

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.

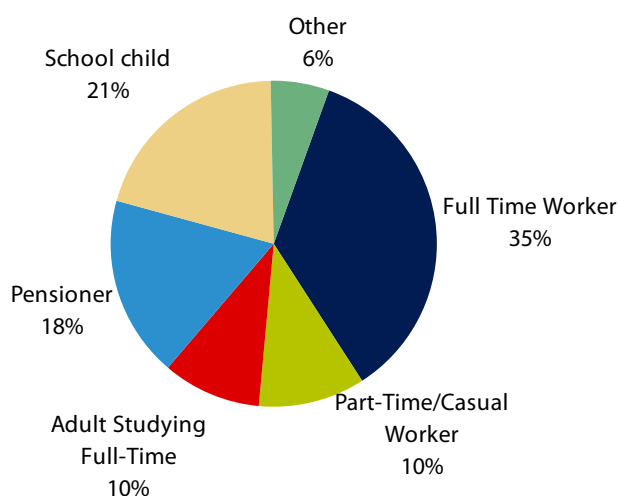
15.1.1 Labour force status of bus passengers

The results of the Transport Data Centre's (TDC's) 2007 Household Travel Survey¹²⁰ 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.

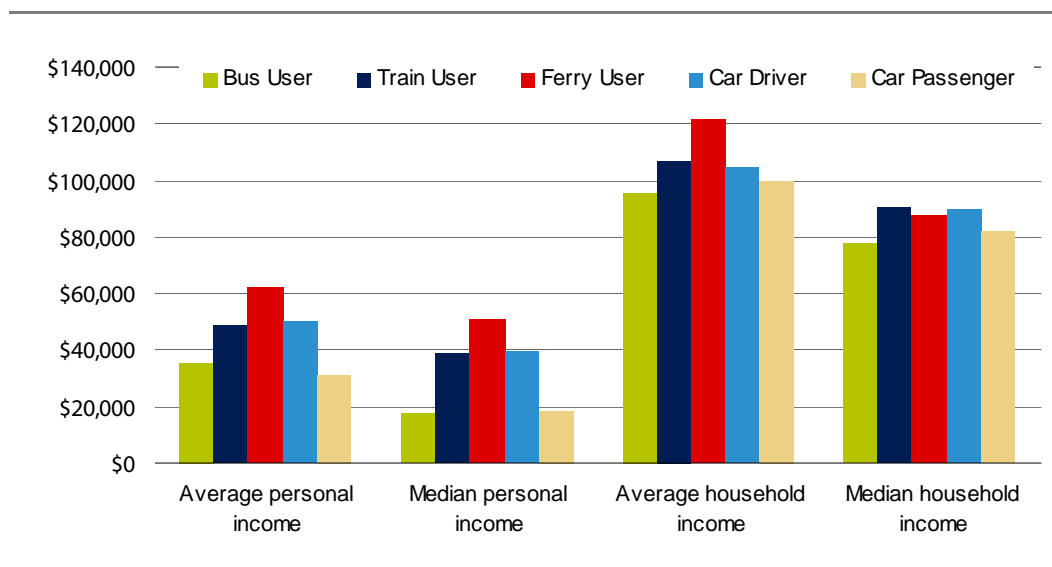
In our view, the median household income is the most appropriate figure to consider. This is because mean or average household income is more sensitive to outlying values. For example, the very high incomes of a small group of passengers will increase the mean, but not the median income figure. In addition, 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.

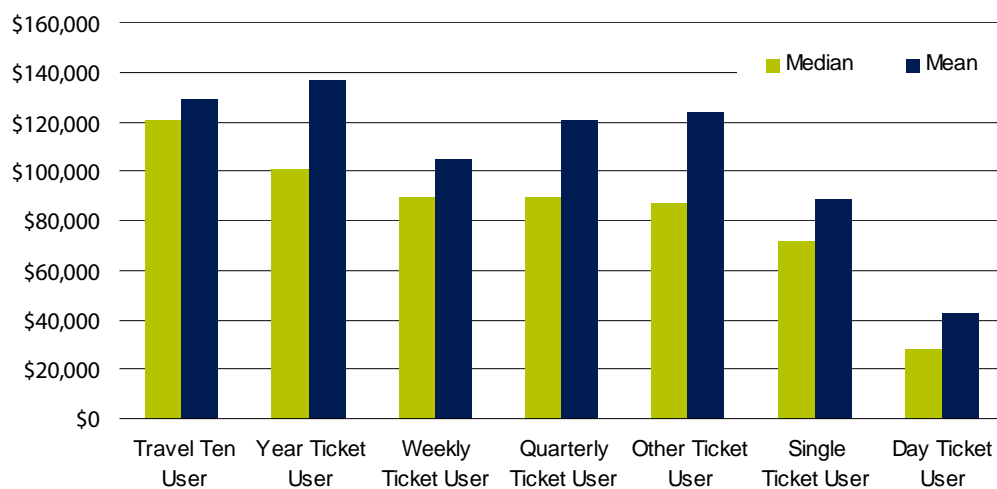
Source: TDC, Household Travel Survey 2007; adjusted to 2009/10 prices.

