IPART
New South Wales

Independent Pricing and Regulatory Tribunal

Review of fares for Sydney Ferries' services from January 2013

IPART's proposed fare setting approach

Transport — Issues Paper
February 2012

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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 2 April 2012.

We would prefer to receive them by email <ipart@ipart.nsw.gov.au>.

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

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Our normal practice is to make submissions publicly available on our website <www.ipart.nsw.gov.au>. If you wish to view copies of submissions but do not have access to the website, you can make alternative arrangements by telephoning one of the staff members listed on the previous page.

We may choose not to publish a submission—for example, if it contains confidential or commercially sensitive information. If your submission contains information that you do not wish to be publicly disclosed, please indicate this clearly at the time of making the submission. IPART will then make every effort to protect that information, but it could be disclosed under the *Government Information (Public Access) Act 2009* (NSW) or the *Independent Pricing and Regulatory Tribunal Act 1992* (NSW), or where otherwise required by law.

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

Contents

1 Introduction

Sydney Ferries provides passenger ferry services on Sydney Harbour and the Parramatta River. The Independent Pricing and Regulatory Tribunal of NSW (IPART) sets the maximum fares Sydney Ferries can charge its customers.

The NSW Government has confirmed its commitment to the introduction of electronic ticketing (e-ticketing) for public transport in the greater Sydney region. E-ticketing is expected to begin for Sydney Ferries' services at the end of 2012.[1] IPART will determine maximum fares for Sydney Ferries' passenger services and will consider the ticketing arrangements (including the introduction of e-ticketing) in setting those fares.

The Government has also announced that it will franchise Sydney Ferries' operations and the franchising arrangement is expected to be in place by the end of 2012.[2] IPART will continue to set maximum fares for Sydney Ferries' services once this arrangement has been established.

1.1 Purpose of the review

Most recently our role in setting maximum fares for public transport services has been to allocate the efficient costs of providing these services between ferry passengers and taxpayers, making sure passengers pay a fair share of these costs.[3]

In deciding on maximum fares for Sydney Ferries' services we will consider:

- Sydney Ferries' efficient level of costs. Our review will obtain a clear picture of the costs of running Sydney Ferries' services and whether current costs are efficient. Work undertaken for us indicates that there is scope for Sydney Ferries to reduce its costs by up to 24% by 2015/16 for existing services.[4] Neither passengers nor taxpayers should be asked to fund inefficient costs.

1 See section 2.2.
2 See section 2.3.
3 In addition, our fare determinations play a role in increasing transparency and accountability of public transport operators.
4 See Chapter 4. The cost study assumed continuation of existing services. It did not examine whether further savings could be achieved through service rationalisation.

- What portion of Sydney Ferries' efficient costs should be paid by passengers and by taxpayers. Public transport services generate benefits for the community at large - not just the people that travel on them - mainly through a reduction in the number of people using cars. Train and bus travel in Sydney results in significant reductions in people using cars and justifies taxpayers contributing at least half of the efficient costs of providing these services. In the case of Sydney Ferries, our analysis indicates the size of these benefits is small. Despite the small value of these benefits, taxpayers currently contribute around 60% of the costs of providing ferry services.[5]
- Consider appropriate ferry fares given the introduction of greater Sydney's electronic ticket for public transport (the Opal card).

Over the last few years, the trend has been for passengers to pay for a smaller proportion of Sydney Ferries' costs through fares and taxpayers to fund more (see Chapter 5). The diminishing level of cost recovery through fares raises questions about both the efficiency of Sydney Ferries' costs and the appropriate level of cost sharing between Sydney Ferries' passengers and taxpayers. In setting maximum fares, passengers should pay their share of efficient costs only. However, to the extent that cost inefficiencies exist, these will ultimately be borne by taxpayers.

Cost recovery is relatively less on those routes that are higher cost and have lower levels of patronage. One approach we could adopt is to base all fares on the efficient costs for a core network of services, such as the Inner Harbour and, potentially, the Manly services. With fare harmonisation, fares for all services would reflect the efficient costs of operating services across the core network. This approach is most likely to result in maximum fares that ensure the majority of passengers make a fair contribution to efficient costs.

This fare review must also consider the introduction of e-ticketing. Previously, our determinations have set maximum fares for individual tickets, for individual modes of public transport, to recover a particular level of efficient costs over a number of years (given assumptions about patronage). The e-ticket effectively integrates all public transport modes for ticketing and fare purposes. This year we will also be determining maximum fares for CityRail services, including setting maximum fares for MyMulti tickets. We will consider our approach to fare setting across modes and how we measure the level of cost recovery.

An overview of Sydney Ferries' operations and the Sydney Ferries route map is provided in Appendix A.

5 See Chapter 5.

1.2 Process for the review

As part of our review of Sydney Ferries' fares we are conducting public consultation. As a first step in this consultation process, we invite all interested parties to make submissions to the review.

We intend to release a draft report and determination and invite comments from interested parties. We will also hold a public roundtable discussion, to provide stakeholders with a further opportunity to contribute their views. After considering these comments, we will make our final report and determination.

In addition, we engaged a consultant, L.E.K. Consulting, to assist us in estimating the efficient costs of providing Sydney Ferries' contracted ferry services. We also engaged Sapere Research Group (SRG) to quantify the value of the external benefits generated by Sydney Ferries' contracted ferry services. We have published our consultants' reports on our website with the release of this Issues Paper.

The proposed timetable for the review is provided in Table 1.1.

Table 1.1 Timetable for review

Action	By
Release issues paper, consultants' reports and invite submissions	February 2012
Receive public submissions on issues paper and consultants' reports	2 April 2012
Release draft report and determination, and invite submissions	August 2012
Hold public roundtable discussion	September 2012
Receive public submissions on draft report and determination	October 2012
Provide final report and fare determination	November2012

Details on how to make a submission can be found on page iii, at the front of this paper.

1.3 Purpose and structure of this issues paper

This Issues Paper is intended to assist stakeholders in making submissions to the review of Sydney Ferries' fares by identifying and explaining the key issues we will consider. It is structured as follows:

- Chapter 2 outlines the policy environment in which Sydney Ferries' fares are regulated
- Chapter 3 sets out our proposed approach to this fare review and how we intend to establish the efficient costs of operating Sydney Ferries' services
- Chapter 4 discusses the costs of delivering Sydney Ferries' contracted services and examines the level of efficient costs

- Chapter 5 examines how efficient costs should be shared between passengers and taxpayers
- Chapter 6 looks at options for determining maximum fares
- Chapter 7 discusses public transport fares in the context of a move to electronic ticketing.

Each of these chapters highlights one or more issues on which we particularly seek stakeholder comment. For convenience, a complete list of these issues is also provided below. However, please note that the list is not exhaustive and stakeholders are free to raise and discuss any other issues they consider relevant to this review.

1.4 List of issues for comment

The specific issues on which we seek comment are listed below.

1	Given the competition across the Manly route, should IPART continue to set a maximum fare for Sydney Ferries' services on this route or can we rely on price monitoring instead?	10
2	Should IPART set fares for Sydney Ferries' services based on the efficient costs of service across a core network of the Inner Harbour and (potentially) Manly? If not, what alternative approaches do stakeholders suggest?	10
3	In estimating the efficient costs of providing Sydney Ferries' services we propose to establish a regulatory asset base and include allowances for operating expenditure and an appropriate return on and of assets, ie using the building block method. Do stakeholders agree with this approach? If not, what alternative approaches do stakeholders suggest?	14
4	Does L.E.K.'s finding of potential savings in the cash costs of operating Sydney Ferries' services of 24% by 2015/16 appear reasonable? Are there other approaches to establishing the cost efficiency of Sydney Ferries' operations that could be considered?	18
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2 Context of this fare review

The *Passenger Transport Act 1990* requires that IPART investigate and report on appropriate maximum fares for Sydney Ferries' services in NSW.[6] We recognise that several contextual factors will impose constraints on the approach we can adopt for the next ferry fare determination, and the benefits we can achieve through this approach. These factors are primarily a result of Government policy decisions.

The most important contextual factors we will need to take account of in developing our approach are discussed below. Government policies on fare structure and e-ticketing for public transport will have an impact on our approach to determining ferry fares. In addition, the ferry service contract affects the extent to which we can influence incentives for more efficient supply of services directly through fare regulation. (At present, our fare determinations do not directly affect the payments that the operator of Sydney Ferries receives.) To be effective, our approach needs to fit within the constraints that these factors impose.

2.1 Current fare structure for Sydney Ferries' services

On 18 April 2010, the previous Government introduced a new fare structure for public transport services in Sydney and the surrounding regions called 'MyZone'. MyZone introduced MyFerry for travel on Sydney Ferries with 2 fare bands instead of the existing 5.[7] MyFerry includes single fares and TravelTens.[8] As permitted under the relevant legislation, the ferry service contract provides for Sydney Ferries to charge the MyZone ferry fares set by the Government until we make a new ferry determination.[9] The Government increased fares for Sydney Ferries' single and TravelTen tickets by between 5.7% and 7.7% from 1 January 2012.[10]

6 Appendix B lists the matters we are required to consider in making ferry fare determinations under section 16AE of the *Passenger Transport Act 1990*.

7 See http://www.transport.nsw.gov.au/content/ferry-system-contract, Section 10 and Schedule 3, accessed 6 February 2012.

8 TravelTen tickets involve the purchase of 10 trips at a discount to the single ticket price.

9 See IPART, *Statement on MyZone fare changes*, 1 April 2010.

10 IPART calculations.

Our ferry fare review is concerned with determining the maximum fares for services covered by the following tickets (both 'paper' and 'electronic'):

- Single tickets – MyFerry 1 (0-9km: all destinations except those covered by MyFerry 2) and MyFerry 2 (9km plus: Kissing Point, Meadowbank, Rydalmere/Sydney Olympic Park, Parramatta and Manly).[11]
- TravelTens – MyFerry 1 and MyFerry 2.

The remaining ferry ticket types we regulate are covered by the 3 MyZone multi-mode MyMulti passes, currently determined as part of the CityRail multi-year determination. We will also be determining maximum fares for these tickets (and the other CityRail fares) in 2012.

2.2 Introducing electronic ticketing

The previous Government appointed the Pearl Consortium to provide an electronic ticketing service and infrastructure for public transport in the greater Sydney area.[12] At the time, the stated policy on e-ticketing was that it would:

- be multi-modal (for use on all CityRail, metropolitan and outer metropolitan bus and Sydney Ferries services)
- incorporate contactless smartcard-based technology
- have discounts for regular customers
- have the capacity to vary fare levels according to criteria such as the type of customer, time of day, location and frequency of travel
- have the ability to offer special event fares.

On 13 September 2011, the Government announced that the e-ticket would be called 'the Opal'.[13] The ticket will be valid on trains, buses, ferries and light rail services and will begin to be installed for Sydney Ferries' services first, at the end of 2012.[14] The Opal will be available for all types of fares – adult, concession, Pensioner Excursion Tickets (PETs) and school students. Customers will have access to capped fares and discounts to reward frequent and multi-modal travel.[15]

11 See http://www.131500.com.au/tickets/fares/sydney-ferries (accessed 7 February 2012).
12 See http://www.pttc.nsw.gov.au/content/about-us/gjfpyg (accessed 7 February 2012).
13 See http://www.pttc.nsw.gov.au/content/media-releases/gjfqq8 (accessed 7 February).
14 See https://neutrinodata.s3.amazonaws.com/pttc/userfiles/111031ministers-budget-estimates-update.pdf (accessed 7 February 2012).
15 See http://www.pttc.nsw.gov.au/content/smartcard-availability/gjful4 (accessed 6 February 2012).

A customer will 'tag on' at a reader or gate with their Opal card at the start of a journey and 'tag off' at the end of their journey. Under this 'pay-as-you-go' system, the fare will be calculated and deducted from the money stored on the card. Customers will be able to top up the money on their Opal card online or move money from a linked bank account or credit/debit card. They will also be able to load money at a wide network of retail outlets.[16]

2.3 The ferry service contract regime

Public ferry services in Sydney are currently provided under a contract between Sydney Ferries and Transport for NSW. Sydney Ferries must deliver these services to the standards required in the contract, and must report on its service performance regularly. The existing contract commenced in April 2010.[17]

Transport for NSW pays the operator of Sydney Ferries to provide the services specified in the contract. It then retains the revenue generated by fares, to offset some of the costs of paying the operator to provide Sydney's public ferry services.

Under this type of service contract our fare determinations do not directly affect the payments for services that Sydney Ferries receives, and so do not provide signals or incentives for Sydney Ferries to increase its efficiency or restructure its services to better meet the needs of its passengers. Instead, these incentives are provided through the terms of the existing service contract with Transport for NSW. We have no role in setting or enforcing the service contract.

Under the proposed franchising model the Government will retain ownership of Sydney Ferries, with a private operator leasing, maintaining and operating the fleet. The operator will be required to enter into a service contract with the Transport for NSW. The Government maintains control over routes and impose safety and staffing obligations; IPART will continue to set maximum fares.

16 See http://www.pttc.nsw.gov.au/content/using-smartcards/gjfvcw (accessed 6 February 2012).

17 See http://www.transport.nsw.gov.au/content/ferry-system-contract.

3 IPART's proposed approach

We are currently considering the appropriate approach to determining maximum ferry fares. As a first step, we will establish the efficient costs of providing Sydney Ferries' contracted ferry services. Section 3.1 sets out our proposed approach to this fare review. Section 3.2 explains how we will establish efficient costs.

