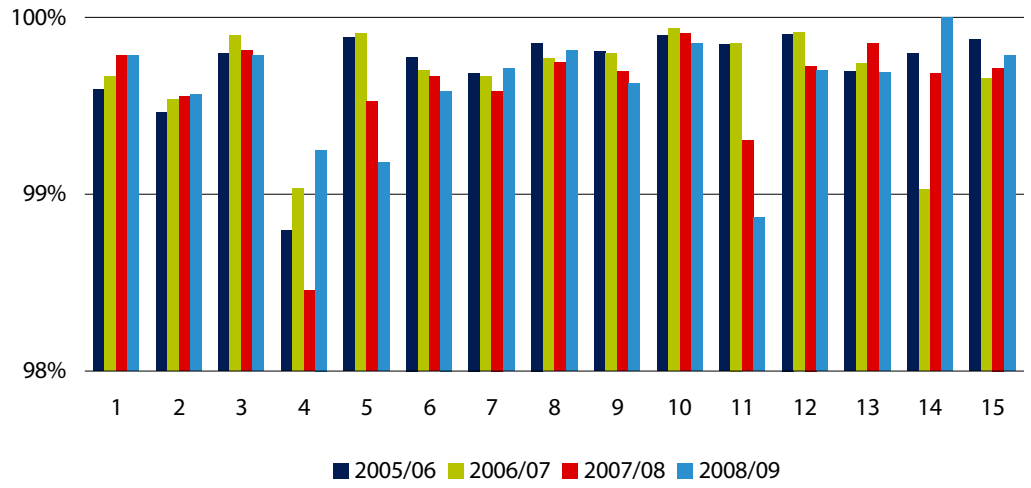
Figure D.1 Operators' reported leaving the depot on-time over the past three years



Note: 2005/06 data is incomplete for metropolitan regions 1,3 and 4, and is unavailable for outer metropolitan regions. Outer metropolitan figures for 2006/07 are only for the time periods Jan-Jun as contracts were signed during that year.
Data source: NSWTI.

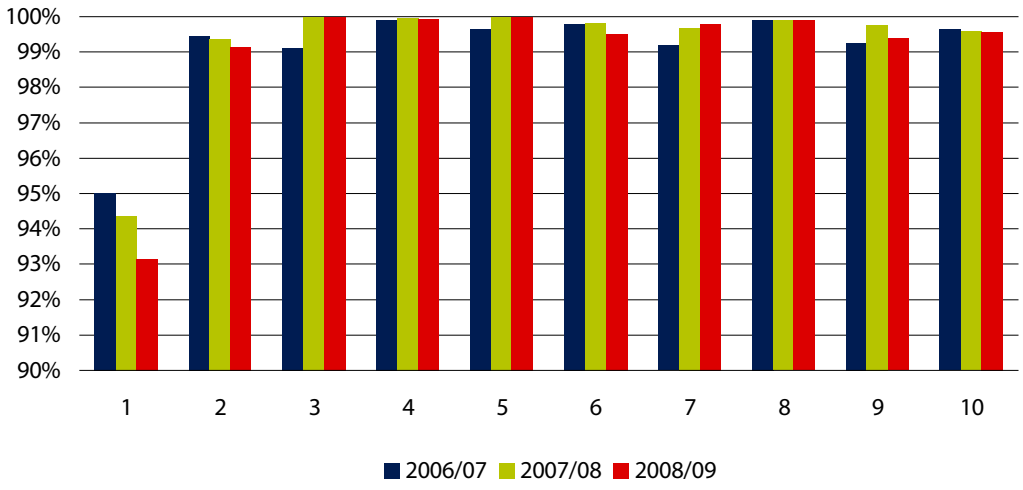
There was some variation in on-time running performance between Sydney metropolitan contract regions. However, all Sydney metropolitan regions met the NSWTI's target of 95% of buses leaving the depot on time. Figures D.2 and D.3 show the proportion of total trips leaving the depot on time by region.

Figure D.2 Reported leaving the depot on-time in Sydney metropolitan contract regions



Note: Includes early buses for regions 1-3, 5, 12 and 14. See Appendix B for a map of the contract regions.
Data source: NSWTI.

