SEQ Fare Review

TASKFORCE REPORT

Review of the fare structure for public transport in South East Queensland

June, 2016

CONTENTS

FOREWARD

The State Government appointed a taskforce of public transport experts to conduct a comprehensive review of TransLink's fare structure in South East Queensland (SEQ). This project delivers on the Queensland Government's commitment to review the public transport fare system to improve affordability and boost patronage.

The Fare Review Taskforce (SEQ Fare Review Taskforce) will form the basis of a new fare strategy in South East Queensland to increase the rate of public transport patronage while also ensuring a sustainable fare revenue stream to allow the network to grow.

The Queensland Government is committed to restoring confidence in our public transport system and encouraging more people to choose to travel by bus, rail, ferry or light rail to get to their destination.

We recognise affordability is perceived to be a barrier to growing patronage on the public transport network, and the SEQ Fare Review Taskforce will work to address this ongoing challenge to create a fairer system.

The members of the SEQ Fare Review Taskforce bring a wealth of global and local transport knowledge and experience to the table. The members come from varied backgrounds in public transport management and research, ticketing systems, tourism, and advocacy group representation, with many experienced in leading global transport organisations working across public and private sectors.

Key local advocacy and user groups are also represented on the SEQ Fare Review Taskforce, to ensure we capture a solid understanding of our local context and needs of transport users in South East Queensland, including seniors and those living with disabilities.

Following consideration of the SEQ Fare Review Taskforce's Options Paper, the Queensland Government will also engage extensively with the public, providing them with the opportunity to have their say before making a decision about the future of public transport fares in South East Queensland.

ACKNOWLEDGEMENTS

This report was prepared by the SEQ Fare Review Taskforce at the direction of the Deputy Premier and (then) Minister for Transport, the Honourable Jackie Trad MP, to assist the Queensland Government in determining an optimum fare strategy for South East Queensland.

In recent months, the SEQ Fare Review Taskforce has worked in close collaboration with the Department of Transport and Main Roads (TMR) and we would like to thank TMR, in particular the TransLink Division (TransLink), for coordinating the collation of considerable information and research material, responding to several data and modelling requests, and providing secretariat support services.

The SEQ Fare Review Taskforce would also like to acknowledge all organisations and individuals who engaged with us over recent months, through meetings, submissions, sharing of academic papers, conduct of market research and the modelling and analysis of several fares options.

Neil Cagney
Fare Taskforce Chair

EXECUTIVE SUMMARY

On 17 August 2015, the Deputy Premier and Minister for Transport, the Honourable Jackie Trad MP, announced the appointment of a SEQ Fare Review Taskforce to conduct the Fare Review. The Deputy Premier directed the SEQ Fare Review Taskforce to take a holistic view of the existing fare structure and prepare a Recommendations Paper for the Queensland Government's consideration.

The Queensland Government's key objective is to determine the optimum fare strategy for South East Queensland that will:

- be fair;
- be affordable;
- help boost patronage;
- deliver a sustainable fare revenue stream; and
- allow and facilitate the network to continue to grow.

The SEQ Fare Review Taskforce's Terms of Reference were:

- Review the existing fare structure in South East Queensland in relation to meeting the Queensland Government's objectives of promoting fairness, affordability and patronage growth.
- Consider potential fare and ticketing initiatives; quantify their financial and budgetary implications; consider the strategic impact of each option and recommend a package of options consistent with the government's objectives.
- The following must be considered:
  - patronage growth;
  - benefits to individuals, community and economy;
  - cost to individuals and Government subsidy impacts;
  - implications for the existing network in terms of changing usage patterns;
  - implications for land-use and employment patterns; and
  - ability to implement changes with existing ticketing system technology and timeframe limitations.

The scope includes consideration of:

- products, ticket types including concession classes;
- zonal structure including zonal anomalies and network utilisation;
- existing travel discount schemes future indexation of fares; and
- administration and/or system simplification.

