

More efficient, more integrated Opal fares

Transport — Draft Report
December 2015

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The Tribunal members for this review are:

Dr Peter J Boxall AO, Chairman

Ms Catherine Jones

Mr Ed Willett

Inquiries regarding this document should be directed to a staff member:

Brett Everett 9290 8400

Jessica Robinson 9290 8400

Independent Pricing and Regulatory Tribunal of New South Wales

PO Box K35, Haymarket Post Shop NSW 1240

Level 15, 2-24 Rawson Place, Sydney NSW 2000

T (02) 9290 8400 F (02) 9290 2061

www.ipart.nsw.gov.au

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 5 February 2016.

We would prefer to receive them electronically via our online submission form <www.ipart.nsw.gov.au/Home/Consumer_Information/Lodge_a_submission>.

You can also send comments by mail to:

Review of Public Transport Fares
Independent Pricing and Regulatory Tribunal
PO Box K35,
Haymarket Post Shop NSW 1240

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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

Invitation for submissions	iii
1 Executive summary	1
1.1 Our objectives and approach for this review	1
1.2 Fares for single-mode and multi-mode journeys	3
1.3 Discounts for frequent customers	5
1.4 Gold Opal card arrangements	6
1.5 Impacts on customers and cost recovery	6
1.6 How can you have your say on this draft report?	8
1.7 Structure of this report	9
1.8 List of draft decisions and recommendations	9
2 Draft decisions on Opal fare structure	12
2.1 Draft decisions on fare structure	12
2.2 Fares should continue to differ by mode but be more integrated for multi-mode journeys	13
2.3 Fares should continue to vary with distance travelled, but this distance should be measured consistently across all modes	17
2.4 Fares should continue to differ in peak and off-peak periods for rail only	19
2.5 Fares for longer distance journeys should increase relative to fares for shorter distance journeys	20
2.6 The frequency discount and weekly price cap should be replaced with a more efficient weekly travel credit scheme	23
2.7 Daily caps should continue to apply but should be increased	27
2.8 The Gold Opal cap should be linked to other daily caps, and eligibility for the Gold Opal card should be tightened	28
2.9 Paper tickets should be 40% higher than Opal fares	31
3 Our approach for developing draft decisions on fares and fare structure	33
3.1 Our approach for making draft decisions on fares	35
3.2 What we mean by the socially optimal fares	36
3.3 How we estimated the socially optimal fares	37
3.4 Our draft estimates of socially optimal fares vary between modes	40
3.5 How we used the socially optimal fares to make our draft fare decisions	41
3.6 Why we decided to set individual fares in our determination	48

4	Impacts of our draft decision on revenue and cost recovery	50
4.1	Costs	50
4.2	Patronage	53
4.3	Revenue	54
4.4	Cost recovery	56
5	Our process for this review	58
5.1	What has been our consultation to date?	58
5.2	What are the next steps in the review?	58
5.3	What is outside the scope of this review?	59
	Appendices	61
A	Minister's referral	63
B	Stakeholder comments	66
C	Public transport user survey – key findings	84
D	Rail straight line distance to/from Town Hall station	91
E	Glossary	93
F	List of Submissions	95

1 Executive summary

The Independent Pricing and Regulatory Tribunal (IPART) is conducting a major review of public transport fares in Sydney and surrounding areas. We have been asked by the Minister for Transport and Infrastructure to determine appropriate maximum fares to apply from July 2016 to June 2019 for all Opal services, including:

- ▼ rail services operated by Sydney Trains and NSW TrainLink Intercity
- ▼ government and private bus services in Sydney, Newcastle, the Central Coast, Wollongong, the Blue Mountains and the Hunter regions
- ▼ ferry services operated by Sydney Ferries
- ▼ light rail services in Sydney, and
- ▼ the Stockton Ferry in Newcastle.

We have also been asked to consider options for fare structure reform, including for greater fare integration across Opal services.

This report sets out our draft decisions on the fares for single-mode and multi-mode journeys on Opal services, daily price caps and the appropriate discounts for frequent customers. It also explains how we reached these decisions, and discusses their expected impacts on customers, fare revenue and cost recovery.

We invite submissions from all interested parties, which we will consider before finalising our decisions and providing our final report to the Minister in March 2016.

1.1 Our objectives and approach for this review

In line with the Minister's referral (see Appendix A), we have developed a package of fares and fare arrangements that balances the following criteria:

1. encourages the efficient use of public transport
2. promotes the efficient delivery of public transport
3. encourages greater use of public transport
4. minimises impacts on customers
5. is logical, predictable and stable over time, and
6. increases farebox revenue or cost recovery.

To do this, we used an economic model to estimate the ‘socially optimal’ fares for single-mode journeys – that is, the fares for each mode that would encourage the most efficient use and promote the most efficient delivery of Opal services (our first two criteria). This model used our estimates of efficient costs, and included our updated estimates of external benefits of public transport from our 2014 external benefits review. We released a report on the external benefits of public transport in late 2014, and have considered feedback from submissions in our current review of fares.

We also conducted economic analysis and consulted on other aspects of Opal fares not captured in our economic model – such as the fares for multi-mode journeys, and arrangements for frequency discounts and daily, weekly and weekend price caps.

As part of our consultation process, we released an Issues Paper in July 2015, which focused mainly on options for fare structure reform. We received over 1,900 submissions and responses to an on-line survey hosted on our website.

In September 2015 we released a Methodology Paper which explained how we proposed to calculate fares for our determination. We received 15 submissions on the Methodology Paper. See Appendix B for a summary of stakeholder submissions on our two consultation papers.

We also held a public hearing to provide a further opportunity for stakeholders to make comments on both areas of this review, and we engaged Roy Morgan to conduct a survey of a representative sample of public transport users about their attitudes and responses to fares and fare structure. Appendix C provides an overview of our survey. Roy Morgan’s survey report is available on our website.

After considering stakeholders’ views and the survey results, the socially optimal fares and other analysis, we developed fare options for transitioning current Opal fares towards the socially optimal fares and meeting our other four criteria. We then assessed each of these fare options, and decided on the fares and other fare arrangements that strike the best balance between the six criteria.

Our draft determinations apply to Adult Opal fares only, as concession fare arrangements are a matter for Government. However, we have made draft recommendations on these arrangements where they fall within the scope of this review.

1.2 Fares for single-mode and multi-mode journeys

Under our draft decisions, Opal fares would continue to differ by mode, to reflect the different underlying efficient costs of delivering services and the different usage patterns on each mode. However, light rail fares would be set at the same level as bus fares for simplicity (light rail trips currently make up only around 2% of all public transport trips).

In addition, fares would be more integrated to improve the fare structure's fairness for customers who use two or more modes to complete a journey. In particular there would be a separate fare schedule for multi-mode journeys to allow the fares to be calculated in the same way as those for multi-trip journeys on a single mode – that is, as if they were single trips.

These changes would mean that most customers who make multi-mode journeys would pay between 20% and 50% less for each of these single journeys than currently.

Fares would also continue to vary by distance travelled, but the distance bands would be consistent for all modes. In addition, the distance travelled would be measured in a consistent way for all single-mode and multi-mode journeys. Specifically, it would be measured as the longest straight-line distance between any tap-on and tap-off point in the journey (as is currently the case for bus, light rail and ferry fares), rather than the route distance (as is the case for rail fares). These changes would mean that fares for most single rail journeys would fall.

Peak and off-peak fares would continue to apply for rail fares only, as rail is the only mode for which the efficient costs and external benefits of travel differ substantially between peak and off-peak periods. Our draft decision is for the discount on off-peak rail fares to increase from 30% to 40%, to better reflect the lower costs of providing off-peak rail services and promote more efficient use of spare capacity on this mode.

In addition, fares for longer distance journeys would increase relative to those for shorter distance journeys to better reflect the higher costs of providing these journeys. This change would affect fares for bus journeys of more than 15 km, rail journeys of more than 65 km, and ferry journeys of more than 15 km. However, we have set the draft fares for these longer journeys below the optimal fares to avoid excessive impacts on customers.

These fares include our forecast of inflation and are presented in nominal terms. We do not propose to change fares if actual inflation is different to our forecasts over the three years of our determination.

Our draft fares for multi-mode journeys are provided in Chapter 2.

Transport for NSW is retiring many paper ticket types from 1 January 2016, but single paper tickets will still be available for each mode. Our draft decision is to set these paper fares 40% above the Adult Opal fares.

Table 1.1 Draft Adult Opal fares – single rail journeys in peak periods (\$ nominal)

Current distance bands	Current fares	Draft distance bands	Draft fares from		
Route distance (km)	2015	Longest straight-line distance between any tap on and tap off points (km)	July 2016	July 2017	July 2018
0-10	\$3.38	0 to less than 3	3.30	3.38	3.46
		3 to less than 8	3.36	3.62	3.88
10-20	\$4.20	8 to less than 15	4.16	4.33	4.50
20-35	\$4.82	15 to less than 25	4.74	5.06	5.39
35-65	\$6.46	25 to less than 35	5.70	6.06	6.43
65+	\$8.30	35 to less than 45	6.24	6.86	7.47
		45 to less than 65	7.55	8.29	9.03
		65 to less than 85	8.87	9.99	11.12
		85 to less than 100	9.96	11.45	12.94
		100+	10.86	12.55	14.24

Table 1.2 Draft Adult Opal fares – single bus and light rail journeys (\$ nominal)

Draft distance bands	Current fares	Draft fares from		
Longest straight-line distance between any tap on and tap off points (km)	2015	July 2016	July 2017	July 2018
0 to less than 3	2.10	1.98	2.22	2.46
3 to less than 8	3.50	3.34	3.67	3.99
8 to less than 15	4.50	4.11	4.38	4.65
15 to less than 25	4.50	4.69	4.99	5.29
25 to less than 35	4.50	4.91	5.30	5.69
35 and over	4.50	4.91	5.30	5.69

Table 1.3 Draft Adult Opal fares – single Sydney Ferries journeys (\$ nominal)

Draft distance bands Longest straight-line distance between any tap on and tap off points (km)	Current fares	Draft fares from		
	2015	July 2016	July 2017	July 2018
0 to less than 3	5.74	5.14	5.24	5.34
3 to less than 8	5.74	5.63	5.99	6.34
8 to less than 15	7.18	6.36	7.10	7.85
15 to less than 25	7.18	7.39	8.69	9.98
25 and over	7.18	7.39	8.69	9.98

Table 1.4 Draft Adult Opal fares – single Stockton Ferry journeys (\$ nominal)

Journey distance (km)	Current fares	Draft fares from		
	2015	July 2016	July 2017	July 2018
0 to less than 1	2.10	1.98	2.22	2.46

1.3 Discounts for frequent customers

Under our draft determination, the amount frequent customers pay in fares over a week would increase so that these customers pay for more of the services they use. Very frequent users and customers with high weekly expenditure would still receive discounts compared to paying for all of their single journeys. For many of these customers, this discount will continue to be substantial.

Under the existing frequency discount and weekly cap arrangements, customers travel for free after they have paid for eight Opal journeys or spent \$60 on Opal fares in a week.

Our draft decision is to replace these arrangements with a weekly travel credit scheme that incorporates both a frequency discount and weekly cap. Under this scheme, the fare for each journey customers make during the Opal week would be debited from their Opal card when they tap off. At the end of the week, frequent customers would receive a travel credit equal to the higher of:

- ▼ their total expenditure on Adult Opal fares in that week minus the cost of their 10 most expensive journeys in that week, or
- ▼ their total expenditure on Adult Opal fares in that week minus a weekly cap amount of \$65 from July 2016, increasing by \$5 in each year of the determination.

This scheme is fairer than the current arrangements, because it removes the perverse incentive for customers to make unnecessary short trips early in the week to qualify for the frequency discount and then travel for free the rest of the week. The additional fare revenue it raises would also allow for most single fares to fall in the first year of the determination, resulting in savings for customers who travel fewer than nine times a week.

There is currently also a daily cap of \$15 for Adult Opal fares. Our draft decision is to retain the daily cap to protect customers from high daily costs, and increase it to \$18 from July 2016, increasing by \$1 in each year of the determination.

1.4 Gold Opal card arrangements

Public transport fare schemes often provide concession pricing for children, students, economically disadvantaged and older people. Concession pricing usually serves social policy objectives and is a matter for the Government, and so falls outside the scope of IPART's fare reviews. However, for this review, we were asked to consider "whether current concession arrangements support the optimal use of the network".

We consider that Gold Opal arrangements should be better targeted so that those for whom the cost of travel is a real barrier benefit the most. We consider that Pensioner Concession Card holders and NSW War Widow/er Card holders should continue to be eligible for Gold Opal cards with a lower daily cap than the standard concession daily cap, while other seniors should be eligible for a Concession Opal Card.

We also consider that the Gold Opal daily cap levels should be set at 40% of the concession cap, increasing it to \$3.60 in 2016-17, and then to \$3.80 in 2017-18 and \$4.00 in 2018-19, in line with increases in other caps.

1.5 Impacts on customers and cost recovery

Under our draft determination, fare revenue collected by the Government would remain approximately constant in real terms in the first year of the determination period. However, due to our draft changes to fare structure, the impacts on customers would vary depending on which modes they use, how far they travel, and how frequently they travel. In 2016-17:

- ▼ Most multi-mode customers would pay less than they currently pay.
- ▼ Around 60% of single-mode customers would pay less than they currently pay.
- ▼ Around 10% of single-mode customers would face cost increases that are greater than 20%.

In most cases, the customers who would pay more in 2016 are those who travel more than eight times per week (due to our proposed changes to the frequency discount and weekly cap arrangements). A small proportion of customers, particularly those who make longer distance journeys on a single mode, would also pay more for single journey fares.

Once the fare structure reforms have been implemented in 2016, fares would increase in 2017 and 2018 to move towards the optimal fare levels and improve the level of cost recovery over the period. By 2018, passengers would pay an average of 8% more in real terms per journey. Fare revenue would increase by around 13%, including the impact of forecast patronage growth and changes in usage patterns as customers respond to price changes. However, because the costs of providing Opal services are expected to grow during the period, cost recovery of efficient costs would fall slightly over the period— from 23.8% in 2015-16 to 23.1% by 2018-19. (The expected growth in costs is due to planned capital investment in the Sydney Metro Northwest and the City and South-East Light Rail extension (CSELR).) However, if cost savings are not made to improve the efficiency of providing public transport services, cost recovery would be around 2.8% lower by the end of the determination period.

Table 1.5 shows the current average Adult fare for each mode (including the impact of free journeys), and the average fare change for each year, taking all draft fare structure reforms into account, including lower fare multi-mode journeys.

Table 1.5 Average Adult Opal fares and fare changes for single journeys (real \$2015-16)

	Current average fare (\$)	2016-17 % change	2017-18 % change	2018-19 % change	Cumulative change over period
Rail	3.07	-1%	4%	3%	6%
Bus	2.30	-2%	7%	6%	11%
Ferry	4.30	1%	5%	4%	11%
Light rail	1.83	-11%	9%	7%	4%
Total	2.79	-2%	5%	5%	8%

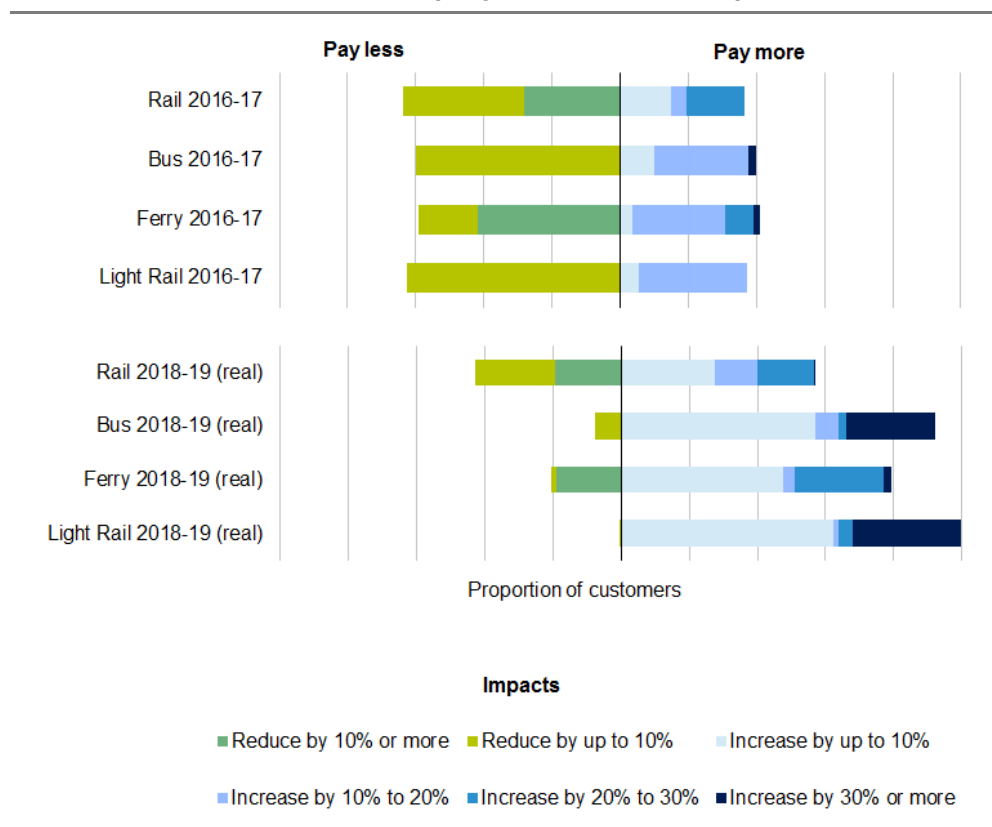
The majority of passengers currently use only one mode. Figure 1.1 shows the range of impacts for customers who only use a single mode of transport. By 2018-19¹:

- ▼ More than 40% of rail customers would be paying less than they are paying now.
- ▼ Most bus, light rail and ferry customers would be paying around 10% more than they are paying now.

¹ After the impact of inflation has been removed.

- ▼ However, around 20% of all single-mode public transport customers would be paying more than 20% more than they are currently paying.

Figure 1.1 Changes in customer spending on public transport under our draft determination (single-mode customers)



1.6 How can you have your say on this draft report?

We are seeking written submissions on this Draft Report, and encourage all interested parties to comment on the matters it discusses, or any other issue relevant to the terms of reference. Page iii of this report provides more information on how to make a submission. Submissions are due by 5 February 2016.

1.7 Structure of this report

The rest of this report explains our review and draft decisions in more detail:

- ▼ Chapter 2 explains our draft decisions on fare structure and the impacts on customers.
- ▼ Chapter 3 outlines the approach we used to develop our draft decisions on fares and fare structure.
- ▼ Chapter 4 discusses the impacts of our draft decisions on fare revenue, patronage and cost recovery.
- ▼ Chapter 5 outlines our process for conducting this review, including information on when and how to make submissions in response to this report.
- ▼ Appendices A to E contain our terms of reference, summary of submissions and Glossary.

We have also released a range of Information papers that provide further analysis that supports our recommendations and draft decisions. These papers are available at www.ipart.nsw.gov.au.

1.8 List of draft decisions and recommendations

Our draft decisions and draft recommendations are outlined in the following chapters. For convenience, they are also listed below. Please feel free to comment on any or all of these draft decisions and recommendations or any other matter relevant to our review.

List of Draft Decisions

- | | | |
|---|--|----|
| 1 | Fares should continue to be different for rail, bus, and ferry services. | 14 |
| 2 | Light rail fares should continue to be set equal to bus fares for the same distances. | 14 |
| 3 | Adult Opal fares for single rail journeys in peak periods, single bus and light rail journeys, single Sydney Ferries and single Stockton Ferry journeys are set out in Tables 1.1 to 1.4. | 14 |
| 4 | Multi-mode journeys should be charged based on the distance travelled, measured as the longest straight-line distance between any tap-on and any tap-off point on the journey, according to the fares in Table 2.1. However, the single-mode fare for any of the component journeys can be charged if it is higher than the multi-mode total journey fare. | 14 |
| 5 | Fares should continue to vary by the distance travelled but: | 19 |
| | – the distance bands should be as in Table 2.1 for all modes, and | 19 |

– the distance travelled should be measured as the longest straight-line distance between any tap-on and any tap-off point on the journey.	19
6 Peak and off-peak pricing should continue for rail services, and the off-peak discount should increase to 40%. Bus, ferry and light rail services should continue to have the same fares regardless of the time of travel.	20
7 Customers should no longer receive free travel after making 8 journeys between Monday and Sunday.	26
8 A weekly travel credit scheme should be implemented under which, at the end of the Opal week, a customer's Opal account is credited with the greater of:	26
– the customer's total expenditure on Adult Opal fares in the week minus the cost of the 10 most expensive journeys taken during the week, or	26
– the customer's total expenditure on Adult Opal fares in a week minus the weekly cap amount.	26
9 The weekly cap for Adult Opal fares should be set at \$65 from 1 July 2016, \$70 from 1 July 2017, and \$75 from 1 July 2018.	27
10 Daily caps for Adult Opal fares should be set as shown in Table 2.5.	28
11 The premium on paper tickets should be 40%, rounded to the nearest 10 cents, as set out in Table 2.8.	31

List of Draft Recommendations

1 Daily caps for Concession and Child/Youth fares should be set as shown in Table 2.5.	28
2 The level of the Saturday and Sunday cap should be kept under review during the determination period to assess customers' response to discounted fares on the weekend.	28
3 Pensioner Concession Card holders and NSW war widower/s card holders should be eligible for a Gold Opal card.	30
4 Seniors card holders who do not also hold a pensioner or NSW war widowers card should be eligible for a Concession Opal card.	30
5 The Gold Opal daily cap should be set at 40% of the concession weekday cap (\$3.60 for 2016-17, \$3.80 for 2017-18 and \$4.00 for 2018-19).	30
6 That IPART works with TfNSW to develop a standard set of regulatory accounts for each mode that can be updated annually.	51

List of Findings

- 1 That operating cost inefficiencies will cost the NSW Government \$859 million over the determination period, with rail, STA and outer metro buses, Sydney Ferries and Stockton Ferries all costing more to operate than a benchmark efficient operator 52

2 Draft decisions on Opal fare structure

‘Fare structure’ means the range of elements that determine how the fare for a particular journey² is calculated. In line with the Minister’s referral, we considered options for reforming the main elements of the Opal fare structure – including the level of integration between fares; the way fares relate to the distance travelled; the way fares differ in peak and off-peak periods; the frequency discount and weekly and daily cap arrangements; and the way Gold Opal fares relate to other Opal fare types.

The sections below summarise our draft decisions on fare structure, and then discuss our considerations and analysis for these decisions in more detail.