Figure D.3 Reported leaving the depot on-time in outer metropolitan contract regions



Note: 2006/07 figures have been annualised as only part year data was available for some regions. See Appendix C for a map of the contract regions.

Data source: NSWTI.

A public submission (provided on a confidential basis) provided detailed comment on a number of aspects of service standards on STA buses including the causes and effects of early or late running and crowding. The submission stated that a lack of monitoring of early or late running buses (aside form the time the bus left the depot) and of crowded buses means that the problem goes undetected and remedial action not taken.

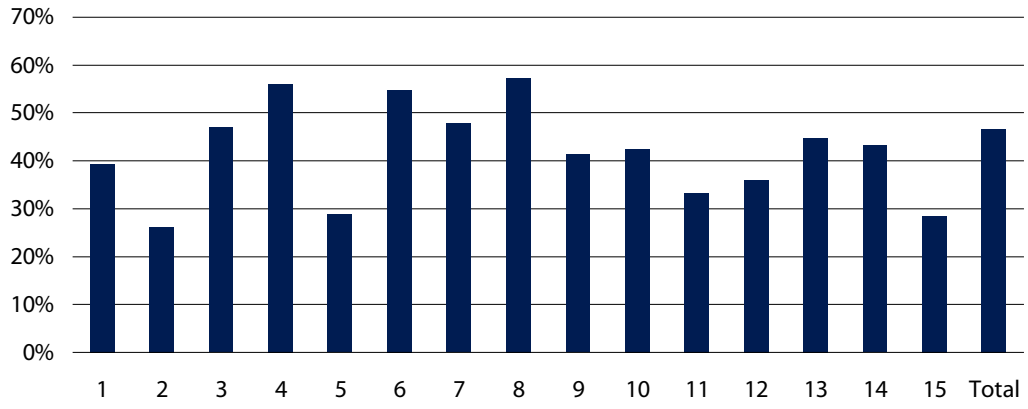
D.1.2 Wheelchair accessibility

NSWTI states that operators are committed to ensuring that 25% of the total metropolitan and outer metropolitan services are wheelchair accessible.[134]

NSWTI has provided data showing that 47% of the bus fleet across the metropolitan and 28% of the bus fleet across the outer metropolitan contract regions are wheelchair accessible (Figure D.4 and D.5).

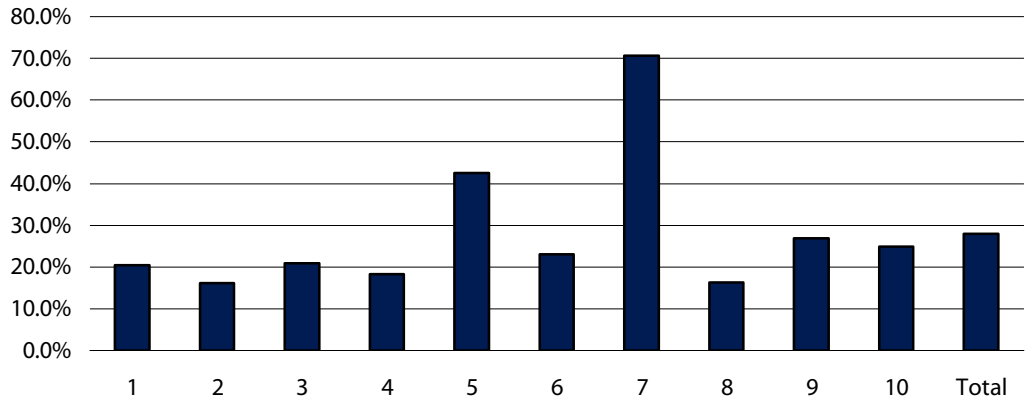
134 NSWTI, *Accessible Transport Action Plan for NSW Transport, Roads and Maritime Agencies*, December 2007.

Figure D.4 Proportion of bus fleet that is wheelchair accessible by metropolitan contract region – 2008/09



Note: See Appendix A for a map of the contract regions.
Data source: NSWTI.

Figure D.5 Proportion of bus fleet that is wheelchair accessible by outer metropolitan contract region – 2008/09



Note: See Appendix A for a map of the contract regions.
Data source: NSWTI.