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)

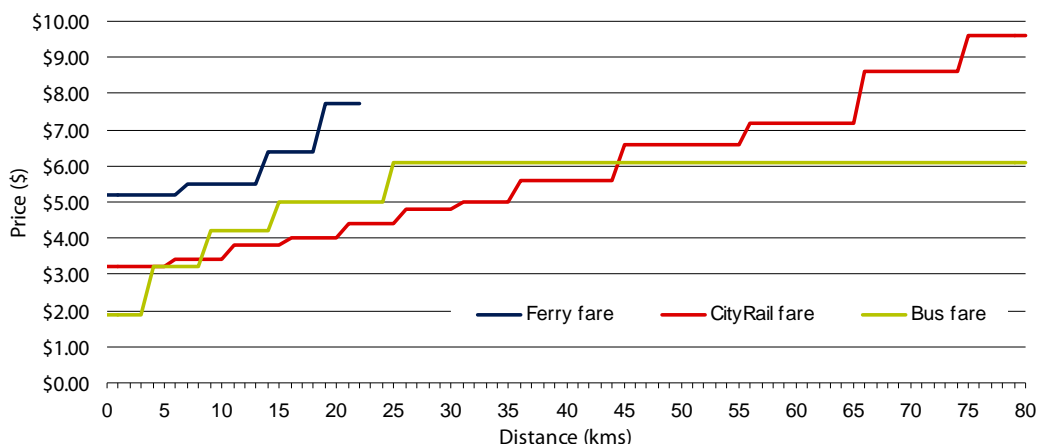
| Distance travelled (number of sections) | Cost of TravelTen | Relative to average weekly earnings NSW (full-time, %) | Relative to average weekly earnings NSW (all, %) |
|--|-------------------|--|--|
| 1-2 | \$15.20 | 1.21 | 1.65 |
| 3-5 | \$25.60 | 2.04 | 2.78 |
| 6-9 | \$33.60 | 2.68 | 3.64 |
| 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.

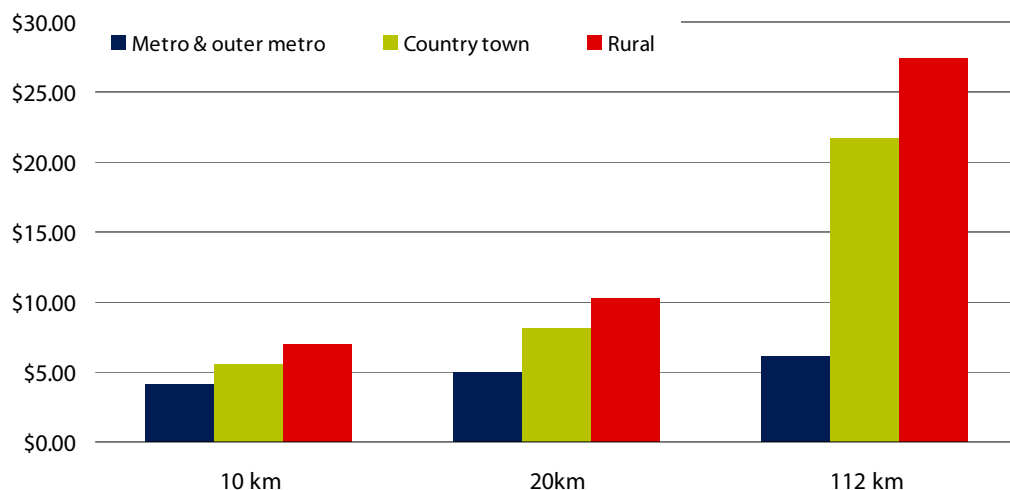
Figure 15.4 Current fares for public transport in NSW (\$ nominal)



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 seekers¹²⁴
- ▼ free travel for people with certain disabilities.

¹²⁴ Half price travel only for certain ticket types.