2.1 Draft decisions on fare structure

Our draft decisions are that:

- ▼ Fares should continue to differ by mode so they can reflect the different underlying efficient costs of providing services on each mode and different usage patterns of each mode. However, they should be more integrated to improve the fairness of the fare structure for customers who use two or more modes.
- ▼ Fares should continue to vary by distance travelled, but the distance bands should be consistent for all modes, and the distance travelled should be measured in a consistent way for all modes.
- ▼ Fares should continue to differ in the peak and off-peak periods for rail only, and the discount on off-peak rail fares should increase to better reflect the lower costs of providing rail services in the off-peak and promote more efficient use of spare capacity on this mode.
- ▼ Fares for longer distance journeys should increase relative to those for shorter distance journeys to better reflect the higher costs of providing these journeys. However, they should be set lower than the estimated optimal fares for longer journeys to mitigate impacts on customers.

² A public transport **journey** is defined as a customer’s travel between start point and final destination. A journey may consist of several **trips**, or legs. Tapping off ends a trip, but if a subsequent tap-on occurs less than 60 minutes later, that is considered a transfer within a single journey.

- ▼ The current frequency discount and weekly price cap should be replaced with a more efficient and fairer weekly travel credit scheme.
- ▼ The daily caps should continue to apply, but the level of these caps should increase.
- ▼ Fares for Gold Opal cardholders should be linked to Concession Opal fares, and the eligibility for Gold Opal cards should be tightened.

We have incorporated these decisions in determining draft fares and fare arrangements for Adult Opal cardholders, and made draft recommendations in line with the decisions that relate to Child/Youth, Concession and Gold Opal fares and fare arrangements.

2.2 Fares should continue to differ by mode but be more integrated for multi-mode journeys

Integration refers to the way fares for journeys on different modes, over different distances, or with multiple component trips relate to each other. Currently, fares for single-mode journeys of the same distance differ by modes (for example, a 5 kilometre bus fare is different from a 5 kilometre rail fare). In addition, if a customer makes a multi-trip journey using a single mode (for example, they transfer from one bus service to another), the whole journey is charged as if it was one trip from origin to destination. However, if they transfer between modes (eg, from bus to rail), the trips are charged independently, which results in a higher fare.³

In our Issues Paper, we identified two options:

1. making fares the same for all modes, or
2. keeping fares different for each mode but increasing the level of fare integration for multi-mode journeys.

Our analysis indicates that the second option better balances our criteria for this review. Our draft decision is to set different fares for each mode to better reflect the different underlying efficient costs of delivering services on each mode, and the different usage patterns on each mode. However, there is one exception: for the period covered by this determination (July 2016 to July 2019) we will continue to set light rail fares at the same level as bus fares.

³ But all multi-trip journeys, whether they are single mode or multi-mode, are counted as a single journey for the purpose of qualifying for the frequency discount (free travel after eight paid journeys within the week).

To increase the level of fare integration for multi-mode journeys our draft decision is to:

- ▼ calculate fares for journeys that involve trips on two or more modes in the same way as fares for journeys that involve multiple trips by a single mode – that is, as if it were a single trip
- ▼ measure the distance travelled for the journey as the longest straight-line distance between any tap-on and any tap-off point on the journey, and
- ▼ establish a separate fare schedule for multi-mode journeys and set fares so that customers pay less than they currently pay for these journeys.

Table 2.1 sets out our draft Adult Opal fares for multi-mode journeys. Multi-mode journey fares have been set with reference to the journey distance and the single-mode fares for that distance. For example, in 2016-17 a 35 km journey involving a peak rail trip and a bus trip would cost \$6.24, the same as the peak rail fare for that distance, and a 35 km journey involving an off-peak rail trip and a bus trip would cost \$3.74, the same as the off-peak rail fare for that distance.

Box 2.1 provides an example of how these fares would be applied, and the fare savings per journey compared to current fares.

However, if the fare for a single-mode portion of a multi-mode journey is higher than the multi-mode fare for the journey, then the single-mode portion fare should be charged. An example of a multi-mode journey where the single-mode portion fare is charged is provided in Box 2.2.

More information about our analysis of integrated fares is provided in *Information Paper 1: Integrated fares for multi-trip journeys*, available on our website

We are interested in stakeholder views on this proposed approach to multi-mode fares.

Draft Decisions

- 1 Fares should continue to be different for rail, bus, and ferry services.
- 2 Light rail fares should continue to be set equal to bus fares for the same distances.
- 3 Adult Opal fares for single rail journeys in peak periods, single bus and light rail journeys, single Sydney Ferries and single Stockton Ferry journeys are set out in Tables 1.1 to 1.4.
- 4 Multi-mode journeys should be charged based on the distance travelled, measured as the longest straight-line distance between any tap-on and any tap-off point on the journey, according to the fares in Table 2.1. However, the single-mode fare for any of the component journeys can be charged if it is higher than the multi-mode total journey fare.

Box 2.1 How fares for multi-mode journeys would be applied

In this example, a customer travels by bus from Lane Cove to Wynyard, and then transfers to a peak rail service from Wynyard to Central to complete their journey.

- ▼ The longest straight-line distance between a tap-on and a tap-off point is from Lane Cove to Central, which is 9 km. This means the total fare for the journey in 2016-17 would be \$4.16, which is our draft fare for a journey of 8-15 km that involves a peak rail trip and a bus and/or light rail trip.
- ▼ As the customer has already paid \$3.34 when they tapped off the bus service, they would pay only an additional 82 cents when they tap off at Central.

Currently a customer making this journey would pay \$3.50 for the 7 km bus from Lane Cove to Wynyard, and \$3.38 for the 3 km rail from Wynyard to Central, which is \$6.88 in total. Therefore, the fare for this journey would be 40% lower under our draft determination.

Box 2.2 A multi-mode journey where the fare charged is the fare for a single mode portion of the journey

In this example, a customer travels by bus from the University of NSW in Kensington to Central, and then transfers to an off peak rail service from Central to Bankstown to complete their journey.

- ▼ The longest straight-line distance between a tap-on and a tap-off point is from Kensington to Bankstown, which is 18 km. The multi-mode fare for a journey that involves an off peak rail trip and a bus trip that is 15-25 km is \$2.84.
- ▼ However, for the first leg of the journey, which is 4 km from Kensington to Central on the bus, the customer will pay \$3.34, which is the 3-8 km bus fare.
- ▼ Because the single-mode fare for a component of the journey applies where it is higher than the fare for the multi-mode journey, no charge is added for the second leg of the journey, and the customer pays \$3.34 in total, rather than the \$2.84 multi-mode fare.

Currently a customer making this journey would pay \$3.50 for the 4 km bus from Kensington to Central, and \$2.94 for the off peak rail journey between Central and Bankstown, which is \$6.44 in total. Therefore, the fare for this journey with our draft fares (\$3.34) would be 48% lower.

Table 2.1 Draft Adult Opal fares – journeys that involve two or modes (\$ nominal)

Distance (km)	2016-17				2017-18				2018-19			
	Peak rail plus bus and/or light rail and/or Stockton Ferry	Off-peak rail plus bus and/or light rail and/or Stockton Ferry	Sydney Ferry plus any other modes	Bus plus light rail and/or Stockton Ferry	Peak rail plus bus and/or light rail and/or Stockton Ferry	Off-peak rail plus bus and/or light rail and/or Stockton Ferry	Sydney Ferry plus any other modes	Bus plus light rail and/or Stockton Ferry	Peak rail plus bus and/or light rail and/or Stockton Ferry	Off-peak rail plus bus and/or light rail and/or Stockton Ferry	Sydney Ferry plus any other modes	Bus plus light rail and/or Stockton Ferry
0 to less than 3	3.30	1.98	5.14	1.98	3.38	2.03	5.24	2.22	3.46	2.08	5.34	2.46
3 to less than 8	3.36	2.02	5.63	3.34	3.67	2.17	5.99	3.67	3.99	2.33	6.34	3.99
8 to less than 15	4.16	2.50	6.36	4.11	4.38	2.60	7.10	4.38	4.65	2.70	7.85	4.65
15 to less than 25	4.74	2.84	7.39	4.69	5.06	3.04	8.69	4.99	5.39	3.23	9.84	5.29
25 to less than 35	5.70	3.42	7.39	4.91	6.06	3.64	8.69	5.30	6.43	3.86	9.98	5.69
35 to less than 45	6.24	3.74	7.39	4.91	6.86	4.12	8.69	5.30	7.47	4.48	9.98	5.69
45 to less than 65	7.55	4.53	7.55	4.91	8.29	4.97	8.69	5.30	9.03	5.42	9.98	5.69
65 to less than 85	8.87	4.91	8.87	4.91	9.99	5.30	9.99	5.30	11.12	5.69	11.12	5.69
85 to less than 100	9.96	4.91	9.96	4.91	11.45	5.30	11.45	5.30	12.94	5.69	12.94	5.69
100+	10.86	4.91	10.86	4.91	12.55	5.30	12.55	5.30	14.24	5.69	14.24	5.69

Note: Distance is measured as longest straight-line distance between any tap on and any tap off point during the journey.

2.3 Fares should continue to vary with distance travelled, but this distance should be measured consistently across all modes

Fares can vary based on the distance travelled between the origin and destination or the zones that the origin and destination fall into (under a zonal structure), or the fare can be the same for all origin and destination combinations (a flat fare). Fares that vary based on the distance travelled are more efficient than other types of fares because:

- ▼ it costs more to provide a longer distance service than a shorter distance service
- ▼ people are generally willing to pay more the further that they travel, and
- ▼ the further a journey extends outside the CBD, the lower the external benefits of using public transport instead of driving as the roads become less congested.

Currently, Opal fares vary based on the distance travelled from origin to destination. There is a range of 'distance bands', and fares increase as the distance travelled falls into to a higher band. However, both the distance bands and the way the distance travelled is measured differ across modes. Distance travelled is measured as a point-to-point straight line for bus, light rail and ferry, but by track distance for rail.

We consider that fares should continue to vary based on the distance travelled, but the distance bands and the way distance travelled is measured should be the same for all modes and journeys. Our draft decision is that:

- ▼ the distance bands for all modes should be as shown in Table 2.2, and
- ▼ the distance travelled should be measured as the longest straight-line distance between any tap-on and any tap-off point on the journey.

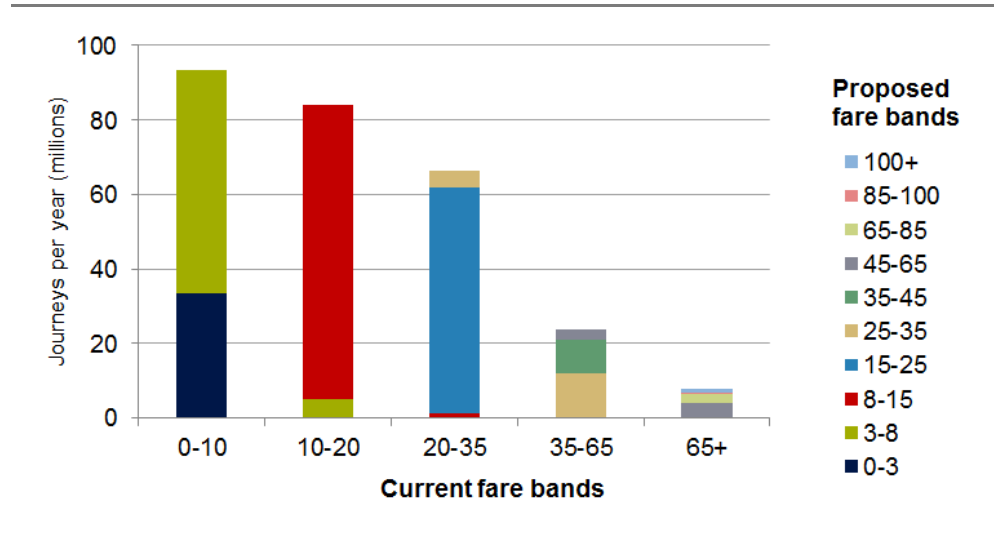
Table 2.2 Draft decision on distance bands for all modes (km)

Distance band	Draft distance bands for all modes (straight-line distance)	Current Rail (route distance)	Current Bus and Light Rail (straight-line distance)	Current ferry (straight-line distance)
1	0 to less than 3	0-10	0-3	0-9
2	3 to less than 8	10-20	3-8	9+
3	8 to less than 15	20-35	8+	
4	15 to less than 25	35-65		
5	25 to less than 35	65+		
6	35 to less than 45			
7	45 to less than 65			
8	65 to less than 85			
9	85 to less than 100			
10	100+			

For rail, measuring the distance travelled as the straight-line distance rather than the track distance would mean that many rail journeys would fall into a lower distance band, and so customers would pay lower fares. For example, the track distance from Cronulla to Town Hall stations is 38 km, so the journey currently falls into the 35 to 65 km fare band (\$6.46 peak fare). The straight-line distance between these stations is 21 km, so under our draft determination the journey would fall into the 15 to 25 km fare band (\$4.74 draft peak fare).

Figure 2.1 shows the number of passenger journeys in 2014-15 that fell into each existing rail fare band, and how these journeys would be allocated across the new fare bands under our draft determination. For example, it shows that of the 66 million passenger journeys that currently fall into the 20 to 35 km fare band, around 60 million (or 90%) would move into the 15 to 25 km fare band, while 1.4 million (2%) would move into the 8 to 15 km fare band, and 4.5 million (7%) into the 25 to 35 km fare band.

Figure 2.1 Number of rail passenger journeys (2014-15) in existing fare bands, and fare bands (kms) these journeys fall into under draft determination



Data source: Transport for NSW straight line versus route travelled journeys.

Draft Decision

5 Fares should continue to vary by the distance travelled but:

- the distance bands should be as in Table 2.1 for all modes, and
- the distance travelled should be measured as the longest straight-line distance between any tap-on and any tap-off point on the journey.

2.4 Fares should continue to differ in peak and off-peak periods for rail only

In considering how fares should vary by time of travel, we focused on whether there should be peak and off-peak fares. In general, this would only be efficient if the costs and benefits of travel differ substantially at peak and off-peak times.

Currently, Opal fares differ in peak and off-peak periods for rail travel, but not for bus, light rail or ferry travel. We consider that this should continue to be the case. Our draft decision is to increase the off-peak discount from 30% to 40% for rail fares to make them more cost-reflective.

Our analysis shows that rail is the only mode for which the costs and benefits of travel in peak and off-peak periods differ sufficiently to justify different fares for these periods. Rail services are characterised by high infrastructure costs (eg, rail lines, vehicles, stations) and relatively low operating costs (eg, electricity, fuel, drivers). Much of the infrastructure is required to meet the demand for services in peak times. In off-peak times, such as the middle of the day and weekends, the infrastructure may have spare capacity. For the other modes, the operating costs are a much higher proportion of total costs (because the main infrastructure costs are the vehicles and vessels – unlike rail, which also has substantial track costs), and operating costs don't differ in peak and off-peak times.

As well as making fares more cost reflective, increasing the off-peak discount may promote more efficient use of spare capacity and delay the need for expensive investment in infrastructure to meet demand. For example, it may encourage some people to travel outside peak times, spreading the passenger load and reducing external costs of passenger crowding and boarding delays. It may also encourage people who are not currently rail customers to use rail services in off-peak times.

Currently around 56% of rail trips are made in off-peak periods. Increasing the off-peak discount would mean lower fares for more than 97% of these passenger journeys. On average, single off-peak rail fares would fall by 15.6% in 2016, and would still be around 12.5% lower than currently by 2018 (in real terms).

More information about our analysis of peak and off-peak pricing is provided in *Information Paper 2: Weekday peak and off-peak fares*, available on our website.

Draft Decision

- 6 Peak and off-peak pricing should continue for rail services, and the off-peak discount should increase to 40%. Bus, ferry and light rail services should continue to have the same fares regardless of the time of travel.

2.5 Fares for longer distance journeys should increase relative to fares for shorter distance journeys

Currently Opal fares are capped once the distance travelled reaches 65 km for rail, 8 km for buses, and 9 km for ferries. However, the efficient fares for longer distance journeys are significantly higher than these caps, due to the high costs of operating long distance services and the lower external benefit that arises from these journeys.

Therefore, we consider fares for longer distance journeys should increase relative to fares for shorter distance journeys, including:

- ▼ bus journeys of more than 15 km
- ▼ rail journeys of more than 65 km, and
- ▼ ferry journeys of more than 15 km.

These journeys currently make up 3% of all Opal passenger journeys.

Under our draft determination, fares for bus journeys of more than 15 km would increase by an average of 5% in 2016-17 (in nominal terms), and 11% by 2018-19 (in real terms – that is, after the effects of inflation have been taken into account). This would affect around 6% of bus trips, including those between the city and the Northern Beaches and the North West – such as Dee Why (15 km), Narrabeen (21 km), Palm Beach (31.5 km), Baulkham Hills (23 km), Castle Hill (24 km), Kellyville (29 km) and Rouse Hill (33 km). However, even with these increases, these bus fares would still be lower than rail fares for the same length journey.

Increases to long distance rail fares would affect around 1% of all rail trips. They include peak fares for rail journeys of more than 65 km (straight-line distance), which would increase by an average of 12% in 2016, and 32% in 2018 (in real terms). Off-peak rail fares in the 65 to 85 km band would fall by 8%, but fares for more than 85 km would increase by an average of 10% in 2016, and 34% in 2018.

Fares for ferry journeys of more than 15 km would increase by 3% in 2016, and 29% in 2018. Only some journeys to or from Rydalmere and Parramatta would be affected by this increase.⁴

Table 2.3 shows our draft fare increases for longer distance journeys.

⁴ Affected routes would be Parramatta to Cockatoo Island, Woolwich, Greenwich, Birchgrove, Balmain, Darling Harbour, McMahon's Point, Milsons Point or Circular Quay; and Rydalmere to Darling Harbour, McMahon's Point, Milsons Point or Circular Quay.

Table 2.3 Draft Adult Opal fare increases for longer distance journeys

Distance (km)	Proportion of customers in distance band	Current 2015 single fare (\$)	2016-17 Single fare (\$)	2016-17 Single fare change (nominal)	2018-19 Single fare (nominal \$)	2018-19 Single fare change (real)
Peak Rail		Proportion of peak rail customers				
65-85	0.8%	8.30	8.87	7%	11.12	24%
85-100	0.1%	8.30	9.96	20%	12.94	45%
100+	0.1%	8.30	10.86	31%	14.24	59%
Off-peak rail		Proportion of off-peak rail customers				
65-85	0.9%	5.81	5.32	-8%	6.67	7%
85-100	0.2%	5.81	5.98	3%	7.76	24%
100+	0.4%	5.81	6.52	12%	8.54	37%
Bus		Proportion of bus customers				
15-25	4%	4.50	4.69	4%	5.29	9%
25+	1%	4.50	4.91	9%	5.69	17%
Ferry		Proportion of ferry customers				
15-25	1.4%	7.18	7.39	3%	9.98	29%

2.6 The frequency discount and weekly price cap should be replaced with a more efficient weekly travel credit scheme

Many public transport fare schemes include frequency discounts and weekly price caps.

Under paper ticketing, there can be significant cost savings when customers use periodical and multi trip tickets (eg, weekly or annual passes and Travel Tens), arising from reduced queuing at ticket machines, faster boarding on buses and lower administrative costs. These benefits do not arise under electronic ticketing because everyone must pre-load credit onto their Opal card upfront – both frequent users and non-frequent users. Therefore, significant discounts for frequent users can no longer be justified as a result of cost savings.

However, frequency discounts may still be efficient if customers are more likely to increase their use of public transport services in response to the discounts.

Weekly price caps may also encourage customers to increase their use of public transport, by making it more affordable for those who use it more often and/or make more expensive journeys.

Under the existing frequency discount and weekly cap arrangements, customers travel for free after they have paid for eight Opal journeys or spent \$60 on Opal fares in a week. Our analysis shows that these arrangements are inefficient. We consider that they should be replaced with a weekly travel credit scheme to make discounting and capping fairer and more efficient. The following sections outline our findings on the current arrangements, and explain our proposed weekly travel credit scheme and its likely impacts on customers.

2.6.1 Our findings on the current frequency discount and weekly cap arrangements

The current frequency discount and weekly cap arrangements are not efficient for several reasons. First, many customers who are in full-time employment typically make at least 10 journeys to and from work per week. Therefore, with the current frequency discount, they receive free travel for at least two journeys that they would have made even if this discount did not apply (ie, they are able to make non-discretionary journeys for free.) It would be more efficient for customers to pay for these journeys because the same number of journeys would be made, but the subsidy (provided by the Government to cover the cost of the free travel) could be lower because customers are willing to pay for them. Second, the current frequency discount creates perverse incentives for customers to make unnecessary short journeys early in the week to qualify for free travel. They can then make their necessary longer (and more costly to provide) journeys for free for the rest of the week.

Third, the current arrangements remove the price signals about the different costs of peak and off-peak rail travel once eight journeys have been made or the weekly cap has been reached.

2.6.2 Our proposed weekly travel credit scheme

Our draft decision is to replace the current arrangements with a weekly travel credit scheme that incorporates both a frequency discount and weekly cap. Under this scheme, the fare for each journey customers make during the Opal week would be debited from their Opal card when they tap off. At the end of the week, frequent customers would receive a travel credit equal to the higher of:

- ▼ their total expenditure on Adult Opal fares in that week minus the cost of their 10 most expensive journeys in that week, or
- ▼ their total expenditure on Adult Opal fares in that week minus a weekly cap amount.

Our draft decision is to set the weekly cap for Adult Opal fares at \$65 from July 2016, \$70 from July 2017, and \$75 from July 2018. We also consider that the weekly cap for Opal Concession fares should be set at 50% of the cap for Adult fares, in line with current Government policy.

Under these arrangements, customers would be required to ensure that there are sufficient funds on their Opal card to ensure that the full cost of each journey can be paid for. In the first week of travel, this may require some customers to load more money onto their Opal card than they do currently. However, for the following weeks, the travel credit would be available for use. Box 2.3 provides an example of how this would work.

The proposed weekly travel credit scheme would be more efficient than the current arrangements as it would mean that those in full-time employment only receive the discount if they make additional discretionary journeys. It would also remove the perverse incentive for customers to make unnecessary shorter journeys earlier in the week to reduce their weekly Opal expenditure. In addition, because customers would pay for all their journeys as they make them (and get a credit at the end of the week if they qualify), the peak and off-peak price signals would still exist for all rail journeys throughout the week.

