



Independent Pricing and Regulatory Tribunal

# Deciding on the structure and level of CityRail fares

Discussion Paper

**Transport — Discussion Paper**

June 2008





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## Invitation for submissions

IPART invites written comment on this document and encourages all interested parties to provide submissions addressing the matters discussed.

**Submissions are due by 18 July 2008.**

We would prefer to receive them by email <[ipart@ipart.nsw.gov.au](mailto:ipart@ipart.nsw.gov.au)>.

You can also send comments by fax to (02) 9290 2061, or by mail to:

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Independent Pricing and Regulatory Tribunal  
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If you would like further information on making a submission, IPART's submission policy is available on our website.



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# 1 Introduction

The Independent Pricing and Regulatory Tribunal of NSW (IPART) regulates the fares CityRail can charge for the passenger rail services it provides within the Greater Sydney region. IPART has previously indicated that it is time to implement a more comprehensive and robust framework for regulating those fares. In response, the NSW Government has asked IPART to review and recommend a new economic regulatory framework that will create better incentives for CityRail to provide passenger rail services at efficient cost levels.<sup>1</sup> At the same time, IPART is to review CityRail's current fares and determine new fares to apply from the start of 2009. (Box 1.1 explains the relationship between these reviews.)

IPART is now part way through both reviews. It released an issues paper in October 2007, which identified and explained the key issues it plans to consider in relation to both the economic regulatory framework and fare reviews. This paper also sought submissions from the Government and other stakeholders by 30 January 2008. The Government sought an extension to this deadline, to enable it to incorporate preliminary results from the CityRail Customer Service Improvement Program in its submission. It provided its submission on 9 May 2008.

In addition, IPART engaged two consultants to examine and advise it on specific aspects of the reviews:

- ▼ L.E.K. Consulting (LEK) has provided advice on the efficient costs of providing CityRail's passenger rail services.
- ▼ CRA International (CRAI) has provided advice on the appropriate allocation of these costs between government and users of CityRail services, taking into account the positive externalities (or net social benefits) generated by these services.

IPART has begun to consider the findings and recommendations of these consultants, as well as the other issues raised in the issues paper and the submissions made by the Government and other stakeholders.

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<sup>1</sup> IPART has been asked to review the CityRail regulatory framework under Section 12A of the *Independent Pricing and Regulatory Tribunal Act 1992* (the IPART Act). Appendix A provides the terms of reference for this review.

IPART's first Discussion Paper, *Determining CityRail's revenue requirement and how it should be funded*, focuses on the total costs associated with providing CityRail services and discusses what portion of these costs should be recovered from passengers through fares, and what portion should be funded by taxpayers through government subsidies. This second Discussion Paper focuses on how the portion of costs to be recovered from CityRail passengers should be converted into fares. This involves deciding on how fares should be structured to encourage efficiency in the use of the CityRail network, equity between different users of CityRail services and promote efficient investment decisions. Therefore, the two discussion papers are complementary, and both need to be considered by stakeholders before making submissions.

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### **Box 1.1 Relationship between IPART's review of CityRail's economic regulatory framework and the 2009 fare review**

One of the key elements of CityRail's economic regulatory framework is the approach IPART uses to set fares. Therefore, as part of its review of the framework, IPART is considering this approach and is likely to revise several aspects of it. IPART intends to use the revised approach in making its draft determination on CityRail fares from 2009.

However, CityRail's economic regulatory framework also includes other important elements, which are outside IPART's control. For example, these elements include:

- ▼ The specification of the level of service CityRail is expected to provide. This is currently set out in the Rail Performance Agreement negotiated between the Government and Railcorp.
- ▼ The subsidy that is provided by government as 'purchaser' of rail services in recognition of the fact that farebox revenue is not sufficient to cover CityRail's revenue requirement.
- ▼ The relationship between CityRail and its shareholder and the bearing of risks if CityRail fails to live within its required budget.

IPART is currently considering these elements, and will provide its draft and final reports and recommendations to the Government later this year. The Government will then decide whether it will implement these recommendations.

However, it is important to understand that to in order to achieve the Government's objectives for this review – particularly, to provide CityRail with effective incentives to provide its services at efficient costs – all the elements of the economic regulatory framework need to be consistent and aligned. IPART cannot create sufficiently strong incentives through the regulation of fares alone.

A major reason for this is that, unlike service providers in other regulated industries (such as water and energy), CityRail does not generate enough revenue from fares to recover its costs and so relies on substantial government subsidies. Because fare regulation only influences the portion of CityRail's revenue generated by fares, it is not possible for IPART to create effective incentives for efficiency on its own. For example, setting fares to cap this revenue in line with efficient costs will not be effective unless the government subsidies are also capped.

Given this, IPART has formed its preliminary views on the new approach it will use to set fares on the basis that they will be supported by complementary changes to the broader economic regulatory framework.

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## **1.1 Purpose of this discussion paper**

IPART has not made any firm decisions about how the portion of CityRail's revenue requirement to be recovered from CityRail passengers will be converted into fares. In the Discussion Paper *Determining CityRail's revenue requirement and how it should be funded*, IPART notes its preliminary view is that passengers should fund around 30 per cent of CityRail's revenue requirement over the period 2008/09 – 2011/12. However at this stage, IPART has not decided what contribution different groups of

passengers should make to recover this portion of the revenue requirement over the determination period (ie, the structure of fares).

The purpose of this discussion paper is to explain IPART's preliminary analysis and views on some of the key issues it will consider in making its decisions on the structure and level of fares, including:

1. What are the different markets for CityRail services, and the demand characteristics of each market?
2. What are the trends in demand and likely growth in each market?
3. How do the different demand characteristics and trends in each market affect CityRail's costs and ability to meet service standards?
4. How can the current fare structure be improved so that it promotes efficiency in the use of the CityRail network as well as efficient investment decisions by better reflecting the costs of providing CityRail services at different times of the day and week?
5. How can the current fare structure be improved to help manage demand for CityRail services during peak periods?
6. How can the current fare structure be improved to assist government's public transport patronage targets?
7. How can the current fare structure be improved so that it better reflects the costs of providing CityRail services over varying distances, and results in fare products that are simpler, more transparent and cost-reflective?
8. What are the likely fare impacts of moving towards IPART's preferred fare structure?
9. What are the likely social impacts of any fare determination, taking into account the employment and income characteristics of CityRail passengers?

The discussion paper seeks stakeholder comments on IPART's preliminary views, so IPART can take them into account in making its draft determination (expected to be released by 12 September 2008).

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### Box 1.2 IPART's review process

IPART is undertaking extensive public consultation for these reviews. As noted above, it has already released an issues paper and received submissions on that paper from the Government and other stakeholders. It has also released this discussion paper, and the discussion paper *Determining CityRail's revenue requirements and how they should be funded*. It now invites interested parties to make submissions on the preliminary views outlined in both these papers.

To help stakeholders manage the additional work involved in this extra round of consultation, IPART is seeking comments on the two discussion papers in one submission. The closing date for submissions is 18 July 2008. Details on how to make a submission can be found on page iii (before the Table of Contents).

IPART will also hold a public roundtable discussion on Wednesday 30 July, to provide stakeholders with a further opportunity to provide their views on the Government's submission to the review, and the issues raised in the two discussion papers.

IPART will release its draft fare determination and its draft report and recommendations on the economic regulatory framework in September 2008, and invite submissions. It will release its final report and recommendations on the economic regulatory framework in December 2008, and its final fare determination on 12 December 2008. The proposed timetable for the review is provided below.

**Table 1.1 Timetable for review**

| Action   | Timetable         |
|--|-------------------|
| Release issues paper and invite submissions  | October 2007      |
| Receive submissions from the Government and other stakeholders   | Jan to May 2008   |
| Release discussion papers and invite submissions   | June 2008         |
| Submissions on discussion paper and government submission due  | 18 July 2008      |
| Hold public roundtable discussion  | 30 July 2008      |
| Release draft fare determination and report and invite submissions                                       | 12 September 2008 |
| Provide draft report and recommendation to Government on the regulatory framework and invite submissions | 12 September 2008 |
| Submission on draft reports due  | 30 October 2008   |
| Provide draft report and recommendation to Government on the regulatory framework                        | December 2008     |
| Release final fare determination and report  | 12 December 2008  |

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## 1.2 Assessment criteria for the review

In its Issues Paper, IPART outlined a set of criteria which it proposed to use to support its analysis and guide its decision-making in reviewing CityRail's economic regulatory framework and fares. The criteria were developed to reflect the terms of reference for these reviews (particularly the Government's objectives for the reviews), as well as IPART's requirements under section 15 of the IPART Act and the principles of good regulation.

After considering stakeholder comments on the criteria, IPART has refined the wording of the criteria to clarify their meaning (see Box 1.3). IPART has used these criteria in assessing the options related to its approach to fare setting and its fare determination discussed in this paper.

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### Box 1.3 IPART's assessment criteria

1. **Encourages CityRail to be more disciplined in its spending**, for example, by:
    - making the full economic costs of providing its services more transparent (including policy-related costs)
    - facilitating greater accountability for decisions that affect costs and services
    - providing incentives to make efficiency savings.
  2. **Encourages CityRail to reduce the costs of providing its services while also improving the quality, reliability and safety of these services**, for example by:
    - Identifying the efficient costs of providing passenger train services.
    - Making the costs associated with service quality transparent.
  3. **Promotes economic efficiency of rail services**, for example by:
    - Promoting the supply of services at least cost.
    - Facilitating sound investment decisions.
    - Providing economic pricing signals, through fare outcomes that reflect the cost of providing CityRail's services.
  4. **Is consistent with government policy objectives**, for example by:
    - Encouraging increased patronage.
    - Taking account of the social impact of decisions.
    - Being consistent with and supporting government policy on public transport fares
  5. **Is targeted to and proportionate with the problem**
  6. **Promotes clear and appropriate accountabilities**
  7. **Increases transparency of decisions**
  8. **Is internally consistent, and consistent with regulatory approaches used in other industries**
  9. **Is practical, pragmatic and feasible**
  10. **Is simple and understandable**
-

### 1.3 Overview of preliminary views and matters on which IPART seeks further comment

IPART's preliminary view is that the structure of CityRail fares can be improved to the benefit of CityRail's passengers, the Government and ultimately the taxpayers who fund a significant proportion of CityRail's costs. There are two aspects to the structure of fares:

- ▼ **the temporal aspect**, which links fares to the time of day or day of week in which travel is undertaken
- ▼ **the spatial aspect**, which links fares to the location in which travel is undertaken or the distance travelled by passengers.

IPART considers that there is scope to improve both these aspects of CityRail's current fare structure, so that fares better reflect the different costs of providing services to passengers at different times of the day and week, and over different distances (taking into account the different external benefits that their patronage creates). In IPART's view, this will promote more efficient use of the CityRail network and encourage efficient investment in the network. It will also promote more equitable outcomes between passengers travelling different distances and at different times of the day or week, and between passengers and taxpayers.

In reaching this preliminary view, IPART considered the current demand for CityRail's services, and forecast growth in this demand. IPART's preliminary analysis indicates that while CityRail serves a variety of markets, commuters travelling to and from the CBD generate most of the demand for its services. Because this market segment tends to travel during two narrow bands of time on weekday mornings and afternoons, demand is highly concentrated during these peak periods. In addition, the level of peak demand has grown significantly in recent years, and is forecast to grow more over the determination period.

This growth in peak demand has two major implications for CityRail and for the passengers and taxpayers who fund CityRail services. First, because parts of CityRail's network are already near or at maximum capacity, growth in peak demand is leading to network congestion. This is leading to lower service quality during these peak times on certain lines and in certain locations (particularly crowding on trains and in stations, and reduced on-time running).

Second, growth in peak demand is creating a need for significant expenditure in expanding the capacity of the CityRail network to alleviate capacity constraints during peak periods. Indeed, the Government has already begun or committed to making significant investments aimed at addressing these constraints. Such investments are likely to substantially increase the unit costs of providing CityRail's services, and reduce CityRail's asset utilisation (that is, some of these assets will only be used during a small part of the average weekday).

Given these impacts, the likely growth in peak demand means that meeting the Government's objective of improving the quality and reliability of these services will be a major challenge. In light of this, IPART believes it is appropriate to consider whether demand management options can also be used to alleviate capacity constraints, and to promote efficient investment decisions.

While there are a range of supply-side and demand-side options that could be considered, IPART has identified two demand-side options that it is able to influence given its role in recommending the economic regulatory framework of CityRail and setting maximum fares for CityRail services. These options include:

- ▼ Using ticket pricing to better signal the costs of providing CityRail services at different times of the day (eg, during peak and off-peak periods) and in different locations (eg, within particularly congested areas such as the CBD and non-congested areas such as the outer suburbs). This option involves reconsidering the current approach to pricing peak and off-peak fares and the level of these fares.
- ▼ Reconsidering the conditions that apply to the use of off-peak tickets, to ensure that passengers' use of these tickets is consistent with CityRail's objectives in making them available. IPART has identified a range of issues that it will consider, in particular, whether it is appropriate for off-peak return tickets to be used during the afternoon peak period (approximately 4pm to 6pm) as presently occurs.

IPART also examined the spatial aspect of the current fare structure, and found that CityRail offers many ticket products that have a variety of fare structures. CityRail's most popular ticket products – including single and return tickets, and periodical tickets – have a fare structure that includes an implicit flat flag fall charge and a variable distance-based charge. The distance based charge or per km charge is not constant, but varies due to the boundaries between distance bands. In addition, the discount applied to periodical tickets is not consistent, and increases significantly with the distance travelled such that passengers travelling less than 25 km receive a discount of less than 20 per cent, while passengers travelling 195 km and above enjoy discounts of over 60 per cent.<sup>2</sup>

IPART's preliminary view is that a fare structure that includes a flat flag fall charge plus a variable distance-based charge remains the most appropriate option. However, this fare structure should include an explicit flag fall and per kilometre charges reflective of the costs of providing CityRail services. IPART intends to investigate whether a constant or declining per km charge is reflective of the costs of providing CityRail services. IPART's preliminary view is that the fare structure should also include a consistent discount for periodical tickets. IPART considers that this approach best meets the assessment criteria for these reviews, because it is more cost-reflective, and is simpler and more consistent. This approach will also be

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<sup>2</sup> Compared to the purchase of 10 single tickets in a week.

compatible with an electronic ticketing system, expected to be introduced in the future.

Before IPART makes its decisions on the structure and level of fares, it will consider the likely impacts of its decisions on passengers and patronage levels. It has undertaken preliminary analysis on the income and employment profile of CityRail passengers, and on typical household expenditure on CityRail services. IPART recognises that many CityRail passengers have made housing and employment decisions based on the current level and structure of CityRail fares. IPART is mindful of any adverse social impacts of moving towards an improved fare structure. IPART's intention is to provide CityRail users with a better indication of how fares are likely to change over time which should assist with future housing and employment decisions. Therefore IPART will consider a longer term path when transitioning to future fare structures. However IPART considers that any adverse social impacts of its fare decisions in the longer term should be addressed through targeted government assistance (such as the use of concession tickets for certain users) rather than incorporating further subsidies into fares and potentially distorting the fare structure itself.

IPART particularly seeks stakeholder comment on the following issues discussed in this paper:

- 1 Should fares for peak period travel represent CityRail's base fares and fares for off-peak travel be offered at a discounted price? Or should off-peak fares represent the base fare and fares for peak period travel be offered at a premium price?
- 2 What is the appropriate methodology for setting peak and off-peak fares?
- 3 To what extent should off-peak fares be set to encourage growth in off-peak demand?
- 4 To what extent should off-peak fares be set to encourage a shift from peak to off-peak travel?
- 5 What level of discount compared to peak fares is likely to encourage passengers to shift from peak to off-peak?
- 6 What is the relevant ticket that off-peak fares should be compared to? For example, should off peak fares be compared to multi-trip tickets that are already heavily discounted?
- 7 Are there any other factors that are likely to encourage passengers to shift from peak to off-peak travel?
- 8 To what extent should the off-peak discount be available to passengers travelling in non-congested parts of the network?
- 9 Should off-peak ticket holders be permitted to travel on congested areas of the network during the afternoon peak period?

- 10 What time limits should apply to the use of off-peak tickets?
- 11 Is there a need for additional off-peak tickets?
- 12 What ticket or fare products would need to be available to encourage a shift from peak to off-peak travel?
- 13 What are the implications of adding additional products?
- 14 How should the current integrated tickets such as TravelPasses be priced to ensure users of these ticket types are not receiving a disproportionate subsidy from passengers using single and periodical tickets while still allowing and encouraging multi-modal travel?
- 15 Is a flat flag fall charge and a per kilometre charge that reflects CityRail's fixed and variable costs the most appropriate fare structure for CityRail?
- 16 Should cost reflectivity be the most important consideration for IPART when determining the flag fall and per kilometre charge?
- 17 For periodical tickets, should there be a constant discount regardless of distance travelled?
- 18 If a constant discount for periodical tickets is adopted, is the 20 per cent discount that is currently applied to Sydney metropolitan bus fares a suitable target to transition CityRail ticket prices towards?
- 19 Do CityRail users have a reasonable capacity to absorb increased fare levels?
- 20 Does the availability of concession fares and off peak fares effectively minimise the impact of higher fare determinations for those with a lesser capacity to pay?

#### **1.4 Structure of this discussion paper**

This discussion paper discusses IPART's preliminary analysis and views in more detail, and seeks stakeholder comments. In particular:

- ▼ Chapter 2 discusses the different markets for CityRail's services, the characteristics of these markets including the concentration of demand in peak periods, and the impacts of this peaky demand.
- ▼ Chapter 3 explores how the structure of CityRail's fare that links fares to the time of day or week when travel is undertaken can be improved to promote efficiency in the use of the CityRail network, encourage efficient investment decisions and help manage demand for its services during peak periods.
- ▼ Chapter 4 discusses how the structure of CityRail's fares that links fares to the location or distance of travel can be improved to make fares more cost-reflect, simple and consistent and facilitate the introduction of electronic ticketing.

- ▼ Chapter 5 discusses the potential social impacts of any changes IPART may make to the structure and level of CityRail fares, and outlines IPART's analysis on the employment and income characteristics of CityRail users.

## 2 Understanding the demand for CityRail services

The demand for CityRail services is an important factor that IPART considers in setting fares. This demand influences CityRail's need for operating and capital expenditure over the determination period, and its ability to meet passengers' expectations about service quality. It also influences IPART's decisions in translating the proportion of the revenue requirement to be funded by passengers into fares. Therefore, whatever approach it uses to set CityRail's fares, IPART needs to understand:

- ▼ the different markets for CityRail services, and the characteristics of demand in each of these markets
- ▼ historical trends in demand for CityRail services
- ▼ the impacts that these characteristics and trends in demand are likely to have on CityRail's need for capital and operating expenditure and ability to meet service standards
- ▼ forecast trends in demand.

IPART's preliminary analysis of these matters indicates that commuters travelling to and from the CBD generate most of the demand for CityRail services. Because this market segment tends to travel during two narrow bands of time on weekday mornings and afternoons, demand is highly concentrated during these peak periods. In addition, the level of peak demand has grown significantly in recent years, and is forecast to continue to grow over the determination period.

This growth in peak demand has two major implications for CityRail and the Government and for the passengers and taxpayers who fund CityRail services. First, because parts of CityRail's network are near or at maximum capacity, growth in peak demand is leading to network congestion, which is reducing the quality of CityRail's services. Second, because addressing CityRail's network capacity constraints by expanding capacity involves significant capital and operating costs, growth in peak demand may substantially increase the unit costs of providing CityRail's services.

The sections below discuss IPART's analysis in more detail, and identify the issues on which it particularly seeks comment.

## 2.1 The different markets for CityRail services

Sydney has the highest use of public transport of all the Australian capital cities. In Sydney, around 22 per cent or more than one in five people use public transport to get to work, compared to less than 13 per cent in Melbourne and Brisbane.<sup>3</sup>

The CityRail network is central to meeting Sydney's public transport needs. CityRail serves a large, diverse area that includes Sydney's central business district (CBD) and suburbs, and extends to Goulburn and Nowra in the south, Lithgow in the west, and Newcastle, Scone and Dungog in the north. CityRail passengers use its services for a diverse range of purposes – including commuting to work, getting to school or university, accessing shops or recreational activities, and visiting friends and family.