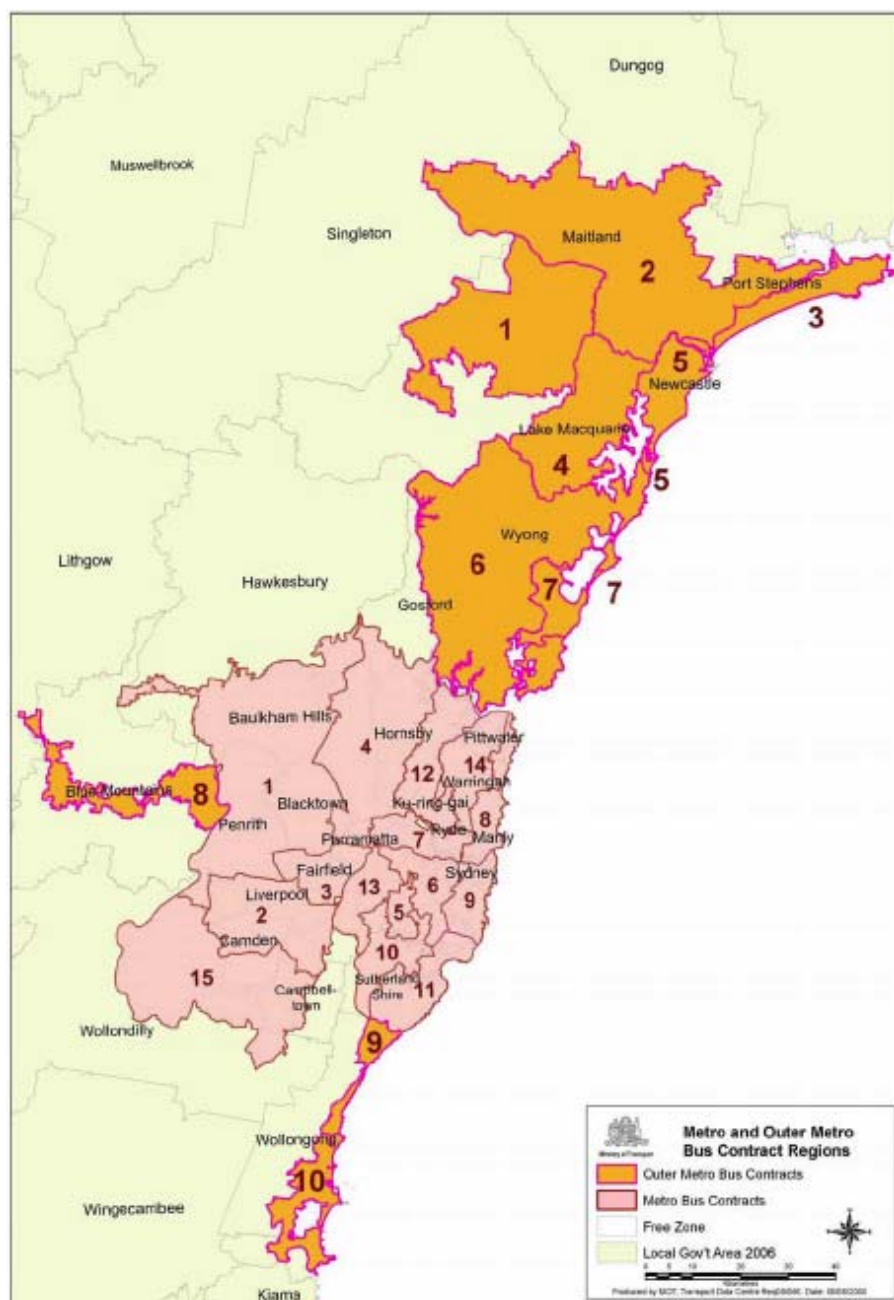
Almost half of all bus passengers travel on some form of concession ticket. Access to them depends on the particular circumstances of the traveller and the level of concession varies across these groups. Chapter 10 contains more information on the current concession tickets available, the level of discount 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.

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):

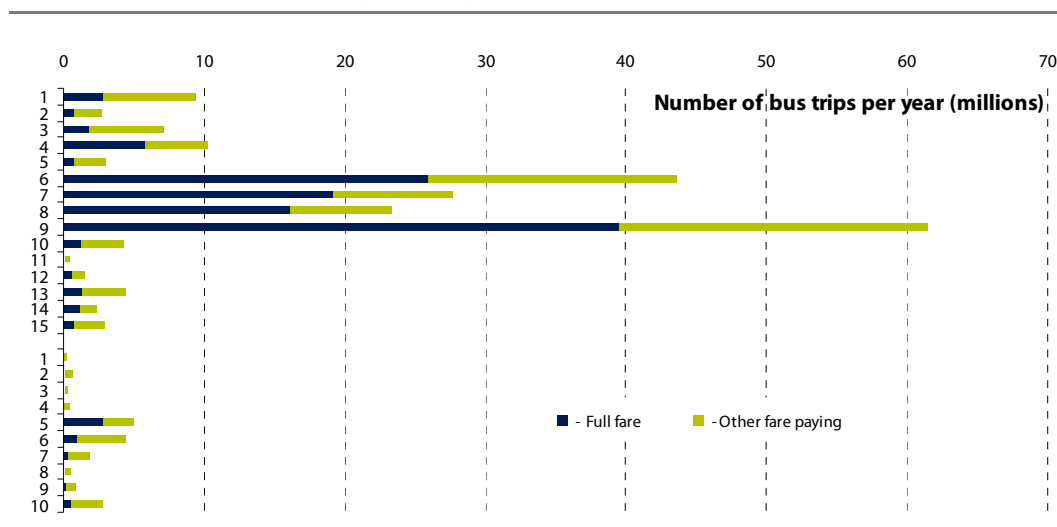
- ▼ metro region 4 – serviced by Hillsbus (4% of the total)
- ▼ metro region 3 – serviced by Westbus, Busabout, Hopkinson’s Metrolink, Oliveri’s Metrolink Buses (3% of the total).