3.1 Proposed approach to this fare review

In general the experience in other industries and other jurisdictions suggests that, where it is feasible, competition encourages efficiency and innovation, and is preferable to regulation. Our starting position is that where competition is evident, price regulation is not required and price monitoring is sufficient.[18] Where price regulation is required, prices (or fares) should be based on the efficient costs of service provision.

When we consider the basis for efficient costs we need to take into account government policies on fare structure and service provision. For example, when we determined fares for metropolitan bus services, we used the efficient costs of operating services across the 4 largest contract regions to set fares for all 25 regions.[19] The Government's fare harmonisation policy meant there was no scope for us to set different fares in different regions, regardless of any differences in the efficient costs of providing bus services between these regions. Therefore, we decided to base fares on detailed analysis of the efficient costs in the 4 largest regions (rather than all regions or a larger sample of regions) as this approach was most likely to result in fares that ensured the majority of passengers made a fair contribution to costs.

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[18] For example, we use a light-handed form of regulation for retail tariffs and charges for gas. Under this arrangement, each relevant gas retailer has a Voluntary Transitional Pricing Arrangement (VTPA) with us. Retailers are obliged to set their regulated tariffs and charges in line with this agreement, and we monitor their compliance. See http://www.ipart.nsw.gov.au/Home/Industries/Gas.

[19] See IPART, *Review of fares for metropolitan and outer metropolitan bus services from January 2010 - Final Report*, December 2009.

In terms of Sydney Ferries' services:

- There are 3 distinct operating regions with different costs – Manly, the Inner Harbour and the Parramatta River.
- There is competition over the Manly route from 2 private operators.[20]
- The river service to Parramatta is a high cost, low patronage service that competes with rail for passengers travelling between the City and Parramatta. Train fares are cheaper than ferry fares and the journey time is shorter.

For Manly services operated by Sydney Ferries, as there is direct competition, we could either:

- not set a maximum fare but monitor fares across this route or
- set a maximum fare, based on efficient costs and benefits.

We note that fare regulation is not costless – it requires time and effort from ourselves, Sydney Ferries and other stakeholders. Another cost of regulation is that it may constrain price innovation. The fast ferry services on the Manly route have introduced innovations in fares that are clearly valued by passengers. This has occurred through competition rather than regulation.

The Government's fare harmonisation policy means there is no scope for us to set different fares for individual routes. There are 2 ferry fares – MyFerry1 and MyFerry2. Depending on the approach we adopt for Sydney Ferries' Manly services, we could base all fares on the efficient costs for a core network of either Inner Harbour services or Inner Harbour and Manly services. With fare harmonisation, fares for Parramatta River services would reflect these efficient costs. This approach is most likely to result in fares that ensure the majority of passengers make a fair contribution to efficient costs.

IPART seeks comments on the following

1 Given the competition across the Manly route, should IPART continue to set a maximum fare for Sydney Ferries' services on this route or can we rely on price monitoring instead?

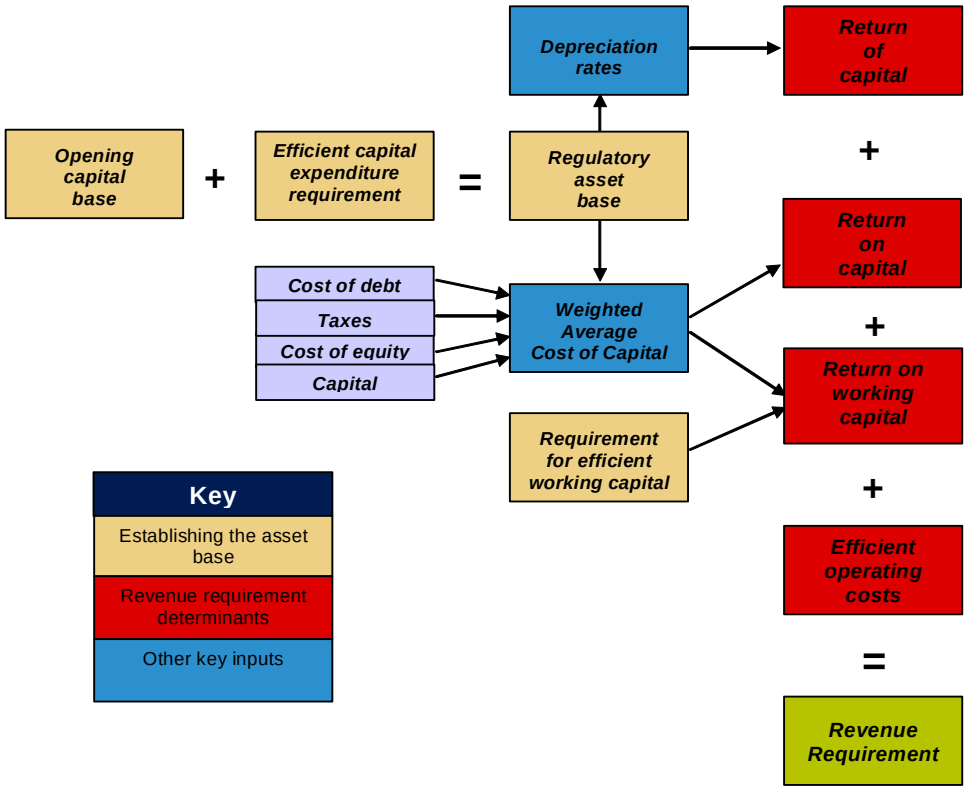
2 Should IPART set fares for Sydney Ferries' services based on the efficient costs of service across a core network of the Inner Harbour and (potentially) Manly? If not, what alternative approaches do stakeholders suggest?

[20] At present there are 2 private operators providing fast ferry services between Circular Quay and Manly with no taxpayer subsidy.

3.2 Establishing efficient costs

As a first step to setting maximum fares based on a core network of Sydney Ferries' services, we would establish the efficient costs of providing these services. We use the building block method to do this in most other industries we regulate. The building block approach 'builds up' the revenue required by the business to cover the efficient costs of providing services that meet the contracted requirements. The steps in establishing efficient costs are outlined below and illustrated in Figure 3.1. A variant of this approach would be to set maximum fares to recover an appropriate share of efficient operating and maintenance costs only. This is discussed in section 3.2.5.

Figure 3.1 Overview of the process to establish efficient costs



Source: IPART.

3.2.1 Establish the Regulatory Asset Base (RAB)

We generally consider the RAB to represent financial capital and define it as shareholder investments in the business. Under the building block approach an opening value of the RAB needs to be determined. In previous public transport fare reviews we have 'drawn a line in the sand' and valued an operator's existing assets at either historical book value or based on a discounted cash flow analysis.[21]

The 'line in the sand' approach helps to ensure that only new and efficient capital investment is paid for by consumers. An advantage with this approach is that it appropriately reflects the fact that many of Sydney Ferries' assets may represent a legacy of previous capital expenditure by government.

We will calculate the revenue requirement to include a return *of* capital (that is, depreciation) and a return *on* capital for assets in the RAB (see sections 3.2.3 and 3.2.4 below).

3.2.2 Establish efficient capital and operating costs

Operating costs include the day-to-day costs of operating the business and maintaining its assets – eg, the wages paid to staff working on the vessels and at the wharves, and vessel repair and maintenance and insurance costs. Capital costs are associated with expenditures on assets such as land, plant, equipment, and inventories – the most important category of capital costs for ferries is the vessels themselves.

A regulated business typically provides us with forecasts of its future operating and capital costs. These forecasts are the subject of an efficiency review (usually with the assistance of an expert, independent consultant). Often the forecasts provided by the regulated business are adjusted to reflect the outcomes of the efficiency review and it is these revised values which are included in the building block model used to calculate the revenue requirement.

We will be guided by L.E.K.'s findings in establishing efficient capital and operating costs. We will also have regard to bids submitted under the current franchising process (see section 4.1). L.E.K.'s findings are summarised in section 4.1.1; L.E.K.'s report has been released on our website with this Issues Paper.

3.2.3 Depreciation

Depreciation is a means of spreading the cost of the asset base over its estimated useful life. It enables the operator to eventually recover the capital invested in the business. Depreciation is calculated by breaking the asset base into different asset classes and assigning asset lives to each asset class.

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21 This is the approach we took in our reviews of fares for CityRail services and metropolitan bus services.

In the past, we have adopted a straight-line depreciation methodology to calculate the return of capital (depreciation) under the building block model. We have previously stated that 'this approach is superior to alternatives in terms of simplicity, consistency and transparency'.[22] We propose to use a straight-line depreciation methodology in this fare review.

3.2.4 Return on capital and working capital

Ferry operators need to invest in assets and provide working capital to keep the business operating. The return on assets and working capital provides compensation to the operator (or its shareholder) for investing capital in these assets and bearing the risks associated with the business. A rate of return is provided to a regulated business in recognition of the opportunity cost of investing in capital. This reflects the fact that the money could be invested in alternative income-generating assets. We propose establishing the rate of return using the Weighted Average Cost of Capital (WACC) approach[23], consistent with our approach in other transport fare reviews and other industries.

3.2.5 An operating and maintenance cost approach

Under an operating and maintenance cost approach, the Government would fund capital costs while maximum fares would seek to recover an appropriate share of efficient operating and maintenance costs. The extent to which maximum fares recover efficient operating and maintenance costs would depend on the appropriate sharing of costs between passengers and taxpayers, as discussed in Chapter 5. This approach may be appropriate for Sydney Ferries, as the Government is responsible for the Fleet Replacement Strategy.

However, this approach departs from the building block methodology. With the Government responsible for capital costs, there is no external scrutiny of capital expenditure and the return of and on assets for fare setting purposes. In addition, by not considering capital costs, this approach does not recognise the trade-offs between operating and capital expenditure and its use results in an incomplete picture of cost recovery for the services.

22 For example, IPART, *Prices of water supply, wastewater and stormwater services*, June 2005, Sydney, p 64.

23 There are a number of input parameters to consider in determining an appropriate WACC. See Appendix C for detail.

One jurisdiction that uses this approach is Singapore, where the independent Public Transport Council (PTC) sets the fares for public transport services through an annual fare review process.[24] The government does not provide direct subsidies for public transport operations, but funds public transport infrastructure in its entirety. This means operators are only responsible for operating and maintenance costs, and investments in service improvements.

The Singapore approach is based on the assumption that the existing level of recovery of operating and maintenance costs from fares is reasonable. The PTC then compensates operators for changes in such costs. Notably, unlike public transport operators in Sydney, operators in Singapore generate sufficient fare revenue to cover their costs under this regulatory approach.[25]

IPART seeks comment on the following:

3 In estimating the efficient costs of providing Sydney Ferries' services we propose to establish a regulatory asset base and include allowances for operating expenditure and an appropriate return on and of assets, ie using the building block method. Do stakeholders agree with this approach? If not, what alternative approaches do stakeholders suggest?

24 Fares are adjusted each year based on changes in the CPI, WPI and a pre-set 'productivity extraction'. See http://www.ptc.gov.sg/regulation/annualFareReviewProcess.htm# (accessed 7 February 2012).

25 In 2009/10 Sydney Ferries collected fares that covered less than 50% of its fleet running, labour and general operating expenses (see Sydney Ferries, *Annual Report*, 2009/10).

4 The cost of Sydney Ferries' services

The cost of providing Sydney Ferries' regular passenger ferry services is influenced by:

- the efficiency of operations in relation to service provision and asset maintenance
- the assets that relate to the provision of the services
- the operating environment (including for example, demand peaks)
- the level of service required by the service contract in terms of the mix of routes and timetables and the level of customer service
- government safety requirements (for example, requirements for staffing of vessels and wharves).

One of our key concerns in this fare review is to obtain a clear picture of the costs of running Sydney Ferries' services, including the drivers and the efficiency of these costs.

We engaged L.E.K. Consulting to undertake a total cost review of Sydney Ferries' operations. L.E.K. has estimated the efficient costs of providing Sydney Ferries' contracted services, taking account of available efficiency improvements, over the next 5 years. We have released L.E.K.'s report on our website with this Issues Paper.[26]

The following sections summarise L.E.K.'s findings on the cost efficiency of the current provision of Sydney Ferries' contracted services and consider how we might allocate efficient costs to a core network of Sydney Ferries' services.

The Australian Government is introducing a carbon price, or tax, to commence on 1 July 2012. As stated previously, we aim to determine ferry fares based on reasonable efficient costs. While we do not expect a carbon price to have a significant impact on the efficient costs of providing Sydney Ferries' services, we will consider this issue as part of the fare review.

26 See L.E.K. Consulting, *Sydney Ferries Cost Review,* 13 January 2011.

4.1 Efficient costs of Sydney Ferries' contracted services

Estimating the cost efficiency of Sydney Ferries' operations is a key focus of our work in this fare review. As stated previously, neither taxpayers nor passengers should be asked to fund inefficient costs. In setting maximum fares, passengers should only pay a share of efficient costs. However, to the extent that cost inefficiencies exist, these will ultimately be borne by taxpayers.

One option would be for us to utilise any available information provided through the current franchising process. It is reasonable to assume that a market-testing process will produce bids that at least cover the efficient costs of providing contracted ferry services. However, the presence of policy constraints that impact an operator's ability to achieve efficient costs (eg, regarding the Sydney Ferries labour force) means that such market-testing data is unlikely to reveal efficient costs. Therefore while we will have regard to any available market-testing data, we will undertake our own analysis of efficient costs.