The scheme would also be fairer than the current arrangements because the additional revenue from reducing the number of free journeys would allow most single fares to be reduced by around 8% without causing farebox revenue to decline. This would mean that infrequent travellers and part-time workers benefit from cheaper fares.

Box 2.3 Example of how the travel credit scheme would work from 1 July 2016

Under our draft decisions, a customer who travels to work by rail from Wollongong to Town Hall each day of the week during the peak would pay \$8.87 for each journey made.

- ▼ In week 1, they would pay \$88.70 over that week. Therefore, they would need to have loaded \$88.70 onto their Opal card during this week. At the end of week 1, they would receive travel credit of \$23.70 onto their card which is the difference between \$65 and what they spent in week one.
- ▼ Over the course of week 2, they would need to load \$65 onto their Opal card so there is \$88.70 available for use during that week. At the end of week 2, they would again receive a travel credit of \$23.70.
- ▼ During the course of week 3, they would again need to load an additional \$65 onto their card.

Currently, this customer would only need to load \$60 onto their Opal card per week, which is equal to the existing weekly cap. Under the proposed arrangements, they would need to load \$65 on their card each week, except for the first week, when they would need to load \$88.70 onto their Opal card.

We are interested in stakeholder views on the impact on customers of needing to have sufficient funds on their Opal card in the first week that they use their cards under the new weekly travel credit scheme.

2.6.3 Likely impacts of the proposed weekly travel credit scheme on customers

Customers who make 10 or more journeys per week

Currently around 40% of Opal customers make more than eight journeys a week. Under our proposed travel credit scheme, those who make 10 or more journeys a week would pay around 20% more over the week in 2016.⁵ By 2018, they would pay around 33% more over a week if they make bus and light rail journeys, 27% more if they make peak rail journeys, and 19% more if they make ferry journeys.

However, frequent customers who make peak rail journeys could mitigate the impact of the changes to the frequency discounting arrangements by shifting some of their journeys into the off-peak:

- ▼ if they could shift two journeys to the off-peak, their average weekly increase in 2016-17 would fall from 20% to around 13% per week, or
- ▼ if they could shift five journeys to the off-peak, the weekly expenditure in 2016-17 for almost all rail customers who make 10 journeys a week would decrease.

⁵ Excluding off-peak rail customers.

Because of increasing single fares for longer distance bus journeys, the impacts of the weekly travel credit scheme would be higher for bus customers who travel longer distances. The average increase in the weekly expenditure for bus customers who make 15 km journeys 10 or more times a week would be around 30% in 2016, and 40% in 2018. This would affect fewer than 2% of bus customers.

Because rail customers who travel longer distances already reach the weekly cap, their weekly fare increase would be lower than for bus customers - 8% in 2016, which is the difference between the existing \$60 cap, and our proposed \$65 weekly cap.

Customers who make up to eight journeys in a week

The increases in weekly expenditure by frequent travellers under our proposed weekly travel credit scheme means that we can reduce most single fares from 1 July 2016 without reducing farebox revenue.

Under our draft determination, 96% of single fares would fall from 1 July 2016. This means that those customers who travel eight times a week or less would be better off. Table 2.4 shows the average changes in **single fares** for customers who use just one mode when they travel. By 2018-19, peak rail customers, bus and light rail customers who travel eight times a week or less would be paying more than they currently do, while off-peak rail and ferry customers would still be better off.

Table 2.4 Average change in single-mode single fares under draft determination (%)

	2016-17 (nominal)	2018-19 (real)
Rail	-9.5	-6.2
Peak	-1.8	1.8
Off-peak	-15.6	-12.5
Bus and Light Rail	-4.9	6.6
Ferry	-8.7	-2.6

Draft Decisions

- 7 Customers should no longer receive free travel after making 8 journeys between Monday and Sunday.
- 8 A weekly travel credit scheme should be implemented under which, at the end of the Opal week, a customer's Opal account is credited with the greater of:
 - the customer's total expenditure on Adult Opal fares in the week minus the cost of the 10 most expensive journeys taken during the week, or
 - the customer's total expenditure on Adult Opal fares in a week minus the weekly cap amount.

- 9 The weekly cap for Adult Opal fares should be set at \$65 from 1 July 2016, \$70 from 1 July 2017, and \$75 from 1 July 2018.

More information about our analysis of and draft decisions on frequency discounting is provided in *Information Paper 3: Frequency discounting and weekly caps*, available on our website.

2.7 Daily caps should continue to apply but should be increased

Currently a daily cap of \$15 for Adult Opal cards (\$7.50 for Opal Concession cards) applies Monday to Saturday, and a cap of \$2.50 for all Opal cards applies on Sundays. These caps protect customers from high daily expenditure due to the cumulative impact of the fares charged for multiple and/or very long distance journeys. Offering discounts to encourage additional customers to use public transport in quiet times, as the Sunday cap does, can be efficient provided that these customers do not impose additional costs on the system over and above what they pay in fares. The Sunday cap has also been promoted as a discount aimed at families.

We consider that the higher level of fare integration for multi-mode journeys under our draft determination would result in fewer customers being affected by high daily expenditure on weekdays. However, our draft decision is that the daily cap should continue to apply Monday to Friday, and this cap should increase to \$18 (\$9 for concessions) from July 2016.

On weekends, we found that the current very low Sunday cap appears to have stimulated substantial additional public transport use on Sundays, particularly on ferries. This additional ferry use is driving up the costs of delivering ferry services. This suggests the current Sunday cap is lower than is efficient and should be raised.

We also found that at least some of the additional demand for ferry services on Sundays comes from customers shifting Saturday travel to Sunday travel in response to the substantial discounts under the Sunday cap. Therefore, we consider that demand could be spread more evenly over the weekend by setting the Saturday daily cap at the same level as the Sunday cap. We also consider that Sunday caps for Concession Opal and Child/Youth Opal fares should be set lower than the Adult Opal cap to continue to provide an additional discount for family groups.

We have developed a set of daily caps for Adult, Concession and Child/Youth Opal cards on Saturdays and Sundays that we consider is likely to increase use of under-utilised weekend services, without creating pressure to invest in costly new services. However, as we do not have much information about how customers are likely to respond to the changes to the caps, the new caps should be kept under review over the determination period.

Draft Decision

10 Daily caps for Adult Opal fares should be set as shown in Table 2.5.

Draft Recommendations

- 1 Daily caps for Concession and Child/Youth fares should be set as shown in Table 2.5.
- 2 The level of the Saturday and Sunday cap should be kept under review during the determination period to assess customers' response to discounted fares on the weekend.

Table 2.5 Draft decisions and recommendations on daily caps

	Weekday daily cap	Saturday and Sunday daily cap
2016-17		
Adult Opal	\$18.00	\$7.20 (40% adult weekday cap)
Concession Opal	\$9.00 (50% adult weekday cap)	\$5.40 (30% adult weekday cap)
Child/Youth Opal	\$9.00 (50% adult weekday cap)	\$3.60 (20% adult weekday cap)
2017-18		
Adult Opal	\$19.00	\$7.60 (40% adult weekday cap)
Concession Opal	\$9.50 (50% adult weekday cap)	\$5.70 (30% adult weekday cap)
Child/Youth Opal	\$9.50 (50% adult weekday cap)	\$3.80 (20% adult weekday cap)
2018-19		
Adult Opal	\$20.00	\$8.00 (40% adult weekday cap)
Concession Opal	\$10.00 (50% adult weekday cap)	\$6.00 (30% adult weekday cap)
Child/Youth Opal	\$10.00 (50% adult weekday cap)	\$4.00 (20% adult weekday cap)

A more detailed explanation of our analysis is provided in *Information Paper 4: Price of travel on weekends*, available on our website.

2.8 The Gold Opal cap should be linked to other daily caps, and eligibility for the Gold Opal card should be tightened

Public transport fare schemes often provide concession pricing for children, students, economically disadvantaged and older people. Concession pricing usually serves social policy objectives and is a matter for the Government, and so falls outside the scope of IPART's fare reviews. However, for this review, we were asked to consider "whether current concession arrangements support the optimal use of the network".

We consider that Pensioner Concession Card holders and NSW War Widow/er Card holders should continue to be eligible for Gold Opal cards with a lower daily cap than the standard concession daily cap, while other seniors should be eligible for a Concession Opal Card.

We also consider that Gold Opal daily cap levels should be linked to other concession caps to maintain an appropriate differential between them.

The sections below explain the current Gold Opal card arrangements and set out our analysis and draft recommendations on Gold Opal eligibility and pricing.

2.8.1 Current arrangements for Gold Opal card travel

Gold Opal cards are currently available to Pensioner Concession card holders, NSW War Widow/er card holders and NSW Seniors Card holders. Seniors Cards are not means-tested: any NSW resident who is 60 or older and not working more than 20 hours a week can get one.

Gold Opal cardholders currently pay concession fares (half the adult fare) but have a daily cap of \$2.50, compared to the daily concession cap of \$7.50 (\$2.50 on Sundays). Gold Opal cards replace the paper Pensioner Excursion Ticket (PET) which provides all-day travel for \$2.50 – a price that has remained unchanged since 2005. PETs have continued to be available for sale in parallel with the introduction of Gold Opal, but from 1 January 2016 they will be withdrawn.

2.8.2 Our findings on Gold Opal card travel

We considered whether there should be price signals for Gold Opal cardholders to travel on rail outside the peak when the costs of providing services are lower. We found that only a small proportion (around 4%) of morning peak customers travelled on a PET (the Gold Opal paper equivalent), and therefore these passengers are not making a substantial contribution to peak crowding.

In addition, we consider that peak time crowding already works as an effective disincentive for Gold Opal users to make their discretionary travel in the peak. Many of the remaining peak trips on the Gold Opal cannot be shifted to other times, because they are going to or from child care/school/medical appointments, rather than recreational activities.

Therefore, we found that implementing peak/off-peak rail pricing alone for Gold Opal travel was not warranted. However, we consider that tighter eligibility criteria for the Gold Opal, a higher daily cap for all Gold Opal travel, and linking Gold Opal fare changes to other fare changes could all improve the efficiency and fairness of fares.

2.8.3 Draft recommendations on Gold Opal eligibility and pricing

We consider that to achieve fairer fares only holders of Pensioner Concession Cards or NSW War Widow/er Cards should be eligible for a Gold Opal card. In addition, the level of the Gold Opal daily cap should be linked to the level of other concession daily caps.

Means testing access to the Gold Opal card would more tightly target the deep discounts it provides to those for whom the cost of travel is a real barrier. The current system is unfair as it allows some customers on relatively high incomes to access concessions that are far more generous than those available to many low income earners, such as job seekers, who are eligible for a Concession Opal card, but not a Gold Opal card.

Our draft recommendation is for Seniors Card holders to be eligible for an Opal Concession card. This would mean they would have a higher daily cap, so they would face stronger peak/off peak price signals, but still have some protection from higher daily expenditure.

The Gold Opal cap level should be linked to the level of other daily caps

The price of all day travel for seniors and pensioners has not changed since 1 January 2005. Meanwhile, the general level of prices (measured by the Consumer Price Index, or CPI) has risen by almost 30% and average Sydney public transport fares by slightly more than that.⁶ This means that the generous discount provided to seniors and pensioners has become relatively more generous compared to discounts available to other concession customers who may be more economically disadvantaged.

We consider that the Gold Opal cap should be linked to the level of other daily caps so the relativities are maintained over time. In our view, it would be appropriate to set the Gold Opal cap at 40% of the daily concession cap. Under our draft recommendations, this would be \$3.60 from 1 July 2016. When the Concession Opal cap is adjusted in future years, the Gold Opal cap should also be adjusted to maintain the relationship between the two types of concession cap. In addition, because the Gold Opal discount is already considerable, we consider that there should not be any additional weekend discounting for Gold Opal.

Draft Recommendations

- 3 Pensioner Concession Card holders and NSW war widower/s card holders should be eligible for a Gold Opal card.
- 4 Seniors card holders who do not also hold a pensioner or NSW war widowers card should be eligible for a Concession Opal card.
- 5 The Gold Opal daily cap should be set at 40% of the concession weekday cap (\$3.60 for 2016-17, \$3.80 for 2017-18 and \$4.00 for 2018-19).

⁶ IPART, *Finding the best fare structure for Opal – Issues Paper*, July 2015, p 83.

2.9 Paper tickets should be 40% higher than Opal fares

Transport for NSW has announced that a range of paper tickets will no longer be sold from 1 January 2016. The only paper tickets that will be available from that date are single Adult and Concession tickets and return Adult and Concession tickets.

Maintaining two ticketing systems in parallel is very costly. While there will always be a need for a 'ticket of last resort' for infrequent travellers or customers who have lost or forgotten their Opal card, these tickets should be priced at a level that encourages Opal card use.

The premium for peak paper tickets over Opal tickets currently varies between modes and distances and is currently highest for travel on rail (18%) and bus for short distances (14%) and lowest for ferries travelling more than 9km (6%). We consider that the premium should be consistent across modes and distances.

We considered the premium in other jurisdictions with parallel electronic and paper systems. These vary from an 18% premium in Perth to an average 102% premium in London.

Draft Decision

- 11 The premium on paper tickets should be 40%, rounded to the nearest 10 cents, as set out in Table 2.8.

Our draft decision is that the premium on paper tickets should be 40%, rounded to the nearest 10 cents. Our draft fares for single paper tickets, which are set out in Table 2.6 reflect this decision.

Table 2.6 Draft single fares – paper tickets (\$ nominal)

Distance (km)	Rail			Bus and Light Rail			Sydney Ferries		
	2016-17	2017-18	2018-19	2016-17	2017-18	2018-19	2016-17	2017-18	2018-19
0 to less than 3	4.60	4.70	4.80	2.80	3.10	3.40	7.20	7.30	7.50
3 to less than 8	4.70	5.10	5.40	4.70	5.10	5.60	7.90	8.40	8.90
8 to less than 15	5.80	6.10	6.30	5.80	6.10	6.50	8.90	9.90	11.00
15 to less than 25	6.60	7.10	7.50	6.60	7.00	7.40	10.30	12.20	14.00
25 to less than 35	8.00	8.50	9.00	6.90	7.40	8.00	10.30	12.20	14.00
35 to less than 45	8.70	9.60	10.50	6.90	7.40	8.00	10.30	12.20	14.00
45 to less than 56	10.60	11.60	12.60	6.90	7.40	8.00	10.30	12.20	14.00
65 to less than 85	12.40	14.00	15.60	6.90	7.40	8.00	10.30	12.20	14.00
85 to less than 100	13.90	16.00	18.10	6.90	7.40	8.00	10.30	12.20	14.00
100+	15.20	17.60	19.90	6.90	7.40	8.00	10.30	12.20	14.00

3 Our approach for developing draft decisions on fares and fare structure

To make our fare decisions for this review, we developed a set of assessment criteria (see Box 3.1). These criteria encapsulate all the matters we are required to consider for this review (Box 3.2) as well as the principles of good regulatory practice. They can be seen as the objectives we must aim to meet in setting fares.

Box 3.1 Assessment criteria for this review

Our fare determination should result in fares that:

1. encourage the efficient use of public transport
 2. promote the efficient delivery of public transport
 3. encourage greater use of public transport
 4. minimise impacts on customers
 5. are logical, predictable and stable over time, and
 6. increase farebox revenue or cost recovery.
-

We also developed a five-step approach that involves using these criteria to guide us in developing a range of fare options – including the ‘socially optimal fares’ – and assessing these options to determine the fares that strike the best balance between these criteria.

The sections below outline this approach, and then discuss some of these steps and our draft decisions in more detail.

Box 3.2 Matters we must consider for this review

In making our decisions and recommendations for this review, we must consider the legislative requirements set out in section 124(3) of the *Passenger Transport Act 2014*. These include:

- ▼ the cost of providing the services
- ▼ the need for greater efficiency in the supply of services so as to reduce costs for the benefit of consumers and taxpayers
- ▼ the protection of consumers from abuses of monopoly power in terms of prices, pricing policies and standards of service
- ▼ the social impact of the determination or recommendation
- ▼ the impact of the determination or recommendation on the use of the public passenger transport network and the need to increase the proportion of travel undertaken by sustainable modes such as public transport
- ▼ standards of quality, reliability and safety of the services (whether those standards are specified by legislation, agreement or otherwise)
- ▼ the effect of the determination or recommendation on the level of Government funding, and
- ▼ any other matter IPART considers relevant.

In addition, we must consider a range of additional matters specified in the referral from the Minister for Transport and Infrastructure. These include:

- ▼ the benefits of fare structures that support network integration to increase network efficiency and reduce overall costs
 - ▼ the benefits and costs of spreading demand for public transport to increase efficiency in service delivery and the likely impact of different fares on the travel behaviour of customers, including whether current concession arrangements for peak and off-peak travel support the optimal use of the network
 - ▼ whether there are strong arguments for or against full integration of fares across all Opal Services, given that some modes have significantly different costs and/or externality benefits
 - ▼ the relative contributions that customers and taxpayers should make to the cost of delivering Opal Services, including light rail as an Opal Service
 - ▼ the technical feasibility of making changes to the current fare structure, given the features of the Opal system and the contracts in place for its implementation and operation
 - ▼ the most appropriate method or methodology for determining maximum fares for Opal Services, including the need for sufficient flexibility to implement any changes to the current fare structure (where relevant)
 - ▼ where relevant, transitional arrangements from the current fare structure to a new fare structure, assuming that new fares would apply from 1 July 2016 and including any customer impacts and technical limitations, and
 - ▼ the need to ensure consistency between the structure of fares in the final determination of appropriate maximum fares for Opal Services and the NSW Government's announced policy position on the structure of fares for Opal Services.
-

3.1 Our approach for making draft decisions on fares

To make our draft fare decisions and determination for this review, we took the following five broad steps:

1. **Estimating the 'socially optimal fares'.** These are the fares that target our first two assessment criteria – encouraging the most efficient use of public transport, and promoting the most efficient delivery of public transport. We used an economic model to estimate the socially optimal fares for single trip journeys by each Opal mode (rail, bus, ferry and light rail) and by car. (This step and our draft estimates are discussed in more detail in sections 3.2 to 3.4 below.)
2. **Conducting economic analysis and consulting** on aspects of Opal fare structure that were not captured by our economic modelling in Step 1, and forming a view on how fares should be calculated for multi-mode journeys, the arrangements for frequency discounts, weekly and daily caps, and Gold Opal. (This analysis and the draft decisions we made about fare structure are discussed in Chapter 2.)
3. **Developing a large number of alternative fare options** to transition from the current fares towards the socially optimal fares, taking into account the outputs of Steps 1 and 2 and our other four assessment criteria:
 - encouraging greater use of public transport
 - minimising impacts on passengers
 - being logical, predictable and stable over time, and
 - increasing farebox revenue or cost recovery.
4. **Assessing these fare options against all six criteria** and deciding on the draft fares and fare arrangements that strike the best balance between these criteria. (This step and our draft decisions are discussed in section 3.5 below. Our draft fares are set out in Chapter 1 and Table 2.1.)
5. **Deciding on the form our fare determination should take** – in particular, deciding to set maximum fares for each individual fare rather than average fare changes. (This step is discussed further in section 3.6 below.)

This approach is consistent with the one we proposed in our Methodology Paper. However, Step 2 is an additional step. We found that our economic model was not able estimate all the aspects of fares that we need to make decisions on, so it was necessary to conduct additional analysis to inform our decisions on these aspects.

3.2 What we mean by the socially optimal fares

When a person decides to use a public transport service there are costs and benefits to that passenger, and to the wider community (including other users of public transport). The relative sizes of these costs and benefits depend to a great extent on the overall level of capacity of the service (eg, how many bus vehicles there are, and how many people they can carry) and use of the service (eg, how frequent the bus service is, and how far the buses travel). Costs and benefits also depend on how these levels of capacity and use of public transport compare with the levels of capacity and use of alternative transport options (eg, road capacity and the level of road congestion).

In theory, a certain number of journeys on a public transport service will maximise the welfare (or net benefits to individuals and the wider community) generated by the service. In economics, this is known as the socially optimal level of consumption. Fares set to achieve this level of consumption are known as the 'socially optimal fares'. Socially optimal fares encourage both efficient use of public transport and efficient delivery of public transport – our two 'efficiency' criteria.

At the socially optimal number of journeys, the cost of providing the service to the last passenger is equal to the benefit of the service to that passenger and to the wider community. This last passenger is known as the 'marginal' passenger, and the costs and benefits associated with serving the marginal passenger are known as the 'marginal costs' and 'marginal benefits'.

At the socially optimal number of journeys, the costs to society of any additional journeys would outweigh the benefits to society associated with those additional journeys. At the same time, if there were fewer than the socially optimal number of journeys, welfare could be improved by encouraging additional journeys. Both the level and structure of fares will affect people's decisions on if and how they use public transport. Setting fares at the level that ensures the socially optimal level of journeys will therefore maximise the net benefits to society of public transport use.

There is a well-established economic framework for describing the socially optimal level of consumption and price for any good or service, which underpins our approach for estimating the optimal fares. More information on this framework is provided in *Information Paper 5: Optimal consumption and prices*, available on our website.

3.3 How we estimated the socially optimal fares

We developed a mathematical optimisation model that we used to estimate the socially optimal fares for single journeys on each mode. This model takes account of the context in which we are setting fares, including:

- ▼ the competition between cars and public transport modes
- ▼ the existing and planned public transport capacity
- ▼ the current utilisation of this capacity, and
- ▼ taxpayer subsidisation of public transport.

It aims to identify the fares that will balance the following two effects:

1. Setting fares above the socially optimal level would lead to excessive use of private cars and underutilisation of existing and planned public transport capacity, leading to higher external costs associated with road congestion, emissions and road accidents.
2. Setting fares below the socially optimal level would lead to excessive crowding on public transport, underutilisation of existing and planned road capacity, and excessive public transport operating losses which must be funded from taxation.

The optimisation model requires a significant number of inputs and several simplifying assumptions. For each mode, we estimated the following key inputs:

- ▼ **The marginal social cost**, which is the full cost to society of one additional passenger journey. This cost is equal to:
 - **The efficient marginal financial cost** (the additional efficient financial cost of one additional passenger journey).
 - *Plus* **the marginal external cost** (the additional cost imposed on third parties as a result of one additional passenger journey).
 - *Less* **the marginal external benefit** (the additional benefit enjoyed by third parties as a result of one additional passenger journey).
- ▼ **The marginal excess burden of taxation**, which is the cost to society of raising taxes for the purpose of providing a Government subsidy for one additional passenger journey.
- ▼ **The demand for the services** during the peak and off-peak periods, and for journeys of different distances.
- ▼ **The responsiveness of demand to changes in the price** (known as the “price elasticity of demand”).