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.

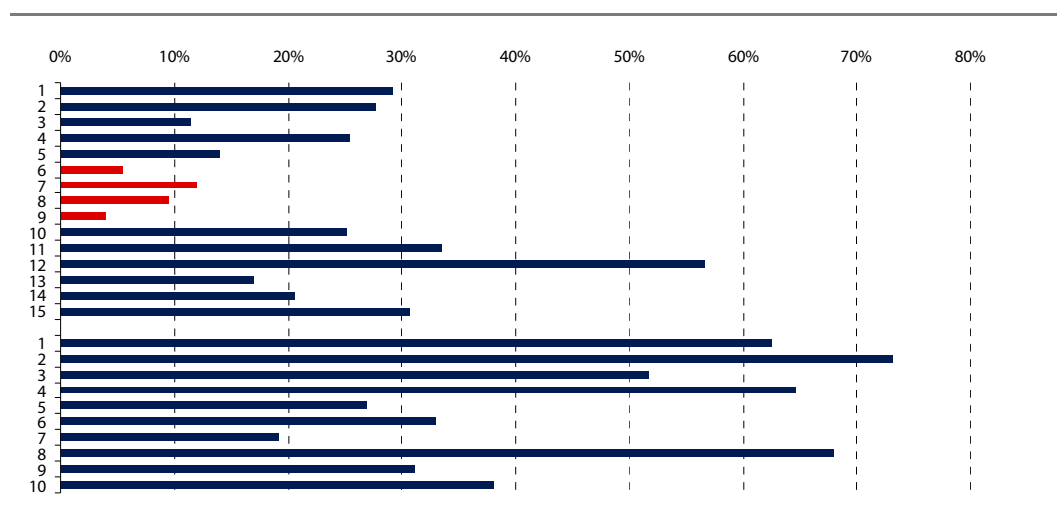
The 4 largest contract regions stand out as having significantly more fare paying passengers than the other regions – in fact, even the smallest of these 4 regions has more than twice as many passengers as the next largest region.

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)



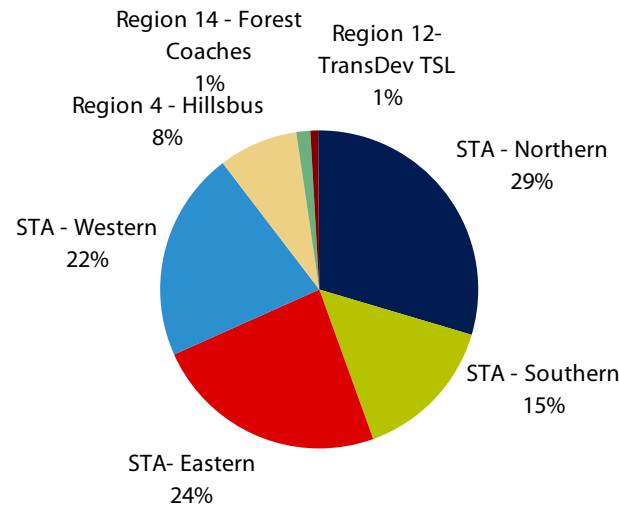
Data source: NSWTI – data reported by operators under the service contracts and IPART estimates. Numbers 1 to 15 represent metropolitan regions and numbers 1 to 10 represent the outer metropolitan regions (the region numbers correspond to the map in Appendix A).

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

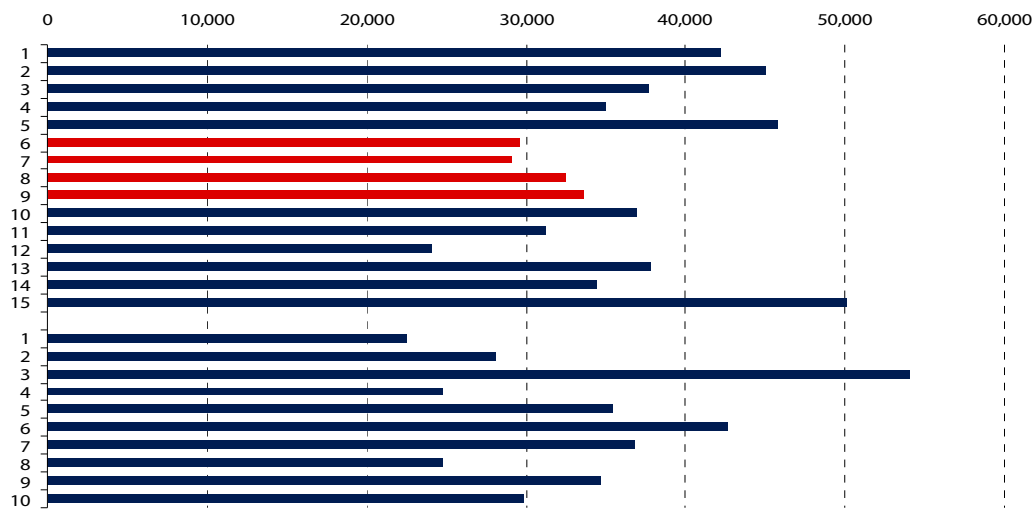
| Region | Service area |
|--------|---|
| 1 | Services the regional centres of Penrith, Richmond, Mt Druitt, St Marys, Blacktown and Rouse Hill |
| 2 | Services the regional centres of Liverpool, Minto, Campbelltown, Macquarie Fields, Glenfield and Hoxton Park. |
| 3 | Services the regional centres 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 Turrumurra, 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 Turrumurra, 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.