4.1.1 Findings of L.E.K.'s total cost review

In estimating the efficient costs associated with the provision of Sydney Ferries' contracted services (and the potential for efficiency savings), L.E.K. used benchmarking techniques to assess the relative efficiency of Sydney Ferries' operations compared to other ferry operators.[27] L.E.K. considered the costs incurred in providing Sydney Ferries' contracted services for:

- vessel operations
- wharf operations
- overheads
- the Parramatta River service and
- repair and maintenance.

[27] We recognise that aspects of Sydney Ferries' operations may make it difficult to compare it to other ferry operators and hence complicates any comparison of ferry operators' efficiency (eg, costs might differ between ferry operators due to the length and number of routes and stops, the population density of Sydney relative to other cities, the age of the vessels and other assets, etc.). Differences in government policy or required service and safety standards may also drive disparity in operating costs. However, differences between Sydney Ferries and other ferry operators in terms of costs or productivity measures may also be driven by the relative efficiency of their operations.

L.E.K. found that by 2015/16 cash costs could be reduced by 24% from a 'business as usual' forecast of $125 million to $95 million in real terms (ie, not including inflation).[28] In this case Sydney Ferries would be operated as efficiently as other ferry operators, maintenance and repair costs lowered to levels available through outsourcing and some of the fleet of vessels used would be renewed.

In particular, L.E.K. observed that in providing the contracted ferry services:

- Greater staffing levels (especially on the Inner Harbour service) and above-market remuneration make Sydney Ferries' vessel operating costs higher than those of the benchmark ferry operators. A higher cost per employee also results in higher wharf operations' costs compared to the benchmarks. Vessel and wharf operating costs could be reduced by around $6 million (including inflation) through improvements in labour productivity.
- Overhead costs are high compared to benchmarks. However, this is primarily driven by above average non-labour costs, including costs that smaller and less complex operators would not be expected to have (eg, communications infrastructure, IT systems and government compliance costs).
- The cost efficiency of the Parramatta River service is lower than that of the Inner Harbour and Manly services. Combined with much lower patronage, this results in significantly higher costs per passenger on the River service. The cost efficiency of repair & maintenance is lower than for the benchmark operators, due to lower labour productivity at the Balmain Shipyard and because 2 classes of vessels (Lady and Freshwater) are relatively expensive to maintain compared to other vessels. Around $13 million (including inflation) in cost reductions is available through off-peak Parramatta River service reductions and the replacement of some vessels within the Sydney Ferries fleet with new vessels.[29]
- Industrial relations reform, bringing vessel, wharf and shipyard labour productivity in line with benchmarks could achieve a further cost reduction of around $15 million (including inflation).

L.E.K.'s findings are set out in the table below.

[28] Or from $141 million to $107 million including assumed inflation of 2.5% per annum. Sydney Ferries forecast its cash costs to grow at 3.8% over the next 5 years including inflation (the 'business as usual' forecast), based on a labour cost growth guideline of 2.5% p.a. issued by the NSW Government. A higher growth in labour costs could result in a significantly faster growth in total costs than 3.8% per year.

[29] Replacing the entire fleet with new vessels would bring further cost reductions, but would require a capital outlay that would most likely outweigh the benefits.

Table 4.1 Efficient cash costs for Sydney Ferries' operations ($2010/11)

	2010/11 $m actual	2011/12 $m	2012/13	2013/14	2014/15	2015/16
Forecast costs	116.8	**122.4**	**124.2**	**126.0**	**117.4**	**124.5**
Opportunity to reduce costs						
- Labour productivity			(3.8)	(4.7)	(4.7)	(4.8)
- Reducing river service				(5.6)	(5.5)	(5.5)
- Partial fleet renewal					27.7[a]	(5.8)
- Outsourcing vessel R&M					(5.5)	(5.6)
- Industrial relations reform						(8.2)
Efficient costs		**122.4**	**120.3**	**115.7**	**129.4[a]**	**94.6**

a Includes capital expenditure on new fleet of $33.6 million ($2010/11).

Note: Costs are cash costs for operating expenditure and repair and maintenance. Totals may not add due to rounding.

Source: L.E.K. Consulting, *Sydney Ferries Cost Review*, 13 January 2012. Adjusted for assumed inflation of 2.5% per annum.

We have previously acknowledged that there is no standard method for establishing the comparability of different businesses, particularly in relation to efficient costs.[30] As set out above, we recognise that some aspects of Sydney Ferries' operations may make it difficult to compare it to other ferry operators. However, the use of benchmarking techniques to assess the relative efficiency of businesses is not uncommon and is used among regulators in a price setting context and more generally in monitoring the performance of regulated utilities.

We have released L.E.K.'s report on our website with this Issues Paper. We welcome stakeholder comments on L.E.K.'s approach and findings.

IPART seeks comments on the following

4 Does L.E.K.'s finding of potential savings in the cash costs of operating Sydney Ferries' services of 24% by 2015/16 appear reasonable? Are there other approaches to establishing the cost efficiency of Sydney Ferries' operations that could be considered?

4.1.2 Allocating efficient costs to Sydney Ferries' core services

L.E.K. estimated the efficient costs of providing all of Sydney Ferries' contracted services. If we set maximum fares on the basis of a core network, we will need to identify the direct costs of operating those services (eg, the wages paid to crew on vessels and wharves) and select an appropriate way of allocating shared costs between those services (eg, head office costs).

30 IPART, *Investigation into Water and Wastewater Service Provision in the Greater Sydney Region, Issues Paper*, May 2005, p 26.

A breakdown of Sydney Ferries cash costs for 2010/2011 by function and service area is provided in Table 4.2 below.

Table 4.2 Sydney Ferries' cash costs by service area

Functional/Service area	Cash cost 2010/11 ($)
Capex and other	5,000,000
Balmain Shipyard	4,950,206
Repair and maintenance	19,332,974
Sales, general and admin	14,848,148
Operations overhead	5,356,760
Wharves	14,031,437
Parramatta River service	12,123,903
Manly service	17,946,527
Inner Harbour service	23,202,671
	$116,792,626

Note: Costs are cash costs for operating expenditure and repair and maintenance.
Source: L.E.K. Consulting.

There are many possible approaches to allocating shared costs. Ideally cost allocation is based on cost causation, ie, the driver behind the cost. Potential cost allocators for Sydney Ferries' costs include the number of passengers carried, the number of journeys made, the amount of time spent on the water by a vessel or the amount of fuel consumed. Table 4.3 sets out Sydney Ferries' patronage by service area over the last few years. We will consult with Sydney Ferries and consider this issue further as part of the review

Table 4.3 Sydney Ferries patronage 2007/08 – 20010/11

Service	2007/08	2008/09	2009/10	2010/11
Parramatta River	1,406,057	1,473,028	1,507,651	1,609,614
Manly	5,704,085	6,060,500	5,980,154	6,046,867
Inner Harbour	6,045,716	6,373,219	6,849,952	6,845,427
Total	**13,155,858**	**13,906,747**	**14,337,757**	**14,501,908**

Source: See http://www.sydneyferries.info/uploads/December%202011%20Patronage.pdf (accessed 7 February 2012).

5 Sharing efficient costs between passengers and taxpayers

There is a strong argument that passengers on public transport services should not have to pay the full cost of providing these services. This is because the availability of accessible and effective public transport services provides benefits for the community at large, not just those who use these services. These benefits are known as external benefits.

In previous public transport fare reviews, we have considered 2 approaches that could be used in deciding what proportion of efficient costs should be recovered through maximum fares. Both approaches consider the efficient costs and external benefits associated with the public transport mode under consideration. We have sought expert advice from Sapere Research Group (SRG) on applying these approaches to Sydney Ferries' services, and SRG has provided its advice in a draft report released with this Issues Paper.[31]

We note that whatever weight we give to these approaches, we will also consider the likely implications on the level of ferry fares, and how this would affect the affordability and patronage of ferry services, before making our decision on the appropriate passenger share of efficient costs.

The sections below summarise how the costs of Sydney Ferries' services are shared between passengers and taxpayers currently and the types of external benefits we expect ferry services to provide. The subsequent sections discuss the 2 approaches we could use to help us establish cost shares going forward, and our preliminary view on how we might use them.

5.1 Current cost shares

Currently, the ferry fares paid by passengers offset some of the costs incurred in providing Sydney Ferries' services. The extent to which ferry fare revenue offsets costs is referred to as the level of farebox cost recovery. Farebox cost recovery can be measured in a number of different ways, depending whether or not the costs of providing free and concession fares are explicitly identified. We have calculated the farebox cost recovery of Sydney Ferries' services as follows:[32]

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31 See SRG, *External benefits of Sydney Ferry services - Draft report to IPART*, 10 January 2012.

32 We note that this does not include all capital costs. The opportunity cost – or return on capital – is not included.

Farebox		Costs
• Reported fare revenue from passengers	**Divided by**	• Reported operating expenses: fleet running expenses, employee benefits, depreciation, general operating expenses.

As shown in Table 5.1, from 2004/05 to 2009/10, Sydney Ferries' farebox cost recovery ratio decreased from 48% to 36%. Up to 2008/09, farebox and costs both increased in nominal terms each year. Farebox grew at an annual average rate of 2.6%, while costs grew at 9.8%.[33] In 2009/10 farebox and costs decreased by 6% to 7%.

Table 5.1 Sydney Ferries' farebox cost recovery ratio

	2009/10	2008/09	2007/08	2006/07	2005/06	2004/05
Revenues ($m)	45.8	48.6	48.9	48.0	45.3	45.1
Costs ($m)	126.3	135.7	128.5	117.5	102.4	93.3
Cost recovery	36%	36%	38%	41%	44%	48%

Source: Sydney Ferries Annual Reports 2009/10, 2007/08, 2005/06.

The diminishing level of farebox cost recovery raises questions about both the efficiency of Sydney Ferries' costs (discussed in Chapter 4) and the appropriate level of cost sharing between Sydney Ferries' passengers and taxpayers. However, we note that the above measure may misrepresent the true level of cost recovery through fares for several reasons:

- The Manly Jetcat service was discontinued in December 2008[34], however while revenue from fares for this service ceased, it may not have been possible for Sydney Ferries to avoid all the associated costs of the service (eg, if staff were relocated to other services).
- Previously, an allocation was made to Sydney Ferries for fare revenue from the sale of multi-mode tickets.[35] However, now only the fare revenue associated with tickets actually sold by Sydney Ferries is reported. This excludes fare revenue from tickets sold at State Transit Authority and CityRail associated venues (eg, newsagents and rail stations) and used for ferry services.

33 This is a relatively large increase and resulted in around a 50% increase in costs over the 4 years to 2008/09.

34 See Sydney Ferries, *Annual Report 2009/10*, p 8.

35 These are the MyMulti tickets that permit travel on rail, ferries and buses. In the past, fare revenue from the sale of all these tickets across the public transport network was allocated between each of the mode of transport they that they cover according to a specified formula. See Sydney Ferries, *Annual Report 2009/10*, p 9.

We will need to allocate some notional revenue from the sale of MyMulti products to Sydney Ferries' operations in order to capture an appropriate measure of farebox for fare setting purposes. One option is to base revenue allocation to each public transport mode on the portion of total passenger journeys made by MyMulti ticket holders on that mode.

5.2 The external benefits of ferry services

The benefits that passengers receive from ferry services are immediate and obvious. They include access to a place of work, business, essential services and leisure facilities, and the personal benefits that flow from this level and type of mobility. However, the benefits that accrue to the wider community – the external benefits - can be harder to define and difficult to quantify.

When people make decisions on how to travel, they factor the costs and benefits to themselves into their decision – they will travel by ferry when the costs and benefits of ferry travel are such that it is the best option for them. However, they are unlikely to take into account the costs and benefits to other people from their decision. The costs and benefits that other people experience as a result of someone's decision on how to travel are called external costs and benefits because they are external to the decision maker. See Box 5.1 for more information.

Box 5.1 Difference between internal and external benefits of ferry services

Internal benefits are:

- those that will apply directly to the individual making a choice about their mode of transport
- taken into account in the decision-making process when an individual weighs up the costs and benefits of their transport choice.

External benefits are:

- those that flow on to people other than the individual making the choice about their transport mode
- are not taken into account in the decision-making process when the individual making the choice is weighing up the costs and benefits.

Traffic congestion is a useful example of an external benefit or cost. A motorist's decision to catch a ferry rather than driving to work will affect their own travel time as well as a the travel time of other motorists as he or she no longer contributes to road congestion. The reduced travel time experienced by the motorist who switched to the ferry is an internal benefit, while the reduced travel time of other motorists is an external benefit.

Conversely, a motorist who chooses to drive rather than catch the ferry will have weighed up the internal benefits and costs, such as travel time, when making his or her decision. However, it is not likely that this motorist will have considered the external cost of the decision in the form of increased travel time for other road users by increasing road congestion.

We consider that some of the most important external benefits generated by ferry services are those that arise from a reduction in the number of people using cars in the metropolitan region. Our reviews of CityRail fares and fares for metro buses identified a number of benefits to the wider community as a result of individuals choosing to use public transport services rather than drive their cars.

Although there are significant differences in the value of these benefits for different modes of public transport, the types of benefits that can be identified fall into the same categories. Primarily, rail services were considered to benefit the wider community by reducing road congestion and reducing general air pollution and greenhouse gas emissions. Other factors, such as reducing road accidents and increased social mobility were also considered but not directly quantified.[36] The same *types* of benefits applied to bus services.[37]

[36] See IPART, *Review of CityRail fares, 2009-2012 - Final Report and Final Determination*, December 2008.