We estimated optimal fares from both a medium-run perspective, and a long-run perspective. The key difference between these perspectives is the degree to which public transport capacity can be adjusted:

- ▼ In the medium-run, capacity could be adjusted by varying the size of public transport vehicle fleets and service frequency, but infrastructure capacity remains fixed.
- ▼ In the long run, infrastructure capacity could also be adjusted.

As a result, the marginal social cost of public transport journeys for the peak is different in the medium run and the long run. Because the peak demand drives the need for infrastructure capacity expansions, we have not allocated any of the infrastructure capacity to the off-peak costs. This means that the marginal social cost for off-peak journeys is the same in the medium run and the long run.

Boxes 3.3 and 3.4 provide an overview of how we estimated the marginal social costs for the medium run and for the long run.

Box 3.3 Marginal social cost in the medium run

To calculate the medium-run marginal social cost for each mode, we first had to estimate the key inputs. The bases for our estimates of these inputs were as follows:

- ▼ **Marginal financial cost (MFC):** We used an average incremental cost methodology to estimate the marginal costs. We used aggregate cost information provided by Transport for NSW, and applied an efficiency adjustment to many of the costs based on an efficiency study undertaken by the CIE. We then made judgements on the extent to which the costs relate to capacity versus usage, and whether the costs are incurred per passenger journey or per passenger kilometre. Finally we divided the aggregate capacity and usage costs by the number of passenger kilometres or passenger journeys for 2014-15 as appropriate.
 - ▼ **Marginal external costs (MEC):** Our estimates of the marginal external costs for each mode were based on data about traffic congestion and pollution (largely from buses and ferries), modelled using the Sydney Strategic Transport Model.
 - ▼ **Marginal external benefits (MEB):** External benefits of public transport mainly relate to reduced road congestion and pollution from displacing car use. Our estimates of the marginal external benefits for each mode were based on data about traffic congestion and pollution, modelled using the Sydney Strategic Transport Model.
-

Box 3.4 Marginal social cost in the long run

Most of the costs associated with the provision of public transport services are the same in the medium run and in the long run, with the exception of the costs and benefits associated with public transport infrastructure. To find the long-run marginal social cost for each mode, we added the costs of the relevant infrastructure net of associated benefits to our medium-run marginal social cost estimates.

The basis for our estimates of these net social infrastructure costs varied by mode, depending on the information available:

- ▼ **Rail:** We based our estimate on the publicly reported costs of the Sydney Metro Stage 2 (CBD and South West), our own forecast of future patronage, and our own estimate of road costs avoided because of this investment. We identified that one of the key benefits of this project is to avoid (or delay) the need for augmenting road capacity across Sydney. We estimated the value of this benefit and subtracted it from the costs of the Metro Stage 2, to give us the net social cost for each future rail journey made possible by this investment.

To allow us to use our estimate of the net social infrastructure cost of Sydney Metro Stage 2 in our fare optimisation model, we had to make an adjustment to avoid double counting the benefits of avoided road congestion. Further detail about this adjustment is provided in our technical papers on the long-run marginal social cost of public transport, and on our fare optimisation model.

- ▼ **Light rail:** We based our estimates largely on commercial-in-confidence information received from TfNSW, but also made a number of our own assumptions and estimates in relation to costs, benefits and future patronage.
 - ▼ **Bus and Ferry:** TfNSW was unable to provide us with sufficient information for us to calculate the net social infrastructure costs for bus and ferry. However, our medium-run financial cost estimate for buses already includes costs associated with bus priority measures. In addition, for both buses and ferries, the majority of capital costs are vehicle costs, and these costs are already captured in our medium-run cost estimates.
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3.4 Our draft estimates of socially optimal fares vary between modes

Tables 3.1 to 3.4 in the following section set out our estimates of the socially optimal fares for Opal services for each mode and each of our draft distance bands (discussed in Chapter 2). These fares are based on a 'flag fall' and a 'per km' rate.⁷ The optimal fares vary significantly across modes. This reflects the different cost and usage profiles of each mode. For example, for peak fares:

- ▼ Bus costs are primarily driven by the number of passenger kilometres (for example, fuel, driver labour, vehicle costs), rather than by the number of passenger journeys. As a result, the socially optimal bus fares include a low flagfall and a higher per km rate.
- ▼ In contrast, a much higher proportion of rail costs depend on the number of passenger journeys, rather than the passenger kilometres – for example, the costs of maintaining the track and stations. As a result, the socially optimal rail fares include a higher flagfall and a lower per km rate. This means that, consistent with the current fares, the socially optimal fares for short distances are lower for bus than for rail, while those for longer distances are higher for bus than for rail.
- ▼ The marginal social cost of ferries is the highest of all the modes, both per passenger journey, and per passenger kilometre. Therefore, the socially optimal ferry fares are the highest across all distances.
- ▼ The long-run marginal cost of light rail includes the costs of expanding the light rail network (eg, the City and South-East light rail extension). As a result, the long-run socially optimal light rail fares are very high.

Fares also vary across modes during the off-peak:

- ▼ For rail, there is a very small difference between the off-peak socially optimal fares for long and short journeys – the distance rate is less than a cent per km. This is because in the off-peak, the external benefits that vary with distance travelled (congestion and pollution) almost completely offset the variable operation costs (fuel, labour).
- ▼ For the other modes, the socially optimal off-peak fares increase significantly with distance travelled because the operational costs (which are not driven by peak capacity requirements) are a much larger proportion of all costs. For these operational costs:
 - those that vary with number of passenger journeys (corporate overhead, timetabling, customer interface and ticketing) are lower than the external

⁷ The optimisation model solves for optimal fare for four discrete distances: 2 km, 5 km, 15 km and 25 km. While there is not a linear function underpinning the optimal fares at these distances, we have estimated a linear relationship between them to align the optimal fares with our draft fare bands. This has produced a 'flag fall' and 'per km' rate for each mode for peak and off-peak fares.

benefits that vary with passenger journeys (congestion, active transport), and

- those that vary with the number of passenger kilometres (fuel, driver, vehicle maintenance costs) are higher than the external benefits that vary with passenger kilometres (congestion, pollution).

3.5 How we used the socially optimal fares to make our draft fare decisions

As explained in the previous section, the socially optimal fares vary significantly across each mode. Therefore, our draft decision is to maintain different fares for each mode.

Theoretically, we consider that Opal fares should be set in line with our estimates of the socially optimal levels. However, in some cases, these estimates are quite different from current fare levels, particularly for longer distance journeys. For example:

- ▼ The current peak fare for a 35 km rail journey is 20% to 65% lower than our estimated range for the socially optimal fare in peak periods.
- ▼ The current fare for a 15 km bus journey is 25% to 60% lower than our estimated socially optimal fare.

Therefore, setting all fares at the socially optimal level in this determination period would lead to very large impacts on customers.

For some services, the socially optimal level of patronage is lower than current levels, and for some services it would not be socially optimal to provide these services at all (because the social cost of the services is higher than the private and external benefits that they generate). Theoretically, the number of services could be reduced (particularly in off-peak times), resulting in cost savings, a lower taxpayer subsidy, and a net welfare gain. This effect is captured by the optimisation model. However, in most cases, a contract for the provision of these services during the determination period is already in place. This means the number of services cannot be adjusted in response to changes in patronage. Therefore, in the medium run, significant fare increases that reduce patronage may worsen cost recovery and increase the burden on taxpayers (assuming costs remain steady).

Setting fares that result in large impacts on customers, significant patronage reductions, and falling fare revenue would be contrary to our requirements for this review. Therefore, we have made a draft decision to gradually transition fares towards the socially optimal levels to minimise the impacts on customers, patronage and fare revenue.

This decision means that while we have set the draft fares for some short journeys at the optimal levels in 2018-19, most fares will still be significantly below optimal fares by the end of the determination period. For example, while we are increasing bus fares for journeys longer than 15 km by an average of 11% over the period, they will still be 15% to 55% lower than the optimal levels in 2018-19. It may take many years to transition these fares to the socially optimal levels.

However, it is also important to recognise that the socially optimal fares will change over time, as the Opal network and the way customers use it will change. For example, the socially optimal fares will increase as the capacity of the network becomes more constrained and the need for additional investment increases. But once the capacity is expanded, the socially optimal fares will fall as the costs of the next upgrade would be further into the future. Therefore, it is likely that a different set of socially optimal fares would guide fare decisions in future reviews to reflect the characteristics of the network at that time.

Table 3.1 to Table 3.4 below compare current fares and our draft fares to the socially optimal fares by the end of the determination period for each mode.⁸ They show that in line with the socially optimal fares, our draft fares will vary more with distance by the end of the determination period. They also demonstrate that there is a clear case for a fare differential between peak and off-peak periods for rail, but not for bus and light rail. The sections below discuss how we used the socially optimal fares to set draft fares for each mode in more detail.

Because our estimated socially optimal fares rely on a large number of input assumptions, the point estimates and ranges for socially optimal fares shown in the tables potentially lie within significantly wider ranges. We have released information papers that provide further information on our analysis and considerations in developing our estimates, and how we arrived at our point estimates and ranges for the socially optimal fares.⁹

Box 3.5 provides further explanation of Tables 3.1 to 3.4, including why they show both medium-run and long-run socially optimal fares for some modes and not others, and why some of these fares are a point estimate and others are a range.

⁸ Our estimate of socially optimal fares in 2018-19 are equal to those in 2014-15 in real terms.

⁹ See *Information Paper 6: Public transport fare optimisation*, *Information Paper 7: Medium-run marginal financial costs*, *Information Paper 8: Marginal external costs and benefits*, *Information Paper 9: Long-run marginal social costs*, *Information Paper 10: Elasticities* and *Information Paper 11: Optimal fares inputs sensitivity*.

3.5.1 Rail fares

The socially optimal peak rail fares vary significantly more with distance than current peak rail fares. They include a higher per km rate (14 to 21 cents) than is implicit in current fares (5 cents).

Our draft peak fares in 2018-19 include a per km rate of 10.4 cents. As a result, the draft peak fares for journeys less than 8 km fall within the estimated range for the socially optimal fares by 2018-19, but the draft peak fares for longer journeys do not. Fares for these longer journey will require a longer transition path to reach optimal levels.

As section 3.4 explained, the socially optimal off-peak rail fares vary only slightly with distance, as they include a per km rate of less than a cent. As a result, these fares are between 60% and 95% lower than the socially optimal peak rail fares for the equivalent distance.

In many cases, significant reductions in off-peak rail fares would be efficient because this would encourage better utilisation of spare rail capacity in off-peak periods. However, setting off-peak rail fares in line with optimal fares would lead to a marked deterioration in cost recovery. This is because the majority of journeys are taken in off-peak times, and the revenue from these passengers would fall significantly. We estimate that setting off-peak rail fares in line with the socially optimal off-peak fare would cause revenue to fall by around \$130 million, or 15% (taking into account the impact of additional demand).

To avoid this significant impact on fare revenue, we have decided to take a more incremental approach to improving utilisation on off-peak rail services. In particular, we have made draft decisions to:

- ▼ Increase the off-peak discount from 30% to 40%. The revenue impact of this change is around (\$25 million, or 3%).
- ▼ Introduce a Saturday cap of \$7.20.

Table 3.1 Rail – Comparison of current fares, and draft fares and estimated socially optimal fares in 2018-19 (nominal)

Distance (km)	Peak				Off-peak		
	Current 2015	Draft 2018-19	Socially optimal 2018-19		Current 2015	Draft 2018-19	Socially optimal 2018-19
			Medium run	Long run			
0 to less than 3	3.38	3.46	3.46	3.26 - 9.66	2.37	2.08	1.26
3 to less than 8	3.45	3.88	4.21	3.81 - 10.49	2.42	2.33	1.27
8 to less than 15	4.21	4.50	5.36	4.63 - 11.72	2.95	2.7	1.28
15 to less than 25	4.82	5.39	6.98	5.79 - 13.47	3.37	3.23	1.29
25 to less than 35	6.02	6.43	8.89	7.16 - 15.53	4.21	3.86	1.31
35 to less than 45	6.46	7.47	10.80	8.53 - 17.58	4.52	4.48	1.33
45 to less than 56	7.61	9.03	13.66	10.58 - 20.65	5.33	5.42	1.36
65 to less than 85	8.30	11.12	These services would not be provided	13.31 - 24.78	5.81	6.67	1.40
85 to less than 100	8.30	12.94	These services would not be provided	15.70 - 28.38	5.81	7.76	1.43
100+	8.30	14.24	These services would not be provided	These services would not be provided	5.81	8.54	1.45

3.5.2 Bus fares

The socially optimal bus fares include a significantly lower flag fall than is implied in the current fares – between \$0 and \$1.38, compared to \$2.10. These fares also vary significantly more by distance than the current fares. The socially optimal fares include a per km rate of 32 to 46 cents, compared to 5 to 12 cents implied in current fares. This means that to transition to the socially optimal bus fares, fares for short distance journeys should decrease and fares for longer distance journeys should increase.

However, we made a draft decision to increase fares for short distance journeys (less than 8 km) slightly to prevent a decline in cost recovery. And while we have increased fares for bus journeys longer than 15 km, our draft fares are still below socially optimal levels, to minimise impacts on customers. In order to manage these impacts, we have not used a flag fall and per km rate to set draft bus fares (as we have for other modes). However, the implied per km rate is 7 to 14 cents in 2018.

Because 85% of bus journeys are shorter than 8 km, setting these fares within the range of optimal fares would lead to farebox revenue in 2018-19 that is 4% lower than farebox under our draft fares. (This estimate includes the additional revenue from increasing demand for these bus journeys in response to cheaper fares.)¹⁰ On the other hand, increasing them slightly would have only a small impact on customers, while improving farebox revenue. For example, our draft increase in the fare for a journey shorter than 3 km from \$2.10 to \$2.46 by 2018-19 represents an annual fare change of only 12 cents.

We also note that under our draft weekly travel credit scheme (discussed in Chapter 2), many of these short bus journeys would be made for free.¹¹ If 17% were made for free, the average fare for short bus journeys would fall within the range of optimal fares.

We also made a draft decision to set off-peak bus fares equal to peak bus fares. Unlike for rail, the socially optimal fares for buses do not suggest there is a clear case for different fares in peak and off-peak periods.

Table 3.2 Bus – Comparison of current fares, and draft fares and estimated socially optimal fares in 2018-19 (nominal)

Distance (km)	Peak			Off-peak		
	Current 2015	Draft 2018-19	Socially optimal 2018-19	Current 2015	Draft 2018-19	Socially optimal 2018-19
0 to less than 3	2.10	2.46	0.47 - 2.05	\$2.10	\$2.46	1.49
3 to less than 8	3.50	3.99	1.74 - 3.84	\$3.50	\$3.99	3.77
8 to less than 15	4.50	4.65	3.64 - 6.63	\$4.50	\$4.65	7.20
15 to less than 25	4.50	5.29	6.33 - 10.58	\$4.50	\$5.29	These services would not be provided
25 to less than 35	4.50	5.69	9.50 – 15.23	\$4.50	\$5.69	These services would not be provided
35 to less than 45	4.50	5.69	12.67 – 19.87	\$4.50	\$5.69	
45 to less than 65	4.50	5.69	These services would not be provided	\$4.50	\$5.69	

¹⁰ This estimate may overstate the price response to lower bus fares, given that buses are already the cheapest form of transport. If demand did not increase, the revenue would fall by more.

¹¹ This is because short bus trips are the cheapest journeys, and therefore the fares are least likely to be paid if more than 10 journeys in a week are made.

3.5.3 Light rail fares

Our draft decision is to set light rail fares equal to bus fares. This is primarily for simplicity because light rail journeys currently only make up 2% of public transport trips. It is also because there will be a transition from bus services to light rail services down George Street during the determination period.

However, we note that the very large spread between the medium run and the long run optimal light rail fares also means that our draft bus fares fall within the range of optimal light rail fares.

Table 3.3 Light rail – Comparison of current fares, and draft fares and estimated socially optimal fares in 2018-19 (nominal)

Distance (km)	Peak				Off-peak		
	Current 2015	Draft 2018-19	Socially optimal 2018-19		Current 2015	Draft 2018-19	Socially optimal 2018-19
			Medium run	Long run			
0 to less than 3	2.10	2.46	0.00 - 0.46	6.3 - 7.84	2.10	2.46	1.16
3 to less than 8	3.50	3.99	1.12 - 3.31	8.53 - 10.94	3.50	3.99	2.97
8 to less than 15	4.50	4.65	4.50 - 7.58	These services would not be provided	4.50	4.65	5.69

3.5.4 Ferry fares

The socially optimal peak ferry fares for longer distances are much higher than the current fares. This is because they include a per km rate of 55 to 69 cents, which is significantly higher than the rate implicit in current fares (around 9 cents).

To begin to transition ferry fares to the socially optimal level, we have set our draft fares using a per km rate of 25 cents in 2018-19. We have also used a flag fall of \$4.96, which falls within the range of the flag fall implicit in the socially optimal fares. This means that by 2018, the fare for a 0 to 3 km ferry journey would be equal to the bottom of the socially optimal fare range. However, the fares for longer ferry journeys would remain below the socially optimal range.

We have also made a draft decision to set off-peak ferry fares equal to peak ferry fares. Unlike for rail, the socially optimal fares for ferries do not suggest there is a clear case for different fares in peak and off-peak periods. In addition, the optimisation model assumes that the peak and off-peak periods for ferry services are aligned with other modes. However, this is not the case, as there is high demand for ferry services on Sundays as well as during the weekday morning

and afternoon peaks. Therefore, the only 'off-peak' period for ferry travel occurs during weekdays in the middle of the day, and late evenings.

While we could introduce different peak periods for ferry services, we consider this is undesirable as it would add complexity of the fare structure.

Table 3.4 Ferry – Comparison of current fares, and draft fares and estimated socially optimal fares in 2018-19 (nominal)

Distance (km)	Peak			Off-peak		
	Current 2015	Draft 2018-19	Socially optimal 2018	Current 2015	Draft 2018-19	Socially optimal 2018-19
0 to less than 3	5.74	5.34	5.30 - 6.95	\$5.74	\$5.34	1.65
3 to less than 8	5.74	6.34	7.52 - 9.64	\$5.74	\$6.34	5.16
8 to less than 15	7.18	7.85	10.82 - 13.74	\$7.18	\$7.85	10.42
15 to less than 25	7.18	9.98	15.5 - 19.59	\$7.18	\$9.98	Would not be provided

Box 3.5 Further explanation of the socially optimal fare estimates shown in Tables 3.1 to 3.4

For rail, and light rail, we have estimated the socially optimal fares **in peak periods** for the medium run and the long run. This is because on these modes, additional capacity expansions can occur in the long run that cannot be completed within the medium run (ie, the 3-year determination period). The long run fares reflect the additional costs of these expansions. However, the expansions aren't necessary to provide off-peak services (as there is already spare capacity on these services) so there is no difference between the socially optimal rail and light rail fares in off-peak periods.

For bus, light rail and ferry, we have estimated a range of socially optimal fares in the **peak periods**. The fares at the lower end of the range are our estimates of the socially optimal fares when 'network frequency benefits' are included, and the higher end are the range when frequency benefits are excluded.

Network frequency benefits are the external benefits of falling average waiting times for existing public transport customers that arise when more customers use public transport, leading to additional services being provided, making services more frequent. As our estimate of this external benefit is relatively high, there is a significant difference in the socially optimal fares including and excluding this benefit.

For rail, we have not included network frequency benefits in the medium run estimates because the network will remain at capacity for most of the 2016-2019 determination period. This means that additional services cannot be added to accommodate new passengers. However, our range of long run optimal rail fares includes network frequency benefits as expanded capacity would allow new services to be added in response to increasing patronage.

For all modes, we have assumed that network frequency benefits do not arise in the **off-peak periods**, because additional demand is likely to be accommodated on existing services. Therefore, the socially optimal off peak fares are expressed as a point estimate, rather than as a range.

3.6 Why we decided to set individual fares in our determination

We have made a draft decision to determine individual maximum fares rather than an average fare change, as we consider this is more consistent with our approach for this review. That is, the objective of estimating the socially optimal fares is to identify the individual fares for different modes and journey distances that maximise welfare. Our draft fares include our best estimate of inflation and are presented in nominal terms. We do not propose to change fares for the actual change in inflation over the three years of our determination.

This is a different approach to our most recent previous determinations, where we set a single maximum average fare increase for each mode. This was consistent with our previous methodology, which involved setting fares to generate passengers' share of a revenue requirement.

TfNSW is required to set fares that do not exceed IPART's maximum fare schedule. It could make changes to fares and fare structure during the determination period by setting fares *lower* than our determined fares. However, this would result in the Government forgoing farebox revenue, and taxpayers paying a greater proportion of the financial costs of public transport.

4 Impacts of our draft decision on revenue and cost recovery

This Chapter discusses the impact of our draft fares on revenue, patronage and cost recovery. It explains our approach to calculating the actual and efficient costs of providing public transport services in Sydney and surrounding areas. It explains how we forecast patronage over the determination period. Finally, it shows the impact on revenue and cost recovery for each mode over the determination period.

4.1 Costs

Under the *Passenger Transport Act 2014*, IPART is required to consider the cost of providing public transport services and the need for greater efficiency in the supply of services so as to reduce costs for the benefit of consumers and taxpayers.

We calculated the actual costs of providing services for each mode using a building block approach. This sums operating costs, depreciation and a return on capital costs, an allowance for working capital and notional taxation consistent with IPART's standard approach. We deducted any revenue earned from commercial sources from the share of costs to be recovered from passengers and taxpayers. We compared this with fare revenue for each mode.

We also compared fare revenue to the efficient costs of providing services, because we consider that passenger fare revenue should not be used to recover inefficient costs of providing services. We engaged the Centre for International Economics (CIE) to provide advice on the efficient operating costs for each mode and TfNSW ticketing costs. CIE compared operators' cost metrics against those of benchmark operators and with previous efficiency studies. CIE's draft report is available on our website. We also analysed Sydney Trains and NSW Trains total factor productivity and how this has changed over time. *Information Paper 13: Total Factor Productivity – Sydney's rail network* is available on our website.

We did not review the efficiency of capital expenditure. We consider that capital expenditure decisions, generally made by the NSW Government (eg, the Sydney Metro Northwest, new fleet and depots/wharfs/stations), are based on the development of a business case at a point in time. We consider these are a matter of government policy and note that procurement of works is subject to the NSW Government Procurement Policy Framework 2015.