CityRail (like other public transport providers) serves a number of different markets within the greater Sydney region. These markets can be segmented, taking into account passengers' purpose of travel and whether they have a choice about their mode of transport or time of travel. These factors affect the level of competition from private transport within each segment, and as a result the market share of public transport within each segment also differs.

The market for public transport in the greater Sydney region can be thought of a series of concentric rings. The centre rings represent the segments that include people with no private means of transport (such as low income earners, pensioners and school students) and those who are travelling for non-discretionary purposes (eg, work, work-related or education). In these segments, there is either little competition from private transport, or significant barriers to using private transport (for example passengers commuting to the CBD face road congestion, parking difficulties and costs). As a result, public transport has a high market share.<sup>4</sup>

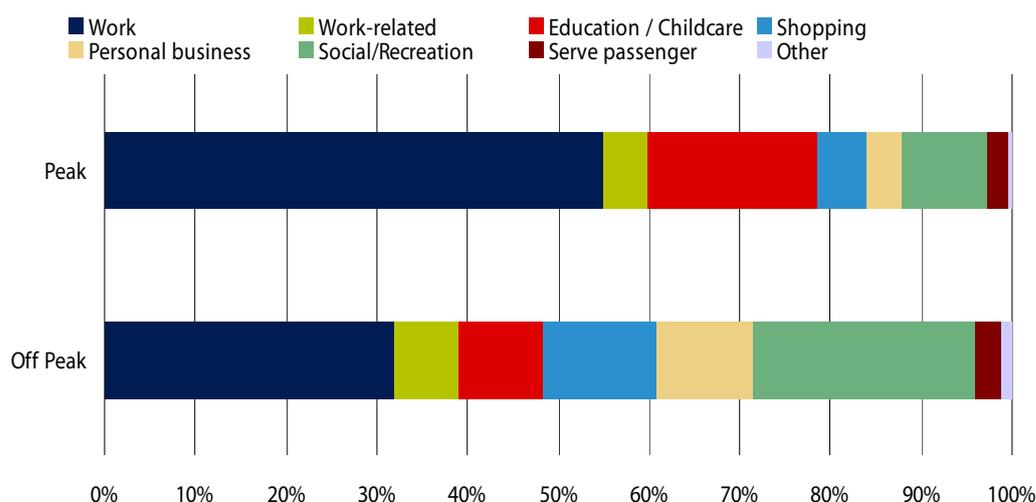
Moving out from the centre, the subsequent rings represent segments that include people travelling for non-discretionary purposes but have more choice about when and where they travel, people travelling for discretionary purposes (eg, to access shops or recreational activities) and finally tourists. In these market segments, there is increasing levels of competition from private transport, primarily due to the attractiveness of this mode of transport. As a result, public transport has a decreasing share of the market. Overall, CityRail accounts for a very small proportion of passenger trips made by residents travelling for discretionary purposes and tourists.

<sup>3</sup> NSW Government, Urban Transport Statement, November 2006, p 11.

<sup>4</sup> Approximately 53 per cent of trips to work for commuters travelling to and from the CBD are by rail. Around 37 per cent of journeys to work to the other major centres are made by rail. *A Compendium of CityRail Statistics*, Fifth Edition, April 2006, Rail Development Sectorisation RailCorp.

CityRail passengers' purpose of travel also varies significantly according to the time of day they travel. According to the 2005 Household Travel Survey,<sup>5</sup> during peak periods<sup>6</sup> 79 per cent of CityRail passengers travel for non-discretionary purposes (work, work-related and education); however, during non-peak periods, this proportion falls to around 48 per cent (Figure 2.1).

**Figure 2.1 Purpose of travel for CityRail's passengers (2005)**



**Source:** Household Travel Survey 2005, Transport Data Centre.

RailCorp data suggests that the difference between peak and non-peak travellers has become even more pronounced.<sup>7</sup> This is particularly so during the morning peak period when around 93 per cent of passengers travel for non-discretionary purposes, compared with around 55 per cent during the inter-peak period.<sup>8</sup>

This indicates that commuters, particularly those travelling to and from the CBD, represent the primary generator of CityRail demand. Over the last decade, as the Sydney region's population and economy has expanded, CityRail has played an increasingly important role in conveying passengers between their jobs in the CBD and homes in the suburbs and beyond.<sup>9</sup> On a typical weekday, around two-thirds of trips made on CityRail services are to and from the CBD. However, given the suburban growth in the north west and south west of Sydney, as well as some dispersion of employment around Sydney, CityRail has played a lesser role in commuting passengers between non-CBD jobs and their homes.

<sup>5</sup> Data is based on the count of passenger trips by users on an average weekday.

<sup>6</sup> The peak is defined as train users arriving between 06:31 and 09:30 or departing between 15:01 and 18:00 on an average weekday.

<sup>7</sup> RailCorp customer research conducted March 2008.

<sup>8</sup> Inter-peak is defined as between 9:30 am – 3pm.

<sup>9</sup> Like in other major urban centres such as London or Tokyo, job opportunities are concentrated in the Sydney's CBD, and the number of these jobs has grown strongly over the past decade.

## 2.2 Demand characteristics of these markets

The demand characteristics of the different markets for CityRail services have a strong influence on the patterns of demand for these services, and the elasticity of demand. In particular, the characteristics of the peak period commuter market drive the weekday demand pattern, while the characteristics of the non-commuter/discretionary travel markets influence the weekend demand pattern. The sections below discuss the different demand patterns and demand elasticities.

### 2.2.1 Weekday demand pattern

On weekdays, demand for CityRail services increases sharply during the morning and afternoon peak periods. Figure 2.2, which shows the use of CityRail services by time of day and ticket type, suggests that this is due to the demand characteristics of the commuter market. Typically, those travelling for non-discretionary purposes use CityRail services during two narrow bands of time (approximately 6:30 – 9am and 3 – 6pm). Over the last 12 months, the demand for CityRail services during the morning peak period has been around four times higher than the demand during the weekday inter-peak period, say between 9am to 4pm. Around two thirds of the weekday use of CityRail services occurred in the morning and afternoon peak periods.

**Figure 2.2 Weekday use of CityRail services, by time of day and ticket type (all stations), 2006/07**

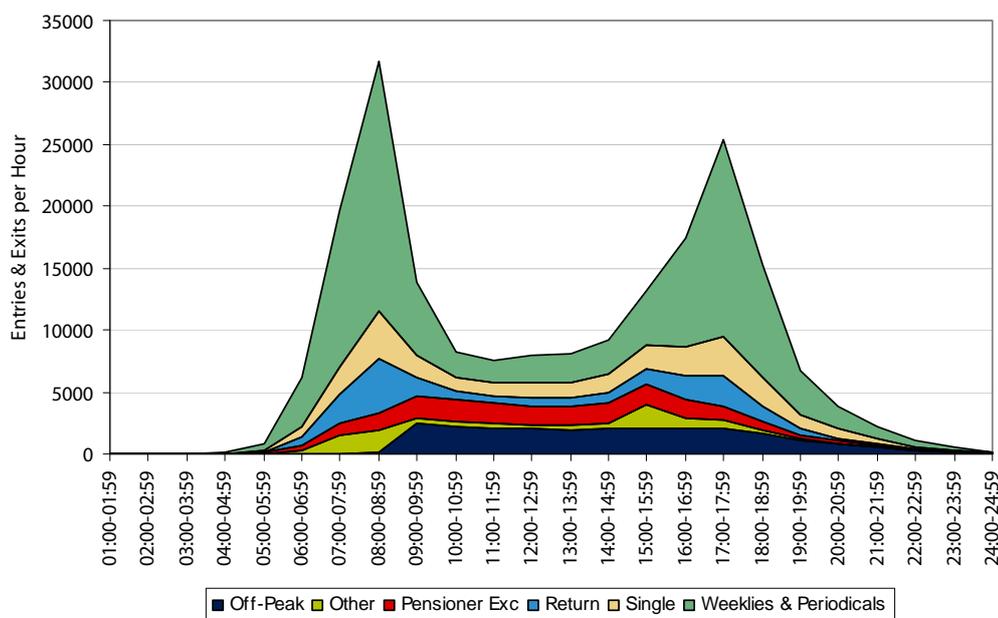
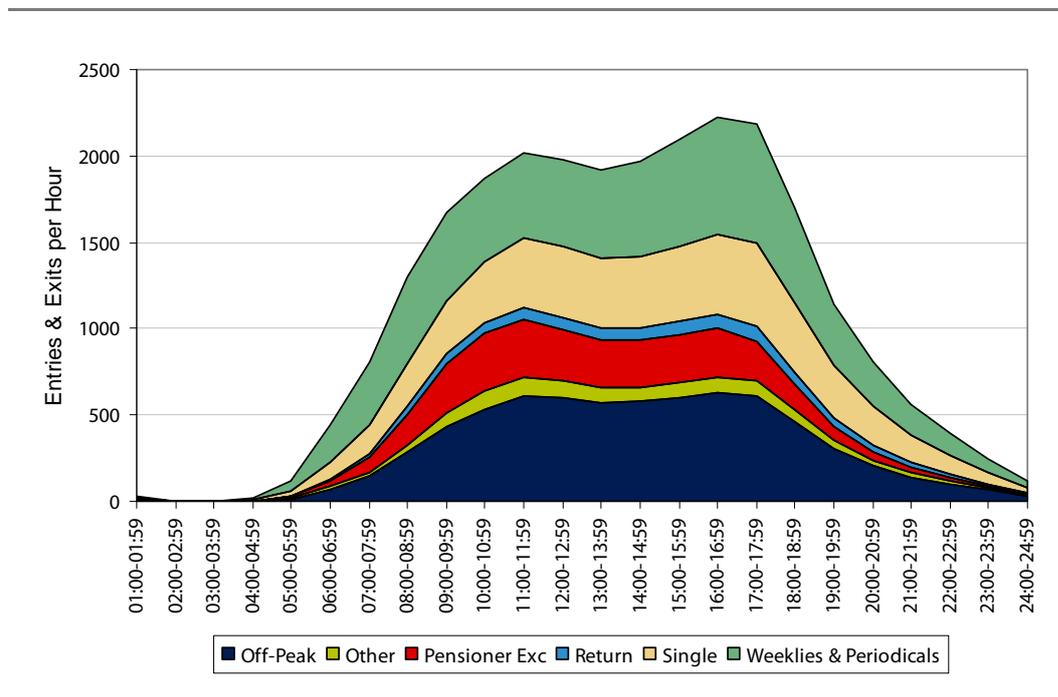


Figure 2.2 also indicates that a considerable proportion of passengers in the afternoon peak are travelling on off-peak return tickets. As section 2.4 will discuss, like all passengers travelling in peak periods, these passengers are contributing to congestion on the CityRail network in the afternoon peak, and driving the need for investment in capacity to handle peak period demand. As discussed in Chapter 3, IPART seeks comment on whether it is appropriate for off-peak ticket holders to travel in the afternoon peak.

### 2.2.2 Weekend demand patterns

Figure 2.3 shows that on weekends, the demand for CityRail services is much lower, and much more uniform throughout the day (ie, less peaky). This is likely to be because weekend users include a smaller proportion of people travelling for non-discretionary purposes and a higher proportion of people making discretionary trips for social or recreational purposes. However, weekend demand in general is significantly less than that on weekdays, which implies that there is significant excess capacity on the CityRail network on weekends.

**Figure 2.3 Weekend use of CityRail services, by time of day and ticket type (all stations) for 2006/07**



### 2.2.3 Elasticity of demand

Elasticity of demand refers to the extent to which passengers will alter their demand for CityRail services in response to changes in the price of CityRail services. The higher the elasticity, the higher the likely change in demand in response to a change in price. IPART needs to take account of elasticity of demand in considering changes to the fare structure and the impacts of such changes on CityRail's farebox revenue.

The elasticity of demand for transport services is influenced by a range of factors, including the nature or purpose of travel and the extent to which there is competition from other modes of transport. Therefore, there is likely to be different elasticities of demand in the different markets for CityRail services. Elasticities are likely to be less in the market segments that include people with no private means of transport, or those who face significant barriers to using private transport.<sup>10</sup>

IPART engaged Booz Allen Hamilton (BAH) to identify the range of demand elasticities for CityRail's regulated passenger tickets on the metropolitan, suburban and regional networks for the relevant market segments, as well as cross-elasticities between CityRail's regulated passenger tickets.

Booz Allen Hamilton found that the price elasticity for CityRail tickets is -0.29<sup>11</sup>. This implies that:

- ▼ for a change in fares of 5 per cent, passenger journeys will decrease by 1.5 per cent, and
- ▼ for a change in fares of 10 per cent, passenger journeys will decrease by 2.9 per cent.

Booz Allen Hamilton also estimated cross price elasticities<sup>12</sup> and provided IPART with a revenue model which takes into account the effects of these elasticities. This will allow IPART to make a more thorough assessment on potential changes in demand. Consistent with the analysis above, BAH's findings suggest that the elasticity of demand for the TravelPass and RailPass tickets, which are more likely to be used by commuters, is lower than that for single tickets, which are more likely to be used for discretionary travel. That is, commuters are likely to be less responsive to changes in fares than non-commuters. This suggests that fare increases for periodical tickets are less likely to reduce patronage on CityRail services than a similar fare increase for single or off-peak tickets. For more detail, see BAH's report which is available on IPART's website.<sup>13</sup>

<sup>10</sup> As noted previously, these barriers include road congestion, and parking difficulties and costs.

<sup>11</sup> Booz Allen Hamilton, *CityRail fare elasticities: Final Report*, May 2008.

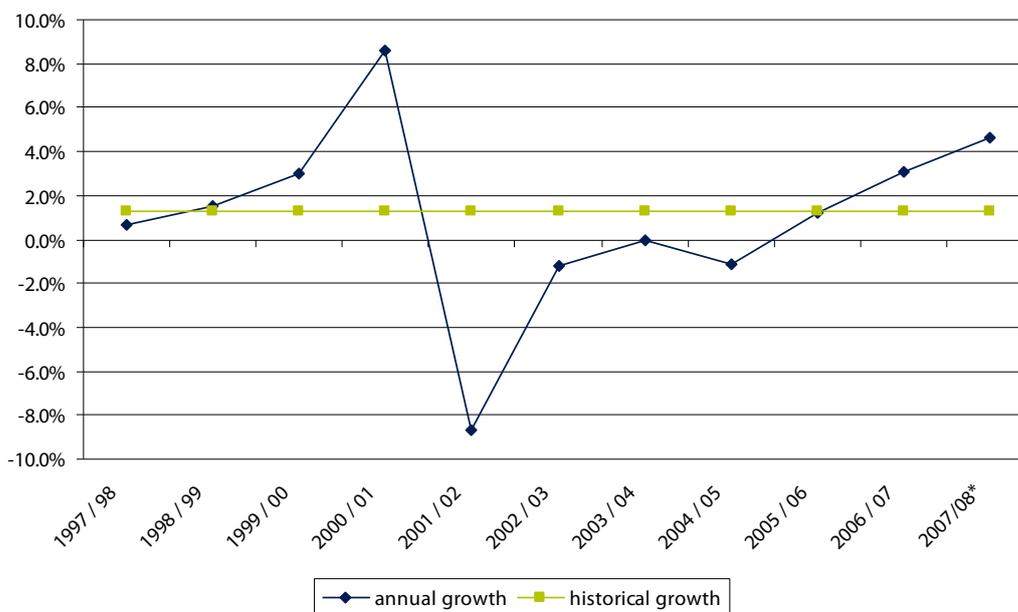
<sup>12</sup> BAH's cross price elasticities measure the extent to which a change in price of a single CityRail ticket affected the demand for other CityRail tickets.

<sup>13</sup> [www.ipart.nsw.gov.au](http://www.ipart.nsw.gov.au)

### 2.3 Historical trends in demand for CityRail services

In recent years, the demand for suburban rail passenger services has increased in many Australian capital cities, including Sydney, Melbourne and Brisbane. In 2006/07, CityRail experienced an overall increase in passenger journeys of around 8 million (or more than 3 per cent). In 2007/08, this increase is likely to be around 5 per cent.<sup>14</sup> In comparison, the long-term historical average growth in demand for CityRail services is 1.3 per cent per annum (Figure 2.4).<sup>15</sup> IPART considers that the recent growth in demand is likely being driven by a number of factors, including strong growth in CBD employment, rising oil prices, increasing road congestion and improved rail reliability.<sup>16</sup>

**Figure 2.4 Growth in demand for CityRail services 1997/8 – 2007/08, and long-term historical average**



However, the growth in demand has been uneven across the different CityRail sub-networks and lines. During 2006/07, the Western line experienced growth in passenger journeys of around 5 per cent, and the Illawarra, Inner West, Bankstown, Northern, CBD and East Hills lines had growth of more than 3.5 per cent. But the growth on inter-city lines was significantly less. (For more detail on the change in total passenger journeys between calendar years 2006 and 2007 on the suburban

<sup>14</sup> The year to date average to February 2008 implies growth of around 5 per cent for 2007/08.

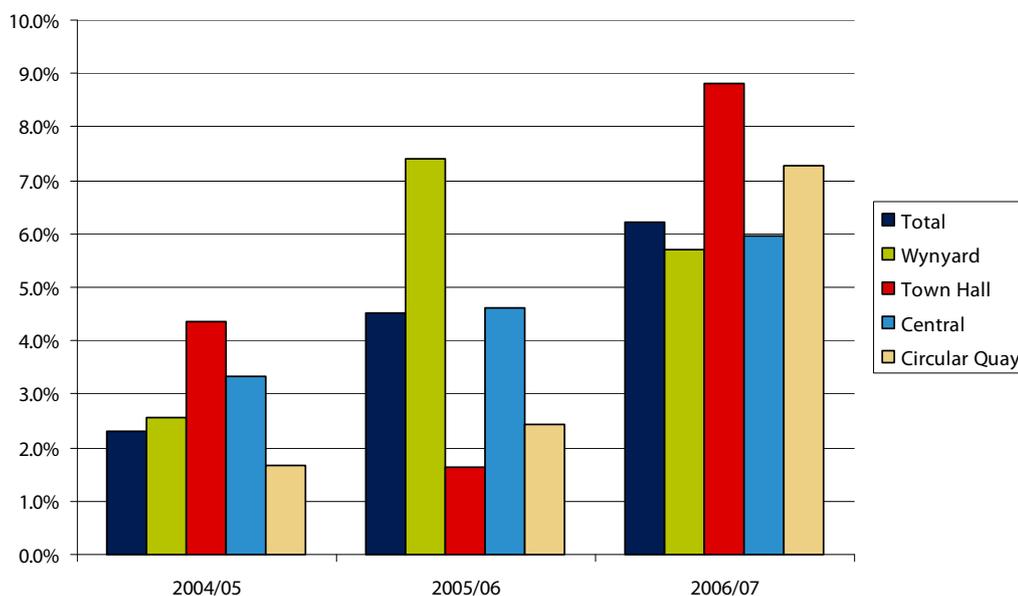
<sup>15</sup> The large change in patronage in 2000/01 was a one off increase as the result of the Sydney Olympics. The decline in 2001/02 reflects a return to historical patronage. Service quality issues are likely to be the cause of the decline in patronage over the 2002/03 – 2004/05 period.

<sup>16</sup> Increasing road congestion in the context of rising oil prices suggests there are a number of factors that affect road use other than the price of fuel such as strong employment growth.

CityRail network, see Appendix C.<sup>17</sup>) A similar pattern is emerging for 2007/08, with strong growth on the Bankstown, Inner West and Western lines.

The growth in demand on the network appears to be driven by higher demand in the peak-period commuter market. For example, as Figure 2.5 shows, the number of passenger exits at CBD stations (including Redfern) during the morning peak grew by more than 6 per cent in 2006/07.

**Figure 2.5 Growth in CBD station exits during AM peak (2004/05 – 2006/07)**



## 2.4 Impacts of demand characteristics and trends

The peaky pattern of weekday demand for CityRail services as a result of the characteristics of the commuter market, and the increasing level of demand in this market, affects CityRail (and those who use and fund its services) in two major ways:

- ▼ When the level of peak-period demand reaches or exceeds the maximum capacity of the network (or some parts of the network), the quality of the service CityRail can provide is reduced.
- ▼ The costs of meeting the higher demand during peak periods are much higher than at other times, and this increases the total capital and operating costs and the unit costs of providing the services.