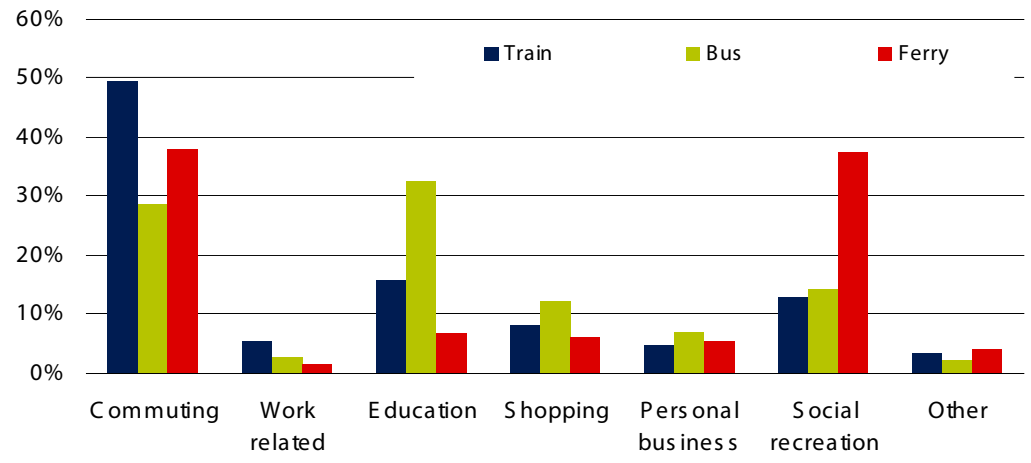
[37] See IPART, *Review of fares for metropolitan and outer metropolitan bus services from January 2010 - Final Report*, December 2009.

A number of other potential external costs or benefits of public transport are often discussed. Among the most commonly mentioned for Sydney Ferries is its 'iconic value'. SRG's view is that this value is derived from the existence of Sydney Ferries' services as a *whole* and not the *amount* of service being offered.[38] As Sydney Ferries' services can be expected to continue, this is not relevant to pricing ferry journeys and setting ferry fares. We agree with this assessment.

Other sources of benefit discussed include social benefits (resulting from improved access and mobility) and agglomeration benefits. Although we recognise that there may be social benefits associated with ferry services, we did not attempt to quantify these benefits or to factor them into our decision on the estimated value of the external benefits. Had we done this the effect would have been for taxpayers to subsidise ferry services more extensively on the basis that they provide social benefits to particular users. In our view, improving access for less mobile or low-income passengers is best achieved through ensuring that investment in ferry services meets the needs of these passengers and that a well-targeted concession program is in place, rather than increasing government subsidy via the fares paid by all passengers.

In addition we note that on an average weekday the 2 most common reasons for travelling by ferry are commuting to and from work and social or recreational purposes (see Figure 5.1). Also, a significant proportion of ferry passengers have higher annual incomes than the Sydney population as a whole (see Figure 5.2); although we note that not all ferry passengers have high incomes.

Figure 5.1 Purpose of ferry trips on an average weekday compared to bus and rail 2009

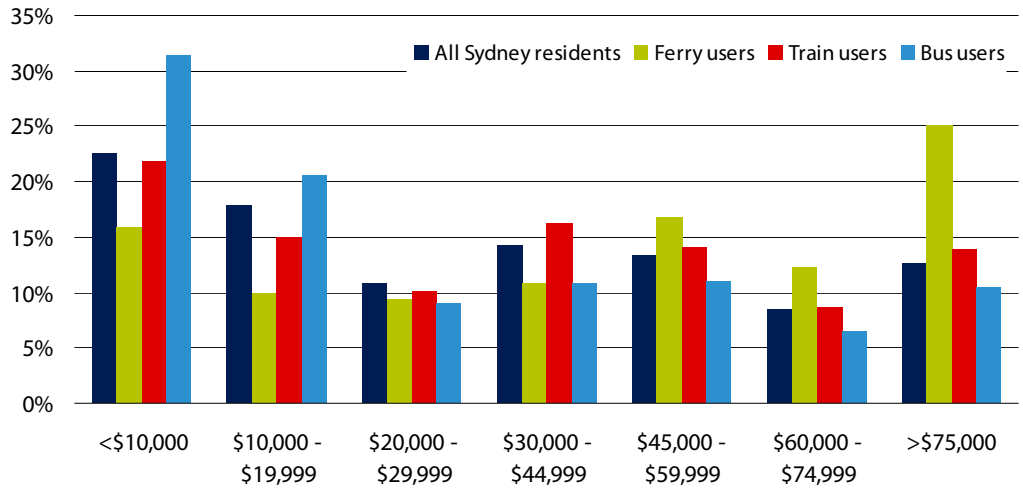


Note: Excludes journeys by non-residents of Sydney.

Data source: Bureau of Transport Statistics, *Household Travel Survey 2009/10*, response to data request 2011.

38 See SRG, *External benefits of Sydney Ferry services - Draft report to IPART*, 10 January 2012, pp 32-33.

Figure 5.2 Income characteristics of ferry users 2009

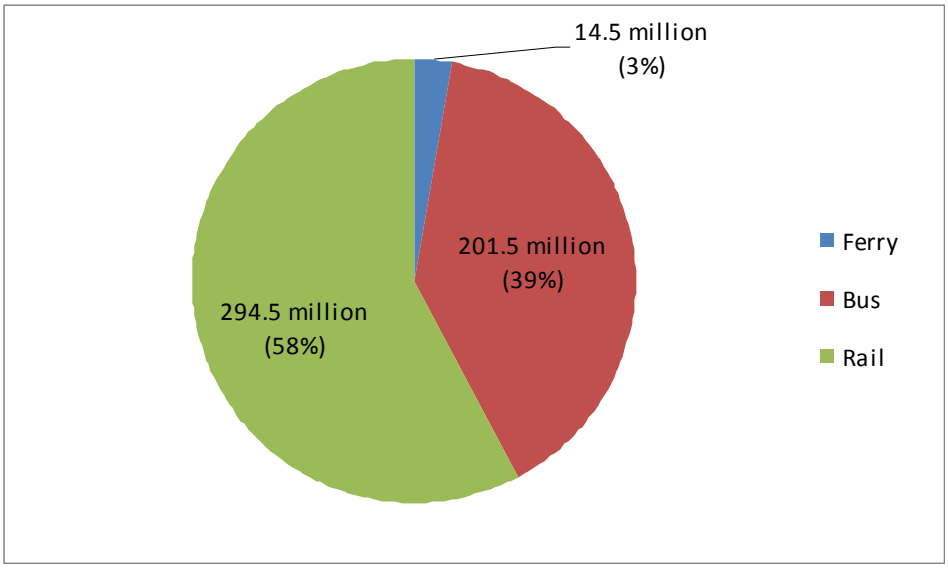


Note: Excludes journeys by non-residents of Sydney.

Data source: Bureau of Transport Statistics, *Household Travel Survey 2009/10*, response to data request 2011.

The availability of affordable public transport services is one of the factors that facilitate the creation of a larger and deeper labour market in the Sydney area, broader customer bases for businesses and the potential for learning, information exchange and knowledge sharing. These are known as agglomeration benefits. In our reviews of fares for CityRail and metro buses we concluded that any benefits associated with agglomeration are not readily quantifiable, and that the role of transport services in attaining them is not established. Given around half of Sydney Ferries' patronage relates to tourism or leisure, and that the total amount of ferry patronage is small compared to other forms of transport (such as rail or buses – see Figure 5.3 below) we think an estimate of agglomeration benefits is not relevant.

Figure 5.3 Greater Sydney metropolitan area: public transport passenger journeys 2010/11



Data source: Sydney Ferries, *Annual Report 2010/11*; RailCorp, *Annual Report 2010/11*; Transport for NSW, *Annual Report 2010/11*.

5.3 Total external benefit of Sydney Ferries' services

The first approach we could use to help us decide on appropriate cost shares for the next fare determination is to quantify the total value of the external benefits Sydney Ferries' services generate and consider how this compares to the total efficient costs of providing those services. The external benefit would be subtracted from the efficient costs established through the building block approach (outlined in Chapter 3), and the remainder provides a target level of revenue to be recovered through maximum fares over time. This approach assumes that taxpayers should pay a share of the efficient costs that is roughly equal to the value of the external benefits. Therefore, maximum fares should be set to recover the remaining share of the efficient costs. However, Government can elect, for other (non-economic) reasons, to use taxpayer funds to subsidise ferry fares.

5.3.1 SRG's findings

As set out above, we engaged a consultant, SRG, to provide advice on the value of the net external benefit[39] of Sydney Ferries' contracted ferry services. SRG's preliminary advice is that in 2011 this value was $0.7 million.[40]

SRG found that Sydney Ferries' services provide an external benefit for commuter journeys - because these journeys relieve some congestion on Sydney's roads - but that there is no benefit to services for non-commuter or tourist journeys (which account for around half of all ferry trips). This is because relieving congestion on Sydney's roads is relatively unimportant during the hours that tourists and non-commuters are most likely to travel. It is also because ferry journeys replace trips on other modes of public transport (ie, bus or rail) more than they do the use of cars. Bus and rail journeys have a better outcome (ie, produce less) in terms of general air pollution and greenhouse gas emissions.

That the external benefits associated with Sydney Ferries' services (in aggregate) are small implies that there is little justification for a taxpayer subsidy of Sydney Ferries on *economic* grounds. However, Government may choose to subsidise Sydney Ferries' operations to achieve other policy objectives.

5.4 The optimisation approach

The second approach we could use to help us decide how much of the efficient costs should be recovered through maximum fares is known as the optimisation approach. This approach, which was developed by SRG, effectively expands on the framework underpinning the first approach to identify the optimum level for maximum ferry fares. That is, the external benefits from Sydney Ferries' services can be used to calculate the optimal level of taxpayer subsidy – the optimal gap between maximum fares and efficient journey costs. This approach yields a target level of maximum fares to be achieved over time.

5.4.1 SRG's findings

SRG has conducted some preliminary analysis of the optimal fare level. This analysis suggests that the optimal ferry fares would be close to long run marginal cost (see Chapter 6) because the external benefits associated with ferry use are relatively small. This is particularly the case for non-commuter or tourist ferry journeys.

Based on information provided by Sydney Ferries on *actual* costs, SRG's preliminary results indicate that the optimal maximum fare for ferry services overall is higher than current fares.[41] However, we note that there are differences between routes.

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39 That is, the external benefits less the external costs.

40 See SRG, *External benefits of Sydney Ferry services - Draft report to IPART*, 10 January 2012, p 49.

41 We define 'current fares' as the cost of a single journey using either a MyFerry1 or MyFerry2 TravelTen 10 ticket.

Optimal maximum fares are close to current fares on the Manly, Taronga, Mosman and Darling Harbour/Balmain routes. However, in the absence of taxpayer subsidy, large price increases would be needed to reach optimal maximum fares on the Parramatta River, Woolwich/Balmain, Cockatoo Island and Watsons Bay routes. These results may change where efficient costs are different to actual costs.

These results are consistent with what is observed in practice - 2 private operators are providing fast ferry services between Circular Quay and Manly with no subsidy. For those routes that are not operating with fares close to SRG's estimate of the optimal levels, the key question is what innovations can be introduced to minimise costs and tax payer subsidy and increase patronage and service quality.

5.5 How we might consider the 2 approaches in deciding on cost shares going forward

We will further consider the advantages and disadvantages of both approaches, and decide how much weight should be placed on them, once SRG has completed its final analysis and we have considered stakeholder views and our own analysis. With the Government's fare harmonisation policy and the MyZone fare structure, there is no scope for us to set different fares for individual routes. However, we note that the 2 approaches may be brought closer together if we base maximum fares on the efficient costs of a core network of Sydney Ferries' services.

As set out above, whatever weight we place on these approaches, we will also consider the likely implications of our findings on the level of maximum ferry fares, and how this would affect the affordability and patronage of ferry services, before making our decision on passengers' share of efficient costs.

IPART seeks comments on the following

5 Given there is little justification for taxpayer subsidy of Sydney Ferries' services on economic grounds, how much more are passengers prepared to pay for these services through fares?

6 How should IPART take account of the likely impact of any fare increases on affordability and patronage?

6 Determining maximum fares

Establishing the efficient costs of providing Sydney Ferries' services and deciding on the appropriate allocation of these costs between passengers and taxpayers gives us a target to be achieved through maximum fares. We next need to determine those fares. Any framework we establish will need to be flexible enough that it can adapt to unanticipated changes in Government transport policies, but transparent enough that its outcomes, in terms of maximum fares, are predictable.

Accordingly, we have identified 3 broad options for determining maximum fares:

1. setting a medium term price path based on the building block approach[42] and setting fares based on forecast levels of ferry patronage
2. a long run marginal cost (LRMC) approach, which results in a price (or fare) that recovers the efficient costs of service provision, and
3. an industry cost index approach, which we use to set fares for other annual public transport fare reviews.[43]

These approaches are discussed in the sections 6.1 to 6.3 below. Section 6.4 considers the appropriate length for the next fare determination.