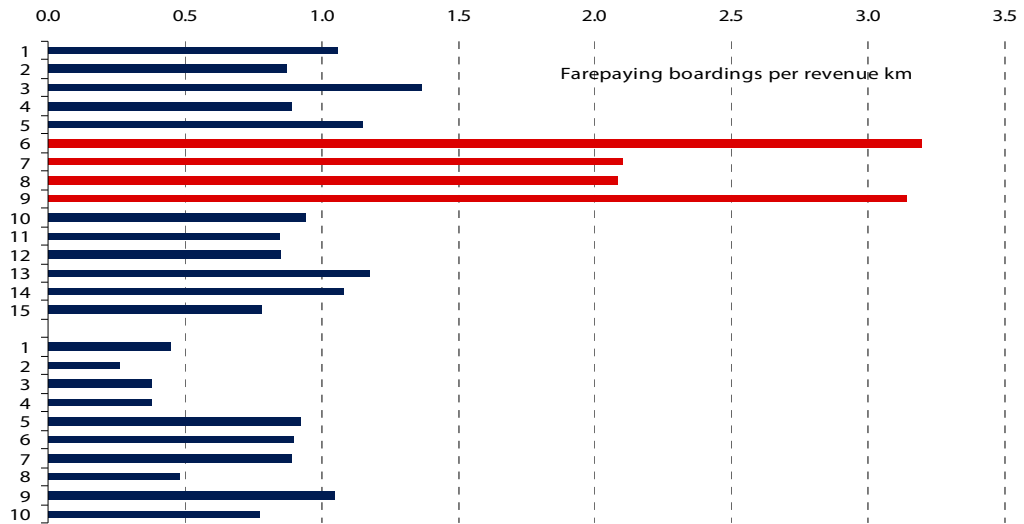
Figure C.4 Service kilometres per bus in each region (2008/09)



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)



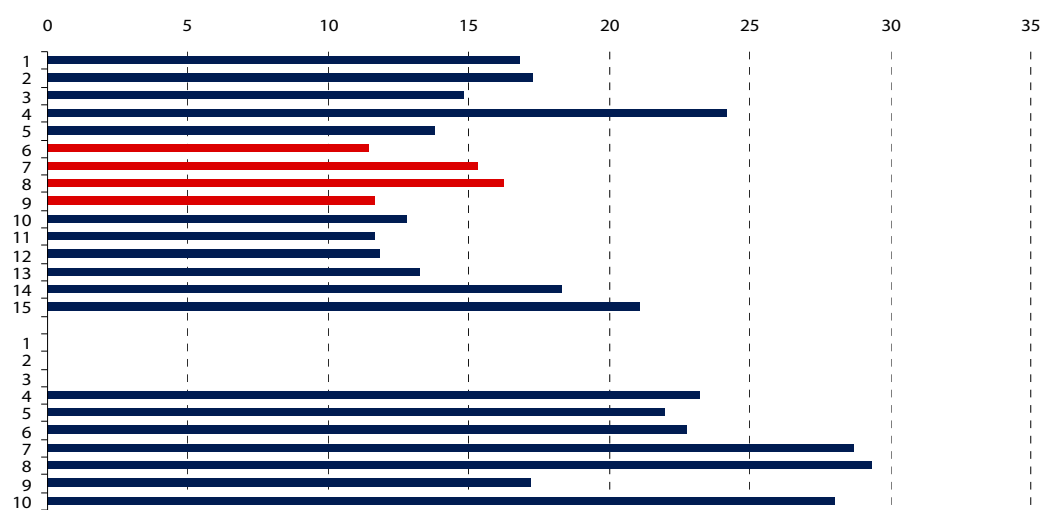
Note: Based on boardings made by fare paying passengers per revenue kilometre. Numbers 1 to 15 represent metropolitan regions and numbers 1 to 10 represent the outer metropolitan regions (the region numbers correspond to the map in Appendix A).