Each of these impacts is discussed in more detail below.

<sup>17</sup> North Sydney shows a reduction in passenger growth; however this is due to renovations at North Sydney station which required the temporary removal of ticket gates.

### 2.4.1 Impact of peak demand on service quality

Peak demand has grown significantly over the past three years, and the CityRail network within the CBD is nearing capacity.<sup>18</sup> In general, when the level of peak demand nears or exceeds the capacity of any network, the quality of service provided to users decreases as a result of congestion on the network. Passengers on CityRail's network are already feeling some of the effects of congestion, including crowding on trains and reduced reliability in terms of on-time running during peak periods.

#### Crowding on trains

The high level of demand for CityRail services during peak periods relative to the current capacity results in considerable crowding on trains during these periods, particularly on the Western, Bankstown and Northern lines. One reason for this is that CityRail does not have sufficient carriages to provide eight-car trains throughout the peak periods, so some six-car trains run on some lines during the peak periods (particularly in the afternoon peak).<sup>19</sup> Another is that infrastructure bottlenecks, such as the limited number of lines over the Harbour Bridge and into the CBD more generally, restrict the number of services that can be offered without significant capacity expansion.

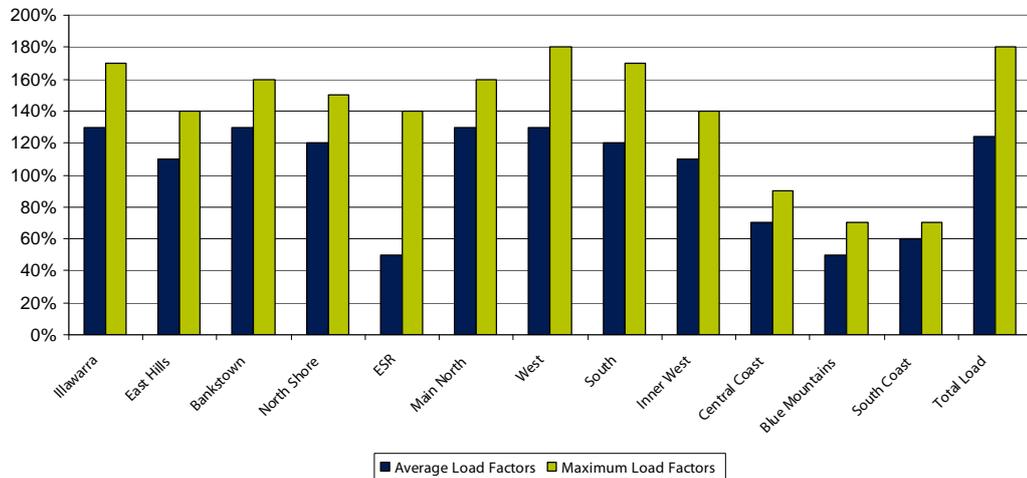
Figure 2.6 provides an indication of the extent of crowding. This figure shows the results of a RailCorp survey of the load factors on all CityRail trains at the CBD Cordon during the morning peak period on one day in September 2007. The load factor represents the extent to which the number of passengers on the train exceeds the available number of seats. A load factor of 100 per cent means that the number of passengers is the same as the number of seats. A train with a load factor of more than 135 per cent is considered to be crowded in terms of Government priorities for CityRail as set out in the Rail Performance Agreement and Statement of Corporate Intent.

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<sup>18</sup> RailCorp expects that the CBD section of the network will reach capacity by 2012 (Government submission p 6).

<sup>19</sup> This problem should be reduced as the new trains being purchased begin to be delivered from 2010.

**Figure 2.6 Train load factors at CBD Cordon during the am peak period (September 2007)**



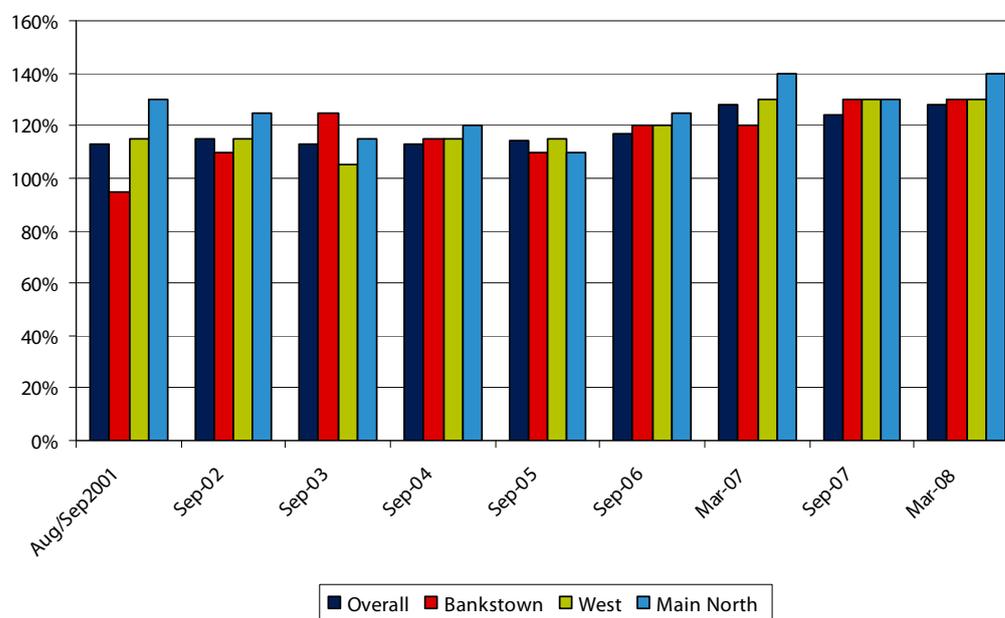
**Note:** In the am peak, load factors in the CBD cordon are determined based on the number of passengers on board trains when they stop at Redfern, Sydenham, Wolli Creek, Kings Cross and St Leonards stations.

**Source:** Railcorp, *Review of Peak Train Loads*, September 2007, Issues Paper 7/2007.

Based on the maximum load data underlying Figure 2.6, 33 trains were crowded when they reached the CBD cordon, which represents 13 per cent of all trains in the morning peak period. These crowded trains were heavily concentrated in the hour between 8am and 9am, when 29 per cent of all trains had load factors of more than 135 per cent (most of which were on the Western line).

While the load factors on any individual day may differ from those on the day of RailCorp's survey, there is no reason to believe the survey results are atypical. Clearly, many CityRail trains are crowded during peak periods. In addition, the extent of crowding appears to be increasing. Figure 2.7 shows RailCorp's survey findings on average train load factors across all CityRail lines and on two of the most crowded lines over 2001 to 2007. These findings indicate that the extent of crowding (in terms of train load factors being greater than 135 per cent) has steadily increased since September 2006.

**Figure 2.7 Average Train load factors at CBD Cordon during the am peak period (2001 – 2008)**



**Source:** Railcorp, *Review of Peak Train Loads*, September 2007, Issues Paper 7/2007.

IPART recognises that the level of discomfort due to crowding varies depending on whether passengers are sitting or standing, the degree of crowding, the length of the journey, the temperature of the carriage and other factors. CityRail passengers have indicated that the level of crowding is an important element of CityRail's quality of service. IPART notes that the Independent Transport Safety and Reliability Regulator's 2007 Survey of CityRail Customers supports this view. This survey found the proportion of customers who said crowding in trains at peak times did not meet their expectations had increased to 55 per cent, compared with 50 per cent in 2006.<sup>20</sup>

### Reliability/on-time running

In addition to crowding on trains, high demand for CityRail services during peak periods results in crowding in certain stations on the CityRail network, particularly Central, Town Hall and Wynyard.<sup>21</sup> In 2006/07, Town Hall experienced growth of more than 8 per cent in the number of passengers using the station in the morning peak period.

<sup>20</sup> Independent Transport Safety and Reliability Regulator (ITSRR), *Survey of CityRail Customers 2007*, p 3.

<sup>21</sup> Each of these stations has more than twice the number of passengers passing through the station barriers as the next busiest station, and has experienced above average growth in passenger numbers in recent years.

While crowding at stations represents a reduction in service quality for passengers on its own, it also increases the time it takes to load and unload a train, which significantly increases the train's dwell time (the amount of time it needs to sit in the station). This longer dwell time in the city stations has a cascading effect on on-time running, as each train behind needs to wait for the train in front to move. Typically, this lost time is not made up, so by the time they reach the end of their journey, these trains are running behind the timetable. The relationship between crowding and on-time running is demonstrated by the fact that the Western and Northern lines, which are two of the most crowded lines, are the worst performers in terms of on-time running. Both lines achieve their on-time running targets less than 90 per cent of the time.<sup>22</sup>

#### 2.4.2 Impact of peak demand on capital and operating costs

As in many other network businesses (such as electricity distribution or landside stevedoring at Port Botany), CityRail's network capacity must be designed to meet peak requirements. Therefore, the level of peak demand is a primary driver of CityRail's capital and operating costs.

Increases in peak demand can lead to capacity constraints, which may need to be addressed by expanding the network's capacity (eg, by investing in additional assets such as rolling stock, track and station augmentations etc and/or employing more staff). Because rail assets tend to involve high capital costs, this can substantially increase the unit costs of providing CityRail's services. And because the new assets are likely to be used only during the peak periods, it can substantially reduce CityRail's asset utilisation.

Currently, the CityRail network is experiencing capacity constraints during peak periods as a result of strong growth in the commuter market, particularly around the CBD. This takes the form of network congestion, particularly at certain locations, such as around the Harbour Bridge, along the Parramatta - CBD rail corridors and at some CBD stations. Addressing these constraints by increasing the capacity of the network will require high levels of capital investment. Indeed, the Government has already begun or committed to making significant investments aimed at addressing these constraints.

As noted in IPART's discussion paper *Determining CityRail's revenue requirement and how it should be funded*, a large proportion of CityRail's \$5 billion capital program over the next five years is intended to address peak period constraints on the network. For example, the \$1.8 billion Rail Clearway's initiative (including projects 1 and 2) is intended to strengthen reliability and increase capacity on the CityRail network, for example by allowing additional peak hour services and reducing congestion at key

<sup>22</sup> [http://www.cityrail.info/aboutus/our\\_performance/summary\\_otr.jsp](http://www.cityrail.info/aboutus/our_performance/summary_otr.jsp)

stations.<sup>23</sup> A significant proportion of planned investment in rolling-stock is also being driven by peak period demand.<sup>24</sup>

In addition, the Government recently announced plans to create a 'North West Metro' service from Rouse Hill to the CBD at an estimated cost of around \$12 billion.<sup>25</sup> This service is intended to alleviate congestion on CityRail's network (as well as to provide additional public transport services to the growing north-west area of Sydney). The Government also announced that creating a 'West Metro' service will be the next priority,<sup>26</sup> at a preliminary estimated cost of \$8 – 10 billion,<sup>27</sup> to alleviate congestion on the Parramatta to CBD part of CityRail's network. Although the costs of these metro projects are unlikely to be recovered through CityRail fares, they demonstrate the magnitude of the capital investments involved in expanding public transport capacity to accommodate peak demand to and from the CBD.

Addressing capacity constraints during peak periods by expanding the network's capacity to reduce congestion also involves additional operating costs. These costs are driven by labour costs – for example, the costs of employing additional station marshals to direct passengers embarking and disembarking trains, additional staff at gates and ticket booths, and extra drivers to position trains for peak periods.

## 2.5 Forecast trends in demand

The Government's Metropolitan Strategy assumes that Sydney's average population growth between 2006 and 2031 will be 10 to 15 per cent higher than the average growth in recent years. This implies that the population will grow by 1.2 million people and reach a total of 5.3 million by 2031.<sup>28</sup> As a consequence, growth in demand for public transport is expected to be strong. In line with the State Plan, CityRail forecasts that this demand will grow by 2.5 per cent per year over the next few years.

<sup>23</sup> <http://www.cityrail.info/news/clearways.jsp>

<sup>24</sup> In 2006, the Government committed to purchasing 72 new trains under a PPP arrangement. The original intention was to use 13 of these trains to cater for growth in the peak period and 59 to replace the older R, S and L cars. However, stronger than anticipated peak demand may delay the replacement of older cars because more of these cars will be dedicated to meeting peak period growth.

<sup>25</sup> NSW Government, News Release: Premier Iemma unveils Sydney's first Euro-style metro rail project, March 18, 2008.

<sup>26</sup> NSW Government, *SydneyLink: The Future of Sydney's Transport*.  
<http://www.sydneylink.com.au/site/page.cfm?u=50>

<sup>27</sup> <http://www.smh.com.au/news/national/west-metro-line-to-cost-10b/2008/05/14/1210444491867.html>

<sup>28</sup> <http://www.metrostrategy.nsw.gov.au/dev/uploads/paper/introduction/BACKGROUND%20ANALYSIS-3.html>

Given the influence of peak-period demand on service quality and on the need for increased capital and operating expenditure to expand capacity, it is important to understand the forecast demand during peak periods. Several factors suggest that this demand will continue to grow over the next several years pushing the CBD to its capacity during the peak periods:

- ▼ Employment in the CBD is forecast to continue to grow strongly over the next years, despite recent uncertainty in worldwide financial markets. Since, as discussed above, the demand for CityRail services in the weekday peak periods is driven by the commuter market, and around two-thirds of weekday CityRail trips are to and from the CBD, this suggests that the demand for CityRail services to and from the CBD will continue to grow.
- ▼ The State Plan includes a target to increase the share of trips to and from the Sydney CBD during peak hours made by public transport from the current 72 per cent to 75 per cent by 2016.<sup>29</sup> The State Plan also includes a target to increase the share of trips to work in the Sydney metropolitan region made by public transport from the current 20–22 per cent to 25 per cent by 2016. Given that work journeys are predominantly undertaken during the peak period, this suggests strong growth in peak demand.

Given that CityRail's network is already experiencing congestion due to capacity constraints, and the significant cost and time involved in expanding capacity to alleviate such constraints, the likely growth in peak-period demand means that meeting the Government's objective of reducing the cost of CityRail services while also improving the quality and reliability of these services will be a major challenge. In light of this, IPART believes it is appropriate to consider whether other options to alleviate capacity constraints can be used – such as using the level and structure of CityRail fares to encourage efficiency in the use of the CityRail network and make better use of the available capacity throughout the day by influencing passengers' travel decisions (see Chapter 3).

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<sup>29</sup> NSW Government, *A new direction for NSW: State Plan*, November 2006, p 58.

## 3 Improving peak and off-peak fares

As Chapter 1 outlined, there is a temporal or time related aspect of the current fare structure that links fares to the time of day or week when travel is undertaken. Based on its preliminary analysis of the current and forecast demand for CityRail services, and the implications of the high and increasing demand in peak periods (discussed in Chapter 2), IPART considers that it is time to implement a fare structure that better reflects the costs of providing CityRail services at different times of the day and week, to promote efficiency of CityRail services and help manage peak-period demand. In particular, IPART considers that CityRail's fare structure should:

- ▼ better reflect the extent to which demand for peak-period services to and from the CBD is driving the need for investment in additional capacity to alleviate congestion
- ▼ better reflect the significant excess capacity on the CityRail network during off-peak periods (such as weekends) and on some parts of the CityRail network during peak periods, and
- ▼ recognise that the external benefits of passengers' user of CityRail services are likely to vary depending on the time of day and day of the week they travel.

The section below outlines the various options for addressing the impact of the high, growing peak-period demand for CityRail services, and identifies two options for improving the fare structure. The subsequent sections discuss whether these options are consistent with the assessment criteria for these reviews, outline IPART's preliminary analysis of each option, and identify the issues on which it particularly seeks comment.

### 3.1 What are the options for meeting the impact of high peak-period demand?

As Chapter 2 discussed, the high level and growth in demand for CityRail services in the morning and afternoon peak periods, particularly for services to and from the CBD during these periods, means that reducing the cost of CityRail services while also increasing their quality is a major challenge. To address this challenge IPART considers it will be necessary to use a combination of measures including:

- ▼ Increasing the available capacity (supply side measures).
- ▼ Making better use of existing capacity (demand side measures).

### 3.1.1 Supply-side measures

Possible supply-side measures include:

- ▼ Investing to improve the current operations of the CityRail network. For example, this may include investing in technology to allow higher train frequencies at bottlenecks, and investing in additional rolling-stock to allow more eight car trains to be used during peak periods and reduce maintenance reliability problems.
- ▼ Investing to reconfigure the network to reduce the congestion at specific times and locations. For example, this may include undertaking projects to augment the network, such as the Rail Clearways program, Epping Chatswood Rail Link, and additional CBD routes and harbour crossings.
- ▼ Investing in other private or public transport options, such as the recently announced North West Metro.

All of these supply-side measures are outside the scope of IPART's reviews. However, as Chapter 2 noted, the Government has already begun or committed to invest in a range of supply-side measures - including the purchase of more rolling stock, major augmentations of the CityRail network, and investments in alternative transport options - that are at least partly intended reduce congestion on CityRail peak-period services to and from the CBD. IPART considers that further supply-side measures are likely to be necessary at some time in the future, to provide additional capacity to meet forecast growth in demand, reduce congestion to meet service quality requirements, and meet targets in the State Plan.

But opportunities to use supply-side measures such as augmenting the CityRail network and building new public transport networks to relieve peak-period congestion on CityRail services are limited in the short to medium term, due to the time it takes to implement major infrastructure projects. In addition, the use of these measures to reduce congestion is extremely costly, and will necessarily lead to higher fares for passengers and higher government subsidies for CityRail. Given this high cost, IPART considers that proper cost-benefit studies should be undertaken of specific augmentation options including their timing, and alternatives that enable efficient deferral of investment.

### 3.1.2 Demand-side measures

Possible demand-side measures include:

- ▼ Improving the structure of peak and off-peak fares to more accurately reflect the different costs of providing peak and off-peak services, to encourage growth in off-peak patronage and a shift from peak to off-peak travel. This should lead to more efficient use of the rail system, and may relieve some congestion during peak times which may delay the need for significant investment in additional capacity.

- ▼ Reviewing off-peak ticket products and the conditions related to the use of these products to ensure they are consistent with encouraging growth in off-peak patronage and a shift from peak to off-peak travel. This should help to increase the effectiveness of the first measure.
- ▼ Encouraging employment growth outside the CBD. This may help slow the growth of peak-period demand for CityRail services to and from the CBD, and so delay the need for additional investment in capacity.<sup>30</sup>
- ▼ Encouraging greater workplace and lifestyle flexibility. This may help to flatten the peak periods by leading to more consistent demand across the day.<sup>31</sup>

The first two of these measures, which involve improving the fare structure to help manage demand, are within the scope of IPART's reviews of CityRail's economic regulatory framework and fares. IPART is considering these measures as part of these reviews.

### **3.2 Is improving the fare structure consistent with the assessment criteria?**

IPART considers that improving the fare structure to help meet the peak demand challenges is consistent with the assessment criteria for these reviews. In particular, improving the structure of peak and off-peak fares so they more accurately signal the different costs of providing peak and off-peak services is consistent with:

- ▼ promoting economic efficiency of rail services, including efficiency in use of the network, investment in the network and the promotion of equity between CityRail passengers
- ▼ encouraging growth in off-peak patronage consistent with government objectives to encourage increased public transport patronage
- ▼ encouraging a shift from peak to off-peak travel.

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30 While the Sydney CBD will continue to be a main concentration for employment in the future, the NSW Government's Metropolitan Strategy is based on increasing the number of jobs in its regional cities, major centres and specialised centres. Employment outside of the CBD implies counter-peak direction travel and does not place the same peak 'pressures' on the CityRail network, thereby reducing or delaying the need for significant and costly increases in capacity and avoiding impacts on crowding and on time reliability.

31 Changes in the way people live and work will affect how and when they wish to use CityRail services. As such changes in work and lifestyle patterns may provide for a flattening of the peak periods and more consistent demand across the day, reducing the congestion on the CityRail network.