In undertaking our analysis, we experienced some difficulties in obtaining relevant and consistent cost data. For example, TfNSW did not collect some data in a consistent format across transport modes. In addition, some cost categories had changed over time, particularly as a result of the restructuring of Sydney Trains and NSW Trains. To reduce the time and resources involved with collating cost data for future reviews, we recommend that IPART work with TfNSW to develop a standard set of regulatory accounts for each mode that can be updated annually. This is similar to what we do with regulated water businesses.

Draft Recommendation

- 6 That IPART works with TfNSW to develop a standard set of regulatory accounts for each mode that can be updated annually.

4.1.1 What are the current costs of providing public transport in NSW?

In 2015-16, public transport in the greater Sydney metropolitan area will cost around \$5.5 billion. This is forecast to increase by around 5% per year to \$6.4 billion by 2018-19. The expected growth in costs is mainly due to planned capital investment for the Sydney Metro Northwest and the City and South-East Light Rail extension (CSELR).

How we used the building block model to calculate these costs is explained in *Information Paper 12: Cost Recovery*, available on our website.

4.1.2 CIE findings on efficient costs

CIE found that operating cost inefficiencies will cost the NSW Government \$859 million over the determination period¹², with rail, STA and outer metro buses, Sydney Ferries and Stockton Ferries all costing more to operate than a benchmark efficient operator.¹³ For further details on CIE's calculation of these costs, see CIE's report on our website.

¹² CIE, *Efficiency of NSW public transport services*, December 2015, p 3.

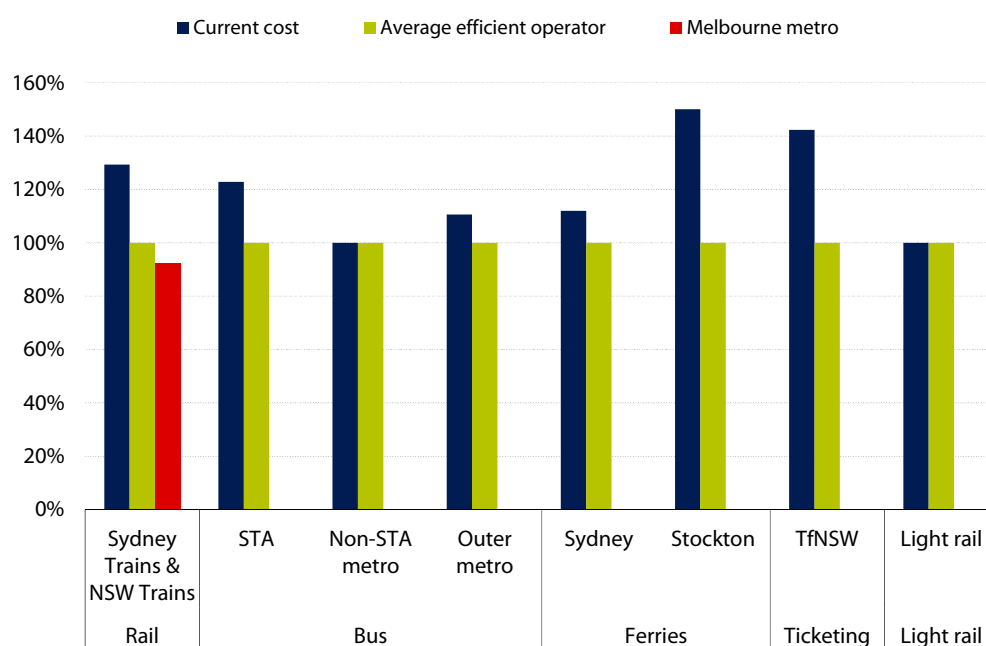
¹³ To account for differences in size and patronage of networks, CIE applied Sydney Trains and NSW Trains cost metrics to other networks' kilometres and patronage to calculate what the total cost would be under Sydney Trains and NSW Trains cost profile.

Finding

- 1 That operating cost inefficiencies will cost the NSW Government \$859 million over the determination period, with rail, STA and outer metro buses, Sydney Ferries and Stockton Ferries all costing more to operate than a benchmark efficient operator

The difference between actual costs and the benchmark operator for each mode is shown in see Figure 4.1.

Figure 4.1 Gap between current and efficient costs in 2014-15 (%)



Note: Non-STA metro buses were used as the benchmark, because they are competitively tendered. Light rail costs were also considered efficient as they were based on a Public Sector Comparator benchmark, which is lower than actual costs.

Data source: IPART calculations based on CIE, *Efficiency of NSW public transport services*, December 2015, pp 3, 28, 56, 89.

CIE noted that efficiency had improved markedly where competitive tendering of services had been introduced, such as in some parts of the bus system and ferries.¹⁴ For rail, inefficiencies included the cost of government policies of having guards on trains and staffing low patronage stations, as well as a low level of driver utilisation and higher maintenance costs.¹⁵

¹⁴ CIE, *Efficiency of NSW public transport services*, December 2015, p 3.

¹⁵ Ibid, p 40.

For Sydney Ferries, higher fuel and maintenance costs from not undertaking partial fleet renewal as recommended in LEK's 2011 review for IPART were responsible for current cost inefficiencies, although ferry costs are forecast to reach efficient levels by the end of the determination period.¹⁶

TfNSW's ticketing costs are also currently higher than electronic ticketing systems in other jurisdictions due to the higher costs associated with implementation, but are forecast to fall to an efficient 'steady state' level by 2020-21.¹⁷

4.2 Patronage

Fare revenue depends largely on the actual and forecast patronage for each mode. We primarily estimated patronage based on long-term average trends, with adjustments for one-off events, including the opening of the Sydney Metro Northwest and the CSELR. Table 4.1 shows our forecast patronage assumptions.

Table 4.1 Forecast annual patronage (%)

Mode	2015-16 (current)	2016-17	2017-18	2018-19	Cumulative to 2018-19
Rail	1.6%	1.6%	1.6%	5.5% ^a	10.3%
Bus	1.1%	1.1%	1.1%	-4.3% ^{a,b}	-1.0%
Ferry	1.2%	1.2%	1.2%	1.2%	4.8%
Light rail	1.6%	1.6%	1.6%	183% ^b	188.3%

^a Sydney Metro Northwest opens.

^b CBD and South-East light rail opens.

Our estimates are based on the following:

- ▼ Rail and light rail: Actual annual average historical growth from 2005 to 2015.
- ▼ Bus: BTS long-term average forecast 2011 to 2046.¹⁸
- ▼ Ferry: BTS average annual growth from 2008 to 2014.¹⁹

In 2018-19, we made adjustments for bus and rail to account for the expected impact of the opening of the Sydney Metro Northwest. We adjusted patronage for buses down to reflect the anticipated drop in bus patronage as more customers move to the Metro. We also made a large adjustment to account for the expected impact of the opening of the CSELR.

¹⁶ Ibid, pp 72-73.

¹⁷ Ibid, p 89.

¹⁸ BTS dataset, *Sydney Strategic Transport Model, Household Travel Survey*, December 2013.

¹⁹ BTS dataset, *Ferries patronage*, June 2015.

4.2.1 Change in patronage in response to change in fares

Forecast patronage may also change in response to changes in fares. We modelled how our estimates of patronage for each mode would change in response to our proposed fares. We only modelled the impact of changes in patronage in response to a change in fares on that mode. For the purpose of forecasting cost recovery and revenue we did not include how patronage on one mode would change in response to a change in fares on another mode (ie, we did not consider how patronage on buses might change if rail fares became cheaper). However, we do include this in our fare optimisation model.

We used the following price elasticity assumptions for each mode (Table 4.2). The price elasticity is a measure of how sensitive passengers on that mode are to changes in price.

Table 4.2 Price elasticities per mode

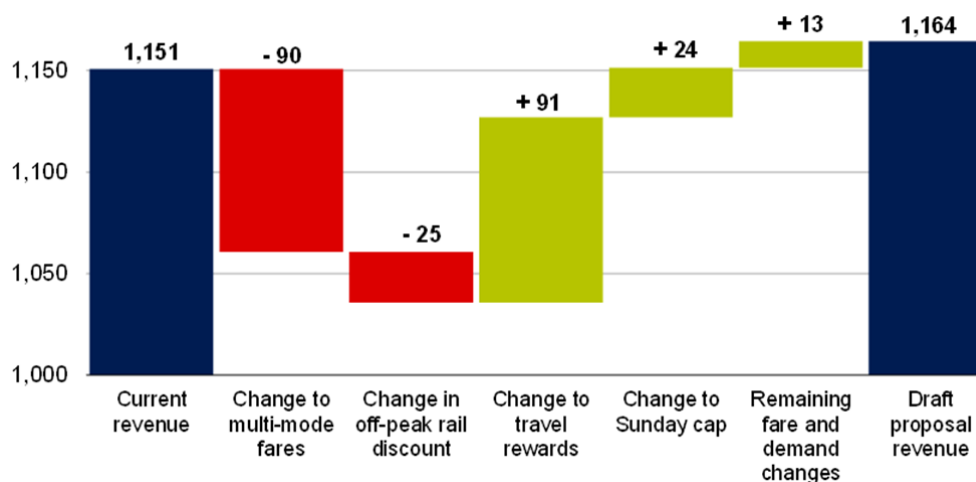
	Peak	Off-peak	Opal Sunday	Gold Opal
Rail	-0.35	-0.44	-0.44	-0.10
Buses	-0.38	-0.51	-0.51	-0.10
Ferries	-0.38	-0.48	-0.48	-0.10
Light rail	-0.38	-0.51	-0.51	-0.10

Source: IPART calculations.

4.3 Revenue

We calculated the fare revenue for each mode by multiplying patronage by ticket price or notional price equivalent (in the case of multi-mode tickets, including Gold Opal and Opal Sunday).

In 2015-16, total fare revenue is estimated to be \$1.15 billion increasing to \$1.16 billion in the first year of our determination and \$1.30 billion by 2018-19. Figure 4.2 shows the revenue impacts of our proposed draft fare changes in the first year.

Figure 4.2 Revenue impacts of draft fare changes in 2016-17 (\$m, \$2015-16)

Data source: IPART calculations.

Once reforms are implemented, fares would increase in 2017-18 and 2018-19 to move towards the optimal fare levels and improve the level of cost recovery over the period. Table 4.3 shows the change in fare revenue for each mode over the determination period. The changes in revenue include the impact of changes in patronage in response to fare changes.²⁰

Table 4.3 Change in fare revenue under our draft fares

	2016-17	2017-18	2018-19	Total
Rail	1.0%	3.9%	7.6%	12.9%
Bus	1.4%	5.1%	-1.4%	5.1%
Ferry	4.9%	4.2%	3.7%	13.4%
Light rail	-6.0%	7.0%	271.2%	273.3%
Total	1.2%	4.3%	7.2%	13.2%

Note: Totals may not add due to rounding.

Source: IPART calculations.

Under our draft fares:

- ▼ Revenue increases for rail in the final year, because of additional patronage when Sydney Metro Northwest opens.
- ▼ Revenue fall in the final year for buses, as some bus passengers switch to the Sydney Metro Northwest.

²⁰ If there was no demand response, revenue would be 2.1% higher across the determination period.

- ▼ Revenue increases in the first year for ferries, because of the one-off impact of the proposed increase in the Sunday cap. In the final year, the revenue increase is slightly lower than other years as the fare for the 0-3 km band declines in real terms to transition towards optimal levels.
- ▼ Revenue falls for light rail in the first year, because a large proportion of light rail journeys are multi-mode journeys, and we propose a large one-off reduction in fares for multi-mode journeys. However, there is a significant increase in revenue in the final year when the CSELR opens.

4.4 Cost recovery

In 2015-16, total fare revenue will recover around 20.8% of actual costs, and 23.8% of efficient costs (Table 4.4).²¹ Efficient cost recovery declines slightly over the determination period to 23.1% of efficient costs in 2018-19, as costs increase by more than revenue. However, if efficiency savings are not made by 2018-19, average cost recovery would be around 2.8% lower by the end of the determination period.

Table 4.4 Cost recovery for all modes in 2015-16 (\$million, \$2015-16)

	Sydney Trains & NSW Trains	All metro and outer metro buses	Ferries	Light rail	Total/ Weighted average
Actual costs	3,824.1	1,512.0	146.8	45.7	5,528.6
Efficient costs	3,396.2	1,256.3	140.6	45.7	4,838.8
Fare revenue	728.8	363.8	45.9	12.2	1,150.7
Actual cost recovery (%)	19.1%	24.1%	31.3%	26.7%	20.8%
Efficient cost recovery (%)	21.5%	29.0%	32.6%	26.7%	23.8%

Note: Total costs are net of revenue earned from commercial sources such as advertising or charter services.

Source: Data provided by TfNSW. IPART calculations.

Table 4.5 Efficient cost recovery for all modes in 2018-19 (\$million, \$2015-16)

	Sydney Trains & NSW Trains	All metro and outer metro buses	Ferries	Light rail	Total/ Weighted average
Efficient costs	4,055.5	1,293.8	153.2	128.7	5,631.2
Fare revenue	822.5	382.4	52.1	45.5	1,302.4
Efficient cost recovery (%)	20.3%	29.6%	34.0%	35.4%	23.1%

Note: Total costs are net of revenue earned from commercial sources such as advertising or charter services.

Source: Data provided by TfNSW. IPART calculations.

²¹ In previous reviews where we used the building block model to set fares, we included a notional contribution from Government for concession and School Student Transport Scheme (SSTS) fares in fare revenue, even though this was not actually received. Cost recovery may look lower, because it does not include the value of these CSOs.

Table 4.6 Efficient cost recovery under proposed fares by mode and year (%)

Mode	2016-17	2017-18	2018-19	Weighted average
Rail	19.3%	19.7%	20.3%	19.8%
Bus	28.7%	29.7%	29.6%	29.3%
Ferry	32.7%	32.2%	34.0%	32.9%
Light rail	25.1%	27.2%	35.4%	31.5%
Weighted average	22.0%	22.5%	23.1%	22.6%

Note: Figures include the effects of anticipated changes in demand in response to changes in prices. If there was no demand response, cost recovery would be slightly higher (estimated 0.5% higher overall across all modes).

Source: IPART calculations.

5 Our process for this review

In conducting this review, we are undertaking our own research, analysis and modelling as well as public consultation.

5.1 What has been our consultation to date?

As the first step in our consultation process, we released an Issues Paper in July 2015,²² which focused mainly on options for fare structure reform. We received over 1,900 submissions and responses to an on-line survey hosted on our website.

In September 2015 we released a Methodology Paper which explained how we proposed to calculate fares for our determination. We received 15 submissions on the Methodology Paper.

We also held a public hearing to provide a further opportunity for stakeholders to make comments on both areas of this review, and we engaged a consultant to conduct a survey of a representative sample of public transport users about their attitudes and responses to fares and fare structure.

In addition, we released a report on the external benefits of public transport in late 2014.²³ We have considered the analysis from that report and feedback from submissions in our current review of fares.

5.2 What are the next steps in the review?

We are seeking written submissions on this Draft Report and our Information Papers, and encourage all interested parties to comment on the matters they discuss, or any other issue relevant to the terms of reference. Page iii of this report provides more information on how to make a submission.

²² IPART, *Finding the best fare structure for Opal – Issues Paper*, July 2015. Available from http://www.ipart.nsw.gov.au/Home/Industries/Transport/Reviews/Public_Transport_Fares/Public_Transport_Fares_in_Sydney_and_Surrounds

²³ IPART, *Review of external benefits of public transport - Draft Report*, December 2014. Available from http://www.ipart.nsw.gov.au/Home/Industries/Transport/Reviews/Public_Transport_Fares/Public_Transport_Fares_in_Sydney_and_Surrounds

We will also have regard to the NSW Government's policy on fare structure. We will consider all the comments we receive on the Draft Report, and will make our final decisions on the maximum level of Opal fares in each year of the determination period.

Table 5.1 provides an indicative timetable for the review. We will update the timetable on our website (www.ipart.nsw.gov.au) as the review progresses.

Table 5.1 Indicative review timetable

Event	Date
Release Draft Report and Draft Determination	21 December 2015
Submissions on Draft Report due	5 February 2016
Release Final Report and Determination	March 2016
Determinations to take effect	July 2016

Note: For the most up to date timetable information please see our website, www.ipart.nsw.gov.au

5.3 What is outside the scope of this review?

Our review will not consider the following matters, which are determined by the NSW Government and are not covered by the referral:

- ▼ The actual fares that will apply from July 2016. The Government may choose to set fares below the maximum determined by IPART but must not set fares above this level.
- ▼ The airport station access fee. Currently people entering or exiting the rail network at either of the Sydney Airport stations are charged a station access fee. This fee is subject to contractual arrangements between Transport for NSW (TfNSW) and the company that operates the airport stations.
- ▼ The public transport network and timetable – including network coverage, service frequency and proposed changes to services. Transport planning decisions are made by TfNSW.
- ▼ Fares for regular private ferry services provided under contract to TfNSW in the Sydney, Central Coast and North Coast areas of NSW. IPART annually makes recommendations on maximum fares to TfNSW²⁴.

²⁴ See our Final Report on Review of maximum fares for private ferry operators, December 2015.



Appendices

A Minister's referral



The Hon Andrew Constance MP
Minister for Transport and Infrastructure

PR15/05990

Mr Peter Boxall AO
Chairman
Independent Pricing and Regulatory Tribunal
PO Box K35
Haymarket Post Shop NSW 1240

Dear Mr Boxall

I am writing to refer to the Independent Pricing and Regulatory Tribunal (IPART) the task of determining appropriate maximum fares for classes of Opal fares from 1 July 2016 to 30 June 2019. This referral, which is attached, has been approved by the Premier, the Hon Michael Baird MP, in accordance with the requirements of s123 of the *Passenger Transport Act 2014*.

Now that the implementation of the Opal electronic ticketing system (Opal) has been substantially completed, the NSW Government wishes to consider options for fare structure reform that would achieve greater levels of fare integration, including the benefits and costs of these options.

This referral, therefore, requires IPART to consider fare structure reform options for Opal following IPART's usual engagement with the community. It is intended that, if Government decides to make changes to the structure of Opal fares, IPART's final maximum fare determination would allow for those changes to be implemented from the middle of next year.

I look forward to the commencement of this important review, to considering IPART's advice with respect to fare structure options for the Opal system, and to receiving IPART's final report in due course.

Yours faithfully

Andrew Constance MP
Minister for Transport and Infrastructure

52 Martin Place, Sydney NSW 2000
Phone: (61 2) 8574 5807 Fax: (61 2) 9339 5512 Email: office@constance.minister.nsw.gov.au



Passenger Transport Act 2014
Section 123(1)(a)

Referral

I, the Hon Andrew Constance MP, Minister for Transport and Infrastructure, with the approval of the Hon Michael Baird MP, Premier of New South Wales and Minister administering the *Independent Pricing and Regulatory Tribunal Act 1992*, under section 123(1)(a) of the *Passenger Transport Act 2014*, refer to the Independent Pricing and Regulatory Tribunal (IPART) the following matter for investigation and report:

The determination of appropriate maximum fares for Opal Services.

In addition to the matters contained in s124 of the *Passenger Transport Act 2014*, in undertaking this investigation, IPART is, under s123(2)(b) of the *Passenger Transport Act 2014*, to consider:

1. The benefits of fare structures that support network integration to increase network efficiency and reduce overall costs;
2. The benefits and costs of spreading demand for public transport to increase efficiency in service delivery and the likely impact of different fares on the travel behaviour of customers, including whether current concession arrangements for peak and off-peak travel support the optimal use of the network;
3. Whether there are strong arguments for or against full integration of fares across all Opal Services, given that some modes have significantly different costs and/or externality benefits;
4. The relative contributions that customers and taxpayers should make to the cost of delivering Opal Services, including light rail as an Opal Service;
5. The technical feasibility of making changes to the current fare structure, given the features of the Opal system and the contracts in place for its implementation and operation;
6. The most appropriate method or methodology for determining maximum fares for Opal Services, including the need for sufficient flexibility to implement any changes to the current fare structure (where relevant);
7. Where relevant, transitional arrangements from the current fare structure to a new fare structure, assuming that new fares would apply from 1 July 2016 and including any customer impacts and technical limitations; and
8. The need to ensure consistency between:
 - (i) the structure of fares in the final determination of appropriate maximum fares for Opal Services; and
 - (ii) the NSW Government's announced policy position on the structure of fares for Opal Services.

For the purposes of this referral, Opal Services means the following services:

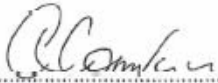
1. Train services operated by Sydney Trains;
2. NSW Trains services operated under the business name NSW TrainLink Intercity;

3. Sydney Ferries services operated under the authority of a service contract with Transport for NSW (TfNSW);
4. The Stockton Ferry;
5. Bus services operated under the authority of a Metropolitan Bus Service Contract with TfNSW;
6. Bus services operated under the authority of a Outer-Metropolitan Bus Service Contract with TfNSW; and
7. The Sydney Light Rail service.

IPART is to publish a draft report as soon as practicable but no later than 18 December 2015. The draft report is to include appropriate mode specific maximum fares for Opal Services and any integrated fare structure options developed by IPART.

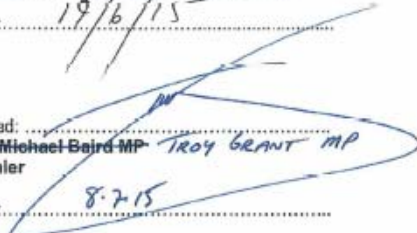
IPART is to submit its final report and determination under this referral to the Minister for Transport and Infrastructure as soon as practicable but no later than 31 March 2016, or such later date as notified in writing by the Minister for Transport and Infrastructure.

This referral ceases to have effect on 30 June 2019, unless earlier varied or withdrawn.

Signed: 

Hon Andrew Constance MP
Minister for Transport and Infrastructure

Date: 16/6/15

Signed: 

Hon Michael Baird MP
Premier

Date: 8.7.15

B Stakeholder comments

As the first step in our consultation process, we released an Issues Paper in July 2015,²⁵ which focused mainly on options for fare structure reform. We received over 1,900 submissions and responses to an on-line survey hosted on our website.

In September 2015 we released a Methodology Paper which explained how we proposed to calculate fares for our determination. We received 15 submissions on the Methodology Paper. We also held a public hearing to provide a further opportunity for stakeholders to make comments on both areas of this review. This appendix provides a summary of public submissions to our issues paper and the methodology paper.

B.1 Summary of submission to our issues paper

B.1.1 Integrated fares for different modes of transport

The majority of submissions that commented on questions about fare integration broadly supported making fares more integrated.²⁶ They argued in favour of more integrated fares for reasons of fairness or equity,²⁷ efficiency,²⁸ and simplicity.²⁹

²⁵ IPART, *Finding the best fare structure for Opal: Public transport fares in Sydney and surrounds – Issues Paper*, July 2015.