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)

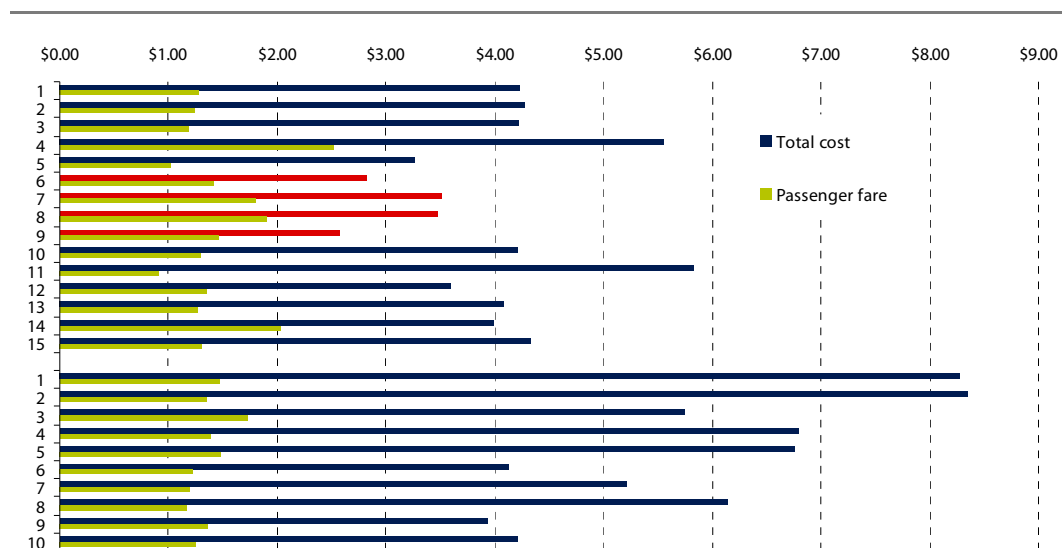
As noted in Chapter 3, NSWTI pays each operator to provide bus services in a contract region. NSWTI then uses the fare revenue it receives to off-set the cost of making these payments. The cost of making contract payments differs across regions, due in part to the different operational conditions discussed 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.

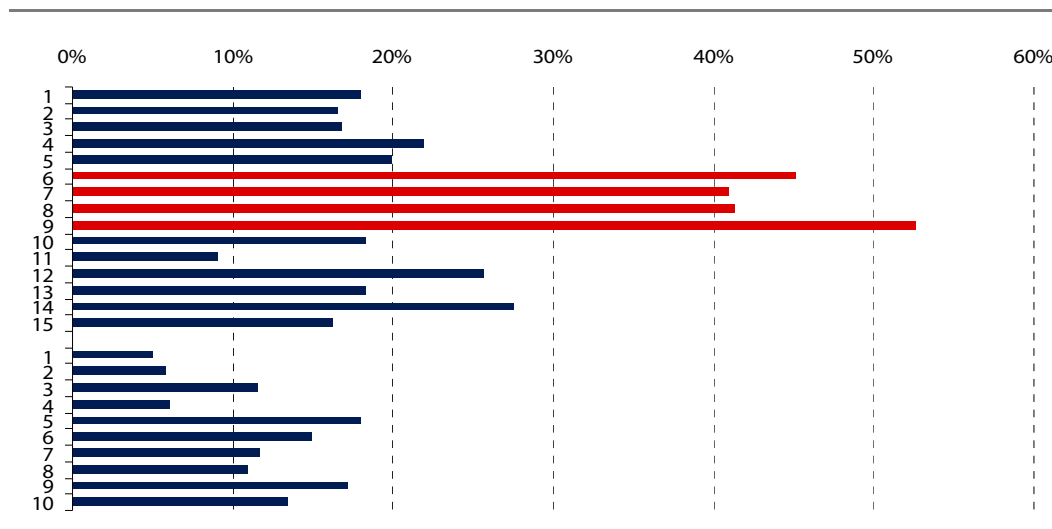
The impact of including additional contract regions for fare setting can be illustrated using contract payments and passenger numbers for 2008/09 together with LECC’s estimated external benefit.¹²⁷ Figure C.8 shows the external benefit as a proportion of the contract cost in each region.¹²⁸ The first 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 LECC was not able to estimate a separate external benefit for each contract region individually, LECC 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 passenger¹²⁹ 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.

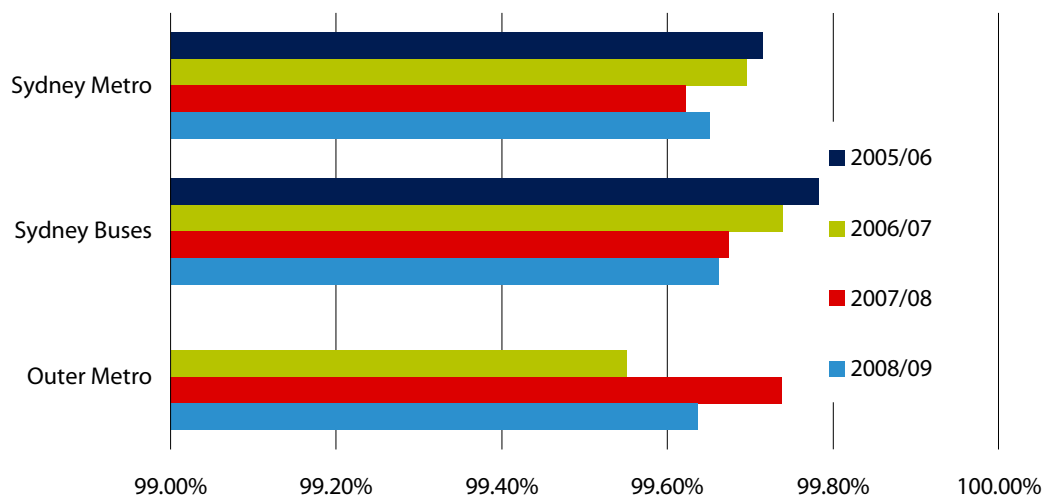
Figure D.1 summarises operators' reported 'on-time running' performance (whether the buses left the depot on time) over the last few years. Prior to 2007/08, on-time running included early and late buses (measured by when they left the depot). For this reason, the 2007/08 figures reported separately 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.