### 3.2.1 Promotes economic efficiency of rail services

The costs of providing CityRail services to and from the CBD during the peak periods are significantly higher than those of providing CityRail's other services. This is because parts of the CityRail network are nearing maximum capacity during peak periods. This means that each additional passenger travelling to the CBD in the morning peak or from the CBD in the afternoon peak pushes the CityRail network closer to its maximum capacity. This contributes to congestion, and to the need for large capital investments to alleviate this congestion. In this scenario, the marginal cost of providing CityRail services is high.

In contrast, during off-peak periods (such as in the middle of weekdays or on weekends) and on some routes during peak periods (such as away from the CBD during the morning peak) there is significant excess capacity on the CityRail network. In this scenario, the level of asset utilisation is low and the marginal or additional cost of providing CityRail services is low. For example, in off-peak periods much of the rolling-stock required during peak periods is being 'housed' or repositioned, and infrastructure such as tracks, signalling and electricity supply are operating at levels well below that required in peak periods. That is, if CityRail were only providing off-peak services it would not need the same level of assets or infrastructure.

Under the current fare structure, off-peak fares are available at a discounted price compared to peak fares. However, the level of this discount was not set with direct reference to the different costs of providing peak and off-peak services. Improving the fare structure so that peak and off-peak fares more accurately reflect these different costs (while also accounting for the external benefits) would promote economic efficiency in rail services by providing better economic price signals about the costs of providing CityRail services. It may also promote equity or 'fairness' between CityRail passengers, particularly between peak and off-peak passengers.

Economic theory suggests that users of a service should contribute to the costs that their additional demand places on the service provider (taking into account any external costs or benefits associated with their use). This suggests that passengers travelling during peak periods should contribute to the additional capital and operating expenditure required to provide peak services, while passengers travelling in off-peak periods (and perhaps those travelling in non-congested parts of the network during peak periods) should not contribute to these additional costs. For example, perhaps off-peak passengers should only contribute to the avoidable incremental or marginal costs associated with their use of the network, such as the maintenance costs that result from this use.<sup>32</sup>

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<sup>32</sup> In general, fares should not be set below the marginal (or avoidable costs) of making the journey (the amount that would be saved if the journey was not taken). Holding fares below marginal cost may only be appropriate if the social and economic benefits of providing the service are great enough.

Improving the fare structure so that peak and off-peak fares more accurately reflect these different costs would promote economic efficiency in the use of rail services. It would also encourage sound investment decisions. If passengers value peak services and are prepared to contribute to the true cost of supplying these services (including an appropriate level of government subsidy to reflect the external benefits of CityRail services) through higher fares, then investing in additional peak capacity may be an efficient investment decision. However, if consumers are not willing to contribute to this cost through higher fares (and there are not sufficient external benefits to justify government funding the whole cost), such investment may be inefficient.

Improving the fare structure in this way may also encourage prudent investment in the network, because it should create a more transparent link between increases in peak fares and capital expenditure incurred by the Transport Infrastructure Development Corporation (TIDC) or CityRail to expand the capacity of the network.

### **3.2.2 Is consistent with government objectives to encourage increased patronage**

Improving the structure of peak and off-peak fares to more accurately reflect the different costs of peak and off-peak services may encourage growth in off-peak patronage. As discussed in more detail in section 3.3.3, in this way it is consistent with government objectives to encourage increased public transport patronage.

IPART also considers that this measure is not inconsistent with government objectives to increase the proportion of trips to work made by public transport, as a means to reducing road congestion and reducing greenhouse emissions.<sup>33</sup> The elasticity of demand among CityRail passengers travelling in the peak periods is typically low, which means that higher peak fares are unlikely to lead to a significant reduction in demand for CityRail services. However IPART will consider the elasticities of demand and the likely impact of its fare decisions on patronage before finalising these decisions.

### **3.2.3 Is consistent with government objectives to consider the social impact of decisions**

Improving the structure of peak and off-peak fares so that they more accurately reflect the costs of providing peak and off-peak services is consistent with government objectives to consider the social impact of decisions because this measure is likely to promote greater equity in the fare outcomes for peak and off-peak passengers.

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<sup>33</sup> NSW Government, SydneyLink: The future of Sydney's transport, March 2008. <http://www.nsw.gov.au/docs/metro.pdf>

As IPART has noted previously, the structure of public transport fares should aim to minimise cross-subsidisation, so that some passenger groups do not pay more in fares than the costs they add to transport agencies' operations, while other groups pay less.<sup>34</sup> While all CityRail passengers groups are subsidised by taxpayers, IPART considers it likely that under the current fare structure, passengers travelling in peak periods (particularly those travelling on discounted periodical products) are subsidised to a greater extent than those travelling in the off-peak periods. Improving the structure of peak and off-peak fares so that it better reflects the different costs of providing peak and off-peak services, while taking into account the external benefits of passengers' use of these services, is likely to promote a more equitable outcome between CityRail passengers.

IPART also notes that in other industries higher prices are generally appropriate in peak periods to reflect the higher costs of supply, when there is a lack of spare capacity and operating costs are typically at high levels. Peak period pricing is used in a number of industries that supply essential services (such as transport and energy) as well as those that supply non-essential services (such as air travel, tourism, sporting facilities hire and cinemas).<sup>35</sup> Peak and off-peak pricing has also been a long-standing feature of suburban and inter-city rail fares.

### **3.3 What should IPART consider in deciding on the structure and level of peak and off-peak fares?**

CityRail's current fare structure includes off-peak return tickets, which are priced to include a 30 per cent discount compared to peak return tickets.<sup>36</sup> This discount was reduced from an average of around 39 per cent in July 2006, in recognition of the fact that the return journey of off-peak tickets is often made during the afternoon peak period, resulting in adverse revenue impacts.<sup>37</sup>

However, it is unclear whether this discount reflects the future cost of providing CityRail services in the off-peak period relative to the peak period. As noted earlier, a significant proportion of CityRail's forecast capital expenditure over the next four years is intended to provide additional peak capacity, particularly for peak CBD use. This expenditure is being driven by the high demand for CityRail services during peak periods, and the high forecast growth in this demand. Therefore, it may be that in future, the difference between peak and off-peak fares should be higher. IPART intends to investigate further the future costs of providing services in the peak and off-peak periods to assist it in improving the CityRail fare structure.

<sup>34</sup> IPART, *An Inquiry into Pricing of Public Passenger Transport Services: Fare Structures for Public Transport*, 1996, p 12.

<sup>35</sup> Demand management in energy attempted to delay the need for investment in peak capacity by reducing the variability in demand. Similarly peak pricing for rail does not attempt to reduce total demand for CityRail services, rather to reduce the variability in demand.

<sup>36</sup> Off-peak tickets are available over 16 hours each weekday and all weekend. Only 14 per cent of total CityRail service time is covered by peak fares.

<sup>37</sup> IPART, *Review of fares for CityRail in NSW 2006*, June 2006, p 18.

However, economic efficiency also requires that prices for CityRail services take into account the external benefits associated with the provision of these services. IPART also intends to investigate the extent to which peak and off-peak patronage contributes to these external benefits. As the Discussion Paper, *Determining CityRail's revenue requirement and how it should be funded* discussed, these benefits are equivalent to the external costs associated with private car use that are avoided when people choose to travel by train rather than private car, including road congestion, accident-related costs and greenhouse emissions. In general, peak patronage is likely to provide greater external benefits than off-peak patronage, because the costs associated with private car use such as congestion are also higher during peak periods.

This suggests that while the costs of providing CityRail services in peak periods are likely to be higher (which implies that peak fares should be higher) the external benefits arising from peak patronage are also likely to be higher, which implies that government should fund a higher proportion of the costs of providing peak services, relative to off-peak. The extent to which the higher costs of peak services and higher external benefits of peak patronage offset each other is not clear to IPART at this stage. IPART also intends to further investigate the external benefits of CityRail patronage to assist in improving the fare structure.

IPART has also identified several other issues it needs to consider in relation to the structure and level of peak and off-peak fares. These issues include:

- ▼ Should there be an off-peak discount or a peak premium?
- ▼ What approach should be used to set the level of peak and off-peak prices?
- ▼ What other factors should be considered in setting peak and off-peak prices?

### 3.3.1 Should there be an off-peak discount or a peak premium?

In deciding on the structure of peak and off-peak fares, IPART needs to consider the relationship between peak and off-peak services and the nature of CityRail operations.

Should it assume that CityRail provides rail passenger services to a diverse range of markets including commuter and non-commuter markets and that the peak fare represents a 'peak premium' to reflect the additional costs driven by peak demand (additional rolling stock and network infrastructure) while off-peak fares represent the 'base fare'? Or should it assume that CityRail is primarily a commuter service that is designed to cater for the daily peaks, with excess capacity available to be used during the off-peak? This implies that peak fares represent the 'base fare' and off-peak fares are offered at a significant discount to encourage use of this spare capacity and to target growth in the off-peak.

The present pricing structure assumes the latter, namely that peak fares are the base fares and off-peak fares are offered at a discount to encourage use of spare capacity in off-peak periods. This is likely to reflect the nature of providing CityRail services.

IPART seeks comments on the following:

- 1 Should fares for peak period travel represent CityRail's base fares and fares for off-peak travel be offered at a discounted price? Or should off-peak fares represent the base fare and fares for peak period travel be offered at a premium price?

### 3.3.2 What approach should be used to set the level of peak and off-peak prices?

The extent to which fares should be higher in the peak period relative to the off-peak period will depend on the pricing methodology IPART adopts. There a number of approaches it could use to set these fares. For example, they could be:

- ▼ Based on the average cost of providing peak and off-peak services over the next four years. This would involve considering the operating and capital costs CityRail will incur over the next four years in providing peak services relative to off-peak services.
- ▼ Based on the short run marginal costs of providing services. This would involve considering how close the CityRail network is to maximum capacity; that is, the extent to which there is a supply/demand imbalance. At present, parts of the network such as the CBD are approaching capacity, meaning that the short run marginal cost is likely to be high for peak services. In contrast, for off-peak services, and for services in uncongested parts of the network (such as on the outer areas of the suburban network) there is excess capacity meaning the short-run marginal cost is low. However, short run marginal costs will fluctuate over time, depending on the supply/demand imbalance. For example, if there are major investments in expanding capacity, there may be significant capacity during the peak. The short run marginal costs of supplying peak services would be low, meaning that a higher peak prices may not be necessary to indicate the limited capacity available. This 'saw tooth effect' is a common aspect of short run marginal cost pricing.
- ▼ Based on the long run marginal cost (LRMC) of providing services. The long run marginal cost is a forward looking incremental cost approach to setting prices. IPART has set charges in line with LRMC estimates in other industries such as water. However, as the Discussion Paper, *Determining CityRail's revenue requirement and how it should be funded* noted, a LRMC approach requires long-term (20-25 years) forecasts of patronage, capacity-related capital expenditure, other capital expenditure and operating expenditure to determine prices. This is likely to be difficult.

IPART will further investigate the most appropriate methodology for establishing peak and off-peak fares.

IPART seeks comments on the following:

- 2 What is the appropriate methodology for setting peak and off-peak fares?

### 3.3.3 What other factors should be considered in setting peak and off-peak prices?

There may be a number of other considerations relevant to deciding on the structure and level of peak and off-peak fares. For example:

- ▼ How can the structure of these fares best encourage growth in off-peak demand?
- ▼ How can the structure of these fares best encourage a shift from peak to off-peak travel?

#### Encouraging growth in off-peak patronage

As Chapter 2 discussed, the elasticity of demand for CityRail fares is higher among passengers who use CityRail services for discretionary purposes, such as going shopping or accessing recreational activities. Therefore, it might be assumed that a lower off-peak fare will encourage people to use CityRail for these purposes in the off-peak period, rather than another form of transport. However, in its 1996 report IPART noted that there is no evidence that the current lower off-peak rail fares are effective in encouraging more people to use rail instead of other forms of travel.<sup>38</sup>

But the recent reduction in the off-peak discount seems to have led to lower off-peak patronage. As noted above, the discount on off-peak fares was reduced from 39 per cent to 30 per cent in 2006.<sup>39</sup> Whereas the demand for peak-period travel increased strongly in 2006/07, the demand for off-peak travel fell by around 5.7 per cent or 2.2 million journeys during this year. The off-peak discount reduction is likely to have had two effects:

- ▼ A proportion of passengers altered their travel behaviour and switched back to travelling in the peak.
- ▼ A proportion of passengers decided not to travel on CityRail services. This represents 'lost patronage.' As discussed in chapter 2, passengers travelling in the off-peak are more likely to be sensitive to changes in price as they are typically travelling for discretionary purposes and may have alternate transport options.

IPART considers that growth in off-peak patronage is central to achieving government's public transport objectives. In addition, growth in off-peak patronage is more likely to be sustainable than growth in peak patronage, given the current capacity of the CityRail network.

IPART seeks comments on the following:

- 3 To what extent should off-peak fares be set to encourage growth in off-peak demand?

<sup>38</sup> IPART, *An Inquiry into Pricing of Public Passenger Transport Services: Fare Structures for Public Transport*, 1996, p 17.

<sup>39</sup> The discount on off-peak fares is even lower when off-peak single tickets are compared to the heavily discounted periodical tickets which offer discounts of between 17 – 62 per cent. This implies that the relevant comparison for off-peak tickets is not full fare tickets but the periodical and multi-ride tickets.

### Encouraging a shift from peak to off-peak travel

As noted in Chapter 2, encouraging passengers at the margin to alter the timing of their travel from peak to off-peak periods may offer benefits in the form of improvements to service quality (reduced crowding and better on time running) as well as delaying the need or scale of future investment in peak capacity. Reducing the peakiness of demand for CityRail services, particularly to and from the CBD during the morning and afternoon peaks may therefore offer benefits to peak passengers in the form of improved peak service quality, to peak and off-peak passengers in the form of lower average costs and lower fares as well as to taxpayers who fund a proportion of CityRail's costs.

Typically, off-peak fares are set to include a discount compared to peak fares, to encourage passengers to shift their travel from the peak to the off-peak period. IPART is interested in the extent to which discounts for off-peak travel affect passengers' travel patterns. The elasticity of demand for CityRail services during peak periods is considered to be fairly low, which means that demand is relatively unresponsive to small changes in price.<sup>40</sup> This is because for most passengers using CityRail services during peak periods do so for non-discretionary purposes, such as commuting to work, school or university. This is particularly the case for those travelling to and from the CBD, where road congestion and parking constraints deter substitution to private cars.

However, the available evidence suggests that rail passengers are responsive to price signals when it comes to **shifting** their travel patterns between the peak and off-peak periods. That is, passengers will respond to price when considering whether to travel during the peak or off-peak period.

Based on information provided by Railcorp, IPART's preliminary analysis indicates that the reduction in the off-peak discount in 2006 had two effects. It not only resulted in some 'lost patronage' but also contributed to a shift in passengers back into the peak period. The evidence suggests that there was a distinctive increase in full fare return tickets purchased as a result of the off-peak discount reduction. The ticketing information indicates that there was a 9.6 per cent decline in sales of off-tickets between 9am - 10am in the year following the reduction in the off-peak discount. Likewise there was a 5.6 per cent increase in the sale of full fare return tickets between 8 - 9 am.<sup>41</sup> This seems to indicate that a significant proportion of passengers altered their travel patterns in response to the reduction in the off-peak discount. Presumably this was because that the value of the discounted price no longer out weighed the inconvenience of delaying travel to the off peak period.

<sup>40</sup> As discussed in Discussion Paper No 1, IPART engaged Booz Allen Hamilton to estimate fare elasticities for CityRail tickets. Booz Allen Hamilton found that the own price elasticity for CityRail tickets is -0.29. This implies that for an increase in fares of 5 per cent, passenger journeys will decrease by 1.5 per cent.

<sup>41</sup> There was a total increase in full fare return tickets of 4.5 per cent in the year 2006/07.

Research conducted by RailCorp suggests that many passengers are able and willing to shift their travel patterns.<sup>42</sup> However, RailCorp surveys suggest that encouraging these passengers to travel outside of the peak requires significant fare discounts (of around 50 per cent). These surveys also suggest that a range of other factors such as improved frequency of trains in the off-peak periods and greater workplace flexibility in terms of culture and peer attitudes are also likely to encourage a shift in travel patterns from the peak to the off-peak. This implies that CityRail passengers respond to factors other than price, including:<sup>43</sup>

- ▼ frequency of supply and crowding in the off-peak
- ▼ journey times on off-peak trains<sup>44</sup>
- ▼ reliability of off-peak services
- ▼ safety, particularly for women travelling later in the evening off-peak (in stations precincts, platforms and on-trains)
- ▼ greater integration of train/bus timetables out of the peak – passengers argue they may have to wait considerable times for both modes of transport adding substantial length to an journey in the off-peak.

In addition, RailCorp research suggests that reduced service frequency outside of peak periods is a major barrier for many CityRail customers in altering their travel decisions. For many passengers the higher level of service frequency in the peak outweighs crowding or on-time reliability concerns. However, many passengers are able and willing to shift the timing of their travel if there is service quality improvements in the off-peak, particularly, improved service frequency and seating availability (which is related to service frequency).

IPART notes that increased frequency of services outside of the peak period as a means to encourage passengers to travel in the off-peak is a central element of London's approach to improving congestion and crowding on train services in the central districts.<sup>45</sup> However the question is whether CityRail is in a position to improve the frequency of trains during non-peak times. At present, sending more trains to the CBD before 7am would mean that there are not sufficient trains to cater for the peak. This also applies in the p.m. peak. The delivery of the PPP rolling-stock from 2010 should assist in overcoming this problem.

IPART considers that an effective price signal such as an appropriate off-peak discount combined with service quality improvements in the off-peak are considerably more likely to be effective in shifting the timing of demand than a price

<sup>42</sup> In recent research conducted by RailCorp, 42 per cent and 47 per cent of survey users that currently travelled in the a.m. peak were willing to shift their travel times earlier and later respectively (although there are some variation in responses by line, particularly for blue mountains commuters).

<sup>43</sup> This was a point noted in the Parry Report. *Ministerial inquiry into sustainable transport in New South Wales, A framework for the future: Final Report*, December 2003.

<sup>44</sup> In surveys conducted by CityRail, passengers indicated that the availability of express trains and the length of the journey times were barriers to passengers willing to alter their travel decisions.

<sup>45</sup> Transport for London, *A rail strategy for London's future*, 2007, p 11.

signal alone. That is, there needs to be an integrated package of measures to address congestion and crowding stemming from peak demand.

IPART seeks comments on the following:

- 4 To what extent should off-peak fares be set to encourage a shift from peak to off-peak travel?
- 5 What level of discount compared to peak fares is likely to encourage passengers to shift from peak to off-peak?
- 6 What is the relevant ticket that off-peak fares should be compared to? For example, should off peak fares be compared to multi-trip tickets that are already heavily discounted?
- 7 Are there any other factors that are likely to encourage passengers to shift from peak to off-peak travel?

### **3.4 What should IPART consider in reviewing off-peak ticket products and conditions related to the use of these products?**

Improving the structure of peak and off-peak fares to better reflect the cost of providing peak and off-peak services will only encourage efficiency in the use of rail services and help meet demand in peak periods if passengers use off-peak fares in a way that is consistent with the intention of the ticket. For example, currently off-peak return tickets can be used in the afternoon peak creating little incentive for customers to alter their travel patterns to reduce congestion on the CityRail network in the afternoon peak. As noted in Chapter 2, a considerable proportion of passengers with off-peak tickets are travelling during the afternoon peak, directly contributing to peak congestion problems.

IPART has identified several issues related to the availability of off-peak tickets and the conditions related to the use of these tickets that it needs to consider, including:

- ▼ Should any off-peak discount be location or direction specific or should it apply to the entire network?
- ▼ What time limits should apply to off-peak tickets?
- ▼ What ticket or fare products would need to be available to encourage passengers who typically travel in peak periods to shift to off-peak periods?

#### **3.4.1 Should any off-peak discount be location or direction specific or should it apply to the entire network?**

As discussed earlier, congestion on the CityRail network is not only time-specific but also location-specific. The CityRail network is most congested around the CBD in peak times due to the large numbers of commuters travelling to or from the CBD. However, there is excess capacity on other parts of the network during peak times. This suggests that peak-period demand for CityRail services on these parts of the

network does not create congestion or drive the need for additional expenditure, and therefore should be priced accordingly.