6.1 Establishing a medium term price path using the building block approach

If we adopted a building block approach, once the share of efficient costs to be recovered from passengers is established, a forecast of patronage would be used to calculate the change in fares required to recover this amount over the chosen timeframe. Under this approach fares would be adjusted each year by 'CPI±X'[44], where X is an adjustment factor to transition fares to the target level that reflects the appropriate share of efficient costs. Note that this approach is consistent with the total external benefit approach (see section 5.3) for taking into account the external benefits of Sydney Ferries' services.

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42 And the level of external benefits provided by Sydney Ferries' services.

43 We use a cost index to set fares for taxis services, rural and regional bus services, private ferry services and the Stockton Ferry.

44 CPI is the Consumer Price Index, which measures the rate of general inflation. CPI-X regulation generally involves setting a price-path for a monopoly service, allowing for changes in inflation (the CPI factor) and expected efficiency improvements (the 'X' factor).

We have established medium-term price paths in this way before for CityRail services, as well as metropolitan and outer metropolitan bus services. Once set, the maximum fares under these determinations apply until the next fare review, when the share of efficient costs to be recovered from passengers is estimated again. However, we note that when the Government implemented its MyZone fare structure in April 2010, our medium term fare determinations did not easily accommodate these changes.

6.2 Long run marginal cost approach

Marginal cost refers to the change in total costs that arises from a small change in output. In the context of ferries, the marginal cost can be thought of as the additional cost incurred by a ferry operator in providing one additional passenger journey. Marginal costs may vary significantly across the ferry network due to the type of vessel used, geographic location or the time (for example, peak or off-peak).

Pricing at marginal cost is considered to be efficient because customers will compare the benefit they receive from a good or service with a price that reflects the cost of providing it. Marginal cost is a forward-looking concept in that it takes into account the *future* costs of service provision, rather than the 'sunk' costs that have already been incurred (eg, the cost of existing vessels and maintenance facilities).

Marginal costs can be considered from both a short term and a long term perspective. In the short term, a ferry operator cannot change its capital inputs or the level of capital-related capacity (eg, the number of available vessels). The Short Run Marginal Cost (SRMC) is the additional cost that the operator incurs due to an increase in demand for ferry services, holding the capital-related capacity constant.

In the long term, a ferry operator[45] has the ability to invest in capacity (eg, purchase new vessels). The Long Run Marginal Cost (LRMC) is the additional cost that the operator incurs due to an increase in demand for ferry services when capital, labour and all inputs can be varied.[46]

Setting maximum fares equal to LRMC encourages efficiency by signalling the need for future investment in ferries and providing information for long-term decisions by passengers.[47] Pricing at LRMC may involve some trade-offs in the short term,[48] but it offers greater fare stability than pricing at SRMC, and provides better signals for long term decision-making. Note that this approach is consistent with the optimisation approach (see section 5.4) for taking into account the external benefits of Sydney Ferries' services.

45 Or the Government, in the case of Sydney Ferries' operations.
46 The LRMC is equal to the SRMC plus the marginal cost of capacity (MCC).
47 Such as the location of house purchases or place of work.
48 Eg, lower fares where there is substantial and enduring excess capacity or higher fares where there is a short-term shortage of capacity.

However, the extent to which we could pursue pricing according to LRMC for each of Sydney Ferries routes is limited at this time. The MyZone fare structure and the Government's fare harmonisation policy mean there is no scope for us to set different fares for individual routes.

6.3 Industry cost index approach

The third approach we are considering is to use efficient costs to establish fares in the first instance and then determine maximum fares going forward in line with the annual increase (or decrease) in the costs of providing ferry services. To estimate the change in costs we would use an industry specific cost index. A cost index measures, in percentage terms, how much the overall cost of providing a particular service has changed. There would be 2 parts to the ferry industry cost index:

- a list of costs faced by the industry and their relative importance (weightings)
- an estimate of how each of these costs changes over time (inflators).

The index costs and weightings are designed to represent the cost structure of a typical ferry operator. The cost index consists of a 'basket' of cost items that a typical operator faces in providing ferry services – such as fuel, labour and insurance costs. These items are weighted according to the proportion of the overall cost of providing ferry services that they represent (eg, if paying wages is half of total costs then it has a weighting of 50%). Typically only significant costs are listed separately; the index usually has an 'other' cost item to capture smaller costs.

The cost items and weightings could be established initially using the findings of L.E.K.'s total cost review. Where we use a cost index, we also seek to periodically review the weightings (every 5 years or so) to make sure that the index continues to reflect the cost structure of the industry. Reviewing the weightings every 5 years allows the index to account for changes in the structure of the industry's costs over time.[49]

The change in each cost item is estimated using a cost 'inflator', which is expressed as a percentage change. Each cost item has its own inflator, which aims to track the movement in this particular cost item over time. We consider that, wherever possible, inflators should be:

- based on independent and verifiable data that is publicly available and
- a reasonable estimate of cost changes for operators.

[49] In between these reviews, the weights in the cost index could be adjusted each year for changes in the relative costs of each input – costs that increased by more than the average this year will have a higher weighting next year and costs that increased by less than the average, or fell, this year will have a lower weighting next year. Adjusting the weightings in this way ensures that the index continues to reflect the costs faced by operators from year to year.

We use an industry cost index approach to set fares for other annual transport fare reviews (ie, taxis, rural and regional buses, private ferries and the Stockton Ferry). In these fare reviews we use inflators based on CPI and Wage Price Index (WPI) data from the Australian Bureau of Statistics (ABS), fuel price data from FUELtrac, and interest data.[50]

At the start of each review, we establish the relative weighting for each cost item in the cost index, and the value of its inflator. We then multiply the weighting by the inflator value for each cost item individually, to calculate the change in overall costs that cost item represents (ie, the contribution of any increase or decrease in the cost item since the last review to the overall change in the cost of providing the service). The sum of all these provides the change in overall costs faced by the industry. This is the total change in the cost index.

The total change in the cost index can be applied to the existing fares to obtain the new maximum fares. This effectively takes the current taxpayer subsidy as given, implicitly assuming that passengers' existing share of efficient costs is appropriate. However a cost index could be used to achieve a different cost share. In this instance the index would include an adjustment factor to transition fares over time to the target level that reflects the appropriate share of efficient costs.

This model is similar to the operating and maintenance approach used in Singapore (see section 3.2.5), where the change in fares each year is based on movements in the CPI, WPI and an adjustment for productivity gains.[51] This approach could be applied to base fares that take into account the externalities associated with Sydney Ferries' services using either of the approaches set out in Chapter 5 (see sections 5.3 and 5.4).

IPART seeks comment on the following:

7 If an industry cost index approach was adopted for future determinations, we propose to set the initial weightings on the basis of the findings of L.E.K.'s total cost review of Sydney Ferries. Do stakeholders agree with this approach? Should the inflators be based on publicly available, independent, verifiable data? How should the inflators be selected?

6.4 Length of fare determination

Given the transition to e-ticketing and the Opal card, we consider it prudent to set fares on an annual basis, rather than establish a multi-year determination (as we have done previously for CityRail and metro bus services). Setting fares annually will allow us to respond to developments in the implementation of e-ticketing over the coming years.

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50 See IPART, *Review of fares for private ferry services and the Stockton ferry service for 2012*, December 2011, Appendix D.

51 See http://www.ptc.gov.sg/regulation/annualFareReviewProcess.htm# (accessed 7 February 2012).

IPART seeks comment on the following:

8 With the introduction of electronic ticketing for public transport, we propose to set fares each year rather than establishing a medium-term price path. Do stakeholders agree with this approach?

7 Developing options for ferry fares

As well as deciding on the approach to setting the efficient costs of operating Sydney Ferries' services, and how much of those costs should be recovered from passengers through maximum fares, we need to consider the structure and level of fares. The Government is currently developing an electronic ticketing system for public transport in the greater Sydney region. We fully support the development of a multi-modal electronic ticket. We consider that its introduction provides an ideal opportunity to review existing fare structures and levels, and put in place an integrated fare system for public transport services.

As part of the introduction of the Opal card, the Government will make decisions on the number of tickets offered, frequency discounts, how the level of electronic fares compares to paper fares and policies for concessions and seniors. In determining maximum ferry fares, we will have regard to Government's ticketing policy, submissions on this Issues Paper and our own analysis on fares.

Sections 7.1 and 7.2 explain the current structure and level of fares for Sydney Ferries' services and consider approaches to determining maximum fares given the introduction of the Opal card. Sections 7.3 and 7.4 describe the broad options available for public transport fare structure and propose pricing principles for determining maximum fares.

7.1 The current structure and level of fares for Sydney Ferries' services

As set out previously, MyZone simplified Sydney Ferries' fare structure to 2 distance-based fare bands. MyFerry1 is for trips under 9 km and MyFerry2 is for trips 9 km and over. Passengers can either buy a single ticket or a TravelTen.

Sydney Ferries' passengers are also able to buy a MyMulti ticket, which uses a time-based zonal fare structure. Tickets can be bought for a day, week, month, quarter or year. A MyMulti1 includes unlimited travel on all Government ferry services as well as on all bus services and train travel of up to 14 kilometres to/from the City.[52]

[52] IPART calculation. All MyMulti tickets include unlimited travel on Sydney Ferries and all bus services. The difference between MyMulti2 and MyMulti3 is the extent of rail network coverage.

The introduction of MyZone in April 2010 had a significant impact on the number of passengers who previously bought TravelTen tickets. A weekly MyMulti1 ticket is cheaper than both a MyFerry1 and MyFerry2 TravelTen. So for any frequent commuter - even one who only uses Sydney Ferries - it is cheaper to buy a MyMulti than a MyFerry TravelTen (see Table 7.1 and 7.2 below).

This means that any price signals given by the TravelTen products are currently lost as ferries are effectively unpriced in the cheaper MyMulti1 product. However, we will be determining maximum ferry fares and maximum MyMulti fares concurrently this year. This will enable us to consider the relativities between different ticket types.

Table 7.1 Sydney Ferries ticket validations by ticket type

	2007/08	2008/09	2009/10	2010/11
Single	1,390,916	1,316,252	1,235,974	1,357,683
TravelTen	2,569,554	2,536,275	2,199,791	1,832,247
TravelPass/MyMulti weekly[a]	2,522,903	2,582,864,	2,496,342	3,097,525

[a] MyMulti tickets replaced TravelPasses with the introduction of MyZone in April 2010.

Note: Includes validations using adult and concession tickets (but not Pensioner Excursion Tickets). Does not include validations of longer duration Travelpass/MyMulti tickets.

Source: Sydney Ferries, IPART calculations.

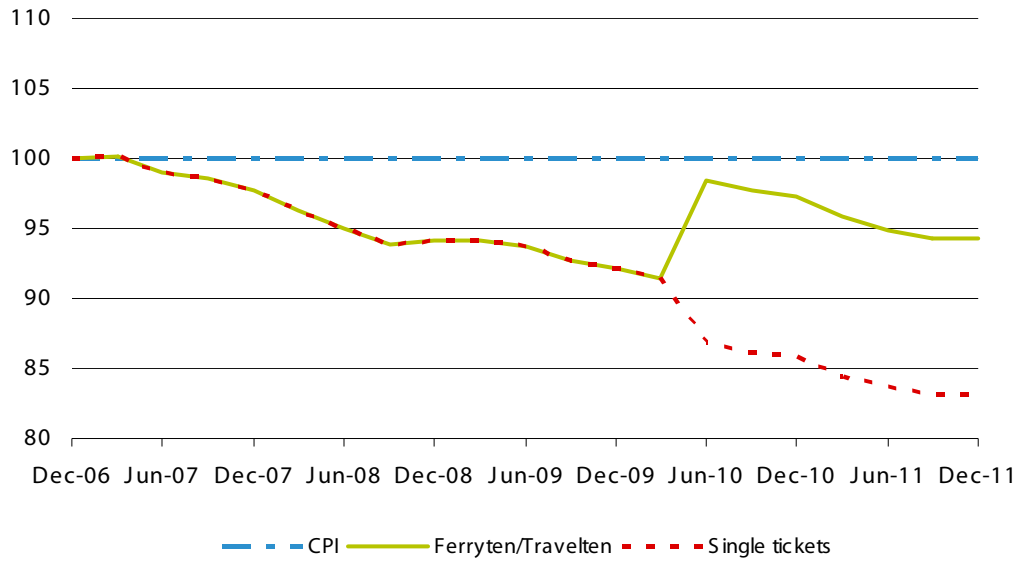
Table 7.2 MyZone fares – MyFerry and MyMulti1 from January 2012

	MyFerry1	MyFerry2	MyMulti1
Single ticket	$5.60	$7.00	-
TravelTen	$44.80	$56.00	
Weekly	-	-	$43.00

Source: See http://www.131500.com.au/tickets/fares.

With regard to Sydney Ferries' fare levels, our last determination set fares from 2 January 2007. This determination ceased to apply when Sydney Ferries signed its service contract with Transport for NSW in April 2010. With the introduction of MyZone in 2010, the fares for some single tickets and the cost of ferry TravelTens increased. The figure below provides an index of Sydney Ferries' fares compared to the CPI over the period from December 2006. As mentioned in Chapter 2, the Government increased fares for Sydney Ferries' single and TravelTen tickets by between 5.7% and 7.7% from 1 January 2012.

Figure 7.1 Movement of Sydney Ferries' average fares in real terms



Note: Simple average of all single tickets and all FerryTens is used.