Operators are also required to report the number of services that are timetabled as wheelchair accessible and also the number of services that are timetabled as wheelchair accessible but not run with wheelchair accessible buses. The second of these KPIs is of most interest to IPART in assessing service standards and is likely to be the most relevant to those passengers requiring wheelchair accessible buses.

Unfortunately, only 5 of the 15 metropolitan bus operators and 5 of the 10 outer metropolitan bus operators have reported against this KPI for 2008/09.

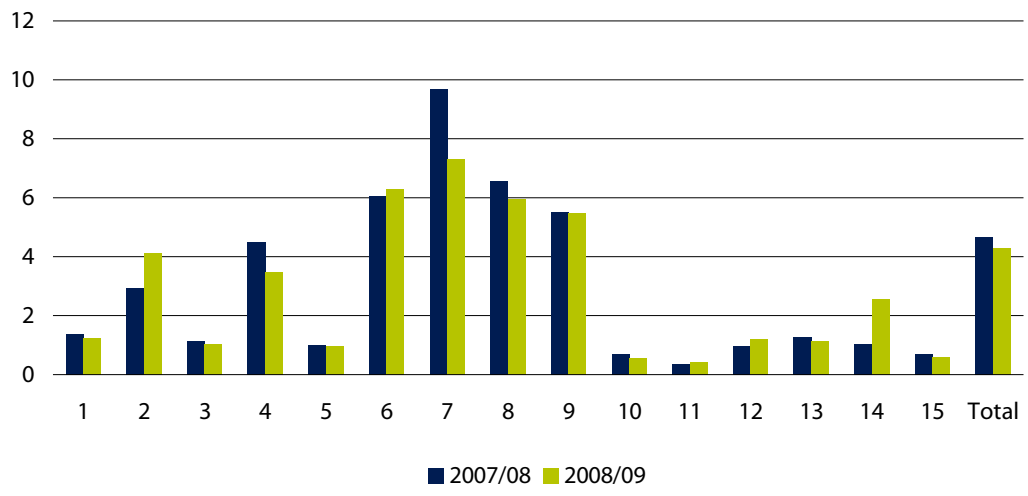
D.2 Customer feedback data

The rate of feedback calls, measured as calls per 100,000 passengers, decreased by nearly 8% over the year. Feedback includes both complaints and compliments. However, in some instances, the number of feedback calls received was low and as a result, the feedback data may not be a good indicator of service quality.

A number of operators failed to report comprehensive customer feedback data. Where customer feedback data was reported, the inconsistent format made it difficult and time-consuming to make comparisons from month to month, region to region or year to year. The data that was reported indicates that only a small proportion of all feedback calls were positive. The main concerns raised in negative feedback calls in the regions that provided data included:

- bus was late
- bus failed to stop
- staff were rude
- bus was early
- dangerous driving.

Figure D.6 Number of customers giving feedback (positive and negative) for Sydney metropolitan contract regions per thousand trips



Note: See Appendix A for a map of the contract regions.

Data source: NSWTI.

These results suggest that poor performance in terms of bus reliability, on-time running and driver performance remains an issue for at least some passengers. Without comprehensive data, it is difficult to determine how extensive these concerns are.

D.3 Findings of customer satisfaction survey

Earlier this year, the Independent Transport Safety and Reliability Regulator (ITSRR) conducted a survey of Sydney metropolitan bus users to assess customer satisfaction. The survey was jointly funded by the NSWTI and ITSRR.

The findings of the survey, which are summarised in Box D.1 below, were released in September 2009. They suggest that a significant proportion of bus users are not satisfied with the reliability and availability of bus services.