For example, passengers travelling away from the CBD in the morning peak period do not place the same peak 'pressures' on the CityRail network as those passengers heading into the CBD. Once a full 8 car train heads out of the CBD in the morning peak after dropping off passengers at the CBD stations it typically has significant excess capacity. In this case the short-run opportunity cost of providing services to passengers travelling out of the CBD is minimal even though travel is occurring in the peak.

The question is whether the off-peak discount should apply to certain passenger journeys that are undertaken during the peak period to reflect the excess capacity of the CityRail network at certain locations.

IPART seeks comments on the following:

- 8 To what extent should the off-peak discount be available to passengers travelling in non-congested parts of the network?

#### **3.4.2 What time limits should apply to off-peak tickets?**

At present off-peak return tickets are sold after 9am, ensuring that the passengers who use these tickets can only travel after the morning peak period. However, there are no restrictions on when they can make their return journey, which means they can travel during the afternoon peak, thus contributing to peak period congestion and the cost of supplying peak services.

IPART recognises that passengers using off-peak tickets are avoiding the morning peak thereby reducing congestion on morning CityRail services and the need for additional capacity. However passengers travelling in the afternoon peak on off-peak tickets are directly contributing to the congestion in the afternoon peak but are not contributing to the costs of providing peak services. IPART wishes to consider whether the conditions of use for off-peak return tickets should be revised so that return journeys cannot be made during the afternoon peak period (i.e., between 4 – 6pm). For example, a larger discount may be offered for off-peak tickets if they could be used only for off-peak travel. IPART recognises that changes to the rules surrounding the use of tickets will depend on the limits of current CityRail ticketing and gating technology.

IPART seeks comments on the following:

- 9 Should off-peak ticket holders be permitted to travel on congested areas of the network during the afternoon peak period?
- 10 What time limits should apply to the use of off-peak tickets?

### **3.4.3 What ticket or fare products would need to be available to encourage passengers who typically travel in peak periods to shift to off-peak periods?**

At present, the only off-peak product available is the off-peak return ticket. IPART is interested in whether there is the need for alternative off-peak ticket products such, as off-peak single tickets or off-peak weekly tickets, to encourage passengers to use CityRail services during off-peak periods. At present, a major factor limiting greater off-peak travel is the value that passengers, particularly commuters, place on not having to buy tickets daily. That is, passengers value avoiding having to spend time queuing to buy tickets. An off-peak weekly ticket may encourage those passengers that are able to shift the timing of their travel to off-peak periods to do so. It may also reduce the costs involved with selling tickets on a daily basis.

IPART recognises that the availability of off-peak products may be limited by current ticketing technology. IPART also recognises that adding new tickets for the use of CityRail services may add complication to government's objective of transiting to electronic ticketing. IPART is interested in the implications of adding new tickets for the use of CityRail services.

IPART seeks comments on the following:

- 11 Is there a need for additional off-peak tickets?
- 12 What ticket or fare products would need to be available to encourage a shift from peak to off-peak travel?
- 13 What are the implications of adding additional products?

## 4 Improving CityRail's distance based fare structure

As Chapter 1 explained, the spatial aspect of CityRail's fare structure links the fare for a trip to the location in which the trip is undertaken or the distance travelled. At one extreme, a flat fare structure means that all passengers pay the same fare, regardless where or how far they travel. At the other extreme, a distance-based fare structure can mean that passengers' fares increase for every kilometre they travel.

IPART has examined CityRail's current fare structure, and found that it offers many ticket products that have a variety of fare structures. CityRail's most popular ticket products – including single and return tickets, and periodical tickets – have a fare structure that includes a flat flag fall charge and a variable distance-based charge. However, the distance-based charge is not consistent on a kilometre basis. In addition, the discount applied to periodical tickets is not consistent, and increases significantly with the distance travelled.

IPART's preliminary view is that there is scope to improve the fare structure for most of CityRail's ticket products, so that it is simpler and more consistent and cost-reflective, and can be provided via an electronic ticketing system in the future. IPART expects that the introduction of electronic ticketing will bring many benefits to CityRail users.

IPART has identified several options for a new fare structure, including:

- ▼ A flat fare structure, where fares are charged at a uniform rate, regardless of distance travelled.
- ▼ A zone-based fare structure, where the network is divided into defined geographical zones. Fares are based on the number of zones the passenger travels through, and a flat rate is charged per zone. The number of zones or fare increments in the system can vary substantially.
- ▼ A flag fall and distance-based fare structure, where fares comprise a flat flag fall charge and a variable distance-based charge. Distance can be measured in a variety of ways (eg, as the crow flies, or train kilometres travelled). Distance can also be divided into bands and fares based on the number of bands the passenger travels through, or fares can be based on the number of kilometres travelled.

In considering these options, IPART will assume that the current paper-based ticketing technology will be maintained over the determination period, and that the current tickets will remain on the market. However, it will also assume that in the future, CityRail fares will be provided through an electronic ticket or card. In addition, IPART will assess the options for the fare structure against its assessment criteria for its 2009 reviews (see Box 1.3, on page 6). In doing so, it will place most weight on the criteria that are most relevant to the fare structure, including:

- ▼ Promotes economic efficiency of rail services, for example by providing economic price signals, through fare outcomes that reflect the cost of providing CityRail's services.
- ▼ Is easily understood by passengers and convenient to use.
- ▼ Is consistent with government policy on transport fares and broader government objectives for public transport, for example taking into account of the social impact of decisions.

IPART has begun this assessment, and has formed the preliminary view that a distance-based fare structure that comprises a flat flag fall charge plus a per kilometre charge and a consistent discount for periodical tickets best meets the above criteria. The section below describes CityRail's current fare structure in more detail. The subsequent sections discuss the options for an alternative fare structure, explain why IPART prefers a flag fall plus distance-based fare structure with a per kilometre charge and a consistent periodical discount, and consider the likely impacts of IPART's preferred option for passengers and the introduction of electronic integrated ticketing.

IPART notes that the Government has tasked the Ministry of Transport with identifying and analysing options for restructuring and simplifying public transport fares generally. IPART anticipates that the recommendations it makes to Government as part of this review will be an input to that broader process.

#### **4.1 Current fare structure**

Currently, more than 90 per cent of CityRail's farebox revenue is derived from ticket products that have a flag-fall and distance-based fare structure. These products include single and return tickets, and periodical tickets (weekly, monthly, quarterly and yearly tickets). The remaining revenue is derived from a variety of integrated ticket products, which enable the holder to use multiple services and modes of public transport with one ticket. These tickets either have a zone-based fare structure, or a flat fare structure.

### 4.1.1 Single and return tickets

Most fares for CityRail's single and return ticket products are linked to train kilometres travelled, but the fares do not increase at a consistent rate for every kilometre travelled. Rather, journey distances are broken up into bands. The price increases:

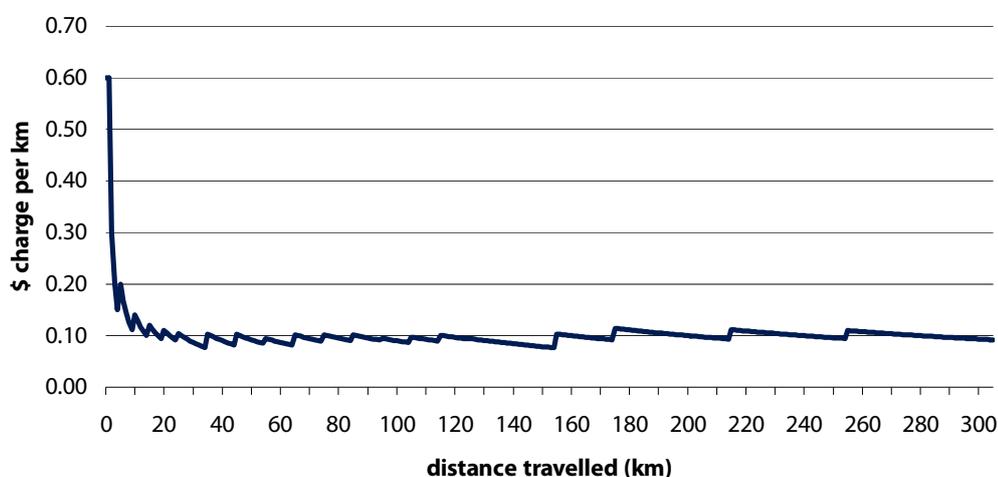
- ▼ every 5 kms for journeys up to 25 kms
- ▼ every 10 km for journeys between 25 kms and 135 kms
- ▼ every 20 km for journeys between 135 km and 175 kms
- ▼ every 40 km for journeys of between 175 kms to 255 kms.

For journeys above 255 km, the ticket price is constant at \$30.

The fare for a return journey is calculated as twice the fare for the single journey.

The fare structure for the single ticket is broadly based on an implicit flat flag fall charge and a variable distance-based charge. The flag fall charge is approximately \$2. As discussed above, the distance-based charge is not consistent on a per kilometre basis. However, IPART's analysis suggests that when converted to a per kilometre basis, the current distant-based charge is around \$0.10 per kilometre for journeys longer than 20 kilometres (Figure 4.1).

IPART considers that this fare structure provides economic pricing signals consistent with the costs of providing CityRail Services. That is, there are both fixed and variable costs. The flag fall charge reflects the fixed costs and the per km charge reflects the variable costs of the services. However, IPART considers the fare structure could be improved by introducing a per km variable charge that more closely reflects the costs of providing the services. The inconsistencies between the current per km variable charges are reflective of the boundaries between the distance bands, rather than differences in underlying costs. IPART will undertake analysis to ascertain what flag fall and per kilometres charges accurately reflect the fixed and variable costs of providing CityRail services, and set these charges accordingly.

**Figure 4.1 Distance charged per kilometre under existing fare charge<sup>a</sup>**

<sup>a</sup> Based on an inherent flag fall of \$2.

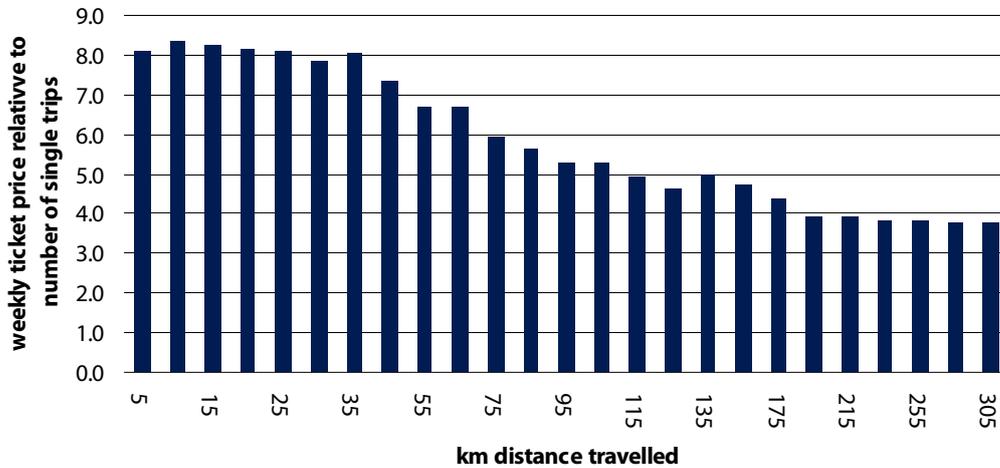
Source: IPART.

#### 4.1.2 Periodical tickets

The fare for a weekly ticket is based on the fare for a single ticket for the same journey (described above), and is discounted to reward or encourage frequent passengers. However, the size of this discount varies significantly according to the distance travelled.

To compare the size of the discount for various journeys, IPART calculated the weekly ticket price relative to the single ticket price for a variety of journeys (Figure 4.2). This analysis shows that for journeys up to 35 kms a weekly ticket is equivalent to the price of around eight single tickets. However, for a 75 km journey a weekly ticket is roughly equal to the price of six single tickets, and for a 195+ km journey it is less than the price of four single tickets. This discount structure means that passengers travelling 10 km receive a discount of around 17 per cent, while passengers travelling 195 km and above enjoy discounts of over 60 per cent.<sup>46</sup>

<sup>46</sup> Compared to the purchase of 10 single tickets in a week.

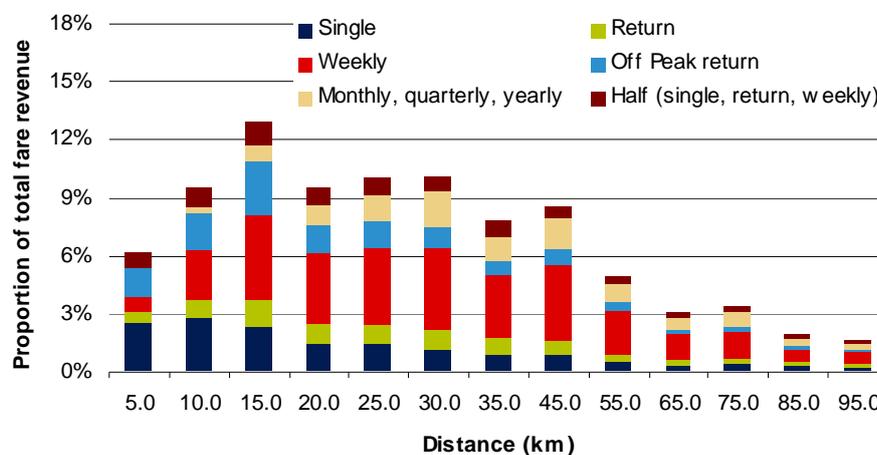
**Figure 4.2 Current weekly ticket prices relative to single ticket prices**

Source: IPART.

The fares for monthly, quarterly and yearly tickets are based on the price of weekly tickets, so the size of the discount for journeys of different distances varies in the same way as those for weekly tickets.

While it may be appropriate to offer regular CityRail passengers a discount, IPART considers that the size of the discount for journeys longer than 35 kms is not consistent with promoting economic efficiency of rail services, because it does not provide appropriate pricing signals about the costs involved in providing those journeys. In addition, these discounts are likely to represent significant foregone revenue. Figure 4.3 shows that weeklies represent a large (and often the largest) proportion of the total fare revenue generated by journeys of all distances, while single and return tickets represent a declining proportion of revenue as the journey distance increases.

**Figure 4.3 Proportion of fare revenue generated by different ticket types for journeys of different distances (2005/06)**



Source: IPART, *Review of CityRail Regulatory Framework, Issues Paper*, October 2007.

IPART is also concerned that the large discounts on weekly tickets for longer journeys are inequitable. These discounts mean that passengers who purchase weekly tickets for the intercity and outer suburban services receive a higher Government subsidy than passengers who purchase single or return tickets, and passengers who make shorter journeys.

IPART notes that most of the CityRail passengers who purchase weekly, monthly, quarterly and yearly tickets are commuters, who generally have substantially higher household incomes than those who buy single tickets (discussed further in Chapter 5). IPART also notes that Sydney bus passengers do not enjoy similar discounts. For example, the price of multi-use tickets for public bus services are based on the price of multiple single tickets plus a consistent 20 per cent discount, regardless of distance. Private bus services currently do not provide any discount to regular passengers and the users of these services generally have lower average household incomes than CityRail passengers. Like many CityRail passengers, private bus users travel long distances between the outer Sydney suburbs and the CBD daily and pay fares of more than \$10 a day. (IPART notes that the Government has committed to the implementation of a multi-ride or equivalent product on these private bus services.)

IPART is aware that the provision of cheaper public transport fares to outer suburban areas is consistent with broader government planning objectives (ie, housing developments in outer suburban regions) and social equity considerations. However, it questions whether the larger discounts for weekly tickets between the CBD and regional cities like Wollongong and Newcastle is justified.

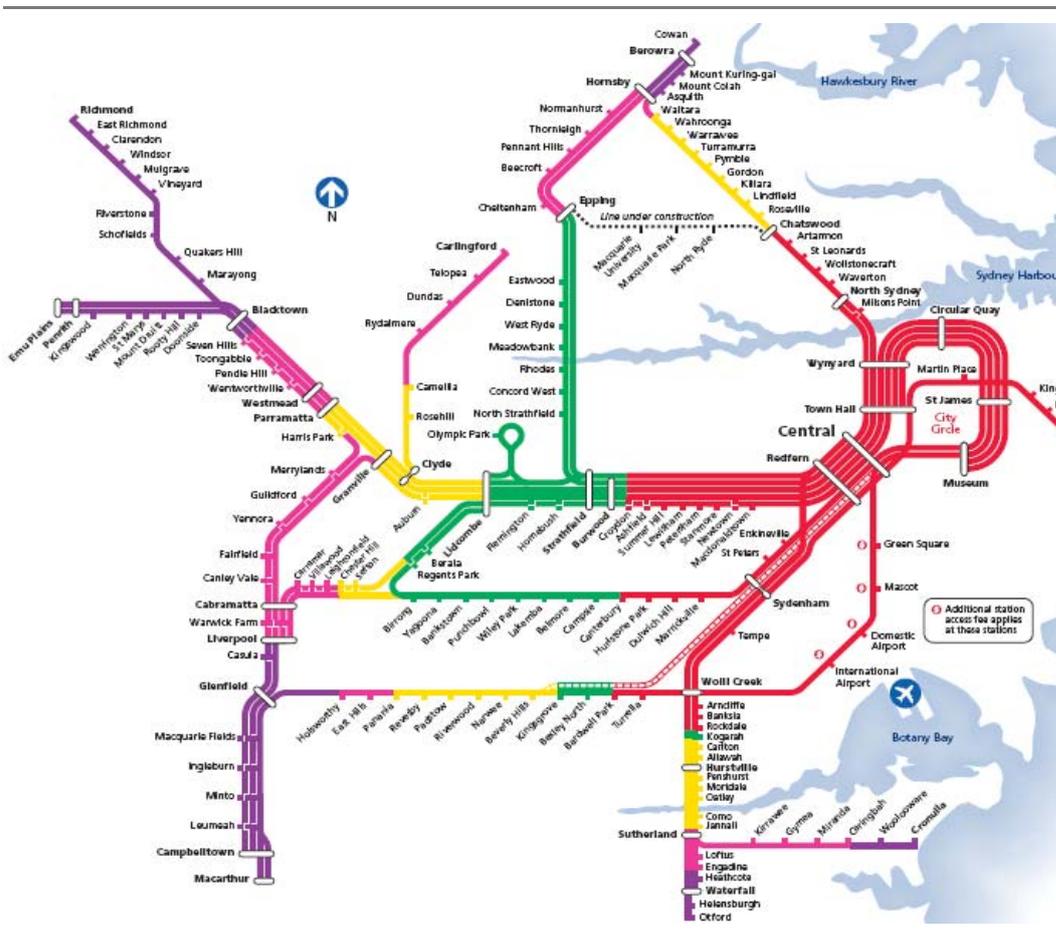
### 4.1.3 Other tickets

CityRail offers a variety of integrated tickets that do not have a flag fall plus distance-based fare structure, including the TravelPass, the DayTripper, CityHopper, Blue Mountains ExplorerLink, SydneyPass and the Pensioner Excursion Ticket (PET). These tickets enable people to use multiple services within the same mode of public transport or different modes of transport for a single fare.

#### The TravelPass

The TravelPass includes options for train/bus journeys, train/bus/ferry and bus/ferry journeys, and is offered as a periodical ticket only (weekly/quarterly/yearly). The TravelPass has a zone-based fare structure. Figure 4.4 shows the zones for train travel. The cheapest ticket – the Red TravelPass – enables the holder to travel within a zone that includes the CBD and extends to Chatswood in the north, Bondi Junction in the east, Rockdale in the south, Bardwell Park and Canterbury in the south west and Croyden in the west. The Green, Yellow, Pink and Purple TravelPasses enable the holder to travel within successively wider zones around the CBD.

**Figure 4.4 TravelPass Zones**



Source: CityRail 2008.

Like other CityRail periodical tickets, the price of TravelPass tickets includes a large discount compared to the price of single tickets for the equivalent journey. This means they provide a particularly cheap travel option for particular itineraries for those who need to use multiple services or modes of transport to complete a journey. However, TravelPasses are not available to all such passengers. Because they are offered as periodical tickets only, they are not available to those who do not travel frequently and regularly (eg, non-commuters). In addition, they are not available to passengers who need to use private bus services for part of their journey. These passengers tend to be located in the south west and outer west of Sydney.