Items that are out of scope for this review include:

- removing paper tickets;
- requiring additional transport services;
- broad discounting across all ticket types, without consideration of further structural reforms;
- changing eligibility of existing state and federal concessions; and
- altering specific purpose products for other uses.

An extensive range of information was drawn on to conduct the review, including previous market research and economic analyses, material from expert local and international bodies, submissions to government, and a number of existing government and expert publications. The SEQ Fare Review Taskforce also commissioned extensive modelling to assess the likely effects of a range of fare policy changes. The final recommendations are the result of an iterative and incremental process designed to achieve the best package, on balance, to meet the Government's key objectives.

This report is not intended to be a detailed prescription of all matters relating to the complex issue of public transport pricing and ticketing. It is intended to capture what we believe to be the key principles and considerations which define and shape a future fares strategy for South East Queensland.

When setting fares it is important to understand that the Queensland Government's funding commitments for public transport have increased significantly in the last six years and, even with fare increases since 2009, fare revenues have not kept pace with increased operational spending. Between the 2009 financial year (FY) and FY2014 the cost of running the South East Queensland public transport network grew by 50.1 per cent or $558 million, while the net funding shortfall increased by approximately $400 million.

TransLink recovers less than one-third of the cost of service provision from fare revenues. The difference between the cost of service provision and fares recovery is met by an annual Community Service Obligation (CSO) payment to TransLink from the State's consolidated fund. The average cost of public transport subsidies is forecast to rise from $6.65 per trip to $6.82 per trip in FY2016, partially as a result of smaller increases in public transport fares in January 2015.

In determining maximum fares we need to decide how much of the total cost should be paid by the people who use public transport (through fares) and how much by the community as a whole (through the government subsidy). Trade-offs inevitably exist between growing public transport patronage, via competitive fares pricing and product decisions, and ensuring sufficient funds are available for the necessary network upgrades to service a broader cross-section of the community and meet the needs of a growing population.

In light of the well documented and irrefutable direct benefits to the community as well as the positive impacts of public transport for the region as a whole, we consider continued, if not greater, subsidisation of public transport provision is warranted to stimulate the economy and ensure continued regional competitiveness.

Of particular concern, since 2009 patronage growth has slowed significantly and total patronage has remained almost steady over the past six years. We acknowledge that affordability is only part of a number of drivers influencing the choice to use public transport. However, one clear influencing factor behind recent changes in passenger transport satisfaction ratings is cost. The TransLink 2013 User and Usage Profiles research showed almost three in four infrequent and non-users rate affordability as a barrier to public transport usage. The market research undertaken specifically to inform our review also highlighted cost as the major reported negative associated with public transport in Queensland.

The SEQ Fare Review Taskforce is informed by many goals and contrasting demands. A core danger of a Fare Review is that it can appear to have just too many moving parts and too many, often competing, objectives for anyone to grasp and to derive an ultimate package of reform recommendations.

During the course of our review, we have found `fairness' means very different things across the community in general, depending on personal circumstances and transport usage. Fairness is a complex concept with several dimensions that are of relevance to public transport fares.

Similarly, the issue of `affordability' poses competing challenges. Some people can't afford the fare, and therefore don't travel by public transport. This has two separate consequences that fare policy must consider separately:

- consequences for these people, and indirectly for the society and economy; and
- consequences for patronage.

Affordability also signifies the extent to which the government (and the broader community as taxpayers) can sustain and what the broader community is prepared to subsidise through taxpayer contributions.

At a high-level, we need to consider not just the users of the public transport system in South East Queensland, but also the State Government and the wider communities it represents.

A key task was to clearly decide on and enumerate the overarching goals, define how these would be measured, and then present an organising framework enabling the discussion of compromise among just three major objectives rather than tens or potentially hundreds.

We decided upon three major organising objectives:

- Patronage (Journeys);
- Distance Travelled (Coverage); and
- Advantages for Specific Groups (Social Equity).