Box D.1 Findings of the survey of Sydney metropolitan bus users, 2009

In summary, the survey found that:

- 25% of bus users (37% of commuters and 13% of non-commuters) said they were delayed by 10 minutes or more at least once a week
- 24% of bus users (38% of commuters and 11% of non-commuters) said they were left standing at the bus stop at least once a week (because the bus was too full, did not stop or did not turn up)
- 71% of Sydney Buses commuters and 67% of Hillsbus commuters said they were left standing at the bus stop at least once a month
- 6% of bus users (9% of commuters and 4%of non-commuters) had to stand up for the entire journey on their last trip; 28% of them (2% of all bus users) had to stand for longer than 30 minutes.
- 21% of Hillsbus commuters had to stand for their entire journey on their last bus trip; more than half of them had a journey time longer than 45 mintues
- 33% of bus users had wanted to catch a bus at times when the services had stopped operating; the proportion was higher (more than 40%) for the private bus operators (Busways, Hillsbus, Veoilia and Westbus) than for Sydney Buses
- 83% of bus users said that the bus routes in their area went where they wanted to go; 17% wanted changes to the bus routes
- 23% of bus users reported having some difficulty getting onto or off a bus in the six months prior to their interview; crowding on the bus, crowding at the bus stop and personal mobility were the main reasons for the difficulties

Note: 'commuter' denotes passenger who usually travels between home and work by bus.

Source: Survey of Sydney Metropolitan Bus Users 2009 – Reliability Report, Independent Transport Safety and Reliability Regulator (ITSRR), September 2009.

The survey provides a useful snapshot of the satisfaction of bus passengers in Sydney. The survey's total sample size was distributed across 15 regions resulting in a sample size of more than 100 for only five regions. As a result, the scope for comparing results across the remaining regions is limited. Increasing the size of the sample would provide a broader view of operator performance across Sydney.

In its current form, the survey provides a good supplement to information collected under service contracts. While we recommend that the survey be expanded and continued, it cannot replace the collection of robust and consistent service quality data from bus operators as required under the current bus service contracts.

E Weighted average cost of capital (WACC)

To determine the appropriate return on the assets used to provide bus services, we calculated the weighted average cost of capital (WACC) for bus service businesses. The WACC for a business is the expected cost of the various classes of capital (debt and equity), weighted to take into account the relative share of debt and equity in its total capital structure.

We considered a range of input parameters to determine an appropriate range for the WACC. Some of these parameters depend on current market rates. Some can vary depending on the nature of the business, while others do not vary with the nature of the business. We found that the appropriate range for the WACC is 5.8% to 8.7%, based on market conditions as at 26 November 2009. We selected the mid-point of this range (7.2%) as the appropriate WACC for bus businesses in the 4 largest regions.

Our final decision on the WACC is summarised in Table E.1. Our final decisions on the individual parameters are discussed below.

Table E.1 Final decision on WACC for bus businesses in the 4 largest regions

WACC Parameters	Final decision
Nominal risk free interest rate	5.5%
Inflation	2.8%
Market risk premium	5.5 - 6.5%
Debt margin	1.7 - 3.8%
Debt to total assets	60%
Dividend imputation factor (gamma)	0.5 – 0.3
Tax rate	30%
Equity beta	0.7 - 1.0
Cost of equity (nominal post tax)	9.4 – 12.0%
Cost of debt (nominal pre-tax)	7.2-9.4%
WACC range (real pre-tax)	5.8-8.7%
WACC (real pre-tax)	7.2%

E.1 Nominal and real risk free rates and inflation

The nominal risk-free rate is used to calculate the return on equity and the return on debt. A risk free asset is not directly observable, so a proxy must be chosen for the risk free asset. The yield to maturity on Australian Commonwealth Government Securities (CGS) is generally considered to be the best proxy in the Australian economy. This is because these bonds are essentially default free (government guaranteed returns) with high liquidity and yields that are transparent and published.

For our regulatory decisions, we use the 20-day average on Commonwealth Government 10-year bonds. As at 26 November 2009, this 20-day average is 5.5%.

We use a real WACC on the real value of assets used to provide bus services, while most market data relates to nominal interest rates. Therefore, to align the market data and the regulatory framework we need to either use real interest rate data or adjust nominal interest rate data for expected inflation.

In May 2009, we released our final decision on the methodology to be used in adjusting for expected inflation in deriving the WACC. We decided to use swap market data to provide an estimate of the inflation adjustment. We prefer this method because:

- it is objective, repeatable and transparent, and does not require the subjective selection of data
- it does not require an arbitrary adjustment for biases in the market data
- it is not reliant on the further issue of indexed bonds.

As at 26 November 2009, the value of the 10-year inflation adjustment using swap market data is 2.8%.