#### DayTripper, CityHopper, Blue Mountains ExplorerLink, and SydneyPass

The DayTripper, CityHopper, Blue Mountains ExplorerLink, and SydneyPass have a flat fare structure, enabling the holder to travel in a particular area for a single fare. These tickets vary by the number of modes included in the ticket price, the size of the area for which travel is valid, and the length of time they remain valid.

#### The Pensioner Excursion Ticket

The Pensioner Excursion Ticket (PET) is available only to people holding Centrelink pensioner concession cards, NSW Seniors Cards or NSW or Victorian War Widow/er concession cards. It enables the holder to use all train, public bus and ferry services for one day. The price of this ticket is set by the Government (not IPART), and reflects government social policy. This ticket has a flat fare structure and currently costs \$2.50.

At this stage IPART is not recommending the removal of any tickets as part of its review. However, its preliminary analysis indicates that depending on the journeys travelled, for many users TravelPasses represent excellent value and convenience. This is borne out of their increased popularity in recent years, with passengers using TravelPasses for 11 per cent of all trips taken in 2006/07.<sup>47</sup>

Ultimately decisions on the availability, structure and use of multi-modal tickets such as TravelPasses are a matter for government policy on public transport fares.

It should be noted that IPART is not reviewing the price of the PET as part of its review, as this price is set by the Government.

IPART seeks comments on the following:

- 14 How should the current integrated tickets such as TravelPasses be priced to ensure users of these ticket types are not receiving a disproportionate subsidy from passengers using single and periodical tickets while still allowing and encouraging multi-modal travel?

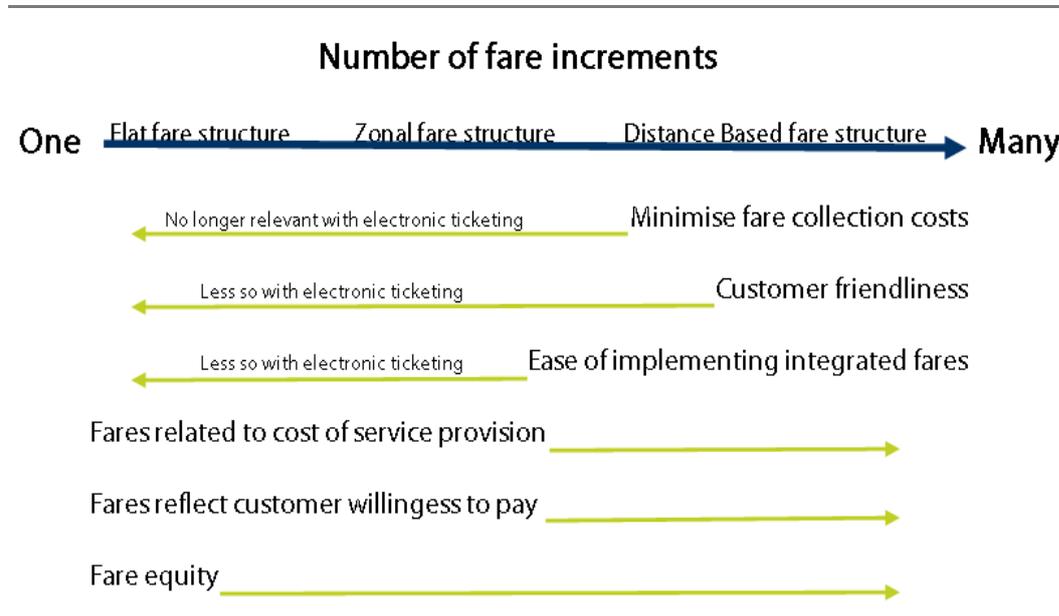
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<sup>47</sup> RailCorp.

## 4.2 Fare structure options

As noted above, IPART has identified three basic options for CityRail's fare structure, including a flat fare structure, a zone-based fare structure and a flag fall plus distance-based fare structure. IPART has begun to consider these options, taking into account the criteria outlined above. Its preliminary analysis of each option is discussed in the sections below. The relative strengths and weaknesses of each option is summarised in Figure 4.5, for example, as the number of fare increments decrease towards a flat fare structure, fare collection costs are minimised.

**Figure 4.5 Relative strengths according to number of fare increments**



### 4.2.1 Flat fare structure

Traditionally, a flat fare structure is the simplest, easiest option, both for users to understand and for operators to administer, and involves low fare collection costs. Integrated ticketing is also easiest to implement with a flat fare structure. However, these advantages will be less significant when electronic ticketing is introduced.

In addition, in large and geographically diverse networks like CityRail's, a flat fare structure would not promote economic efficiency of rail services. In particular, it would result in fare outcomes that do not reflect the cost of providing the services, and most likely lead to lower farebox revenue.

A flat fare structure in large networks would also increase the inequity between passengers who travel shorter distances and those who travel longer distances. The fares for shorter distances would become much more expensive while those for longer distances would become even cheaper.

### 4.2.2 Zone-based fare structure

Zone-based fare structures have similar advantages to a flat fare structure, in that they are relatively simple and easy for passengers to understand (although they can be confusing for infrequent passengers, who may not know how many zones their journey will cross). They also minimise fare collection costs and make the implementation of integrated fares relatively easy. However, as for flat fare structures, these advantages are less significant with electronic ticketing.

The social impacts of zone-based structures depend on the number and size of the zones. For example, if the zones are reasonably large they can result in inequitable fares, as passengers who travel within one zone will pay much less than those who travel a similar distance, but cross a zone boundary. This situation can also have undesirable effects at zone borders; for example, it can lead to anomalous demand for car-parking as people try to avoid crossing zone boundaries. Fares can also become inflexible over time, as zone borders tend to become frozen.

In addition, zone-based fare structures are most effective in networks with a single hub or CBD at their centre. This is not the case in CityRail's network, as a significant number of commuters travel from their homes to other non CBD locations such as Parramatta, Hurstville and Chatswood. These passengers travel across the CityRail network, rather than to and from the CBD. Due to this factor, and the size of the CityRail network, IPART considers that a zone-based fare structure may not be the most efficient, practical and fair ticketing system.

### 4.2.3 Flag fall and distance-based fare structure

A flag fall and distance-based fare structure can be the most equitable pricing structure for passengers, because the further they travel, the more they are charged. The inconsistencies associated with CityRail's current distance-based fare structure (discussed above) would be reduced by adopting smaller, consistent distance bands. The most equitable approach would be a charge per kilometre of travel.

A flag fall and distance-based fare structure with a per kilometre charge would also be the most cost-reflective, because there would be a direct link between the incremental costs of a journey and the fare for that journey.

Traditionally, distance-based fare structures with small distance bands (and thus many fare increments) have involved higher collection costs, and made integrated ticketing more difficult than the other options. However, electronic ticketing will reduce the significance of these disadvantages.

### 4.3 IPART's preferred option

IPART's preliminary view is that a flat fare and distance-based fare structure remains the most appropriate option for CityRail as it is equitable and cost reflective. With the introduction of electronic ticketing, it is also compatible with integrated ticketing.

IPART's preferred option is for a fare structure that comprises two separate components:

- ▼ an explicit flat fare charge that is applied to all fares, and which reflects CityRail's fixed costs
- ▼ a per kilometre charge (rather than 5-40 km distance bands) that reflects CityRail's variable costs.

IPART considers that this option is most consistent with the assessment criteria. A variable fee which is charged per kilometre of travel rather than according to a range of distance-based bands helps promote the economic efficiency of rail services because it will lead to fares that better reflect the costs of providing CityRail services, and these costs will be more effectively signalled to users.

IPART will undertake analysis to ascertain the fixed and variable costs of providing CityRail services. In particular, IPART will consider a constant variable charge per kilometre of travel, a variable charge that decreases per kilometre of travel, and different constant per kilometre charges over different distance ranges.

IPART also considers that the fare structure should include some discount for periodical tickets. IPART's preliminary view is that this discount should be constant, regardless of the distance travelled. For example, the price of a weekly ticket might be calculated based on 10 single fares less a 20 per cent discount. This approach is significantly more transparent and easier to understand for passengers. However, IPART considers that it may be necessary to transition to this approach over a substantial period of time, due to the large size of current discounts for longer journeys.

From the increasing demand for TravelPasses, it is clear that some passengers favour periodical integrated tickets that allow users to make multiple boardings on the one mode of transport, or use multiple modes of transport over a defined period using one ticket. IPART understands these tickets offer their users increased flexibility, convenience and accessibility. However, the current unlimited travel nature of these tickets means that:

- ▼ they may not be cost reflective
- ▼ their users may receive a greater subsidy than passengers using single and return tickets
- ▼ they are not particularly suited to the flat fare and constant per kilometre charge fare structure.

IPART is not reviewing the availability, structure and use of integrated tickets such as TravelPasses, as this is a matter for government policy on public transport fares. Nevertheless, it will need to review the price of these products for the purposes of its fare determination. IPART will be particularly concerned to ensure that the existing relativities between TravelPasses and CityRail flag fall plus distance-based periodical tickets (such as weekly tickets) are maintained in its next fare determination. Therefore, IPART will undertake additional analysis of the pricing of TravelPasses prior to releasing its draft report and determination in September.

#### 4.4 Likely impacts of moving to IPART's preferred fare structure

IPART has considered the likely impacts of moving to its preferred fare structure for passengers, and the implications of this fare structure for electronic integrated ticketing.

##### 4.4.1 Impacts for passengers

IPART has completed some preliminary modelling to assess the impact on passengers of moving from the current fare structure to one that includes a flat flag fall charge and a per kilometre charge, and a consistent discount for periodical tickets. For modelling purposes, IPART has assumed that:

- ▼ fares under the new fare structure will generate the same amount of revenue as currently
- ▼ fares for single tickets will be based on a flag fall of \$2 and a constant per kilometre charge of 8.2 cents
- ▼ fares for weekly tickets will be calculated as eight times the fare for a single ticket (so for the typical commuter travelling 10 times a week, the discount will be 20 per cent).

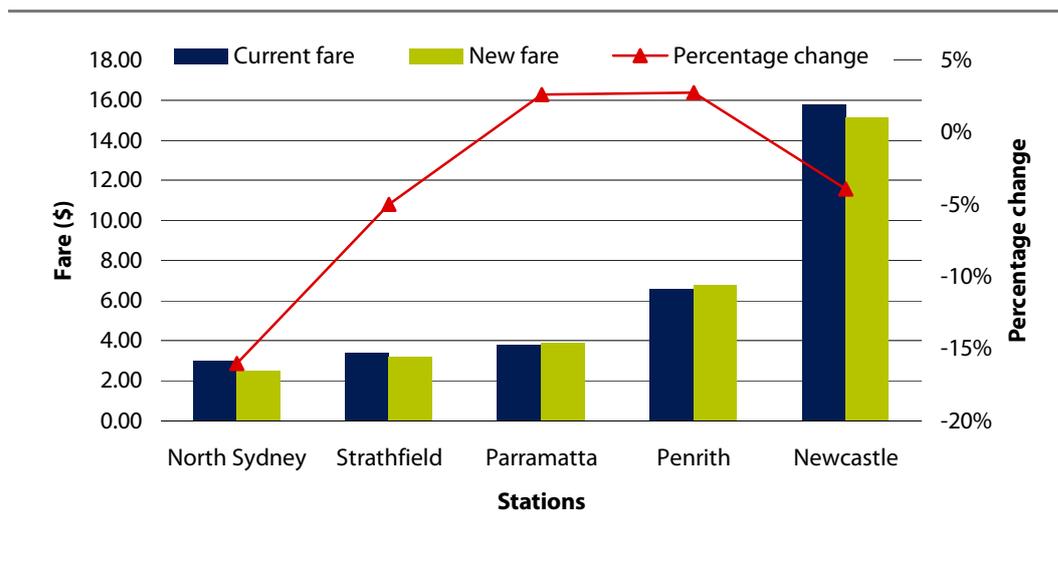
IPART considers that these assumptions are sufficiently realistic to capture the likely effects of moving to its preferred fare structure. However, it is important to note that the assumptions are indicative only. IPART's decisions about the levels of the flag fall and per kilometre charges and the periodical discount will need to be informed by an assessment of the efficient costs of the provision of CityRail services, and government policy objectives, taking into account the social impact of the fare levels. Thus IPART will consider a range of flag fall and per kilometre charges and periodical discounts for its draft determination.

IPART's preliminary modelling suggests the move to a fare structure that comprises a flat flag fall charge and a constant per km charge will not have a major impact on passengers because it is broadly consistent with the current fare structure. However, the application of a consistent discount for periodical tickets with this fare structure will result in significant fare increases for passengers who purchase these tickets and travel long distances.

Figure 4.6 compares the current fares for a single ticket between selected CityRail stations and the CBD with the fares that would apply under IPART's preferred fare structure (and the assumptions described above). This analysis suggests that the preferred fare structure will have a minor impact on passengers who purchase single and return tickets, as fares for these tickets would decrease, or increase by a marginal amount (less than 5 per cent).

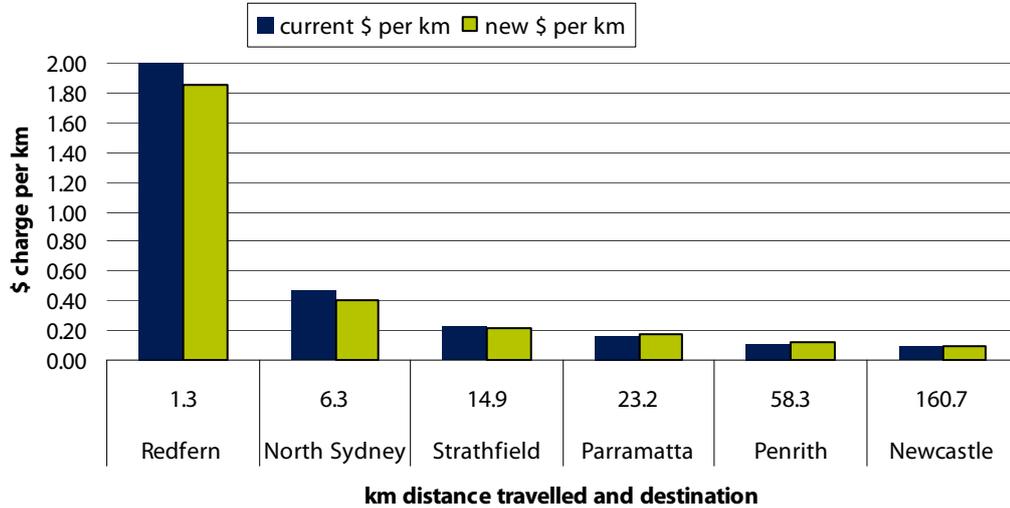
Figure 4.7 compares the price per kilometre for a selection of current single ticket fares and the fares that would apply under IPART's preferred fare structure. This analysis also suggests that the preferred fare structure would have a minor impact on passengers who purchase single and return tickets. It shows that when single fares under the current and preferred fare structure are converted into a price per kilometre this price is fairly similar.

**Figure 4.6 Impact of preferred fare structure on single fares from CBD to selected stations**



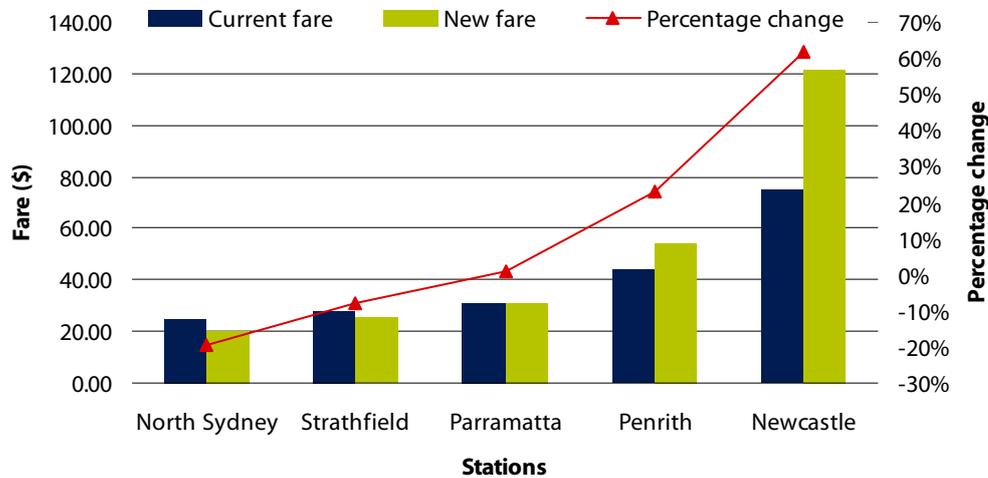
Source: IPART.

**Figure 4.7 Impact of preferred fare structure on price per kilometre for single fares from CBD to selected stations**



Source: IPART.

Figure 4.8 compares weekly ticket fares under the current fare structure to weekly fares under IPART’s preferred fare structure, which includes a consistent discount for periodical tickets regardless of distance travelled. This analysis suggests that a decision to apply a consistent discount of around 20 per cent would have a significant impact on some passengers. Those who buy weekly tickets and travel shorter distances would pay lower fares, but those who travel longer distances would pay more, in some cases considerably more. For example, IPART’s modelling suggests that the price of a weekly ticket between the CBD and Newcastle would increase by over 50 per cent.

**Figure 4.8 Impact of preferred fare structure on weekly fares from CBD to selected stations**

Source: IPART.

IPART considers that if an explicit flag fall and constant per kilometre fare structure is implemented, the application of a constant 20 per cent discount across all tickets will have unacceptable impacts on passengers travelling longer distances. However, if variable costs are found to decrease per kilometre travelled, and thus a decreasing per kilometre charge is adopted, a constant 20 per cent discount may not result in significant fare increases for longer journeys.

Significant increases in fares levels are inconsistent with government policy objectives, including encouraging increased patronage, and taking into account the social impact of decisions. IPART will consider social equity and affordability when plotting a transition path towards the preferred fare structure. IPART also recognises that some rail passengers have made decisions about where to live in part based on access to and the price of public transport.

IPART seeks comments on the following:

- 15 Is a flat flag fall charge and a per kilometre charge that reflects CityRail's fixed and variable costs the most appropriate fare structure for CityRail?
- 16 Should cost reflectivity be the most important consideration for IPART when determining the flag fall and per kilometre charge?
- 17 For periodical tickets, should there be a constant discount regardless of distance travelled?
- 18 If a constant discount for periodical tickets is adopted, is the 20 per cent discount that is currently applied to Sydney metropolitan bus fares a suitable target to transition CityRail ticket prices towards?

#### 4.4.2 Electronic ticketing

The Government is currently undertaking a review to introduce an electronic ticketing system across the public transport modes. Such a system would provide a range of benefits for public transport passengers and operators in the Sydney region. It would enable passengers to use different services and different modes of transport to complete their journey, without the need to purchase separate tickets (which imposes both additional costs and inconvenience).

The introduction of an electronic and integrated ticketing system requires some fare structure issues to be considered. For example, if all public transport fares are based on a flat flag fall charge plus a per km charge, then should the flag fall be charged for each boarding? One option that is used for other transport systems would be for the overall fare to be based on one flag fall charge, plus the per km charge for the distance of one continuous journey. This would involve a flag fall rebate for second and subsequent boarding's in the same journey.<sup>48</sup>

For operators, the one flag fall charge and per km charge fare structure is superior to the current zone-based structure of TravelPass fares, as it establishes a link between incremental revenue and cost. Further, electronic ticketing can allow for extensive journey data collection, so the apportionment of revenue between operators of different modes can be determined based on actual data, rather than contentious passenger surveys.

Ultimately, the issue of broader fare reform such as the adoption of a consistent fare structure across modes of public transport, the introduction of electronic integrated fares and the ongoing availability of TravelPass tickets, is a matter for government consideration as part of the implementation of electronic ticketing.

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<sup>48</sup> The boarding would be considered part of the same journey if made within a specified time period after alighting the previous mode of transport.

## 5 Social impact of fare determination

Under section 15(k) of the *Independent Pricing and Regulatory Tribunal Act 1992* (IPART Act), IPART is required to consider the 'social impact of its determinations and recommendations'. In previous fare reviews, the limited information available has constrained IPART's ability to consider these impacts. However, the current review of CityRail's economic regulatory framework has afforded IPART an opportunity to gather and analyse a range of data that may help inform its decision on an appropriate transition path for any fare changes it determines.