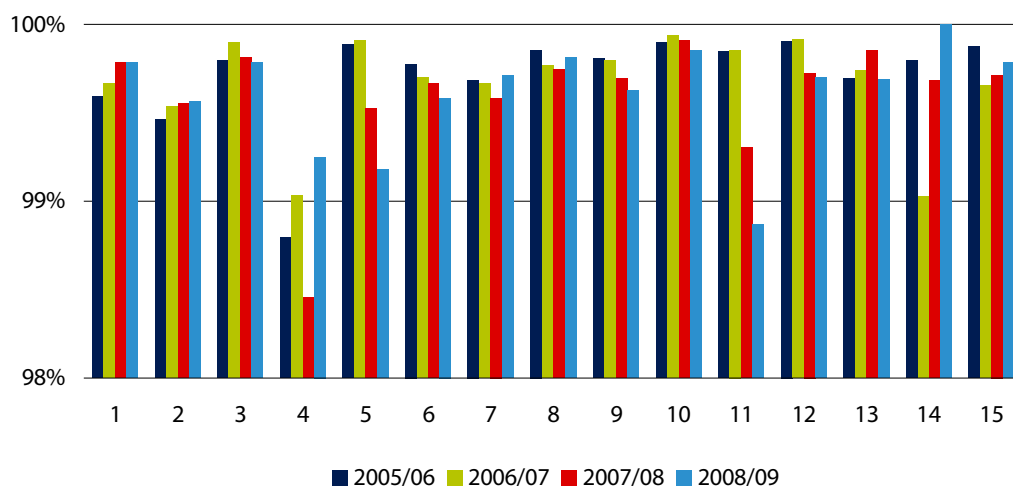
Figure D.1 Operators' reported leaving the depot on-time over the past three years



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.

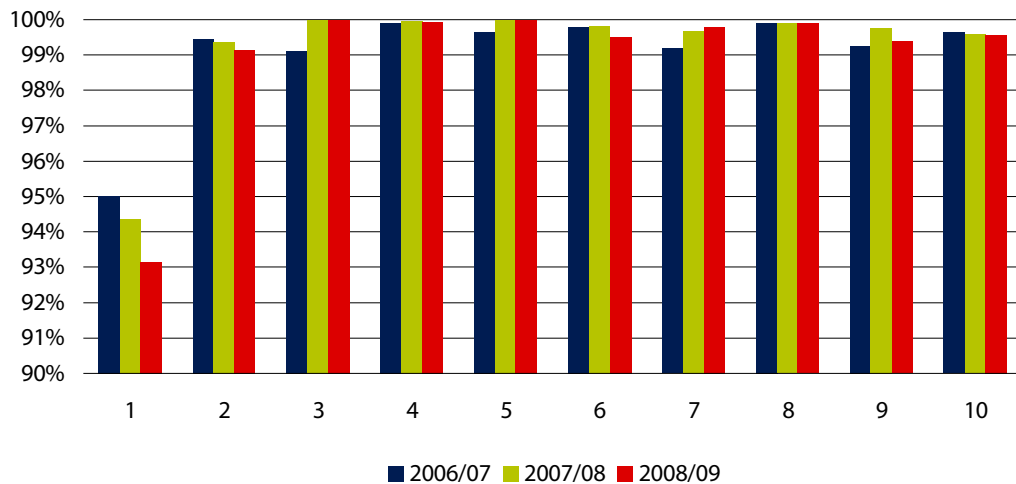
There was some variation in on-time running performance between Sydney metropolitan contract regions. However, all Sydney metropolitan regions met the NSWTI's target of 95% of buses leaving the depot on time. Figures D.2 and D.3 show the proportion of total trips leaving the depot on time by region.

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 from the time the bus left the depot) and of crowded buses means that the problem goes undetected and remedial action not taken.