Table E.2 Final decision – risk free rate and inflation

Parameter	Value used in final decision (%)
Nominal risk free rate	5.5
Inflation	2.8

E.2 Debt margin

The debt margin is a premium that is added to the risk free rate of return to calculate the cost of debt. For a regulated business, the debt margin is influenced by the credit worthiness of the business, the gearing level, the maturity of the debt being issued, the supply and demand of the relevant debt markets at the time the debt is being raised and debt raising costs.

We estimated the debt margin by reference to data on generic debt margins for investment grade rated debt securities of 10-year maturity. We calculated an average of debt margins over the 20 days prior to 26 November 2009.

We recently released a discussion paper on this issue. However, we will not release a final decision on the debt margin until January 2010. For the purpose of the final decision on buses, we have continued to use the old universe of securities to determine the debt margin.

Using these securities, the debt margin midpoint as at 26 November 2009 is 2.8%.

Table E.3 Debt margin calculation (20-day average to 26 November 2009)

	Low	High	Mid-point
Debt margin (bps)	170	383	275

Source: Bloomberg.

E.3 Equity beta

Beta (βe) is a measure of the risk of the asset relative to the market index. It is measured as the covariance of the excess returns of the asset with the excess returns of the market. Thus, beta measures the risk of the asset relative to the co-movement with the overall market that cannot be eliminated by the investor through diversification.

If a business is listed on a stock exchange, its equity beta can be estimated by analysing the movement of its share price relative to that of the market. The equity beta for a business that is not publicly traded is usually estimated using data from comparable Australian publicly traded companies using the following approach:

- Removing the effect of the comparable business' gearing and tax regime by de-levering the equity beta to obtain the asset beta. This is done using the Monkhouse formula[135]:

$$(1) \qquad \beta_e = \beta_a + (\beta_a - \beta_d) \times \left[1 - \left(\frac{R_d}{1 + R_d} \right) \times (1 - \gamma) \times Tc \right] \times \frac{D}{E}$$

  Where $\beta_{e\ is}$ the equity beta; β_a is the asset beta; β_d is the debt beta; R_d is the cost of debt; γ is the value of imputation tax credits; Tc is the statutory tax rate; E is the proportion of equity in capital structure and D is the proportion of debt in the capital structure.

- Adjusting (re-levering) the asset beta to reflect the gearing and tax rate applicable to the not publicly traded business. Again, the Monkhouse formula is used for this.

- Either adjusting for known differences in undiversifiable risk, or using a range of beta estimates.

We followed this approach, and decided to use a range of beta estimates. This resulted in a beta estimate range of 0.7 to 1.0. This is lower than the equity beta range for CityRail of 0.8-1.0 we used in making our recent determination on rail fares.

In making this decision, we considered the differences in risk involved in providing public transport services using buses rather than trains. In our view, these differences justify a lower equity beta range for bus services. Bus companies generally have a lower proportion of fixed costs compared to rail companies, which means that hypothetically they are better able to adjust their operations according to the level of economic activity[136]. This characteristic results in a lower level of profit variability that should be reflected in a lower equity beta range for buses.

We also investigated international public transport providers for which an equity beta and gearing ratio were obtainable, as well as considered decisions made by other regulators and the allocation of risks between bus operators and NSWTI under the bus service contracts.

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[135] The Monkhouse formula is one of several different re- and de-levering formulae available. It is the most commonly used formula and was first published in: Monkhouse, P. "Adapting the APV valuation methodology and the beta gearing formula to the dividend imputation tax system", Accounting and Finance 37, 1, May 1997, pp 69-88.

[136] We note that in practice, the operator of the four largest regions can only adjust its operations in accordance with the process stipulated under its service contract.

E.4 Imputation tax credits (gamma)

Under the Australian dividend imputation system, investors receive a tax credit (franking credit) for the company tax they have paid. This ensures that the investor is not taxed twice on their investment returns (ie, once at the company level and once on the personal tax level).

The value of the imputation tax credits is represented in the capital asset pricing model (CAPM) by 'gamma'. The rationale behind this, including the value of gamma in the CAPM, is that as investors are receiving a tax credit from their investment, they would accept an investment with a lower return than if there were no tax credits attached to this investment. The gamma is an important input in the CAPM, as a high value (for example, one) would reduce the cost of capital considerably.