Data sources: ABS, Catalogue 6401.0 - Consumer Price Index, Australia, Table 5, Series A2325806K; IPART, *Review of Fares for Sydney Ferries in NSW From January 2007*, December 2006, p. 21,. Sydney Ferries Ferry System Contract, Schedule 3 (see http://www.transport.nsw.gov.au/sites/default/file/ferry/Sydney-Ferries-Ferry-System-Contract-Schedules-Excecution-Version.pdf accessed 7 February 2012).

7.2 How should we set maximum fares given the transition to e-ticketing?

As well as our determination of maximum fares for Sydney Ferries' services, we will also be undertaking a review of maximum fares for CityRail services in 2012 (which includes determining maximum fares for the MyMulti tickets). In the past we have set each individual public transport maximum fare. This approach contrasts with our approach in the energy sector where we use a weighted average price cap (WAPC) and allow the regulated business the scope to alter individual prices within the overall cap. An option could be to adopt the same approach to public transport maximum fare regulation, to help facilitate the introduction of the Opal card.

Generally a WAPC is used because a business knows its cost structure and customers better than the regulator so is in a better position to make decisions on price structure and levels. Better decisions about charging lead to better price signals for customers.

It is unlikely this advantage would apply to public transport service providers, as under the current service contracting regime the operator does not receive fare revenue and hence has a limited interest in fare levels and structures and price signalling. However, a WAPC would provide the Government with flexibility to alter fares (both the structure and levels) during the transition to e-ticketing. The disadvantage is that passengers have less price certainty.

To increase passenger certainty regarding fares we could have additional side constraints, or limits, to the WAPC. Side constraints would limit the movement of individual fares to some threshold amount, eg, ±10%.

An alternative is that we determine the maximum fare for the single journey ticket only. The Government would then set fares for other services or journeys based on this single journey price (eg, a weekly ticket fare would be a multiple of the single price). This option would provide flexibility to the Government to determine frequency discounts but would also give certainty to passengers that the maximum price will be the single journey fare, regardless of the ticketing media.

IPART seeks comment on the following:

9 Should we set maximum fares for all services or journeys or only the single journey ticket?

10 If we set maximum fares for all services should we adopt a weighted average price cap (WAPC) approach? If yes, should we include side-constraints, or limits, on the change in fare for individual tickets?

7.3 Fare structure options – flat, zonal or distanced-based

We have identified 3 broad options for public transport fare structure under an e-ticket that are commonly used both in Australia and internationally. They are:

- Flat fares. Under flat fares the cost of a ticket does not change with the distance travelled. For example, the fare for any journey on the New York subway is the same, regardless of where a passenger boards and alights.[53] In NSW, Newcastle Buses has time-based, flat fares.[54]
- Zonal fares. With a zonal structure a city is divided into zones and passengers are charged according to the number of zones they travel through. Zonal fare structures are distance based in that generally the further from the centre of the network you travel the more you pay. However, zonal fare structures can either be concentric (based on bands which expand from a city centre), which is the most common with examples including Melbourne (see Appendix D) and London (see Appendix E), or honeycomb (bands or zones that are side by side, ie not based on a city centre). Zonal fares structures can be either be time-based or trip-based. MyMulti is an example of time-based zonal fares.

53 See http://www.mta.info/metrocard/mcgtreng.htm (accessed 7 February 2010).

54 Newcastle bus fares operate around a simple time-based system that allows for unlimited travel and transfers for the period of time paid for. See http://www.131500.com.au/tickets/fares.

- Distance-based or graduated fare structure. Distance-based fares are usually underpinned by a flag fall charge (a fixed amount per journey) and a distance charge (a set amount multiplied by the distance travelled). Distance-based fare structures can vary from a small number of bands (as is the case with MyTrain fares) to absolute distance-based pricing, where each unit of distance travelled (eg, each km) is charged. Usually distance-based fares are broken up into travel bands to make them simpler and easier to administer. In this way some distance-based fare structures are similar to zonal systems.[55]

In April 2010, Sydney Ferries' fares along with other public transport fares were restructured when MyZone was implemented. The current MyZone system incorporates both zonal and distance based tickets.

7.4 Principles for determining fares

The introduction of the Opal card provides an opportunity to implement an integrated fares system for Sydney Ferries and other public transport service providers. The NSW Government is responsible for developing the Opal card. The system will be comparable to London's Oyster card.[56] As part of the introduction of the Opal card, the Government will make decisions on the number of tickets offered, frequency discounts, how the level of electronic fares compares to paper fares and policies for concessions and seniors.

In determining maximum ferry fares, we will have regard to Government's ticketing policy, submissions on this Issues Paper and our own analysis on fares. As outlined in section 7.3, there are a number of options to consider, each with its advantages and disadvantages. The following proposed pricing principles will assist us in assessing these options and determining maximum fares for public transport:

1. Simplicity. One of the most common criticisms of Sydney's current fare system is that it is too complex. However, we note that MyZone simplified the previous fare structure.
2. Cost reflectivity. For efficiency reasons it is important that the prices charged for the services reflects the efficient cost of providing the services. Generally the cost of providing public transport services such as Sydney Ferries increases with the distance travelled because of fuel costs, etc. Therefore to be cost reflective the fares should also increase with the distance travelled. Cost reflectivity is related to the following principles: revenue sufficiency and price signalling.

[55] For example, in south-east Queensland (see Appendix F) the zonal system has 23 zones which is greater than the 20 fare bands used in the distance-based system for CityRail prior to the introduction of MyZone.

[56] See: http://www.transport.nsw.gov.au/news/opal-gem-public-transport

3. Revenue sufficiency. Fares should not only reflect the efficient costs of providing the service, they must also ensure that sufficient revenue is received to enable the services to be provided. While the majority of revenue for Sydney Ferries and most of the other public transport service providers in NSW is provided by taxpayers, fare revenue is an important contributor to meeting the costs of the services.
4. Price signalling. Fares can assist in alleviating congestion on trains, buses and ferries during peak periods, and they can demonstrate where money should be invested in the future. For example, public transport services travelling into and from the Sydney CBD during peak periods are becoming increasingly congested. To ease this congestion peak period pricing could be used to incentivise passengers to change travel times and reduce congestion. CityRail already uses peak and off-peak pricing to achieve this objective. In addition, peak period pricing can also highlight that the existing system is meeting its capacity constraints and that future investment is needed. An electronic ticketing system will have the ability to provide these types of price signals.
5. Consistency with existing fares. While this should not necessarily be a key objective of any new fare structure, consistency is important and substantial changes from the existing fare structure and levels could lead to implementation problems. For example, passengers who find themselves considerably worse off as a result of the change may be reluctant to use the Opal card.
6. Equity. While efficiency is important, to ensure that any new fare structure receives support from passengers and the general public it should also be equitable.

IPART seeks comments on the following

11 Are our proposed pricing principles appropriate for determining fares? Have we missed any additional principles? Are some more important than others?

Appendices

A Overview of Sydney ferries' operations and route map

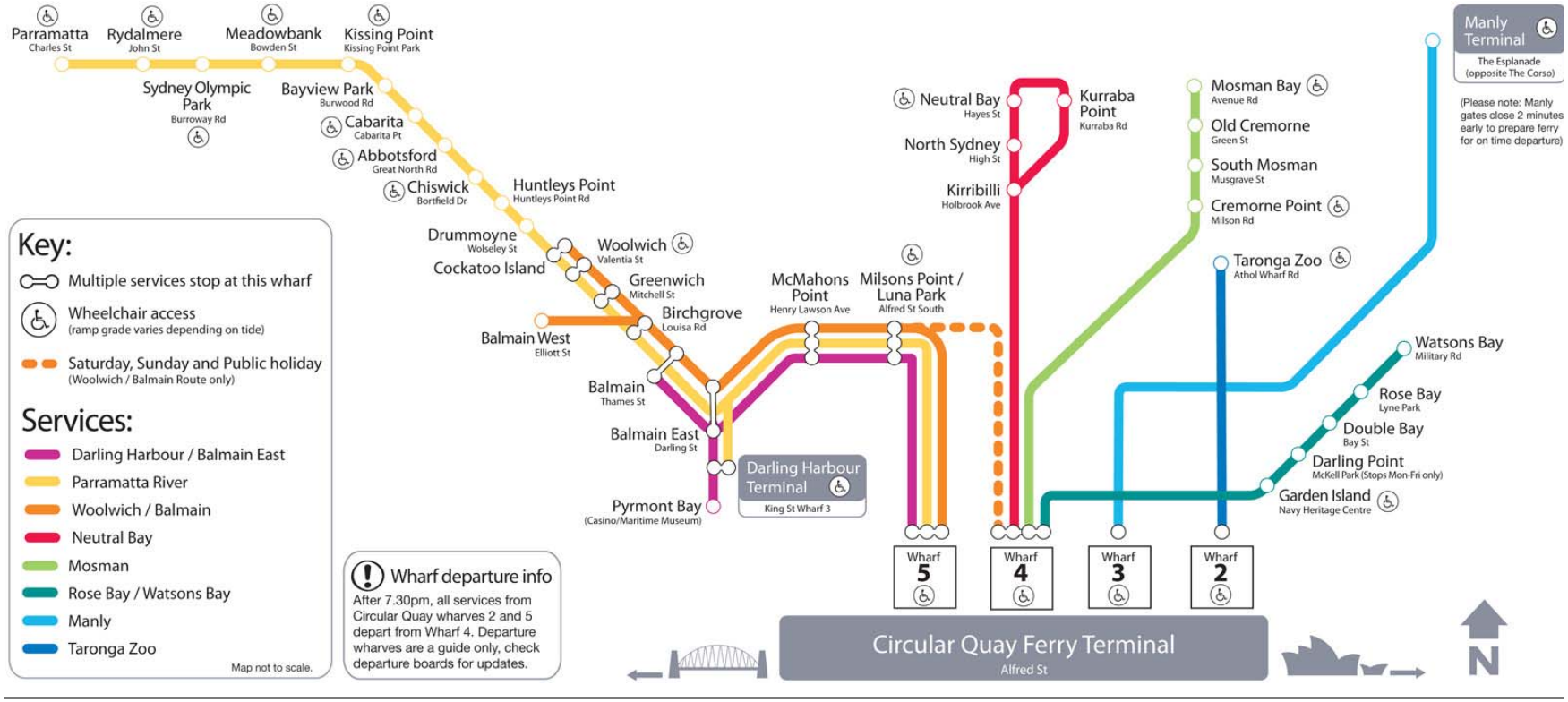
Table A.1 Overview of Sydney Ferries' operations

	2009/10
Fleet	28 vessels (6 classes)
Services	172,627 scheduled services
	40 destinations
	8 routes
Passengers	14.34 million
Expenses	$136.0 million
Revenue	
Fares	$45.8 million
Concession funding	$10.4 million
Other Government funding	$72.4 million
Other revenue	$2.3 million
Deficit (excluding losses)	$5.2 million

Note: Concession funding includes subsidised travel by school students.

Source: Sydney Ferries *Annual Report 2009/10*.

Figure A.1 Route map of Sydney Ferries' services



Source: http://www.sydneyferries.info/uploads/images/content/wharves/NetworkMapApr2011LG.jpg.

B Passenger Transport Act requirements

Section 16AE of the *Passenger Transport Act 1990* states that:

1. This section applies to any ferry service contract that authorises or otherwise provides for the fares charged by the contract holder to be determined in accordance with this section.

Note: If its ferry service contract does not provide for this matter, Sydney Ferries may make an order under section 85 of the *Transport Administration Act 1988* determining fares.

2. The Independent Pricing and Regulatory Tribunal (the "Tribunal") is to conduct investigations and make reports to the Minister on the following matters:
   a) the determination of appropriate maximum fares for regular ferry services supplied under contracts to which this section applies,
   b) a periodic review of fare pricing policies in respect of such services.
3. In respect of an investigation or report under this section, the Minister may require the Tribunal to consider specified matters when making its investigations.
4. Division 7 of Part 3 of the *Independent Pricing and Regulatory Tribunal Act 1992* is taken to apply to an investigation under this section in the same way as it applies to an investigation under Part 3 of that Act.
5. In making a determination under this section, the Tribunal is to consider the following matters:
   a) the cost of providing the services concerned,
   b) the protection of consumers from abuses of monopoly power in terms of prices, pricing policies and standards of service,
   c) the need for greater efficiency in the supply of services so as to reduce costs for the benefit of consumers and taxpayers,
   d) the need to maintain ecologically sustainable development (within the meaning of section 6 of the Protection of the Environment Administration Act 1991) by appropriate pricing policies that take account of all of the feasible options to protect the environment,
   e) the social impact of the determination,
   f) standards of quality, reliability and safety of the services concerned (whether those standards are specified by legislation, agreement or otherwise) and any suggested or actual changes to those standards,
   g) contractual arrangements prevailing in the industry,

h) such other matters as the Tribunal considers relevant.

6. A ferry service contract to which this section applies is taken to include a term to the effect that the contract holder must not charge a passenger of the service a fare that exceeds the maximum fare determined under this section from time to time for the provision of such a service to a passenger of that kind.

7. Any contravention of the term implied in a ferry service contract by subsection (6) may be remedied at law or in equity as though the term were an essential term to which the parties had by contract agreed.

8. A ferry service contract to which this section applies may make provision for maximum fares for the provision of regular ferry services concerned to passengers pending the first determination of maximum fares under this section.

9. Any provision of the kind referred to in subsection (8) ceases to have effect as part of the ferry service contract on and from the first determination of maximum fares under this section that applies to the provision of the regular ferry services to which the contract relates.