The sections below provide an overview of this data and analysis, including a profile of CityRail's passengers and their broad economic circumstances, CityRail fares as a proportion of average incomes, and the role of off-peak and concession fares in mitigating the social impacts of a higher fare determination.

### 5.1 Profile of CityRail passengers

Railcorp data suggests that only 19 per cent of Sydney's population use CityRail's services once a week or more (Table 5.1). Around 40 per cent use these services less than once a month, and more than 30 per cent never use these services. Therefore, IPART's fare determinations are likely to affect less than 20 per cent of Sydney's population.<sup>49</sup>

**Table 5.1 Percentage of the population using CityRail services (1996)**

| Level of usage           | Percentage of respondents |
|--------------------------|---------------------------|
| 4+ days per week         | 11                        |
| 1-3 days per week        | 8                         |
| 1-2 days per month       | 10                        |
| Less than once per month | 39                        |
| Never                    | 32                        |
| <b>Total</b>             | <b>100</b>                |

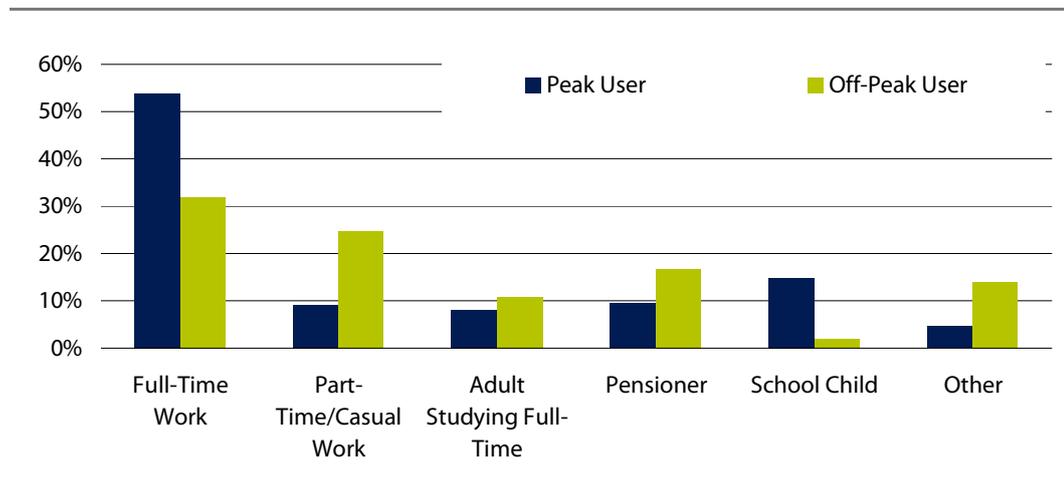
**Source:** *A Compendium of CityRail Statistics*, Fifth Edition, April 2006, Rail Development Sectorisation RailCorp, p 26.

<sup>49</sup> *A Compendium of CityRail Statistics*, Fifth Edition, April 2006, Rail Development Sectorisation RailCorp, p 26.

As Chapter 2 discussed, the primary market for CityRail services is the commuter market, which comprises passengers who use these services for non-discretionary travel for work or education purposes. Consistent with this, the 2005 Household Travel Survey conducted by the Transport Data Centre (TDC) found that during peak periods, 54 per cent of CityRail passengers are full-time workers, while 9 per cent part-time or casual workers (Figure 5.1). Significant proportions of other passengers who use peak period services are likely to be eligible for concession fares or free travel, notably pensioners (10 per cent) and school children (15 per cent).

During off-peak periods, higher proportions of CityRail passengers are part-time and casual workers (25 per cent), pensioners (17 per cent), and adult students (11 per cent). However, due to the nature of school hours, a smaller proportion of passengers are school children (2 per cent).

**Figure 5.1 Labour force status of CityRail's passengers (2005)**



Source: Household Travel Survey 2005, Transport Data Centre.

### 5.1.1 Income profile of CityRail passengers

The TDC's 2005 Household Travel Survey found that 80 per cent of CityRail passengers belong to households with an annual income of more than \$32,032 (Table 5.2). This survey also found that on an average weekday, the median income of CityRail passengers was \$71,864.

**Table 5.2 Annual household incomes of CityRail passengers (2005)**

| Percentile 20 | Percentile 40 | Percentile 60 | Percentile 80 | Mean     | Median   |
|---------------|---------------|---------------|---------------|----------|----------|
| \$32,032      | \$60,476      | \$88,556      | \$139,984     | \$88,051 | \$71,864 |

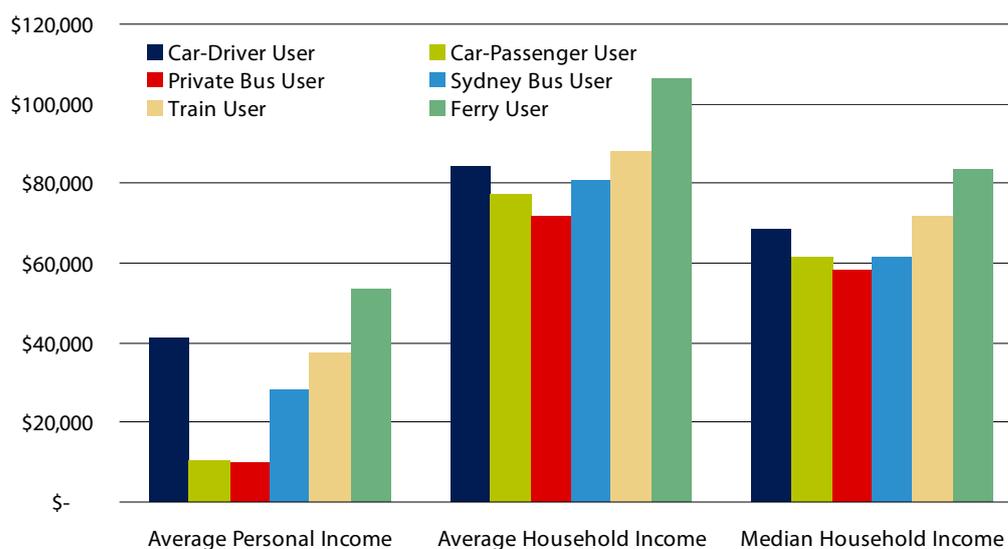
Source: Household Travel Survey 2005, Transport Data Centre.

IPART has attempted to gather comparable data on average household incomes in the Sydney region, to assess how CityRail passengers' incomes compare to those in the general population. Unfortunately, there is no data which is directly comparable. The best approximation IPART could find was ABS census data. The data from the 2006 census indicates that the median annual household income in Sydney was \$60,008<sup>50</sup>, which is around \$12,000 less than the median income of CityRail passengers indicated by the Household Travel Survey.

IPART notes that caution must be exercised in drawing conclusions from these data, as the difference in the median household income findings may be due to differences in the survey methodologies, rather than indicating households that use CityRail's services have higher incomes. For example, the TDC's findings are based on the household income of users per trip, rather than measuring distinct CityRail users. Therefore if members of households with high incomes use CityRail services more frequently than households with low incomes it would lead to the TDC to overstate the median (and average) household income of CityRail passengers.

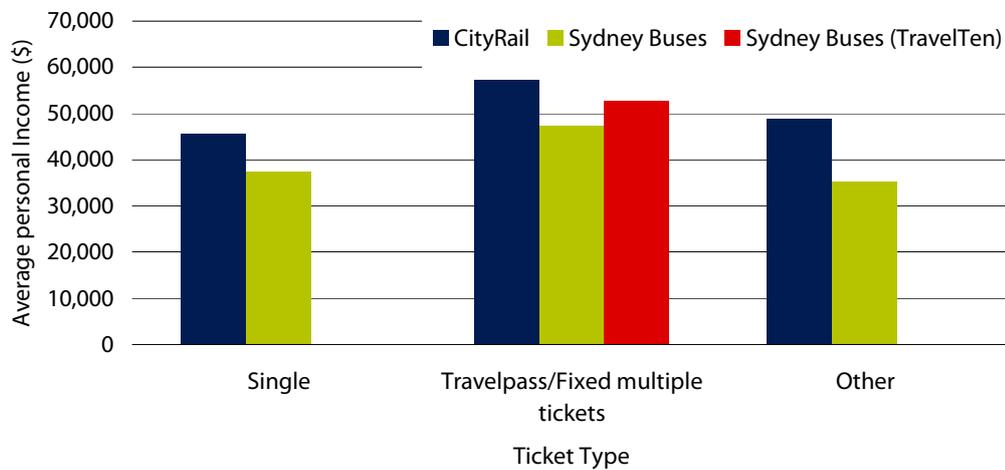
The Household Travel Survey also collects data on the incomes of users of other transport modes in Sydney. Figure 5.2 suggests that CityRail passengers have higher household incomes than car drivers and car passengers, although they have lower personal incomes than car drivers. It also shows that CityRail passengers tend to have higher personal and household incomes than Sydney metropolitan bus passengers and lower incomes than Sydney Ferries passengers. Figure 5.3 indicates that CityRail passengers tend to higher personal incomes than bus passengers, whether they buy single fares, TravelPasses/Travel 10s or other ticket types.

**Figure 5.2 Average and median incomes by transport mode (2005)**



**Source:** Household Travel Survey 2005, Transport Data Centre.

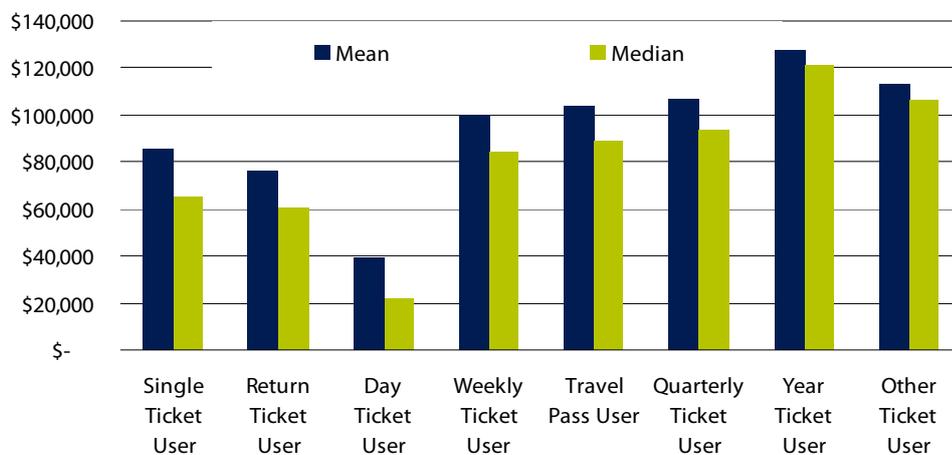
<sup>50</sup> Based on the median weekly household income for the Sydney Statistical Division of \$1,154.

**Figure 5.3 Average personal income of public transport users by ticket type (2004)**

**Note:** TravelTen tickets are only available on Sydney Buses.

**Source:** Household Travel Survey 2004, Transport Data Centre, IPART.

Of particular note is the data which shows that users of periodical tickets (TravelPass/weekly/quarterly, yearly), which attract increasing discounts with longer time periods, typically earn higher incomes than single ticket users (Figures 5.3 and 5.4). Commuters, who are generally engaged in full-time employment, are likely to be the main purchasers of these tickets. Therefore, the decision to offer discounted periodicals may need to be reconsidered in an electronic ticketing environment. In an electronic ticketing context where value may be added to tickets using auto load mechanisms, the rationale of discounting longer term periodical tickets to reduce ticket sales queues is less relevant.

**Figure 5.4 Average household income for train users by ticket type (2005)**

**Note:** "Day Ticker user includes" City Hopper, Day Rover, Pensioner excursion ticket, Rail Rover, and Day Tripper.

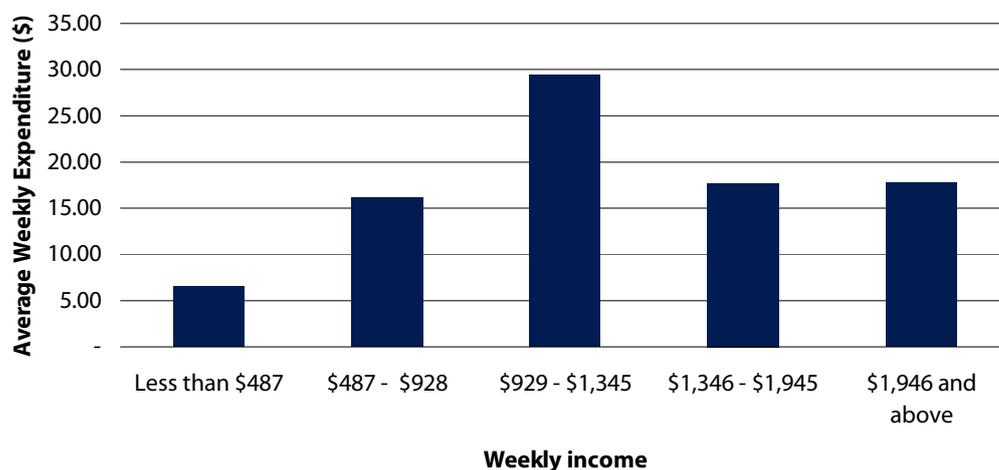
**Source:** Household Travel Survey 2005, Transport Data Centre.

### 5.1.2 Average Expenditure on CityRail fares

According to the Household Expenditure Survey in 2003/04, the average weekly expenditure on train fares by train users<sup>51</sup> in Sydney was \$18.20, equating to 2 per cent of the average household expenditure in New South Wales.

Figure 5.5 shows that average weekly expenditure on train fares is lowest for train users in the lowest weekly income quintile, and highest for train users with a weekly income of \$929-\$1345. This is likely to reflect that the majority of CityRail users are in full time employment. It may also reflect that the lowest income users (such as pensioners) have access to discounts.

**Figure 5.5 Average weekly expenditure on train fares of train users by weekly income (2003/04)**



**Note:** The estimate for the income range \$929-\$1345 has a relative standard error of 25% to 50% and should be used with caution.

**Source:** Household Expenditure Survey 2003/04, Commonwealth of Australia 2008.

IPART seeks comments on the following:

19 Do CityRail users have a reasonable capacity to absorb increased fare levels?

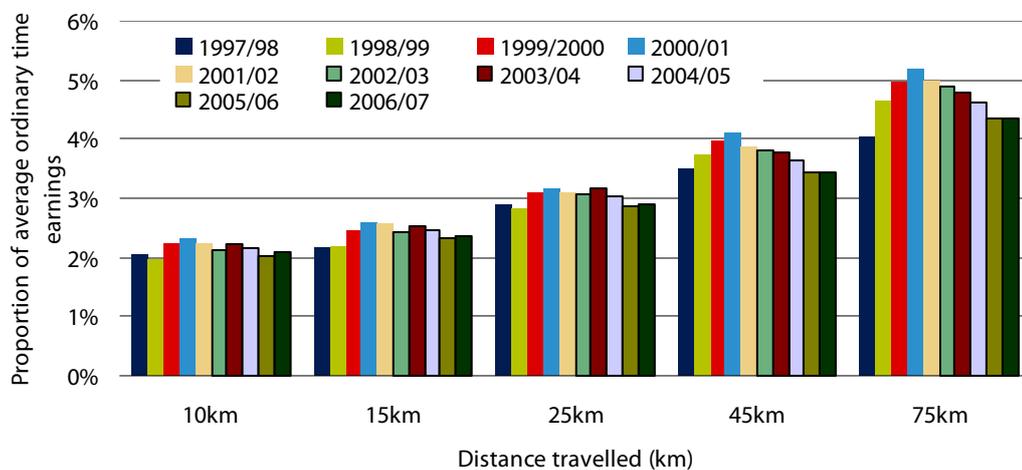
<sup>51</sup> "Train users" is defined as people that have reported a positive weekly expenditure on train fares.

## 5.2 Relative costs of CityRail fares

### 5.2.1 Fares as a proportion of income

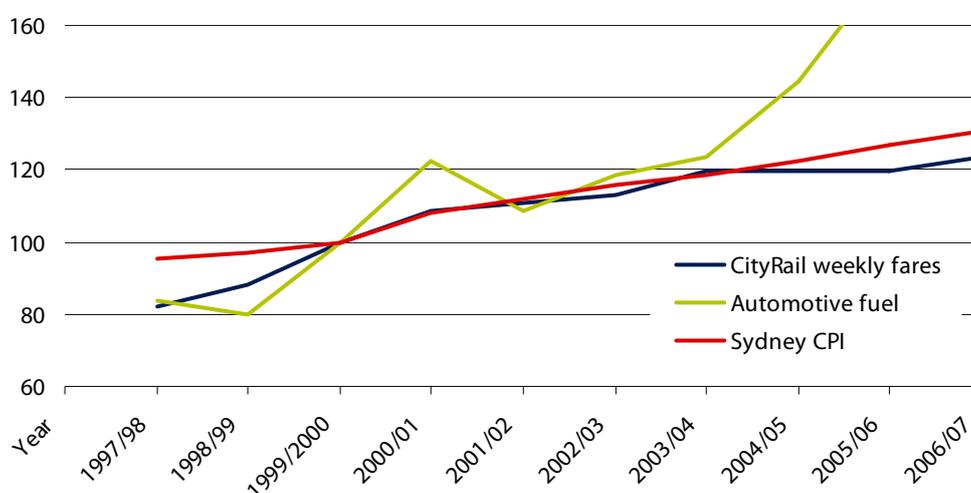
For most distances, current fares represent a slightly higher proportion of weekly wages in NSW than in 1997/98, however compared to 1999/2000, as a proportion of average weekly earnings, weekly rail fares in 2006/07 have decreased slightly. They remain between 2 and 5 per cent of average weekly adult earnings for distances under 75km (Figure 5.6).

**Figure 5.6 Selected CityRail weekly fares as a proportion of average adult ordinary time weekly earnings in NSW**



**Source:** ABS, Railcorp, IPART.

Further, price increases for CityRail's services have been modest over the past seven years relative to price movements in the Sydney economy. Since 2000, compared to the price of automotive fuel, CityRail fares have increased at a much slower rate. Since remaining unchanged for the two year period from 2003/04 to 2005/06, fare increase levels have fallen below the CPI (Figure 5.7).

**Figure 5.7 Index of CityRail weekly fares, CPI and petrol prices**

**Note:** Fares weighted by 2005/06 revenue per ticket.

**Source:** ABS, IPART.

As well as the much higher rate of petrol price increases compared to train fares, car trips account for much higher proportion of all journey made in Sydney, magnifying the social impact of increased petrol prices compared to train fare increases. In 2003, rail accounted for only 4.7 per cent of all trips by residents of the Sydney Statistical Division on an average weekday. This contrasts with 49 per cent of all trips being made by car for vehicle drivers. On an average weekend day, the figure for rail trips as a proportion of all trips made in Sydney falls to 1.7 per cent, compared to 43.9 per cent of trips made by car for vehicle drivers.<sup>52</sup>

### 5.3 Off-peak fares, concession fares and PET

The Government is responsible for determining social policy relevant to train travel and for determining the eligibility criteria for concession fares. While IPART does not take an active role in assessing the Government's fare-related social policy decisions, it does have a role in the implementation of such policies. For example, if the Government were to reduce the level of the concession it would first require a determination from IPART so that it could set concession fares above their maximum levels.

IPART considers that the social impact of any fare increases should be considered in the context of the availability of concession fares, other social policies (for example, Pensioner Excursion Tickets (PET) and School Student Transport Scheme) and off-peak fares, which may mitigate the impact of fare increases on particular groups.

<sup>52</sup> *A Compendium of CityRail Statistics*, Fifth Edition, April 2006, Rail Development Sectorisation RailCorp, p 17.

### 5.3.1 Government social policy

Social policy objectives reflect the notion that enhancing mobility and providing affordable access to public transport are beneficial to the community. Many of the social benefits attributed to the access and mobility of public transport are likely to be greater among those groups that do not have alternative transport options.

The government's concession fare policy provides a 50 per cent discount to the adult ticket price for concession card holders (Box 5.1).