For our final decision, we assumed a gamma value range of 0.5 to 0.3, which is the same as the range we used in making our recent CityRail determination. We believe there is strong merit in maintaining a consistent approach to the calculation of gamma across regulatory decisions. The range was based on:

- the fact that in a fully segregated market, the value of gamma should be close to 1
- academic studies, which valued gamma at between 1 and zero and
- independent expert reports, which assign no value to gamma.

E.5 Market risk premium

The market risk premium (MRP) is the expected return over the risk free rate that investors would require for investing in a well diversified portfolio of risky assets. This generally represents the difference between the return on the market portfolio and the return on the risk-free rate ($R_m - Rf$). The MRP is one of the components used to determine the return on equity, which is given by the CAPM formula.

In our final decision, we have used a market risk premium range of 5.5% to 6.5%. This is consistent with the range we used for the CityRail determination, and recent determinations on prices charged by Sydney Catchment Authority and Hunter Water. We consider that this range, which is based on a long-term historical time series, remains appropriate. We also consider that relying on a long-term historical time series adequately takes into account any impact on excess returns of recent market events such as the global financial crisis.

E.6 Capital structure and the tax rate

When determining the level of gearing used to calculate the WACC, we adopt a benchmark capital structure, rather than the actual financial structure, to ensure that customers will not bear the cost associated with an inefficient financing structure.

In our final decision, we used a benchmark capital structure of 60% debt and a tax rate of 30%. This capital structure is widely used by regulators across a range of regulated industries.

F List of submissions

Table F.1 List of submissions on Issues Paper

Submitter	Date received
Individual – D Caldwell	14 May 2009
Action for Public Transport	3 June 2009
Hunter Commuter Council	9 June 2009
Individual – B Lutherborrow	23 June 2009
Blue Mountains Commuter & Transport Users Association	24 June 2009
Individual – S Aitchison	24 June 2009
Individual – R Banyard	24 June 2009
Individual – (anonymous) [a]	24 June 2009
Individual – R Williams	24 June 2009
Western Sydney Community Forum	25 June 2009
Students' Representative Council – University of Sydney	26 June 2009
BusNSW	1 July 2009
Ministry of Transport NSW	1 July 2009
Greens Northern Coaches	6 July 2009
Lower Hunter Councils Transport Group	9 July 2009
Robert Coombs MP – Member for Swansea	13 July 2009
Council of Social Service of NSW (NCOSS)	16 July 2009
BusNSW supplementary submission	21 August 2009

[a] Submission contains confidential material.

Table F.2 List of submissions on draft report

Stakeholder	Date received
Individual - Anonymous	14 October 2009
Individual - Megan Fox	15 October 2009
Individual - Cherise Chessor	16 October 2009
Individual - Shawn Buchan	3 November 2009
Individual - Andrew Muller	6 November 2009
Individual - Don Reynolds	6 November 2009
Individual - Zorica	6 November 2009
Individual - Simon Adams	6 November 2009
Individual - Jenny Patel	6 November 2009
Individual - Shelia Reynolds	6 November 2009
Individual - Anonymous	6 November 2009
Individual - Alex Portnoy	7 November 2009
Individual - George Carrard	7 November 2009
Individual - Natalie Chabin	7 November 2009
Action for Public Transport - Allan Miles	8 November 2009
Individual - Steven Harkins	9 November 2009
Individual - Marie Corinne	9 November 2009
Individual - Bob Lutherborrow	9 November 2009
Individual - Cathy OToole	9 November 2009
Individual - Eileen Keegan	9 November 2009
Individual - John Mayger	9 November 2009
Individual - Natasha Lee	10 November 2009
Individual - R Kruger	11 November 2009
Vagone Pty Ltd - Wayne Green	13 November 2009
Individual - Janine Low-Kwong	13 November 2009
Individual - Norma Daisley	14 November 2009
Hunter Commuter Council - S09/11778 Graham Boyd	15 November 2009
Individual - Ian Fletcher	16 November 2009
NSW Shadow Minister for Transport - Gladys Berejiklian	16 November 2009
NSW Transport and Infrastructure - Les Wielinga	16 November 2009