Protection of the Environment Administration Act 1991 – section 6(2)

Section 6 of the *Protection of the Environment Administration Act (1991)* states that:

2. For the purposes of subsection (1) (a), ecologically sustainable development requires the effective integration of economic and environmental considerations in decision-making processes. Ecologically sustainable development can be achieved through the implementation of the following principles and programs:

   a) the precautionary principle—namely, that if there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.

In the application of the precautionary principle, public and private decisions should be guided by:

   i) careful evaluation to avoid, wherever practicable, serious or irreversible damage to the environment, and

   an assessment of the risk-weighted consequences of various options,

   b) inter-generational equity—namely, that the present generation should ensure that the health, diversity and productivity of the environment are maintained or enhanced for the benefit of future generations,

   c) conservation of biological diversity and ecological integrity—namely, that conservation of biological diversity and ecological integrity should be a fundamental consideration,

   d) improved valuation, pricing and incentive mechanisms—namely, that environmental factors should be included in the valuation of assets and services, such as:

i) polluter pays—that is, those who generate pollution and waste should bear the cost of containment, avoidance or abatement,

the users of goods and services should pay prices based on the full life cycle of costs of providing goods and services, including the use of natural resources and assets and the ultimate disposal of any waste,

environmental goals, having been established, should be pursued in the most cost effective way, by establishing incentive structures, including market mechanisms that enable those best placed to maximise benefits or minimise costs to develop their own solutions and responses to environmental problems.

C Weighted Average Cost of Capital (WACC)

Under a building block approach to establish a business's efficient costs, we calculate the compensation or return on capital for funds invested by shareholders in the business and for bearing the risks associated with that investment.

Current regulatory practice is for the return on capital to be calculated by applying a rate of return that reflects the cost of capital to an asset base.

We use the post-tax Weighted Average Cost of Capital (WACC) approach to determine a rate of return.[57] Under the post-tax WACC approach, tax liability is estimated separately from the WACC, based on revenue and expenses of regulated business activities. Although Sydney Ferries is not under the Government's tax-equivalent scheme, the rationale for using a post-tax WACC model is that we are calculating a rate of return required for an efficient commercial business.

A post-tax real WACC can be estimated using the following formula:

$$WACC^{post-tax} = \frac{\left(1+\left\{R_e.(\frac{E}{D+E})+R_d.(\frac{D}{D+E})\right\}\right)}{(1+\Pi)}-1$$

where R_e is the return on equity, R_d is the return on debt, $\frac{E}{D+E}$ is the proportion of equity, $\frac{D}{D+E}$ is the proportion of debt, and Π is the inflation adjustment.

$$R_e^{real\ post-tax} = \frac{1+[Rf+\beta_e \times MRP]}{1+\prod}-1$$

$$R_d^{real\ post-tax} = \frac{1+[(Rf+DM)\times(1-t)]}{1+\prod}-1$$

[57] In December 2011, we changed our approach from a pre-tax WACC model to a post-tax WACC model, which better estimates the tax liability for regulated business.
IPART, *The incorporation of company tax in pricing determinations – Final Decision*, December 2011.

The parameters in the above formulas are explained below:

1. Parameters determined by financial market data:
   - Nominal risk free rate (Rf)
   - debt margin (DM)
   - adjustment for expected inflation (Π).
2. Parameters determined through other methods:
   - the market risk premium (MRP)
   - the correlation between common equity returns and that of the overall market (βe equity beta)
   - the level of gearing (D debt, E equity)
   - Corporate tax rate (t).

Nominal risk free rate and inflation

In both the return on equity and the cost of debt calculations, the risk free rate is the base to which a premium or margin is added to reflect the riskiness of the specific business. We estimated the nominal risk free rate and the inflation rate based on nominal 5-year Commonwealth Government Securities (CGS) and market data of inflation indexed swaps.

Debt margin

The debt margin represents the cost of debt a business pays above the nominal risk free rate. The debt margin is related to current market interest rates on corporate bonds, the maturity of debt, the assumed capital structure and the credit rating.

Our current debt margin approach is based on 20-day averages of fair value yield curve data obtained for BBB rated Australian corporate bonds with a maturity of 5 years, as well as actual bond yields for BBB and BBB+ rated securities issued by Australian firms in both Australian and US markets.[58] We also include an allowance of 20 basis points per annum on the debt margin for debt raising costs.

We will be consulting separately on adopting a range for the debt margin rather than the current approach of using a point estimate.

Market risk premium (MRP)

The market risk premium (MRP) is the expected return over the risk free rate that investors would require for investing in a well-diversified portfolio of risky assets. MRP is an expected return and is not directly observable. It therefore needs to be estimated through proxies.

58 IPART, *Developing the approach to estimating the debt margin - Final Decision*, April 2011.

We have taken a long term view in determining the appropriate MRP range. Historical market return estimates for 3 time periods, 1883-2010, 1937–2010 and 1958–2010, have been made. These estimates provide a range of 5.9% to 6.4% calculated on an arithmetic mean basis.[59] An MRP range of 5.5% to 6.5% was adopted in the recent review of Sydney Desalination Plant (SDP).[60]

Gearing

Gearing is a measure of financial leverage and is defined as the ratio of the value of debt to total capital (ie, debt and equity). Gearing is used to weigh the costs of debt and equity when formulating the WACC.

When determining the level of gearing used to calculate the WACC, we adopt a benchmark capital structure, rather than the actual financial structure, to ensure that customers will not bear the cost associated with an inefficient financing structure. Gearing of 60% is widely used by regulators and was applied in the final determination of the review of the SDP in December 2011.[61]

Imputation tax credits (Gamma)

Under the Australian imputation tax system shareholders may receive imputation tax credits with dividends, which can be used to offset tax liabilities. Domestic investors would accept an investment with a lower rate of return if there were imputation tax credits, since imputation tax credits provide value by offsetting personal income tax liabilities.[62] International investors cannot utilise imputation credits.

Under a post-tax WACC approach, gamma is modelled as part of the tax liability, which is a component of building block revenue and not a parameter of the WACC. A point estimate of gamma will be required for estimating tax liability.

In a recent decision the Australian Competition Tribunal (ACT) held that the appropriate gamma to use for determining the WACC for the Queensland gas network was 0.25. We are currently reviewing the gamma value in the light of more recent evidence, including the study by Strategic Finance Group (SFG) referenced in the ACT decision.[63]

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59 IPART calculations.

60 IPART, *Review of water prices for Sydney Desalination Plant Pty Limited – from 1 July 2012 – December 2011 – Final Report*, December 2011.

61 Ibid.

62 Under IPART's pre-tax WACC framework, gamma was a WACC parameter. Under a post-tax WACC framework, gamma is not a WACC parameter, but an input into the calculation of tax liabilities.

63 IPART, *Review of imputation credits (gamma) – Discussion paper*, December 2011, p 11.

Equity beta

The equity beta measures the riskiness of the business relative to the overall market. It can be estimated from observing how the return of traded securities varies with the overall return of the market. It represents the systematic or market wide risk of an asset that cannot be avoided by holding it as part of a diversified portfolio. The equity beta does not take into account business specific or non-systematic risks.

We adopted an equity beta range of 0.8 to 1.0 in the review of CityRail fares for 2009-2012.[64] We used an equity beta of 0.6 to 0.8 for the SDP, based on SFG's empirical analysis of comparable water utilities (US and UK) returns.[65]

Information required under a post-tax WACC model

We will need to calculate / obtain the following:

- expenses and revenues of regulated business activities
- any capital contributions that form part of regulated activities
- tax depreciation
- interest expense based on the same assumptions as the WACC for gearing, nominal risk free rate and the debt margin
- regulated asset base.

Choice of a WACC

In making our WACC decisions, we often choose the mid-point from the WACC range. However, we are not bound to choose the mid-point for all our pricing reviews. In previous decisions, we have also used WACC values above or below the mid-point. For example, in the recent decision on SDP, we have chosen a value above the mid-point due to concerns about the impact of the currently very low bond yields on the cost of capital estimate.[66]

Example

Table C.1 shows a working example of a real post-tax WACC. We will need to determine values for the various parameters that form the calculation of the real post-tax WACC for Sydney Ferries, including updated market parameters closer to the time of the draft decision.

64 IPART, *Review of CityRail fares, 2009-2012 - Final Report and Final Determination*, December 2008.
65 IPART, *Review of water prices for Sydney Desalination Plant Pty Limited – from 1 July 2012 – December 2011 – Final Report*, December 2011.
66 Ibid.

Table C.1 WACC parameters

Parameter	Value
Nominal risk free rate	3.3%a
Inflation	2.6%a
Debt margin	3.7% - 4.2%a
Market risk premium	5.5% - 6.5%
Debt funding	60%
Equity funding	40%
Gamma	0.25
Corporate tax rate	30%
Equity beta	0.6-0.8
Cost of equity (real post-tax)	3.9%-5.8%
Cost of debt (real post-tax)	2.2%-2.6%
WACC (real post-tax)	4.1% - 5.2%

a 20-day average estimated using Bloomberg data sampled to 9th January 2012.

D E-ticketing in Melbourne

Myki is the contactless smartcard ticketing system for use on public transport in Victoria covering 5 modes of transport – metro bus, rail, tram, regional bus and train. The system is designed to replace a number of ticket systems in Victoria, primarily the Metcard (metropolitan Melbourne) and V/Line (regional) ticketing systems.

D.1 Integrated ticketing system

Rechargeable myki cards store an amount of "myki money" or "myki pass" (consecutive travel days). The lowest fare for a trip is calculated and is deducted automatically as the card passes the touch on and touch off points. The system adjusts for caps at "2 hour" and "daily" marks, and for other caps such as those that apply on weekends, early mornings, or for seniors.

Myki cards and top-ups can be purchased in a number of ways, including via the internet, phone and at train stations.

A myki account can be linked to a bank account to automatically top up when the stored value reaches a certain level.

D.2 Card types

Myki can be either anonymous or registered. Myki may be issued for concession or full fare passengers, according to their concessional status. Also available is a temporary, disposable short term ticket which is valid for travel for up to 3 hours or one day only.

Table D.1 Types of *myki* Cards

Fare Type	Cost, Description & Eligibility
Adult	This is the standard version of the *myki* card.
(17+ Full Fare)	This card is sold for $6.
Child	Only children aged 4–16 years are permitted to use this type of *myki*.
	This card is sold for $3.
Concession	Eligible users include: Students (primary, secondary and tertiary); Australian Interstate Seniors; Victorian Health Care Card holders; Australian Pension Concession Card holders; and other concession categories as indicated in the Victorian Fares and Ticketing Manual except for seniors and children.
	This card is sold for $3.
Seniors	Eligible users include Victorian Seniors Card holders. The Seniors *myki* also contains a Sunday Pass which entitles Victorian seniors to travel on Sundays. This card is sold for $3.

Source: Myki website, http://www.myki.com.au.

D.3 Fare structure

Generally, metropolitan zone fares are time and zone base.

Table D.2 Metropolitan zone fares for myki money – 2 hour and daily, January 2012

2 hour	**Zone 1**	**Zone 2**	**Zones 1+2**
Full fare	$3.28	$2.26	$5.54
Concession	$1.64	$1.13	$2.77
Daily			
	Zone 1	**Zone 2**	**Zones 1+2**
Full fare	$6.56	$4.52	$11.08
Concession	$3.28	$2.26	$5.54

Source: Myki website, http://www.myki.com.au/.

Table D.3 Metropolitan zone fares for myki money – other tickets/caps and free travel, January 2012

Other tickets / caps

	Weekend Daily cap (Zone 1 and / or 2)	Public Holiday cap (Zone 1 and / or 2)	Seniors Daily cap (Zone 1 and / or 2)
Full fare	$3.30	$3.30	N/A
Concession	$3.30	$3.30	N/A
Seniors	Free	$3.30	$3.60

Free travel (Zones 1+2)

	Early Bird Travel (travel before 7am weekdays^)	Free weekend travel (within 2 consecutive zones)
All	Free	N/A
Seniors and DSP/CAR*	Free	Free

Source: Myki website, http://www.myki.com.au/.

* Disability Support Pensioners and Carer Payment Recipients.

^ Electrified Melbourne train services only. Touch on and touch off must both happen before 7am.

Table D.4 Daily and 2hr Metcard tickets compared to myki money, January 2012

Monday to Friday			
Trip	**Metcard**	**myki money**	**Savings**
Daily Zone 1 Full fare	$7.60	$6.56	$1.04
Daily Zone 1 Concession	$4.00	$3.28	$0.72
Daily Zone 2 Full fare	$5.40	$4.52	$0.88
Daily Zone 2 Concession	$3.00	$2.26	$0.74
Daily Zone 1+2 Full fare	$11.90	$11.08	$0.82
Daily Zone 1+2 Concession	$6.30	$5.54	$0.76
2hr Zone 1 Full fare	$4.00	$3.28	$0.72
2hr Zone 1 Concession	$2.60	$1.64	$0.96
2hr Zone 2 Full fare	$3.00	$2.26	$0.74
2hr Zone 2 Concession	$2.00	$1.13	$0.87
2hr Zone 1+2 Full fare	$6.50	$5.54	$0.96
2hr Zone 1+2 Concession	$3.70	$2.77	$0.93
		Saturday, Sunday or public holidays	
Trip	**Metcard**	**myki money**	**Savings**
Daily Zone 1 Full fare	$7.60	$3.30	$4.30
Daily Zone 1 Concession	$4.00	$3.30	$0.70
Daily Zone 1+2 Full fare	$11.90	$3.30	$8.60
Daily Zone 1+2 Concession	$6.30	$3.30	$3.00
Daily Zone 2 Full fare	$5.40	$3.30	$2.10
Daily Zone 2 Concession	$3.00	$2.26	$0.74

Source: myki website http://www.myki.com.au/Fares/Metro-fares-/2012-Metro-fares.