²⁶ Anonymous (W15/3681) submission to Issues Paper, p 1; Anonymous (W15/3738) submission to Issues Paper, p 1; Austen submission to Issues Paper, pp 1-6; Dunn submission to Issues Paper, p 1; Lovell submission to Issues Paper, p 1; Olesen submission to Issues Paper, p 1; Riley submission to Issues Paper, p 1.

²⁷ Action for Public Transport (NSW) Inc submission to Issues Paper, p 2; Carroll submission to Issues Paper, p 2; NCOSS submission to Issues Paper, p 3; NSW Greens submission to Issues Paper, p 2; Parish submission to Issues Paper, p 1; Swayn submission to Issues Paper, p 1; Thackray submission to Issues Paper, p 1; Zagami submission to Issues Paper, p 1.

²⁸ Anonymous (W15/3738) submission to Issues Paper, p 1; BOC submission to Issues Paper, p 2; City of Sydney submission to Issues Paper, pp 2-3; Connect Macquarie Park + North Ryde submission to Issues Paper, pp 2-3; Infrastructure Partnerships Australia submission to Issues Paper, p 4; NRMA submission to Issues Paper, p 2.

²⁹ Banyard submission to Issues Paper, p 5; BOC submission to Issues Paper, p 2; City of Sydney submission to Issues Paper, pp 2-3; Connect Macquarie Park + North Ryde submission to Issues Paper, p 2; Deer submission to Issues Paper, p 1; Farr submission to Issues Paper, p 1; Sharples submission to Issues Paper, p 3.

In particular, there is strong support for the removal of mode switching penalties. Currently, passengers who switch modes pay for two separate trips (one for each mode). Many stakeholders highlighted frustration with this approach with reference to the changes caused by the CBD light rail project with many passengers now required to switch from buses to trains - and therefore pay a mode switching penalty - where they have not had to previously. They argued that this was unfair because they are being forced to switch modes due to TfNSW projects.³⁰

NCOSS said, “People should not be penalised for having a lack of choice in transport modes. In many instances passengers must make several connections, on multiple modes of transport, to reach their destination.”³¹

While the majority of submissions were in favour of varying levels of partial integration of fares, few were in favour of full fare integration. There is particular concern about integrating ferry fares. Stakeholders argued that ferries cost more and they should not be subsidised by rail and bus users.³² Some suggested a ferry surcharge would be appropriate if integrating fares.³³

SHOROC suggested, “all endeavours should be made to implement a fully integrated ticketing structure across all travel modes, however not at the expense of significant price increases that would discourage public transport use.”³⁴

Sydney Airports recommend that we develop a fare option for Opal that allows passengers to change modes without incurring a significant cost penalty.³⁵

Our draft decision is that fares should continue to differ by mode so they can reflect the different underlying costs of providing services on each mode. However, they should be more integrated to improve the fairness of the fare structure for customers who use two or more modes. Further information is provided in chapter 2 of our draft report and *Information Paper 1: Integrated Fares*.

B.1.2 Increasing fares for longer distance journeys

Sydney currently has a quite flat distance based structure, with fares not increasing substantially over distance travelled, and not at all beyond the first 65 km for rail journeys and 8 km for bus journeys.

³⁰ Anonymous (W15/3634) submission to Issues Paper, p 1; Anonymous (W15/3646) submission to Issues Paper, p 1; Briant submission to Issues Paper, p 1; City of Botany Bay submission to Issues Paper, p 1; Downie submission to Issues Paper, p 1.

³¹ NCOSS submission to Issues Paper, p 3.

³² City of Botany Bay submission to Issues Paper, p 2; Iacopetta submission to Issues Paper, pp 2-3.

³³ BOC submission to Issues Paper, p 2, Connect Macquarie Park + North Ryde submission to Issues Paper, p 3; Olesen submission to Issues Paper, p 1.

³⁴ SHOROC submission to Issues Paper, p 2.

³⁵ Sydney Airports submission to Methodology Paper, p 2.

Several submissions supported increasing fares for longer distance journeys to allow fares for shorter distance journeys to be lower.³⁶ Abelson recommended that fares should reflect LRMC which “appears to mean that they should reflect distances travelled”.³⁷ He noted that this “would encourage efficient housing decisions as well as efficient transport”.³⁸ One stakeholder said that the current fares instead “promote more unsustainable lifestyles, urban sprawl and are inequitable and inefficient”.³⁹

However, others were concerned about the equity implications of increasing longer distance fares saying that it’s not fair to penalise passengers that live in the outer Sydney areas where there are fewer jobs (so they have to travel long distances for work) and where people are often on lower incomes.⁴⁰ The NRMA also said that an increase in service quality, particularly journey times, would be required to justify an increase in longer distance fares.⁴¹

We also received comments about the impact changing the relative price of longer and shorter journeys would have on the travel patterns of inner city residents and workers. The City of Sydney submitted that shorter distance fares should not be lowered to a level that discourages active transport.⁴² In contrast, an anonymous stakeholder suggested free travel “within major CBD centres” to “encourage people to leave cars at home” and “encourage residents of these CBD’s to not purchase a vehicle & park on the road”.⁴³

We agree with submissions that fares based on distance travelled are more efficient. Our draft decision is that fares for longer distance journeys should increase relative to those for shorter distance journeys to better reflect the higher costs of providing these journeys. However, they should be set lower than the optimal fares for longer journeys to mitigate impacts on customers. Further information is provided in Section 2.5 of our Draft Report.

³⁶ For example, Dunn submission to Issues Paper, p 1.

³⁷ Abelson submission to Issues Paper, p 3.

³⁸ Abelson submission to Issues Paper, p 3.

³⁹ Lovell submission to Issues Paper, p 1.

⁴⁰ City of Sydney submission to Issues Paper, p 4; Dyer submission to Issues Paper, p 1; McLaughlin submission to Issues Paper, p 1; NCOSS submission to Issues Paper, p 5; NSW Greens submission to Issues Paper, pp 2-3; Zealey submission to Issues Paper, p 1.

⁴¹ NRMA submission to Issues Paper, pp 3-4.

⁴² City of Sydney submission to Issues Paper, p 4.

⁴³ Anonymous (W15/4646) submission to Issues Paper, p 2.

B.1.3 Fares based on kilometers travelled or fare bands

Our Issues Paper noted that a distance based fare structure that is based on kilometres travelled, rather than grouping the distance travelled into bands would remove the fare advantages or disadvantages that currently apply to people who live or work near fare boundaries. Our Issues Paper explained that this has the potential to help alleviate problems with parking at some stations and would be more equitable. However, it would also be more difficult for passengers to estimate their fare in advance.

Submitters generally supported the charging of actual distance travelled rather than bands.⁴⁴

However, the NRMA dismissed the idea that demand for commuter parking is likely to be influenced by fare band boundaries because motorists are highly aware of the cost of additional time spent driving.⁴⁵

BOC and Connect Macquarie Park + North Ryde consider that the current method of calculating train fares based on the track distance whilst calculating bus and ferry fares on straight line distance is unreasonable. They note that “Charging more for indirect routing as the track distance charge does, treats indirect routing as a benefit when it is in fact the opposite for users.”⁴⁶ Some stakeholders also think that the 3.21 km that is added to all train trips that run through the Sydney CBD is unfair,⁴⁷ and constitutes overcharging.⁴⁸

Iacopetta suggested adding additional bands to remove zone boundary disparities,⁴⁹ while Action for Public Transport suggested that “the system could cater for passengers living near fare boundaries by allowing some stops/station to be in two zones.”⁵⁰

Andreopoulos suggested that per km rate should be smaller for longer distances travelled as the average cost per km decreases with distance travelled.⁵¹

Our draft decision is fares should continue to vary by distance travelled, but the distance bands should be consistent for all modes, and the distance travelled should be measured in a consistent way for all modes, ie, as the longest straight-line distance between any tap-on and tap-off point on the journey.

⁴⁴ Anonymous (W15/3738) submission to Issues Paper, p 1; BOC submission to Issues Paper, p 2; Connect Macquarie Park + North Ryde submission to Issues Paper, p 3; McLaughlin submission to Issues Paper, p 1; Sharples submission to Issues Paper, p 3.

⁴⁵ NRMA submission to Issues Paper, p 3.

⁴⁶ BOC submission to Issues Paper, p 1; Connect Macquarie Park + North Ryde submission to Issues Paper, p 2.

⁴⁷ Ludbrooke submission to Issues Paper, p 1.

⁴⁸ Le submission to Issues Paper, p 1.

⁴⁹ Iacopetta submission to Issues Paper, p 3.

⁵⁰ Action for Public Transport (NSW) Inc submission to Issues Paper, p 3.

⁵¹ Andreopoulos submission to Issues Paper, pp 2-4.

For rail, measuring the distance travelled as the straight-line distance rather than the track distance would mean that many rail journeys would fall into a lower distance band, and so customers would pay lower fares. For example, the track distance from Cronulla to Town Hall stations is 38 km, so the journey currently falls into the 35 to 65 km fare band (\$6.46 peak fare). The straight-line distance between these stations is 21 km, so under our draft determination the journey would fall into the 15 to 25 km fare band (\$4.74 draft peak fare).

B.1.4 Flat fares for inner Sydney

A flat fare means that there is no relationship between the fare and the distance travelled: passengers pay the same price for all journeys made within the network.

Some stakeholders oppose a flat fare for the inner part of Sydney because it is inequitable⁵² and CBD centric,⁵³ and too complicated.⁵⁴

An anonymous submission gave support to the inner Sydney flat fare, with distance based fares outside of that zone.⁵⁵ Banyard argued in favour of a flat fare for all journeys in the Opal zone.⁵⁶ Action for Public Transport said that its support depended on the definition of “inner part”.⁵⁷

The NRMA argued that introducing an “inner ring” fare zone should be done with consideration to the broader objectives of decentralised urban planning and jobs growth in Sydney’s outer suburbs. It noted that care should be taken to avoid any price discrimination that may undermine these goals.⁵⁸

Our analysis indicates that keeping fares different for each mode but increasing the level of fare integration for multi-mode journeys better balances our criteria for this review. Our draft decision is to set different fares for each mode to better reflect the different underlying costs of delivering services on each mode, and the different usage patterns on each mode. However, there is one exception: we will continue to set light rail fares at the same level as bus fares. This is because light rail is replacing significant parts of the bus network, and for simplicity – light rail trips currently make up only around 2% of all public transport trips.

⁵² BOC submission to Issues Paper, p 3; Connect Macquarie Park + North Ryde submission to Issues Paper, p 3.

⁵³ Caldwell submission to Issues Paper, p 1.

⁵⁴ Lovell submission to Issues Paper, p 2; Sharples submission to Issues Paper, p 3.

⁵⁵ Anonymous (W15/3738) submission to Issues Paper, p 1.

⁵⁶ Banyard submission to Issues Paper, p 6.

⁵⁷ Action for Public Transport (NSW) Inc submission to Issues Paper, p 3.

⁵⁸ NRMA submission to Issues Paper, p 3.

B.1.5 Off-peak discounts

Currently there is only off-peak pricing on the rail network. Some submissions argued against having peak and off-peak pricing on any mode of public transport. These stakeholders submitted that commuters have very little choice over working hours,⁵⁹ and that it not warranted because the costs of operation are basically unchanged by time of day.⁶⁰

Other stakeholders do support off-peak discounts being extended to other modes.⁶¹ NCOSS and City of Botany Bay submitted that off-peak discounting should be extended to buses because it is inequitable that discounts only apply to trains where many passengers only have access to buses.⁶²

Some stakeholders limited their support for off-peak discounts. For example, Andreopoulos argued that off-peak fares are only warranted when there is spare capacity and you are seeking to draw new customers to the services.⁶³ Connect Macquarie Park + North Ryde and BOC submitted that for peak charging to occur there needs to be viable off-peak alternative services.⁶⁴ Deer also supported the need for additional off-peak services to support shifting demand away from the peak.⁶⁵

Abelson said that peak and off-peak pricing should only occur if the LRMC of peak and off-peak services is different.⁶⁶

An anonymous stakeholder said they would only support off-peak discounts if it meant peak fares would not need to rise.⁶⁷ Another stakeholder said extending off-peak discounts was OK even if it results in a fare increase in peak times to offset the cost.⁶⁸

The City of Botany Bay and the NCOSS argued that implementing off-peak discounts to bus fares would cause increased patronage leading to increased revenue, negating the need for peak fare increases.⁶⁹ NCOSS further argued that off-peak discounting would reduce network strain in the peak and therefore lower costs, eliminating the need for compensatory peak fare increases (see NCOSS, p 4).

⁵⁹ For example: Merchant submission to Issues Paper, p 1.

⁶⁰ Banyard submission to Issues Paper, p 6.

⁶¹ Dunn submission to Issues Paper, p 1; Iacopetta submission to Issues Paper, p 3; NRMA submission to Issues Paper, p 3; Sharples submission to Issues Paper, p 3; Zagami submission to Issues Paper, p 1.

⁶² City of Botany Bay submission to Issues Paper, p 2; NCOSS submission to Issues Paper, p 4.

⁶³ Andreopoulos submission to Issues Paper, p 4.

⁶⁴ BOC submission to Issues Paper, p 3; Connect Macquarie Park + North Ryde submission to Issues Paper, p 4.

⁶⁵ Deer submission to Issues Paper, p 1.

⁶⁶ Abelson submission to Issues Paper, pp 1-3.

⁶⁷ Anonymous (W15/3738) submission to Issues Paper, p 1.

⁶⁸ Zagami submission to Issues Paper, p 1.

⁶⁹ City of Botany Bay submission to Issues Paper, p 2; NCOSS submission to Issues Paper, p 4.

One stakeholder suggested an exception for ferries because they are used primarily by tourists in the off-peak periods and the fare structure should be set up to advantage commuters.⁷⁰ Lovell also noted that “off-peak discount for ferries would have the peak as weekends and weekdays as off-peak” and that “such moves would violate the KISS principle so just having consistent fares is my favoured option”.⁷¹

On the issue of different peak times for different modes, the City of Sydney submitted that:

It is difficult and potentially more confusing for customers to set a different peak and off-peak fare by mode. However, it is important to encourage greater use of public transport outside the peaks and to consider how to spread ridership across modes where possible.⁷²

In considering if fares should vary by time of travel, we focused on whether the costs and benefits of travel differ substantially at peak and off-peak times.

Our analysis shows that rail is the only mode for which the costs and benefits of travel in peak and off-peak periods differ sufficiently to justify different fares for these periods. Rail services are characterised by high infrastructure costs (eg, rail lines, vehicles, stations) and relatively low operating costs (eg, electricity, fuel, drivers). Much of the infrastructure is required to meet the demand for services in peak times. In off-peak times, such as the middle of the day and weekends, the infrastructure may have spare capacity. For the other modes, the operating costs are a much higher proportion of total costs, and these costs don’t differ in peak and off-peak times.

Our analysis also shows that increasing the discount on off-peak rail fares would make these fares more cost reflective. In addition, it may promote more efficient use of spare capacity and delay the need for expensive investment in infrastructure to meet demand. For example, it may encourage some people to travel outside peak times, spreading the passenger load and reducing external costs of passenger crowding and boarding delays. It may also encourage people who are not currently rail customers to use rail services in off-peak times.

Currently around 56% of rail trips are made in off-peak periods. Increasing the off-peak discount would mean lower fares for more than 98% of these passenger journeys. On average, single off-peak rail fares would fall by 15.6% in 2016, and would still be around 12.5% lower than currently by 2018 (in real terms).

Further information is provided in section 2.4 of our Draft Report and *Information Paper 2: Weekday peak and off-peak fares*.

⁷⁰ Anonymous (W15/4649) submission to Issues Paper, p 2.

⁷¹ Lovell submission to Issues Paper, p 2.

⁷² City of Sydney submission to Issues Paper, p 5.

B.1.6 Peak times

Currently peak fares for trains apply between the hours of 7 am and 9 am (6 am to 8 am for NSW Train Link services) and between 4 pm and 6.30 pm, Monday to Friday with off-peak fares applying for trips where tap-on occurs outside these hours.

One submission agreed that the existing peak periods for trains are also the appropriate peak times for bus, ferry and light rail.⁷³ Lovell agreed on the peak times for bus, rail and light rail but suggested that the peak periods for ferries is instead weekends.⁷⁴

Two submissions suggested that there should be peak, shoulder and off-peak pricing,⁷⁵ and another two submissions that a peak-of-peak surcharge (which is effectively the same as having peak, shoulder and off-peak pricing) would be more desirable for spreading travel times than increasing the fares for the whole of the peak period.⁷⁶

City of Sydney considers discounting travel before the am peak is much more effective in reducing congestion than encouraging post-am peak travel.⁷⁷

Karlov raised an issue with the current application of peak and off-peak periods. When an inter-city service that is peak crosses into the Sydney Trains network between 0600 and 0700 that same peak service is an off-peak service for those passengers that board in the Sydney Trains zone. Karlov argues that this is unfair to the intercity passengers as they pay more than Sydney Trains passengers to ride the same service. Making services peak and off-peak rather than the time the passenger boards the service is suggested as a solution. As is abolishing peak and off-peak pricing for passengers boarding or disembarking more than 50 km from Central.⁷⁸

Dunn suggested that a sliding scale of peak hours could be applied with am peak times starting earlier and ending earlier for stations further away from the CBD.⁷⁹

It's our view the current time periods for peak fares continue to be appropriate as it represents peak road congestion and it is reasonable to define peak journeys using the tap-on time. The use of tap-on time is an adequate approximation of when travel occurs. There is unlikely to be a benefit from moving to the tap-off time unless other changes to the peak fare arrangements are mad. For example, if peak fares depended on the location or direction of travel.

⁷³ Anonymous (W15/3738) submission to Issues Paper, p 1.

⁷⁴ Lovell submission to Issues Paper, p 2.

⁷⁵ Iacopetta submission to Issues Paper, pp 3-4; McLaughlin submission to Issues Paper, p 1.

⁷⁶ BOC submission to Issues Paper, p 4; Connect Macquarie Park + North Ryde submission to Issues Paper, p 5.

⁷⁷ City of Sydney submission to Issues Paper, pp 7-8.

⁷⁸ Karlov submission to Issues Paper, p 1.

⁷⁹ Dunn submission to Issues Paper, p 1.

Crowding statistics suggest there is a peak within the current peak time bands. However, we do not consider that a higher fare should apply for this shorter time period because:

- ▼ This may have significant customer impacts.
- ▼ We do not have enough information about how it would influence travel patterns and what impact that would have on costs and revenue.
- ▼ The external benefits of rail use are likely to be high across the whole of the current peak time bands.

Therefore, we consider that the current time periods and use of tap-on time to define peak. Further information is provided in section 2.4 of our Draft Report and *Information Paper 2: Weekday peak and off-peak fares*.

B.1.7 Peak fares in one direction

Our Issues Paper asked whether stakeholders see value in having peak fares apply only in one direction or being replaced with a peak surcharge for journeys that enter the CBD in the morning and exit the CBD in the evening.

Most submissions that addressed this question did not support this proposal. They argued against it on the basis that:

- ▼ CBD pricing should occur for cars first⁸⁰ and that a CBD surcharge on public transport would exacerbate CBD congestion as people will travel by car instead of public transport.⁸¹
- ▼ Sydney is becoming a multi-centred city.⁸²
- ▼ many CBD services carry peak loads out of the CBD due to modal transfers.⁸³

The NRMA submitted that instead passengers who travel to non-CBD destinations could receive a discount to support employment decentralisation⁸⁴ and therefore relieve congestion in the CBD.

All passengers who travel to, from, or through busy train stations in the weekday peak periods are likely to contribute to rail capacity costs – regardless of their direction of travel. If peak fares only applied to those travelling in the ‘peak direction’ (eg, towards the Sydney CBD in the AM), the fare for those travelling in the contra-peak direction would not recognise their contribution to these costs. Therefore, we do not consider it appropriate for peak fares to be limited to passengers travelling in the peak direction.

⁸⁰ Lovell submission to Issues Paper, p 3.

⁸¹ City of Botany Bay submission to Issues Paper, p 2.

⁸² BOC submission to Issues Paper, p 4; Connect Macquarie Park + North Ryde submission to Issues Paper, p 5.

⁸³ Action for Public Transport (NSW) Inc submission to Issues Paper, p 3.

⁸⁴ NRMA submission to Issues Paper, p 3.

If the higher capacity costs associated with peak periods were being driven largely by passengers travelling to or through the City, then it may be efficient to limit peak fares to those who tap on or off at a City station. Our analysis indicates that the City is a bottleneck location during the weekday peak periods. Around 40% of all weekday Opal journeys involve a tap on or off during the current peak time bands at one of the City stations (City Circle plus Redfern and North Sydney).

However, many other stations are also very busy during these periods. Parramatta is the fourth busiest train station in the peak after Central, Town Hall and Wynyard. More than half of the 20 busiest stations in the peak are outside the City area (City Circle plus Redfern and North Sydney). Therefore, we do not consider it appropriate for peak fares to be limited to passengers travelling to or through the City.

Further information is provided in *Information Paper 2: Weekday peak and off-peak fares*.

B.1.8 Frequency discounts and caps

Many submissions expressed support for frequency discounts and weekly caps.⁸⁵

Despite the general support for caps and discounts, multiple submissions stated that Opal fares are much more expensive than the periodic paper tickets which are no longer available.⁸⁶ Sandell and Sharples consider periodic ticketing is a more efficient way to manage regular commuters.⁸⁷

We also asked whether stakeholders would support discounted fares on more services (eg, a \$2.50 daily cap for rail, bus and light rail travel on Saturdays and Sundays) if that meant that they were unable to use free trips during peak times. Stakeholders that did not support this idea thought that it would not improve the system⁸⁸ and restricting or discouraging concession travel in peak periods could be discriminatory.⁸⁹ BOC and Connect Macquarie Park + North Ryde said that it

⁸⁵ Action for Public Transport (NSW) Inc submission to Issues Paper, p 4, Anonymous (W15/3738) submission to Issues Paper, p 2; Anonymous (W15/4604) submission to Issues Paper, p 1; Anonymous (W15/4628) submission to Issues Paper, pp 2-3; BOC submission to Issues Paper, p 4; Connect Macquarie Park and North Ryde submission to Issues Paper, p 5; Deer submission to Issues Paper, p 1; Gollan submission to Issues Paper, p 1, Heldon submission to Issues Paper, p 2; NRMA submission to Issues Paper, p 3.