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#### Box 5.1 Concession fare entitlements

CityRail's concession fare policy provides reduced fares for several different groups, including:

- ▼ primary school and high school students;
  - ▼ full-time university, TAFE or private college students provided that they are:
    - NOT engaged in business or employment
    - NOT a full-fee paying overseas student;
    - NOT an external study student; and
    - NOT in receipt of remuneration (excluding Austudy, allowances, etc).
  - ▼ 1st, 2nd or 3rd year apprentices/trainees
  - ▼ persons in receipt of Commonwealth benefits (including the unemployed)
  - ▼ Seniors cardholders (NSW only)
  - ▼ Pensioner concession cardholders
  - ▼ War widow/er concession cardholders (NSW and Victoria only)
  - ▼ Blinded Soldier Gold Pass holders
- 

**Source:** RailCorp.

Other government policy includes:<sup>53</sup>

- ▼ a flat \$2.50 daily fare for pensioners
- ▼ free train travel for children travelling to and from school
- ▼ capped child off peak tickets, and
- ▼ family discounts - when at least one fare paying adult travels with their children or grandchildren, the first child travels for a child fare and the other children travel free.

In 2005, 40 per cent of city rail passengers used concessions, concession pensions, free school, child fare and family discounts. Thus the full adult fare was purchased by only 60 per cent of CityRail Passengers.<sup>54</sup>

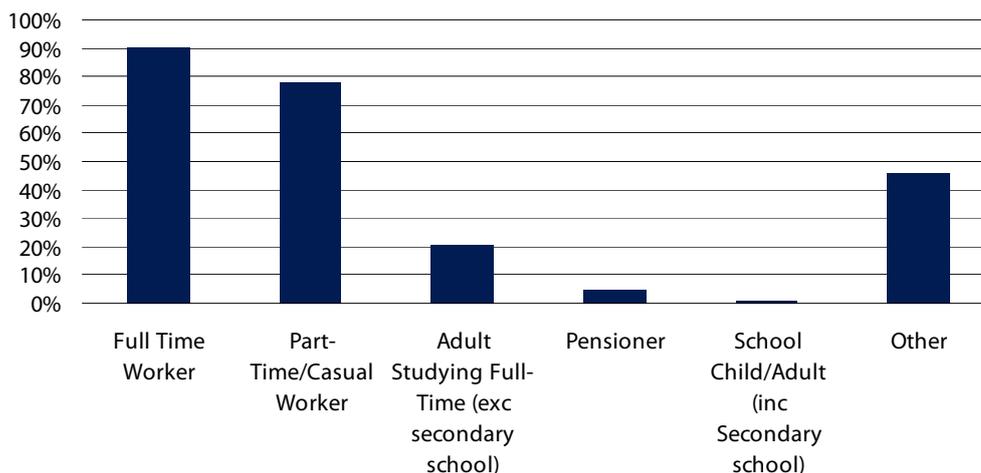
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<sup>53</sup> These policies are not set by IPART.

<sup>54</sup> Household Travel Survey 2005, Transport Data Centre.

Figure 5.8 shows that while 91 per cent of full time workers purchased full fare tickets, this figure drops to 78 per cent of part time and casual workers, 20 per cent for adults studying full time, 5 per cent for pensioners and 1 per cent of school children.

**Figure 5.8 CityRail users of full fare tickets (2005)**



**Source:** Household Travel Survey 2005, Transport Data Centre.

### Off peak fares

While off peak fares are not designed to pursue equity objectives, their availability may lessen the social impact of increased fares. Off-peak fares, attracting a 30 per cent discount, are offered by CityRail for return tickets purchased after 9 am with the intention of shifting demand outside peak hours.

Part time and casual workers, unemployed persons and students make up 51 per cent of off-peak users, reflecting that many of these users are in a position to take advantage of cheaper fares and travel outside the peak.

IPART seeks comments on the following:

20 Does the availability of concession fares and off peak fares effectively minimise the impact of higher fare determinations for those with a lesser capacity to pay?



**Appendices**



## A Terms of Reference

### Review of CityRail's regulatory framework

I, John Watkins, Acting Premier of New South Wales, refer under Section 12A of the *Independent Pricing and Regulatory Tribunal Act 1992* ("the Act"), refer to the Independent Pricing and Regulatory Tribunal (Tribunal) for investigation and report the following matter:

IPART is to recommend a regulatory framework which will provide CityRail with the incentives to provide efficient passenger rail services.

In conducting this review, IPART is to consider the matters listed under Section 15 of the Act, in particular the need for greater efficiency and reliability in the supply of services so as to reduce costs and improve quality, safety and reliability for the benefit of consumers and taxpayers.

Other issues IPART is to consider in undertaking this review are:

1. the appropriate regulatory period for its fare decisions;
2. the efficient costs of providing CityRail's services and the scope for greater efficiency in the supply of these services;
3. NSW Government policy on passenger rail services and public transport, including the future investment in CityRail set out in the *Urban Transport Statement*, and the *State Plan*;
4. an appropriate range for the allocation of costs between government and users, taking into consideration the positive environmental, economic and social benefits for the community generated by CityRail's services;
5. how service standards can be incorporated into the regulatory approach;
6. appropriate fares for CityRail which takes into account the cost of providing CityRail's services, the capacity of users to pay and current and future government policy on public transport fares; and
7. if necessary, transitional arrangements from the current form of regulation to the new regulatory approach.

A draft report is to be publicly released by 12 September 2008, with a final report due by 12 December 2008 to the Premier.

The Tribunal has indicated that it intends to conduct this review in conjunction with the 2008 determination of fares for CityRail services, conducted in accordance with the Tribunal's standing reference under Section 11 of the Act. This reference under Section 12A of the Act is in addition to, and does not replace, the Tribunal's standing reference under Section 11 of the Act.

## B Interstate Comparison of Fares

A comparison of CityRail fares with Melbourne and Brisbane rail networks is not straightforward due to the difference in fare structures between cities.

As explained in Chapter 4, CityRail operates on a distance based fare structure, whereby the fare increases:

- ▼ every 5 kms for journeys up to 25 kms
- ▼ every 10 km for journeys between 25 kms and 135 kms
- ▼ every 20 km for journeys between 135 km and 175 kms
- ▼ every 40 km for journeys of between 175 kms to 255 kms.

For journeys above 255 km, the ticket price is constant at \$30.

Brisbane's fare structure is similar to that of CityRail, with fares charged according to a distance based concentric zone-based structure, with each of the 23 zones covering a distance of approximately 6 km, shown in Figure B.3. Therefore the fare increases for approximately every 6 km travelled. Melbourne, on the other hand has only 2 zones, where one fare is applied for any distance travelled within the same zone, in a specified time period (Figure B.3). Theoretically, the purchase of a two hour ticket would enable travel of up to 180 km<sup>55</sup>.

### B.1 Comparison between Sydney and Brisbane fares

#### Single fares

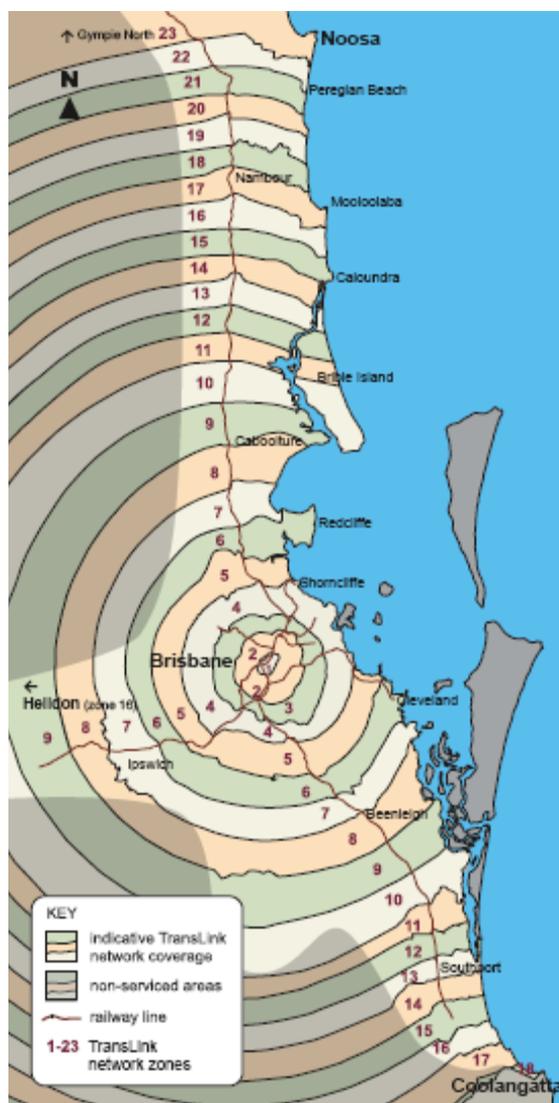
The single ticket fares of Brisbane and Sydney are directly comparable as they are predominately distance based, however an exception exists in Brisbane where travel occurs on more than 2 train lines. If travel on 2 lines occurs, the fare is calculated as the most zones (or longest distance) travelled on one line<sup>56</sup>.

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<sup>55</sup> Based on the average speed of a Connex train, noting that 2 hour tickets allow for a maximum of 3 hours of travel, Connex, <http://www.connexmelbourne.com.au/index.php?id=46>

<sup>56</sup> For example if the path covers 5 zones on one line, through the city centre and 3 zones on another line, the passenger is only charged for 5 zones, or approx 30 km, instead of the total 8 zones (approx 48 km), Translink, [http://www.translink.com.au/qt/translin.nsf/index/ti\\_fares](http://www.translink.com.au/qt/translin.nsf/index/ti_fares)

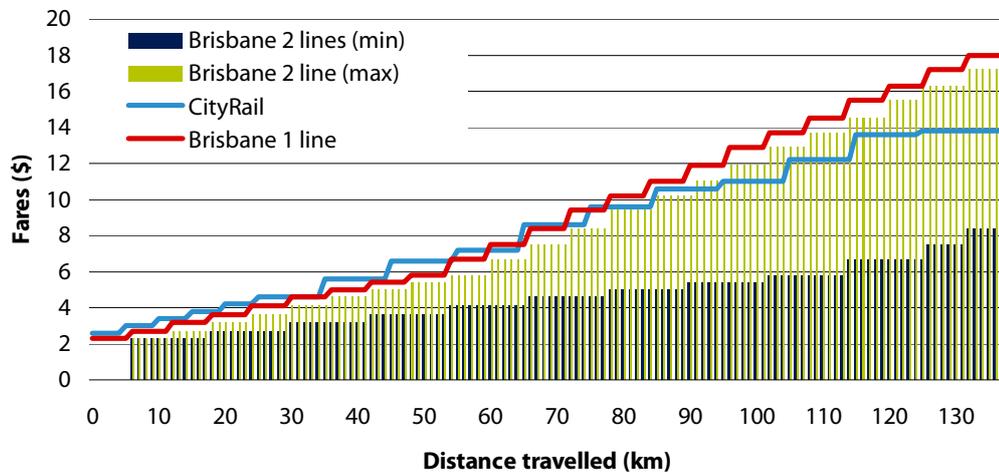
**Figure B.1 Brisbane’s train network zones**



**Data source:** Queensland Rail.

As shown in Figure B.2, Brisbane’s fares (travel on one line) are an average of \$0.47 cheaper than CityRail fares on a per kilometre basis for distances up to 55 km. For distances between 55km and 80 km, the average difference in fares is \$0.07 per kilometre. For distances between 80 km and 135 km Brisbane’s fares (travel on one line) are an average of \$2.09 higher than CityRail fares and increase at a faster rate. With regard to Brisbane travel on 2 lines for a given distance, the fare can vary greatly due to the combinations of zones arising from each path<sup>57</sup>.

<sup>57</sup> For example a journey made up of 10 zones can be made up of 5 zones on one line and 5 on another, resulting in a charge for 5 zones, or 9 zones on one line, and 1 on another, resulting in a charge for 9 zones. Thus for the same distance, travel on 2 lines can reduce the equivalent one line fare from 4 per cent up to 60 per cent.

**Figure B.2 Comparison of CityRail and Brisbane single fares by distance (2008)**

Data source: CityRail, Queensland Rail.

## B.2 Comparison between Sydney and Melbourne fares

Due to Melbourne's zone-based fare structure, travel for a given distance is subject to different fares depending on the zone of travel. The fare reflects a defined time period for which travel is allowed within each zone. Within this time period a passenger may take an unspecified number of journeys across trains, buses and trams.

**Figure B.3 Melbourne’s train network zones**



Data source: Connex.

The closest Melbourne product for the purposes of comparison with a single CityRail fare is a 2 hour ticket. For this comparison, it is assumed that the majority of train passengers in Melbourne only use only one train line and one mode of transport to reach their destination.

With regards to fares in zone 1, most journeys are less than 12 km, which is roughly equal to the average length of each train line located in zone 1. Up to this distance, CityRail fares are cheaper by an average of \$0.56 per kilometre (See Figure B.4).

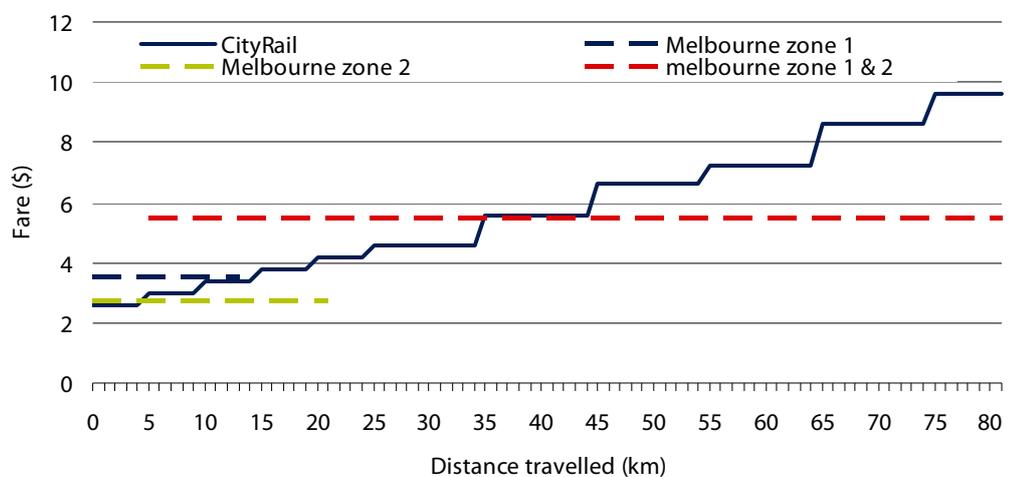
For travel in zone 2, Melbourne fares are cheaper than CityRail fares for all distances greater than 5 km. Within zone 2, the average distance of a train line distance is approximately 20 km. Up to 20 km, CityRail fares are an average of \$0.55 higher than Melbourne’s fares per kilometre.

For travel in both zones 1 and 2, travel distances lie above 5 km. The average distance of train lines passing through both zones is 31 km. Compared to CityRail for distances between 5 and 35 km, Melbourne’s fares are higher, with an average

difference of \$1.51 per kilometre. However, for distances between 35 km and 80 km, Melbourne’s fares are lower than CityRail fares by an average of \$1.93 per kilometre.

Therefore Melbourne’s fare structure favours travel confined to the outer zone, and longer distances. For passengers that utilise more than one mode of travel, have a broken journey, or are able to make a return journey within the 2 – 3 hour period, the Melbourne fare structure can be significantly cheaper for users.

**Figure B.4 Comparison of CityRail single fares and Melbourne 2 hours fares by distance (2008)**



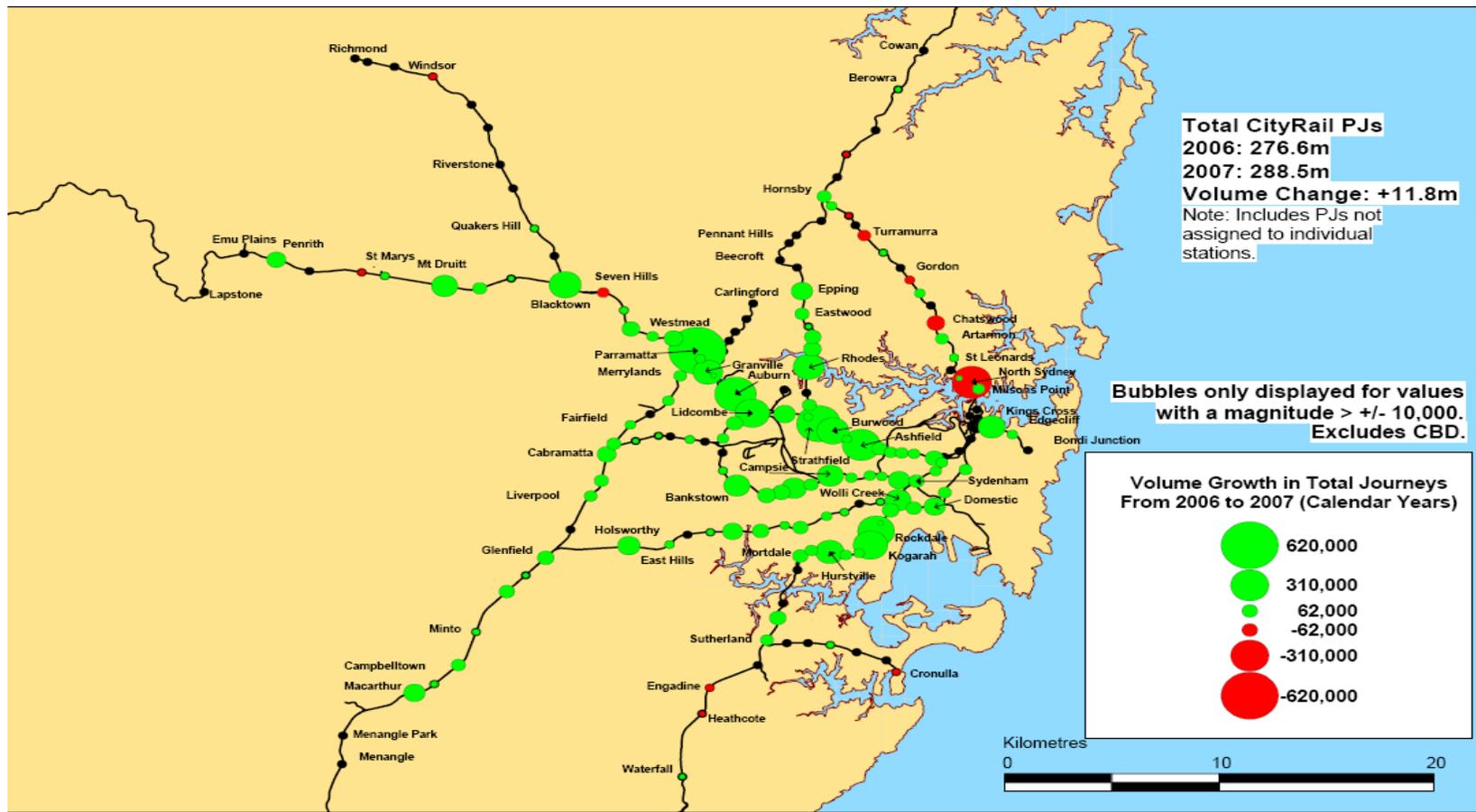
Data source: CityRail, Connex.

## C Growth in CityRail patronage

As discussed in chapter 2, growth in patronage on CityRail services was uneven across the different CityRail sub-networks and lines over the past year. During 2006/07, the Western line experienced growth in passenger journeys of around 5 per cent, and the Illawarra, Inner West, Bankstown, Northern, CBD and East Hills lines had growth of more than 3.5 per cent. Figure C.1 shows the change in total passenger journeys between calendar years 2006 and 2007 on the suburban CityRail network by station. Figure C.1 shows the growth on the Western line was particularly strong. North Sydney shows a reduction in passenger growth; however this is due to renovations at North Sydney station which required the temporary removal of ticket gates. The passenger journeys shown in Figure C.1 are based on ticket sales and are attributed to the station of purchase.

A similar pattern is emerging for 2007/08, with strong growth on the Bankstown, Inner West and Western lines.

Figure C.1 Growth in CityRail patronage: calendar years 2006 - 2007



Source: Railcorp.