A longer period of 7 days or 28–365 days can be pre-loaded onto the card as a myki pass prior to travel.

D.4 Default fares

A default fare will be charged if the myki is not touched off at the end of the journey. For example, the maximum default fare on myki is a zone 1+2 daily trip, being:

- $5.54 for a train trip
- $3.28 for a tram trip
- $3.28 for a bus trip touch on in Zone 1
- $2.26 for a bus trip touch on in Zone 2.

Concession, child and seniors myki users are charged 50% of these default fares.

E E-ticketing in London

Oyster card is the electronic ticketing system (contactless smartcard) used on public transport services within the Greater London area of the United Kingdom. These include travel systems across London Underground, buses, the Docklands Light Railway (DLR), London Overground, trams, some river boat services and most National Rail services within the London Fare Zones.

E.1 London fares zones

There are 6 main zones which are ringed areas within London. Zone 1 is central London and zone 6 is the outer areas of greater London including Heathrow airport. In addition to the 6 main zones, there are 3 zones which cover small sections of the far North West corner of London.[67]

E.2 Purchase and recharging

Oyster cards can be purchased from a number of different outlets in the London area:

- London Underground or London Overground stations and ticket machines
- Oyster Ticket Stop agents (usually newsagents, garages and off licences)
- most National Rail stations, some of which are also served by London Underground
- Travel Information Centres
- online via the Oyster card website.

Customers are charged a refundable deposit of £5.

Oyster cards can be registered. Registration enables the customer to buy any product for the card and to have an after-sales service, and it protects against theft or loss.

Customers can set up and manage auto top-up online for their Oyster card.

[67] Transport for London website, http://www.tfl.gov.uk/assets/downloads/london-rail-and-tube-services-map.pdf.

E.3 Fares

Oyster card is designed to reduce the number of transactions at ticket offices and the number of single paper tickets sold on the London transport network. Its use is encouraged by offering cheaper fares on Oyster card compared to payment with cash. Table E.1 compares the Oyster fares and cash fares for London Underground.

Table E.1 Oyster vs. Cash Fares - London Underground (as from January 2012)

		Cash	Oyster pay as you go	
Zones	Adult	Child	**Peak**	**Off peak**
1	£4.30	£2.10	£2.00	£2.00
1 to 2	£4.30	£2.10	£2.70	£2.00
1 to 4	£5.30	£2.60	£3.60	£2.60
1 to 6	£5.30	£2.60	£4.80	£2.90

Source: Transport for London.

Tram and buses charge a flat fare as show in Table E.2.

Table E.2 Oyster vs. Cash Fares – Trams and Buses

Cash single fare	Oyster single fare
£2.30	£1.35

Source: Transport for London.

On Oyster card, fares paid in a day are capped to a maximum amount - a price ceiling. This price cap spreads across all modes of transport (mix bus, underground and DLR). Regardless of how many individual trips users make in any 24-hour period between 04:30 am and 04:30 pm, the total fares are capped to the limits as set out in Table E.3.

Table E.3 Oyster Daily Price Caps (from January 2012)

Zones	**Oyster Pre Pay Peak***	**Oyster Pre Pay off peak**	
1 to 2	£8.40	£7.00	Special Buses Only Price Cap £4.20 (All Zones)
1 to 3	£10.60	£7.70	
1 to 4	£10.60	£7.70	
1 to 5	£15.80	£8.50	
1 to 6	£15.80	£8.50	

Source: Transport for London website: http://www.tfl.gov.uk/tickets/14415.aspx.

Penalty fares and maximum Oyster fare

Customers must touch in and out even if the ticket barriers are open. At stations that do not have ticket barriers, an Oyster card validator is provided for the purposes of touching in and out. If a customer fails to touch out, the maximum Oyster fare applies (even if the daily price cap has been reached).

F E-ticketing in South-East Queensland

The TransLink Transit Authority (known as TransLink) was established as a statutory authority in 2008 to co-ordinate, integrate and increase public transport services delivered by bus, train and ferry operators in South East Queensland. TransLink works with Brisbane Transport, Brisbane City Council Ferries and 16 other operators to provide public transport services in South East Queensland. TransLink runs an integrated ticketing system and a smartcard system (known as *go* card) to allow the use of one ticket on multiple services.

F.1 Integrated ticketing system

The e-ticket known as the '*go* card' was introduced in Brisbane in February 2008. In November 2009, TransLink started cashless services during peak times, only accepting *go* cards for ticket payment or prepaid paper tickets, in an effort to improve service efficiency. All paper tickets except for singles were removed from the system in 2011. G*o* card fares are now 30% cheaper than paper tickets.

The *go* card requires the passenger to touch on and off at a card reader at the start and end of each journey, and when transferring between services. The fare is automatically calculated based on the zones travelled and deducted from a pre-paid balance.

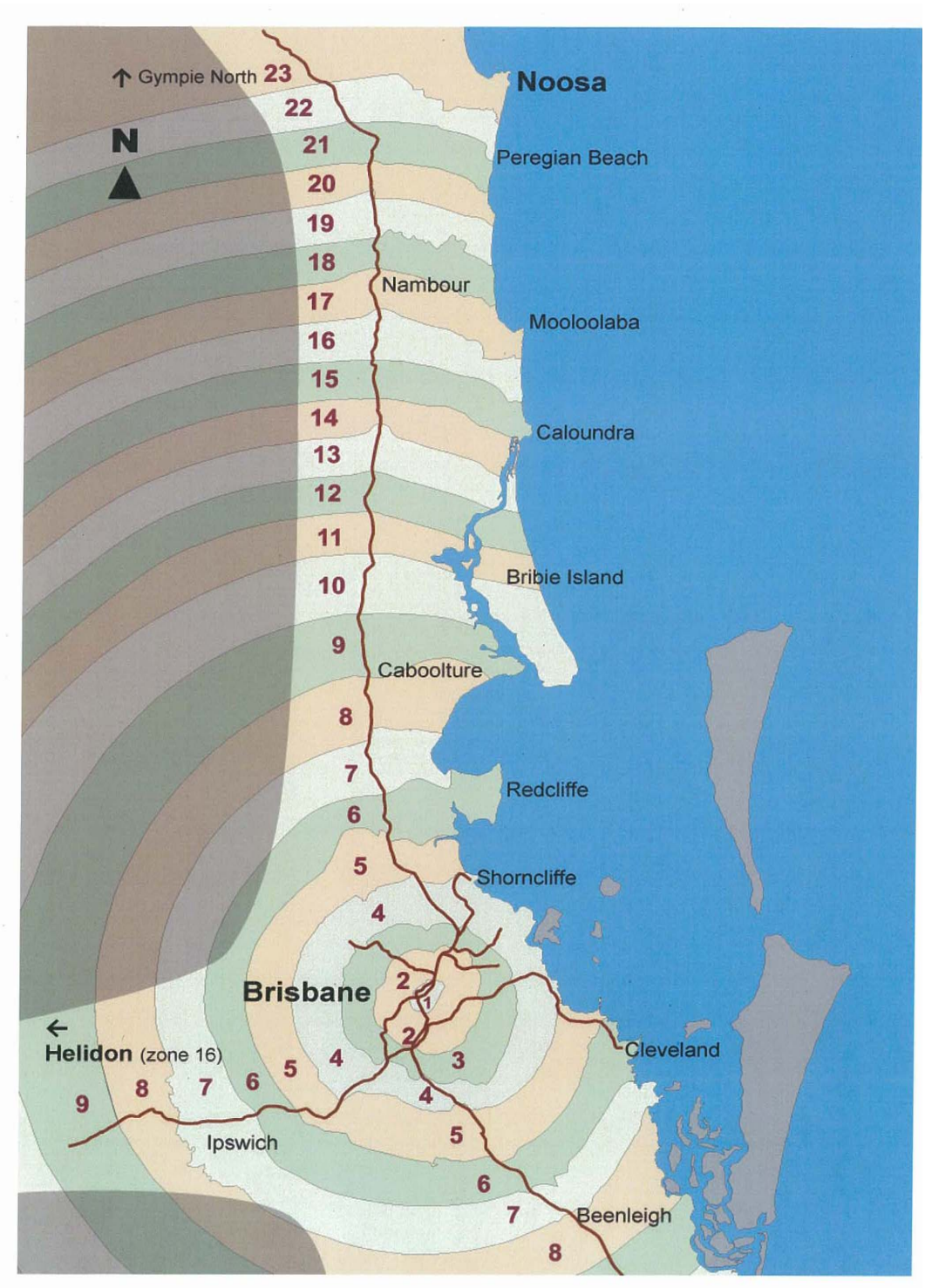
The following types of *go* card are available:

- Adult *go* card is for use by passengers without concessions.
- Child *go* card is for use by children aged 5-14 years.
- Concession *go* card is for use by passengers entitled to a concession, such as full time secondary and tertiary students, holders of a Pensioner Concession Card, and holders of a Repatriation Health Card.
- Seniors *go* card is for use by passengers who have a Seniors Card issued by any Australian State or Territory.

F.2 Fare zones

TransLink uses zones to charge the correct fare no matter what service a passenger uses. Zones radiate out in concentric rings from the centre of Brisbane which are used to determine ticket prices for passengers. TransLink operates services across 23 zones. Fares are calculated at either an adult or concession rate and based on the number of zones you travel through during your journey. The zone system works in a circular pattern, with zone 1 starting in Brisbane CBD and working its way north to the Sunshine Coast and Gympie, south to the Gold Coast and west out to Helidon.

Figure F.1 TransLink fare zones



Source: TransLink.

F.3 Current fares structure

Go card fares are 30% cheaper than the cost of a single paper ticket. There is a 20% discount off the *go card* fare when travelling off-peak and travel is free after the 10th journey in a 7-day period (Monday to Sunday), regardless of zones travelled.[68]

Table F.1 Current Fares, January 2012

	Adult			Concession		
Zones travelled	**Go card**	**Go card off peak**	**Single paper ticket**	**Go card**	**Go card off peak**	**Single paper ticket**
1	$3.05	$2.44	$4.50	$1.53	$1.22	$2.30
2	$3.58	$2.87	$5.20	$1.79	$1.44	$2.60
3	$4.24	$3.40	$6.20	$2.12	$1.70	$3.10
4	$4.77	$3.82	$7.00	$2.39	$1.91	$3.50
5	$5.43	$4.35	$7.90	$2.72	$2.18	$4.00
6	$6.09	$4.88	$8.90	$3.05	$2.44	$4.50
7	$6.62	$5.30	$9.60	$3.31	$2.65	$4.80
8	$7.15	$5.72	$10.40	$3.58	$2.86	$5.20
9	$7.68	$6.15	$11.20	$3.84	$3.08	$5.60
10	$8.87	$7.10	$12.90	$4.44	$3.55	$6.50
11	$9.40	$7.52	$13.70	$4.70	$3.76	$6.90
12	$9.79	$7.84	$14.20	$4.90	$3.92	$7.10
13	$10.19	$8.16	$14.80	$5.10	$4.08	$7.40
14	$10.99	$8.80	$16.00	$5.50	$4.40	$8.00
15	$11.91	$9.53	$17.30	$5.96	$4.77	$8.70
16	$12.84	$10.28	$18.70	$6.42	$5.14	$9.40
17	$14.02	$11.22	$20.40	$7.01	$5.61	$10.20
18	$14.82	$11.86	$21.50	$7.41	$5.93	$10.80
19	$15.61	$12.49	$22.70	$7.81	$6.25	$11.40
20	$16.81	$13.45	$24.40	$8.41	$6.73	$12.20
21	$17.60	$14.08	$25.60	$8.80	$7.04	$12.80
22	$18.52	$14.82	$26.90	$9.26	$7.41	$13.50
23	$19.45	$15.56	$28.30	$9.73	$7.78	$14.20

Source: TransLink website http://translink.com.au/tickets-and-fares/fares/current-fares

68 TransLink website, http://translink.com.au/tickets-and-fares/fares/discounts-and-ways-to-save.

F.3.1 Start-up costs

When buying a Go Card, a user needs to add a starting balance to it and pay a refundable deposit.

- Refundable deposit - $5.
- Minimum starting balance - $5.
- Card issue fee - $5 (currently waived).

For each journey a *go* card will deduct the correct fare from the balance. The fare for each leg of the journey is calculated each time the users touch on and off. If not touched correctly a fixed fare will be charged. The fixed fare for each *go* card type and mode of transport are as follows:

Table F.2 *Go card* fixed fares

Mode of transport	Adult	Child	Senior	Concession
Train	$10.00	$5.00	$5.00	$5.00
Bus and ferry	$5.00	$2.50	$2.50	$2.50
Airtrain	$30.00	$12.50	$30.00	$25.00

Source: TransLink website http://translink.com.au/tickets-and-fares/go-card/fixed-fare.

Users can register Go Cards online, via the designed locations or by phone. Topping up the card balance can be done online (registered cards only), on board buses (except Brisbane Transport), on board CityCats and CityFerries and by calling 13 12 30 (registered cards only).