While an ideal fare structure would deliver all three outcomes, unavoidable compromises do tend to arise in practice. We wish to acknowledge, up front, there are inevitably winners and losers in any proposed amendments to fares and there is a need to responsibly identify outcomes / impacts on different groups as well as for the public transport system as a whole.

After considering in detail the range of goals and unavoidable tensions and compromise between the organising goals, the SEQ Fare Review Taskforce established the following Guiding Principles:

- The package of options should deliver a system which is affordable for both users and the government;
- The options should, as far as possible, contribute to patronage growth;
- The options should, as far as possible, support the development of a sustainable urban form, while recognising the need to address coverage across the region, particularly to meet specific mobility needs of communities and to improve access in areas where demand may not warrant scheduled services;
- The options should be responsive to the concerns of individuals experiencing acute affordability and mobility needs;
- The options need to ensure a sustainable revenue stream for the Queensland Government in order to continue to build, operate, and maintain an efficient and effective network;
- The short term options must be readily implementable under the current ticketing system; and
- The recommended options must provide a consistent, progressive path towards a longer term fares strategy, enabled by technological improvements and Next Generation Ticketing systems, and complement a shift from 'journey management' to 'mobility management'.

These Guiding Principles have been applied to select, evaluate, and prioritise from a vast range of potential fare policy options.

We acknowledge the current SEQ ticketing system is nearing the end of its planned life and, as such, some fare and product initiatives are simply not possible using the existing technology.

Future upgrades to ticketing systems provide the opportunity to address some current complexities and issues, introduce more flexible and responsive pricing, and ultimately incorporate other non-transport products which enable a fundamental shift in approach from 'transport management' to a broader retail model.

The SEQ Fare Review Taskforce has recommended options that are readily implementable in the short to medium term (2016 – 2018), under the current ticketing system. These options are consistent with, and facilitate, the progressive development and implementation of a new fare path strategy which will be supported by the next generation of ticketing systems.

The following report details the current issues and the rationale behind our guiding principles, along with our options development, testing and selection process.

The table on the next page summarises our 'core' recommended key fares package for the SEQ public transport network. This package delivers 'fairness', 'affordability' and 'equity'. Most importantly, the package will deliver sustainable patronage growth and the associated flow-on benefits to the community, the environment, and the region's economy. Our 'core' package centres around a significant consolidation and simplification of the current zonal structure, along with more equitable and targeted discount incentives.

We acknowledge this package requires additional investment by the Queensland Government. However, a high performing passenger transport system that is a logical choice for the community will minimise overall transport costs in SEQ and maximise regional competitiveness through efficient land use patterns that reduce the need to travel. We are confident our recommendations will deliver on the Queensland Government's focus of building safe and connected communities and a strong regional economy.

	Current	Recommendation 1 (and elements)
Zones	23 Zones	8 Zones
Off peak discounts	20 per cent to all users travelling with a *go* card	30 per cent to all users travelling with a *go* card
Off peak times	7PM – 3AM (Mon to Fri) All day weekends 8.30AM – 3.30PM (Mon to Fri)	7PM – 6AM (Mon to Fri) No change No change
Incentives	9 and FREE 1,2 and FREE (seniors / pensioners)	Remove Remove Replace with 8 paid journeys and 50 per cent off subsequent journeys per week (all users)
Children	Standard concession (50 per cent off adult *go* card fare)	Children 5-14 years can travel free on a weekend with a *go* card

Our modelling indicates this package can deliver approximately eight million additional passenger journeys per annum.

RECOMMENDATIONS

A full list of the SEQ Fare Review Taskforce's recommendations is summarised below. Supporting details are provided in the following report and supporting attachments.