⁸⁶ Anonymous (W15/4689) submission to Issues Paper, p 1; Anonymous (W15/3511) submission to Issues Paper, p 1; Anonymous (W15/4570) submission to Issues Paper, p 2; Anonymous (W15/4604) submission to Issues Paper, p 1; Anonymous (W15/4628) submission to Issues Paper, p 1, Feraer submission to Issues Paper, p 1, Merchant submission to Issues Paper, p 1; NRMA submission to Issues Paper, p 3.

⁸⁷ Sharples submission to Issues Paper, p 4; Sandell submission to Issues Paper, p 4.

⁸⁸ Action for Public Transport (NSW) Inc submission to Issues Paper, p 4.

⁸⁹ NRMA submission to Issues Paper, p 3.

is “essential that rewards be available to commuters who only use public transport for work trips”.⁹⁰

Many public transport fare schemes include frequency discounts and weekly price caps. With electronic ticketing, frequency discounts may be efficient if frequent travellers are more likely to increase their use of public transport services in response to the discounts.

Weekly price caps may also encourage travellers to increase their use of public transport, by making it more affordable for those who use it more often and/or make more expensive journeys.

However, there is no longer a case for deep discounts for frequent users, as was previously the case with the paper ticketing arrangements. Under paper ticketing, there were significant cost savings for purchasing periodical and multi trip tickets (eg, weekly or annual passes and Travel Tens) that arose from reduced queuing at ticket machines, faster boarding on buses and lower administrative costs.

B.1.9 Frequency discounts

We receive many comments about the frequency discount. Currently, after 8 trips have been made from Monday to Sunday with an Opal card, passengers can travel free for the rest of the week.

Our Issues Paper asked whether passengers are more likely to make shorter bus or light rail journeys early in the week in order to access the discount sooner. Some agreed that this was the case,⁹¹ but others disagreed.⁹² Several submissions raised the issue of the current system being gamed by people intentionally taking unnecessary cheaper journeys to reach their free trips sooner.⁹³

⁹⁰ BOC submission to Issues Paper, p 4; Connect Macquarie Park + North Ryde submission to Issues Paper, p 5.

⁹¹ Anonymous (W15/4646) submission to Issues Paper, p 4; Banyard submission to Issues Paper, p 8; BOC submission to Issues Paper, p 4; Connect Macquarie Park + North Ryde submission to Issues Paper, p 5; Lovell submission to Issues Paper, p 3.

⁹² Anonymous (W15/4649) submission to Issues Paper, p 3; McLaughlin submission to Issues Paper, p 1.

⁹³ Andreopoulos submission to Issues Paper, p 4; Anonymous (W15/3479) submission to Issues Paper, p 1; Merchant submission to Issues Paper, p 1; Miskov submission to Issues Paper, p 1; Sharples submission to Issues Paper, p 4.

Several stakeholders suggested modifications to the frequency discounts. For example:

- ▼ It should be accessible to those that work part-time or occasionally walk or cycle.⁹⁴
- ▼ It should be modified so that multi-mode trips contribute more than one journey in the cap of eight (eg, each additional trip could be worth half a journey, so a bus and train trip would contribute 1.5 journeys.⁹⁵
- ▼ Passengers should be charged for the eight most expensive journeys in a week rather than the first eight.⁹⁶
- ▼ Passengers should have a percentage of their weekly fare expenditure reimbursed if they exceed eight journeys.⁹⁷

The NRMA suggested that “Consideration should also be given to further discounts for Opal users who reach their weekly trip threshold consistently over longer periods.”⁹⁸

Smith, Andreopoulos and Iacopetta argued that a credit when you top up your Opal balance or reach a specified spending threshold would be better than the currently weekly frequency discounts.⁹⁹ Andreopoulos further argued that daily and weekly caps applied at an appropriate level would be better than the weekly travel reward because they maintain a link to the value of travel.¹⁰⁰

Banyard reasoned that the current caps and frequency discounts are a great waste and counterproductive. Banyard argues that generating public transport by fare free travel can artificially generate demand that is not naturally there.¹⁰¹ Merchant also agreed that the frequency discounts should be scrapped, free transport on weekends and public holidays would be a more effective way of encouraging patronage.¹⁰²

Our analysis shows that the current frequency discount arrangements are inefficient. We consider that they should be replaced with a weekly travel credit scheme to make discounting and capping fairer and more efficient.

⁹⁴ BOC submission to Issues Paper, p 4; City of Sydney submission to Issues Paper, pp 8-10; Connect Macquarie Park + North Ryde submission to Issues Paper, p 5; Cox submission to Issues Paper, p 1; Flex submission to Issues Paper, p 1; NSW Greens submission to Issues Paper, pp 3-4.

⁹⁵ Howe submission to Issues Paper, p 1.

⁹⁶ Anonymous (W15/3479) submission to Issues Paper, p 1; Miskov submission to Issues Paper, p 1; Shinfield submission to Issues Paper, p 3.

⁹⁷ McLaughlin submission to Issues Paper, p 1.

⁹⁸ NRMA submission to Issues Paper, p 3.

⁹⁹ Andreopoulos submission to Issues Paper, pp 4-5; Iacopetta submission to Issues Paper, p 4; Smith submission to Issues Paper, p 1.

¹⁰⁰ Andreopoulos submission to Issues Paper, p 4.

¹⁰¹ Banyard submission to Issues Paper, p 8.

¹⁰² Merchant submission to Issues Paper, p 1.

The current frequency discount and weekly cap arrangements are not efficient for several reasons. First, many customers who are full-time workers typically make at least 10 journeys to and from work per week. Therefore, with the current frequency discount, they receive free travel for at least two journeys that they would have made even if this discount did not apply (ie, they are receiving free travel for non-discretionary journeys).

Second, the current frequency discount creates perverse incentives for customers to make unnecessary short journeys early in the week to qualify for the discount. They can then make their necessary longer (and more costly to provide) journeys for free for the rest of the week.

Third, the current arrangements remove the price signals about the different costs of peak and off-peak rail travel once eight journeys have been made or the weekly cap has been reached.

Our draft decision is to replace the current arrangements with a weekly travel credit scheme that incorporates a frequency discount and weekly cap. Under this scheme, the fare for each journey customers make during the Opal week would be debited from their Opal card when they tap off. At the end of the week, frequent customers would receive a travel credit equal to the higher of:

- ▼ their total expenditure on Opal fares in that week minus the cost of their 10 most expensive journeys in that week, or
- ▼ their total expenditure on Opal fares in that week minus the weekly cap amount.

Further information is provided in Section 2.6 of our Draft Report and *Information Paper 3: Frequency discounting*.

B.1.10 Pensioner concession tickets

Around 200,000 public transport trips are made on pensioner concession tickets every day (eg, Gold Opal). Passengers who travel on these tickets currently have no incentive to travel outside the peak when services are not as crowded.

Several stakeholders do not support a higher peak travel charge for pensioner concession tickets on grounds that it disadvantages those who cannot shift their journey time.¹⁰³ Another stakeholder does not support a higher charge but did not provide a reason.¹⁰⁴

¹⁰³ Action for Public Transport (NSW) Inc submission to Issues Paper, p 4; City of Sydney submission to Issues Paper, p 8; Combined Pensioners & Superannuants Association of NSW Inc submission to Issues Paper, p 3; Heldon submission to Issues Paper, p 1.

¹⁰⁴ Anonymous (W15/3738) submission to Issues Paper, p 2.

There were also stakeholders that said that the current concession is adequate¹⁰⁵ or too generous.¹⁰⁶ Iacopetta said, “With \$2.50 for off-peak, charging extra for peak use seems fair”.¹⁰⁷ Lovell also supported a higher peak fare but in the morning peak only because “Allowing a few pensioners onto PM peak services is not as critical a problem as the peak is more spread and also lacks school students.”¹⁰⁸

Submissions said that peak-time crowding already worked as an effective incentive for Gold Opal users to travel in the off-peak if they can. Patronage data tends to bear this out: only 4% of morning peak customers travel on a PET (the Gold Opal paper equivalent), while 14% of off-peak customers travel on a PET.

Stakeholders also pointed out that the most vulnerable Gold Opal users (pensioners) are likely to be the least elastic. This is because their trips are more likely to be for child care/school/medical appointments rather than recreation, and they are likely to have fewer alternative transport options.

The price of all day travel for seniors and pensioners has not changed since 1 January 2005, while other fares have risen by around 30% over that time. This means that the generous discount provided to seniors and pensioners has become relatively more generous compared to discounts available to concession customers who may be more economically disadvantaged.

We consider the Gold Opal cap should be linked to the level of other daily caps so the relativities are maintained over time. In our view, it would be appropriate to set the Gold Opal cap at 40% of the daily concession cap. Under our draft recommendations this would be \$3.60 from July 2016.

B.2 Summary of submission to our methodology report

B.2.1 Estimating socially optimal fares

The City of Sydney supports the principle of socially optimal fares and also fares which ensure equity and accessibility. It maintains that fare levels, concessions, caps or other pricing methods should reflect the need to ensure employment in the CBD remains accessible.¹⁰⁹ The Planning Institute of Australia was also generally supportive of our process and methodology.¹¹⁰ However, Action for Public Transport considered that the socially optimal approach for fare setting still fails to account for all the external benefits of public transport properly.¹¹¹

¹⁰⁵ BOC submission to Issues Paper, pp 4-5; Connect Macquarie Park + North Ryde submission to Issues Paper, p 5.

¹⁰⁶ Anonymous (W15/4646) submission to Issues Paper, p 2; Brocklebank submission to Issues Paper, p 1; Heldon submission to Issues Paper, p 2; Zealey submission to Issues Paper, p 1.

¹⁰⁷ Iacopetta submission to Issues Paper, p 4.

¹⁰⁸ Lovell submission to Issues Paper, p 3.

¹⁰⁹ City of Sydney submission to Methodology Paper, p 1.

¹¹⁰ Planning Institute of Australia submission to Methodology Paper, p 1.

¹¹¹ Action for Public Transport (NSW) Inc submission to Methodology Paper, p 2.

NCOSS stated that “public transport fares should be set at a level that ensures affordability for everyone, and encourages people to use the form of transport that will have the least social and environmental cost.”¹¹²

When estimating marginal financial costs for calculating the socially optimal fare Action for Public Transport submitted that labour, fuel, some maintenance, cash and tickets are distance costs and that some administration, rostering, supervision and some infrastructure are start-up costs.¹¹³ The City of Sydney proposed that the CBD and South East light rail project can be considered for medium-run capital costs as it is expected to be completed by 2019.¹¹⁴

We have used an economic model to estimate the ‘socially optimal’ fares for single-mode journeys. That is, the fares for each mode that would encourage the most efficient use and promote the most efficient delivery of Opal services. We also undertook additional economic analysis and consulted on other aspects of Opal fares not captured in our economic model – such as the fares for multi-mode journeys, and arrangements for frequency discounts and daily, weekly and weekend price caps.

After considering the results of our extensive public consultations, the socially optimal fares and other analysis, we developed fare options for transitioning current Opal fares towards the socially optimal fares. We then decided on fares and other fare arrangements that strike the best balance between patronage, customer impacts and farebox.

Further information is provided in Chapter 3 of our Draft Report and *Information Paper 5: Socially Optimal consumption and prices*.

B.2.2 Estimating peak and off-peak fares

The City of Sydney argues that to increase the price of peak travel to a level commensurate with the cost of peak period service provision would unfairly penalise commuters who have little opportunity to shift their travel. IPART should take broader equity, accessibility and economic issues into consideration.¹¹⁵

Action for Public Transport argued that differential fares are a demand management tool which should be within the responsibilities of the Department of Transport.¹¹⁶

¹¹² NCOSS submission to Methodology Paper, p 1.

¹¹³ Action for Public Transport (NSW) Inc submission to Methodology Paper, p 3.

¹¹⁴ City of Sydney submission to Methodology Paper, p 3.

¹¹⁵ City of Sydney submission to Methodology Paper, p 2.

¹¹⁶ Action for Public Transport (NSW) Inc submission to Methodology Paper, p 3.

Our draft decision is that fares should continue to differ in the peak and off-peak periods for rail only, and the discount on off-peak rail fares should increase to better reflect the lower costs of providing rail services in the off-peak. Further information is provided in section 2.4 of our Draft Report and *Information Paper 2: Weekday peak and off-peak fares*.

B.2.3 Estimating marginal external costs and benefits

Link Place submitted that we have vastly underestimated the public health benefits of walking and cycling. They recommend that we use estimates that are in line with comparable Australian and International estimates – ie, reduced public healthcare costs of walking are potentially between \$1.23 and \$2.50 per kilometre and reduced public healthcare costs of cycling are potentially between \$0.82 and \$1.67 per kilometre¹¹⁷. They further argues that disregarding the proportion of healthcare costs borne through private health insurance when calculating reductions in health costs external benefits is a logical fallacy. It is irrelevant whether the public health costs of sedentary lifestyles are funded through private health insurance, general taxes, Medicare levies, absenteeism or in lost productivity.¹¹⁸

We consider the health external benefit is only that related to the reduction in healthcare costs that are borne by society, which is only a small proportion of the total health benefit. In addition, only the public health sector costs are external. The rest of the benefit to health, related to people living longer and higher quality lives with reduced disability, is a direct private benefit to users of public transport

To estimate the impact of active travel on the health care system, we compared the annual health care costs related to physical inactivity (based on an estimate from Econtech of \$2.1 billion)¹¹⁹ with the annual costs of physical inactivity to mortality (which we calculated using the number of deaths per year and the value of a statistical life). We then applied this ratio to an estimate of the benefit of reduced mortality risk per additional kilometre of physical activity (\$2.75 for walking and \$0.93 for cycling).

We note that:

- ▼ We used the World Health Organisation's Health Economic Assessment Tool to estimate a benefit of \$2.75 per additional kilometre of walking and \$0.93 per additional kilometre of cycling, of which walking is above the range of estimates of health benefits in the literature provided in the Transport for NSW Guidelines.¹²⁰

¹¹⁷ Link Place submission to Methodology Paper, pp 2-6.

¹¹⁸ Ibid, p 3.

¹¹⁹ Econtech, *The cost of physical activity*, August 2007, p 4.

¹²⁰ Transport for NSW, *Principles and Guidelines for Economic Appraisal of Transport Investment and Initiatives*, March 2013 (version release date March 2015), Table 5.8, p 276.

- ▼ The health system costs referenced in the Access Economics report referred to in the Link Place submission were around \$2 billion), which is similar to the estimate we used.
- ▼ Approximately 51% of people have private health insurance.

We still consider that this approach is reasonable and that other costs are likely to be private/internal and should not be included.

NCOSS supports the inclusion of the costs associated with congestion such as lower life satisfaction, well-being and physical activity. NCOSS further submits that the cost of transport is being considered in isolation from the cost of car transport.¹²¹

Action for Public Transport does not support our proposed approach because it neglects important external benefits and imposes costs on public transport that it does not impose on all the costs associated with road use. It further argues that our proposed approach to external benefits is a political decision rather than a technical one. It also reflects a failure to understand the transport/land use interaction and the impact of low frequencies on patronage.¹²²

Action for Public Transport and NCOSS did not agree with this proposal on the grounds that including the marginal excess burden of taxation will increase the cost of public transport relative to the cost of driving because these costs are not passed on to road users in the same way.¹²³ Link Place recommended that public transport fares should not include revenues from the parking space levy, and that we had used an incorrect level of parking levy revenue.¹²⁴

We have included the excess burden of taxation as a separate input to our fare optimisation model. We consider this approach applies the excess burden of taxation to subsidies for public transport and roads equally. In our view, it is important to include the marginal excess burden of taxation in our model for calculating the socially optimal fares. Fares recover only a small proportion of the financial costs of providing public transport, so the NSW Government funds the balance. As it raises these funds primarily through taxation, fare levels and taxation are linked. If all else remains equal, lower fares would lead to higher taxation (or lower spending on other social services), and higher fares would lead to lower taxation. Therefore, the social costs of increasing taxation are a critical consideration in determining the fare levels likely to maximise the net benefit to society (ie, the socially optimal fares).

Our draft decision is to include an estimated marginal excess burden of taxation equal to 8% of the size of the subsidy in our fare optimisation model.

¹²¹ NCOSS submission to Methodology Paper, p 1.

¹²² Action for Public Transport (NSW) Inc submission to Methodology Paper, p 4.

¹²³ Action for Public Transport (NSW) Inc submission to Methodology Paper, pp 5-6; NCOSS submission to Methodology Paper, p 1.

¹²⁴ Link Place submission to Methodology Paper, p 3.

Our external benefits calculation includes an adjustment for road user charges. Road user charges offset some of the external costs that driving imposes on the community. These charges increase the private cost of driving and internalise some the external costs imposed on society. We deduct the road user charges that increase the price on roads above the private cost of a trip from the external benefit calculation. This is because these charges internalise some of the external costs of driving that are imposed on society. By increasing the cost of driving relative to other modes of transport, some of the external costs of driving are taken into account when people decide to drive.

Further information is provided in *Information Paper 5: Socially optimal consumption and prices*.

C Public transport user survey – key findings

We engaged Roy Morgan Research to conduct a survey of public transport users who are residents of Sydney and surrounding areas. Roy Morgan's report is available on the IPART website.¹²⁵ This Appendix summarises some key findings of the survey.

C.1 Integrated fares for different modes of transport

Respondents were told that currently fares for the same distance are different on each transport mode due to different underlying costs in providing these services. Three alternative options were presented and respondents were asked to select the fare option they most agreed with.

- ▼ 46% said the same fares should apply for the same distance on all modes
- ▼ 35% said fares for the same distance should be different for each mode, and
- ▼ 19% said fares should be the same for buses, trains and light rail, but more expensive for ferries.¹²⁶

Respondents who indicated that fares for the same distance should differ by mode were then asked to think about a public transport journey that involved using more than one mode. Four options were presented and respondents were asked to select which option they preferred.

Of those who indicated that fares for the same distance should differ by mode:

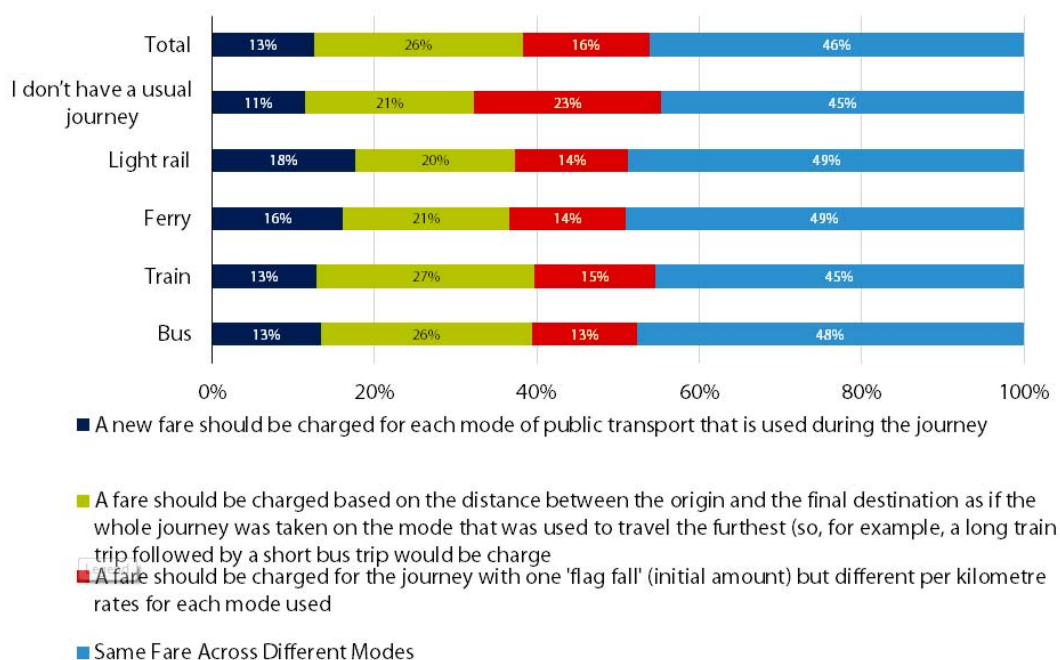
- ▼ 48% thought a fare should be charged based on the distance from origin to destination on the mode that was used to travel the furthest:
 - this represents just over a quarter of all public transport users (26%).
- ▼ 29% thought a fare should be charged using one flag fall (ie, initial amount), but different per km rates for each mode used:
 - this represents 16% of all public transport users.
- ▼ 23% thought that a new fare should be charged for each mode used during the journey:
 - this represents 13% of all public transport users.¹²⁷

¹²⁵ http://www.ipart.nsw.gov.au/Home/Industries/Transport/Reviews/Public_Transport_Fares/Public_Transport_Fares_in_Sydney_and_Surrounds

¹²⁶ Roy Morgan Research, *Sydney public transport user survey 2015*, December 2015, p 123.

¹²⁷ Roy Morgan Research, *Sydney public transport user survey 2015*, December 2015, p 125.

Figure C.1 Alternative Pricing for Multi-mode Travel by General Public Transport Modes Used



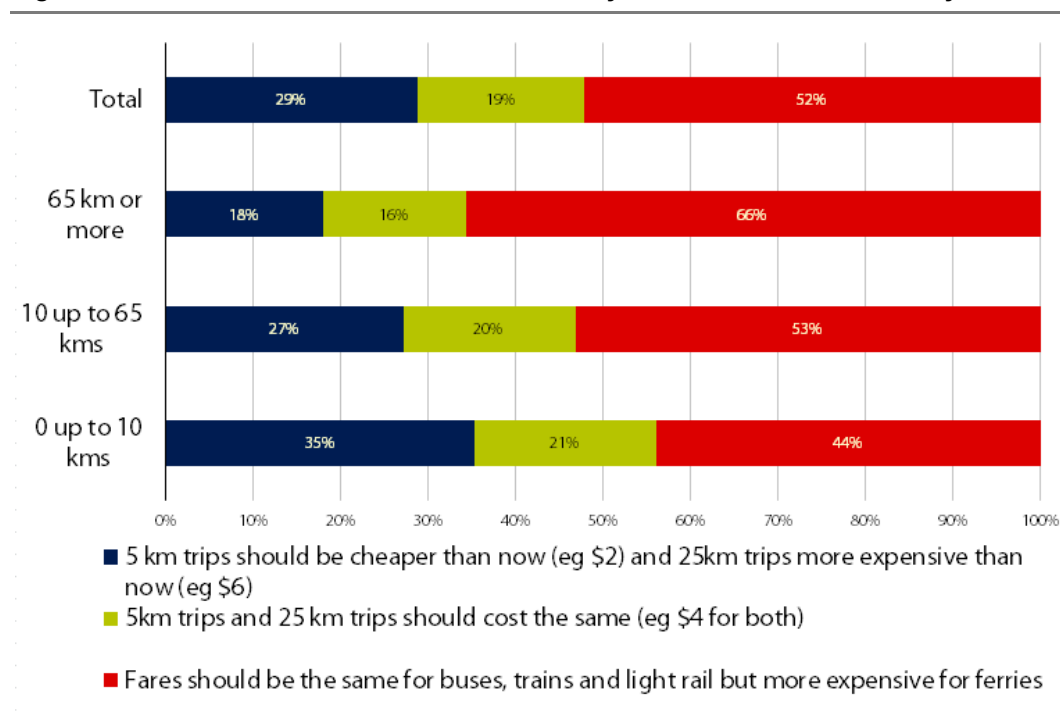
Data source: Roy Morgan Research, *Sydney Public Transport User Survey 2015*, December 2015, p 127.