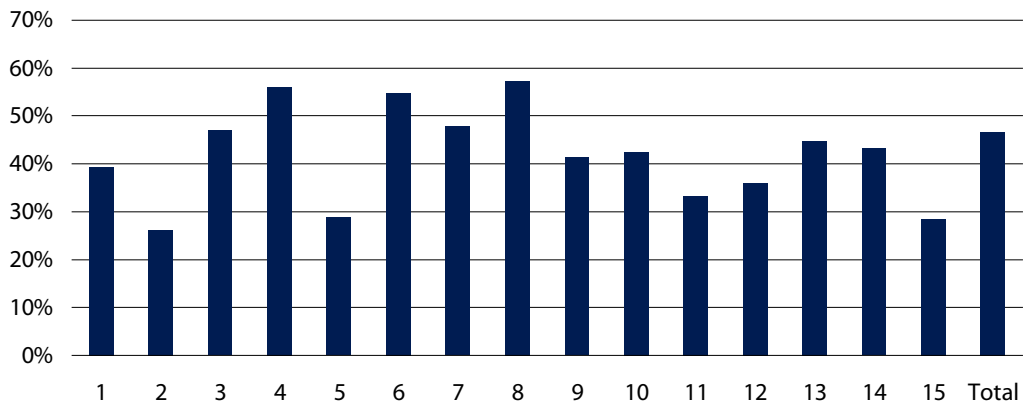
D.1.2 Wheelchair accessibility

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.

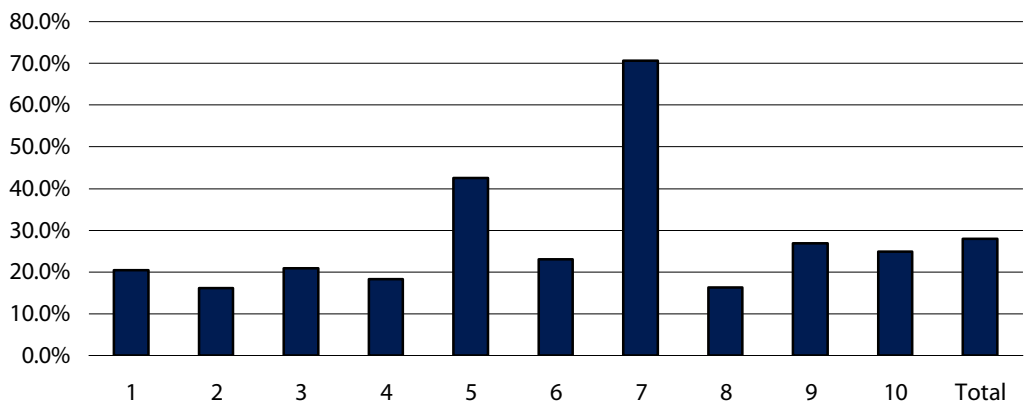
Figure D.4 Proportion of bus fleet that is wheelchair accessible by metropolitan contract region – 2008/09



Note: See Appendix A for a map of the contract regions.

Data source: NSWTL.

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: NSWTL.

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.

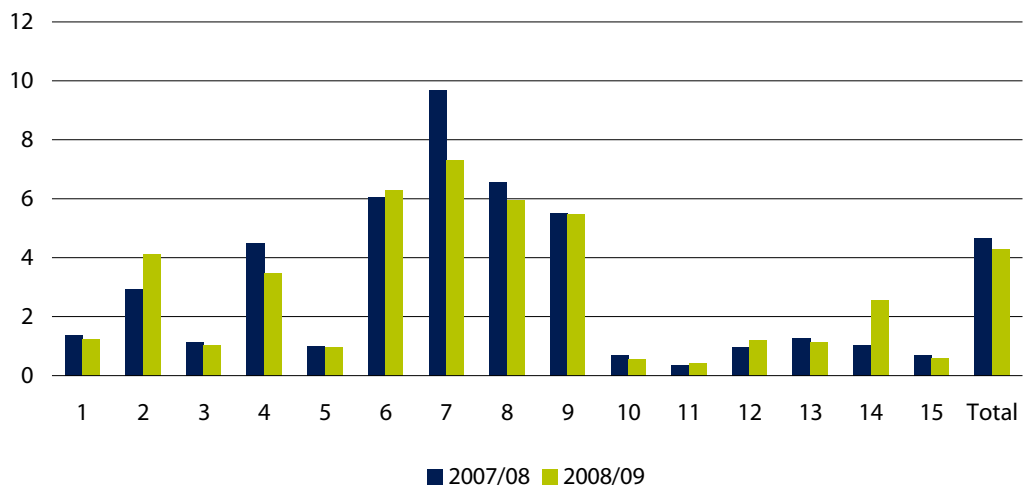
D.2 Customer feedback data

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 minutes
- ▼ 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, Veolia 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 (β_e) 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 formula¹³⁵:

$$(1) \quad \beta_e = \beta_a + (\beta_a - \beta_d) \times \left[1 - \left(\frac{R_d}{1 + R_d} \right) \times (1 - \gamma) \times Tc \right] \times \frac{D}{E}$$

Where β_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 activity¹³⁶. 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.

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 ($R_m - R_f$). 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 |