C.2 Fares based on distances

Respondents were asked how fares should relate to distance travelled (Figure C.2).

- ▼ 52% thought that the current relationship between distance and fares is about right.
- ▼ 29% thought 5 km trips should be cheaper than now (eg, \$2) and 25 km trips more expensive than now (eg, \$6).
- ▼ 19% indicated that 5 km and 25 km trips should cost the same (eg, \$4 for both).
- ▼ There was more support for fares varying by distance travelled by those travelling shorter distances than long distance travellers (35% of those travelling less than 10 kms vs 18% of those travelling 65 kms or more). The majority of long distance travellers (66%) thought the current fares relationship between distance and fares is about right.

Figure C.2 Fares Based on Travel Distance by Distance of Usual Journey



Data source: Roy Morgan Research, *Sydney Public Transport User Survey 2015*, December 2015, p 119.

C.3 Off-peak discounts

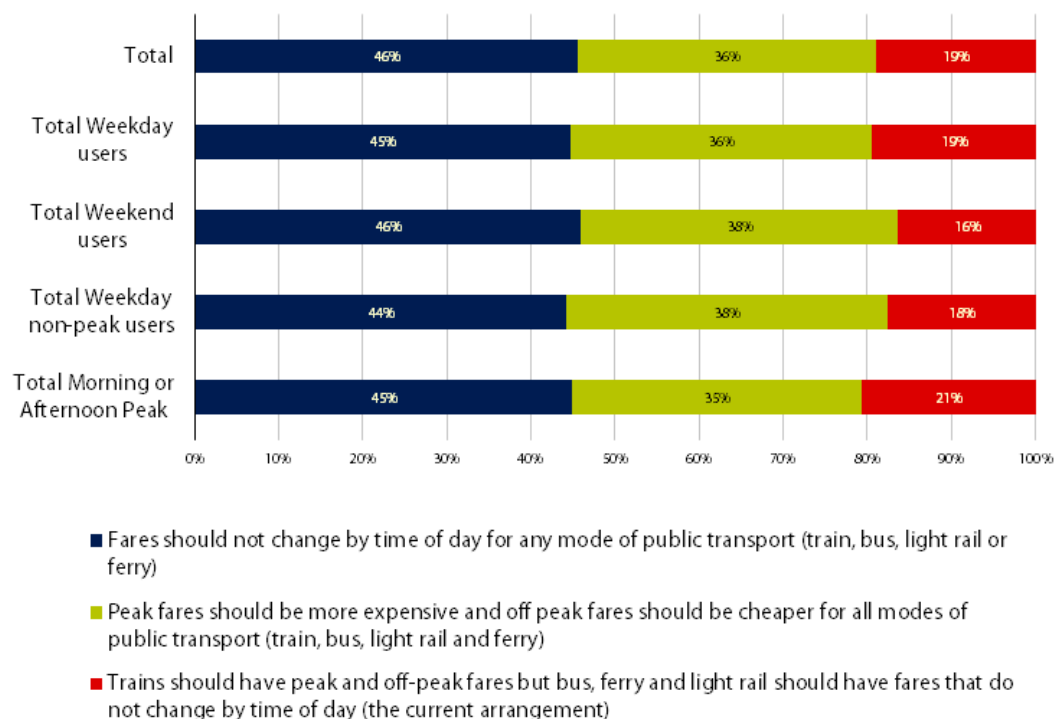
- ▼ 46% consider that fares should *not* change by time of day for any mode.
- ▼ 36 claim that peak fares should be more expensive and off-peak fares should be cheaper across all modes.

19% consider that the current fare arrangement is appropriate.¹²⁸

Respondents' attitudes to off-peak fares tended not to vary based on when they typically travelled.

¹²⁸ Roy Morgan Research, *Sydney public transport user survey 2015*, December 2015, pp 104-105.

Figure C.3 Attitudes to Peak and Off-peak Prices in General by Time on Usual Journey



Data source: Roy Morgan Research, *Sydney Public Transport User Survey 2015*, December 2015, p 105.

C.4 Weekly caps and frequency discounts¹²⁹

Receiving free travel after making 8 trips

- ▼ 41% of Opal card users (excluding Gold Opal) *always* or *often* receive free travel after making 8 journeys. (25% *always* reach it.)¹³⁰
- ▼ 73% of those who always or often receive free travel after making 8 journeys are employed full time.¹³¹
- ▼ People who receive free travel after making 8 journeys often are those:
 - Who make shorter trips.
 - Use more than 1 mode.
 - Travel in the peaks.¹³²

¹²⁹ This analysis excludes Gold Opal card holders as the \$2.50 daily cap for Gold Card holders makes the frequency discounts and week caps irrelevant.

¹³⁰ Roy Morgan Research, *Sydney public transport user survey 2015*, December 2015, p 51.

¹³¹ Roy Morgan Research, *Sydney public transport user survey 2015*, December 2015, p 52.

¹³² Roy Morgan Research, *Sydney public transport user survey 2015*, December 2015, pp 49-53.

Reaching the Opal \$60 weekly cap

- ▼ Around 15% of Opal card users (excluding Gold Opal) always or often reach the Opal \$60 weekly cap.
- ▼ Over half never reach it.
- ▼ Frequency in reaching the weekly travel cap increases with:
 - Number of modes used.
 - Using ferries and light rail.¹³³

Reaching the Opal daily travel cap

Opal card users who reach the daily travel cap (\$15 adults, \$7.50 concession)

- ▼ 20% always or often reach it.
- ▼ 35% never reach it.
- ▼ Frequency of reaching the daily travel cap increases with:
 - Distance travelled.
 - Number of modes used.¹³⁴

Changing travel patterns due to frequency discounts and caps

- ▼ Around 10% of people always alter their travel pattern to benefit from free trips. (Table C.1)

¹³³ Roy Morgan Research, *Sydney public transport user survey 2015*, December 2015, pp 58-59.

¹³⁴ Roy Morgan Research, *Sydney public transport user survey 2015*, December 2015, pp 60-65.

Table C.1 Changing Travel patterns due to Opal incentives – Opal Card Holders (excluding Gold Opal)

	Always	Often	Occasionally	Rarely	Never
I make more cheaper/shorter journeys early in the week	12.4%	14.7%	21.1%	17.6%	34.2%
I make journeys outside the peak if I can so I can get the off-peak discount (trains only)	10.3%	19.6%	24.2%	19.1%	26.7%
I make more journeys on Sundays when the fare is \$2.50	9.4%	14.8%	26.2%	21.6%	28.1%
I make more journeys late in the week and over the weekend after I have reached the weekly travel reward	8.0%	15.2%	21.9%	20.4%	34.5%
I make more journeys on ferries later in the week once I have reached the weekly travel reward	6.2%	7.9%	13.8%	15.4%	56.7%
I make longer journeys or more journeys that use more than one mode of public transport (ie train, bus, ferry, light rail) once I have reached the weekly travel reward	7.5%	12.5%	18.2%	21.6%	40.3%
Average change to travel patterns due to Opal incentives	9.0%	14.1%	20.9%	19.3%	36.8%

Note: Excludes Opal Gold card holders.

Source: Roy Morgan Research, Sydney Public Transport User Survey 2015, December 2015, p 69.

- ▼ People who make cheaper/shorter trips early in the week:
 - 27% of Opal card holders always or often do it, 34% never do it.
 - Ferry and light rail users do this more regularly.
- ▼ People making more journeys late in the week once they receive free trips:
 - 23% always/often do this, 35% never do it.
- ▼ People making longer journeys or more multi-mode journeys once they receive free trips:
 - 20% always/often do this, 40% never do it.
- ▼ These adaptations are more frequent among those:
 - whose usual trip is short¹³⁵
 - with lower household income¹³⁶
 - using more than 1 mode¹³⁷
 - peak hour travelers.¹³⁸

¹³⁵ Roy Morgan Research, *Sydney public transport user survey 2015*, December 2015, pp 72, 77, 94.

¹³⁶ Roy Morgan Research, *Sydney public transport user survey 2015*, December 2015, pp 74, 79, 95.

¹³⁷ Roy Morgan Research, *Sydney public transport user survey 2015*, December 2015, pp 75, 80, 97.

¹³⁸ Roy Morgan Research, *Sydney public transport user survey 2015*, December 2015, pp 75-76, 80, 97.

Preferred discounts

People were asked about preferences for alternative travel discounts. They were in order of popularity

1. Unlimited free journeys after a certain number of paid journeys (35%).
2. Slightly lower fares at all times – no frequency discounts or price caps (27%).
3. Unlimited free journeys for the rest of week after a weekly cap (23%).
4. Limited number of free journeys after a certain number are made (not time limited) (15%).¹³⁹

Gold Opal card daily cap

- ▼ Almost 70% of public transport users think the \$2.50 cap for Gold Opal/PET should remain.¹⁴⁰
- ▼ Responding to a scenario of a \$5 daily cap for Gold Opal cards when used in peak hour and \$2.50 cap when only used off-peak, Gold Opal card users said:
 - 50% - they would not change their travel patterns.¹⁴¹
 - Over 25% - they would change when they travelled.

¹³⁹ Roy Morgan Research, *Sydney public transport user survey 2015*, December 2015, p 116.

¹⁴⁰ Roy Morgan Research, *Sydney public transport user survey 2015*, December 2015, p 107.

¹⁴¹ Roy Morgan Research, *Sydney public transport user survey 2015*, December 2015, p 110.

D Rail straight line distance to/from Town Hall station

Table D.1 Straight line Distance to/from Town Hall station

km	Station
0-3	Redfern, Edgecliff
3-8	Milsons Point, Macdonaldtown, North Sydney, Green Square, Erskineville, Newtown, Waverton, Bondi Junction, St Peters, Stanmore, Wollstonecraft, Petersham, Mascot, St Leonards, Sydenham, Lewisham, Summer Hill, Marrickville, Domestic Airport, Tempe, Dulwich Hill, Artarmon, Ashfield, International Airport, Wolli Creek
8-15	Hurlstone Park, Croydon, Turrella, Chatswood, Arncliffe, Canterbury, Burwood, Bardwell Park, Banksia, Roseville, Strathfield, Campsie, Rockdale, North Ryde, North Strathfield, Homebush, Bexley North, Lindfield, Concord West, Belmore, Kogarah, Rhodes, Macquarie Park, Kingsgrove, Meadowbank, Killara, Flemington, Carlton, Olympic Park, West Ryde, Lakemba, Macquarie University, Allawah, Denistone, Gordon, Wiley Park, Hurstville, Beverly Hills, Eastwood, Penshurst, Lidcombe
15-25	Narwee, Punchbowl, Pymble, Mortdale, Epping, Berala, Auburn, Bankstown, Riverwood, Oatley, Regents Park, Birrong, Turramurra, Yagoona, Cheltenham, Telopea, Dundas, Rydalmere, Carlingford, Camellia, Rosehill, Clyde, Sefton, Padstow, Warrawee, Granville, Beecroft, Wahoonga, Chester Hill, Harris Park, Como, Pennant Hills, Parramatta, Thornleigh, Normanhurst, Revesby, Woollooware, Caringbah, Merrylands, Miranda, Waitara, Leightonfield, Jannali, Guildford, Cronulla, Gympie, Panania, Villawood, Hornsby, Westmead, Yennora, Kirrawee, Sutherland, Asquith, Carramar, East Hills, Wentworthville, Fairfield, Loftus, Mount Colah, Canley Vale, Pendle Hill, Cabramatta
25-35	Holsworthy, Mount Kuring-gai, Toongabbie, Warwick Farm, Liverpool, Seven Hills, Engadine, Berowra, Casula, Heathcote, Blacktown, Glenfield, Cowan, Marayong, Macquarie Fields, Doonside, Quakers Hill, Edmondson Park, Ingleburn, Waterfall
35-45	Rooty Hill, Schofields, Hawkesbury River, Mount Druitt, Minto, Leppington, Riverstone, Helensburgh, Leumeah, Vineyard, Otford, St Marys, Campbelltown, Wondabyne, Werrington, Macarthur, Mulgrave, Stanwell Park, Woy Woy
45-65	Coalcliff, Koolewong, Windsor, Kingswood, Tascott, Clarendon, Point Clare, Scarborough, Penrith, Menangle Park, Wombarra, Menangle, East Richmond, Gosford, Emu Plains, Richmond, Coledale, Lapstone, Austinmer, Narara, Glenbrook, Thirroul, Niagara Park, Lisarow, Blaxland, Douglas Park, Bulli, Warrimoo, Ourimbah, Woonona, Valley Heights, Bellambi, Corrimall, Springwood, Towradgi, Picton, Fairy Meadow
65-85	Faulconbridge, Tuggerah, North Wollongong, Linden, Wollongong, Wyong, Woodford, Tahmoor, Coniston, Lysaghts, Hazelbrook, Cringila, Unanderra, Port Kembla, Port Kembla North, Warnervale, Lawson, Bargo, Bullaburra, Kembla Grange, Dapto, Wentworth Falls, Wyee, Yerrinbool, Leura, Katoomba
85-100	Albion Park, Oak Flats, Dunmore (Shellharbour), Medlow Bath, Morisset, Blackheath, Minnamurra, Dora Creek, Bombo, Mount Victoria, Kiama, Mittagong, Bell, Bowral

D Rail straight line distance to/from Town Hall station

km	Station
100+	Awaba, Burradoo, Gerringong, Zig Zag, Fassifern, Lithgow, Booragul, Moss Vale, Teralba, Cockle Creek, Berry, Cardiff, Kotara, Adamstown, Exeter, Broadmeadow, Wickham, Hamilton, Civic, Newcastle, Waratah, Warabrook (University), Sandgate, Bundanoon, Bomaderry (Nowra), Hexham, Tarro, Beresfield, Thornton, Penrose, Metford, Victoria Street, Lochinvar, High Street, Maitland, East Maitland, Telarah, Wingello, Greta, Branxton, Mindaribba, Tallong, Marulan, Singleton, Paterson, Martins Creek, Hildale, Bathurst Station, Wallarobba, Wirragulla, Goulburn, Dungog, Muswellbrook, Aberdeen, Scone

Note: Distance to/from Town Hall only – distances will be different for other city stations.

Source: TfNSW.

E Glossary

Daily cap	The maximum amount that a traveller is charged for public transport journeys on a single day. Proposed to be \$18 for adults and \$9 for concessions from July 2016.
Distance bands	How journey distances are grouped into fare bands (eg, 0-3 kms, 3-8 kms, 8-15 kms). For example, the fare for a 0.5 km journey is the same as for a 2.5 km journey on the same mode as the distances are within the same band.
Efficient costs	How much it costs efficient operators to provide public transport services. Efficient costs may differ from actual costs incurred by operators.
External costs and benefits/externalities	The costs and benefits to third parties that are not reflected in the price of travel, and therefore not accounted for by motorists and public transport users in their decisions to drive or use public transport.
Fare integration	The way fares for journeys on different or multiple modes, or of different distances relate to each other.
Journey	Under Opal, a journey consists of one or more trips on eligible services where transfers between services occur within 60 minutes. (60 minutes applies to all services except the Sydney Ferries Manly ferry service where the standard transfer time is 130 minutes from tap on.)
Medium run	Refers to the term of the fare determination, from July 2016 to June 2019.
Multi-mode customers	Travellers who use more than one mode per journey (eg, bus and train or ferry and bus).
Multi-trip journeys	Journeys that consist of two or more trips eg bus and another bus, bus and train, train and ferry.
Off-peak	Weekends, public holidays and week day times before or after peak times (see below).
Peak times	Sydney trains network peak hours are: ▼ Weekdays, 7am to 9am and 4pm to 6:30pm NSW TrainLink Intercity Services area peak hours are: ▼ Weekdays, 6am to 8am and 4pm to 6:30pm
Price elasticity of demand	How responsive the demand for a good/service is to changes in its price. For example, a price elasticity of -0.5 means that for a 1% increase in price there will be a 0.5% decrease in the quantity demanded.
Network frequency benefits	The benefit of additional services being added as more people use public transport.

Socially optimal fares	The fare level where the cost of providing the service to the last passenger is equal to the benefit to that passenger and the wider community.
Weekly cap	The maximum amount a traveller may be charged for all public transport journeys in one week.

F | List of Submissions

Table F.1 List of submissions to Issues Paper

Submitter	Date received
Infrastructure Partnerships Australia	31 August 2015
Individual (S. Shinfield)	31 August 2015
Connect Macquarie Park North Ryde	31 August 2015
Individual (K. Riley)	29 August 2015
Individual (R. Iacopetta)	28 August 2015
Shore Regional Organisation of Councils (SHOROC)	28 August 2015
Combined Pensioners and Superannuants Association of NSW Inc	28 August 2015
Greens Member of the NSW Legislative Council M. Faruqi (NSW Greens)	28 August 2015
Individual (B. Smith)	28 August 2015
Individual (A. Andreopoulos)	28 August 2015
Individual (Anonymous)	28 August 2015
Council of Social Services of NSW (NCOSS)	28 August 2015
Individual (R. Sandell)	28 August 2015
Individual (Anonymous)	28 August 2015
Philip Norman and Associates Pty Ltd	28 August 2015
Individual (E. Morris)	28 August 2015
Individual (O. Heldon)	28 August 2015
Individual (R. Sharples)	28 August 2015
NRMA	28 August 2015
Individual (R. Banyard)	28 August 2015
Individual (M. Ludbrooke)	27 August 2015
Individual (J. Austen)	27 August 2015
Hunter Commuter Council	27 August 2015
Action for Public Transport (NSW) Inc	27 August 2015
Individual (P. Abelson)	27 August 2015
Individual (Anonymous)	26 August 2015
Individual (M. Cox)	26 August 2015
Individual (Anonymous)	26 August 2015
City of Sydney	26 August 2015
Individual (J. Morris)	26 August 2015

Submitter	Date received
Individual (J. Zealey)	25 August 2015
Individual (N. Flex)	25 August 2015
City of Botany Bay	24 August 2015
Individual (R. Gollan)	23 August 2015
Individual (Anonymous)	23 August 2015
Individual (Anonymous) – Confidential	22 August 2015
Individual (R. Feraer)	22 August 2015
Individual (D. Miskov)	22 August 2015
Individual (D Merchant)	21 August 2015
Individual (Anonymous)	21 August 2015
Individual (Anonymous) – Confidential	21 August 2015
Individual (Anonymous) – Confidential	21 August 2015
Individual (Anonymous)	21 August 2015
Individual (A. Portnoy)	21 August 2015
Individual (K. Hayden)	21 August 2015
Individual (Anonymous) – Confidential	20 August 2015
Individual (Anonymous)	20 August 2015
Individual (Anonymous)	16 August 2015
Individual (E. Subramanya Iyer)	15 August 2015
Individual (Anonymous)	14 August 2015
Individual (Anonymous)	14 August 2015
BOC Limited	14 August 2015
Individual (Anonymous) – Confidential	12 August 2015
Vaucluse Progress Association	11 August 2015
Individual (Anonymous)	04 August 2015
Individual (L. Wright)	04 August 2015
Individual (P. Knowles)	04 August 2015
Individual (S. Lovell)	03 August 2015
Individual (Anonymous) – Confidential	02 August 2015
Individual (K. Thackray)	31 July 2015
Individual (N. Farr)	30 July 2015
Individual (Anonymous)	28 July 2015
Individual (Anonymous)	28 July 2015
Individual (Anonymous)	27 July 2015
Individual (Anonymous)	27 July 2015
Individual (Anonymous)	26 July 2015
Individual (B. Downie)	26 July 2015
Individual (Anonymous)	26 July 2015
Individual (D. Price) – Confidential	24 July 2015
Individual (C. Carroll)	23 July 2015
Individual (D. Caldwell)	23 July 2015
Individual (Anonymous)	23 July 2015

Submitter	Date received
Individual (K. Karlov)	22 July 2015
Individual (M. Pei)	22 July 2015
Individual (P. Deer)	22 July 2015
Individual (Anonymous)	22 July 2015
Individual (Anonymous) – Confidential	22 July 2015
Individual (T. Quilty)	22 July 2015
Individual (D. Briant)	22 July 2015
Individual (I. Howe)	22 July 2015
Individual (J. Parish)	22 July 2015
Individual (L. Jacob) – Confidential	22 July 2015
Individual (R. Brocklebank)	22 July 2015
Individual (Anonymous) – Confidential	22 July 2015
Individual (F. Zagami)	22 July 2015
Individual (B. Lutherborrow)	22 July 2015
Individual (Anonymous)	22 July 2015
Individual (J. Neufeld)	21 July 2015
Individual (M. Swayn)	21 July 2015
Individual (S. McLaughlin)	21 July 2015
Individual (S. Dyer)	21 July 2015
Individual (G. Milton)	21 July 2015
Individual (C. Beck) – Confidential	21 July 2015
Individual (P. Heath)	21 July 2015
Individual (E. Olesen)	21 July 2015
Individual (Anonymous)	21 July 2015
Individual (F. Le)	21 July 2015
Individual (Anonymous)	21 July 2015
Individual (M. Dunn)	21 July 2015

Table F.2 List of submissions to Methodology Paper

Submitter	Date received
Planning Institute of Australia	15 October 2015
City of Sydney	14 October 2015
Action for Public Transport (NSW) Inc	9 October 2015
Sydney Airport	9 October 2015
Individual (Anonymous)	9 October 2015
Individual (D. Fitzpatrick)	8 October 2015
Council of Social Services of NSW (NCOSS)	8 October 2015
Individual (Anonymous)	7 October 2015
Individual (S. Smith)	7 October 2015
Link Place	5 October 2015
Philip Norman and Associates Pty Ltd	29 September 2015
Individual (R. Lutherborrow)	28 September 2015
Individual (S. Williams)	25 September 2015
Individual (T. Gustard)	16 September 2015
Individual (Anonymous)	16 September 2015