1. It is recommended the Queensland Government adopts the following key reforms to fare structures and policies as a package:
    - 1.1. It is recommended TransLink adopts a zone simplification to eight zones for the South East Queensland region (merging zones 1 and 2 and subsequent merging of the current 23 concentric zones) and a one zone fare be set at $3.00 upon implementation. The SEQ Fare Review Taskforce also recommends a detailed review of zone boundaries to ensure the removal of existing anomalies (spider legs and precinct legacy issues).
    - 1.2. It is recommended the off-peak discount be increased to the rate of 30 per cent (from 20 per cent).
    - 1.3. It is recommended the morning off-peak be extended through to 6AM (from 3AM).
    - 1.4. It is recommended children age five to 14 years inclusive travel free at the weekend on a child *go* card (5 – 14 years)
    - 1.5. It is recommended the '9 and free' and '1,2, and free' products are removed and replaced by '8 and 50 per cent' for all *go* card users – after 8 paid journeys, all subsequent journeys in the same week are discounted by 50 per cent.
2. It is recommended consideration be given to possible longer term zone refinements, including investment into research and modelling on concentric hubs around Brisbane, Gold Coast, and Sunshine Coast.
3. It is recommended two versions of seeQ card product be provided, one with removal of the Airtrain option from the seeQ card.
4. It is recommended TransLink continue to invest in the rollout of the *go explore* product on the Sunshine Coast.
5. It is recommended TransLink continue to explore the corporate use of *go access* cards for events, conferences and other similar events.
6. It is recommended the Government reviews its concessions framework and consider extending applicability to Newstart allowance recipients and Asylum Seeker groups.
7. It is recommended some disadvantaged concession groups (such as those included in Recommendation 6) be funded as standalone items separate to the operational efficiency of TMR.
8. It is recommended TransLink continues to move away from paper based ticketing and that initiatives continue to support and encourage the take up of *go* cards (including pricing differentiation).
9. It is recommended, where possible and practical, bus operators move towards a rear door loading model.

10. It is recommended an on-going review of urban fringe communities be undertaken to include transition of rural communities from paper ticket fares – this is subject to the implementation of a new ticketing system.
11. It is recommended TransLink adopts a time-based fare cap ($ limit) when ticketing technology allows this to take place.
12. It is recommended a SEQ Fare Review Taskforce or expert-led group is established for an independent and transparent appraisal process to review the general principles and appropriateness for fare setting and changes. This includes the possibility of the Consumer Price Index (CPI) as a starting point when considering future fare changes.
13. It is recommended the (or a) SEQ Fare Review Taskforce meets again to check the course set by the SEQ Fare Review Taskforce during these deliberations.
14. It is recommended community engagement should include an education process and that it should seek to market the public transport network and its full benefits and capabilities.
15. It is recommended funding is allocated to the improvement of networks generally, while acknowledging fares need to be kept relevant.
16. It is recommended the Queensland Government re-addresses discussions about phasing out free services (for example, City Hoppers and Gold Coast Seniors Card).
17. It is recommended movement to an account based ticketing system should take place as soon as reasonably and practicably possible.

1 BACKGROUND

In May 2015, the Premier of Queensland wrote to each Minister, detailing the Queensland Government's commitments and priorities within their Ministerial Portfolios. Under the Transport Portfolio, the Deputy Premier, the Honourable Jackie Trad MP, was charged with the following key priority:

"Conduct a comprehensive expert-led review of the TransLink fare structure within 12 months to determine the optimum fare strategy for South East Queensland that will be fair, affordable, help boost patronage and deliver a sustainable fare revenue stream to allow the network to continue to grow."

On 17 August 2015, the Deputy Premier announced the appointment of a SEQ Fare Review Taskforce to conduct the Fare Review. The Deputy Premier directed the SEQ Fare Review Taskforce to take a holistic view of the existing fare structure and prepare a Recommendations Paper for government's consideration.

1.1 Taskforce Membership

The SEQ Fare Review Taskforce comprises diverse representation including industry-leading public transport experts and representatives from key local user groups.

Taskforce

- Mr Neil Cagney (Chair) – MRCagney Pty Ltd
- Mr Mark Tucker-Evans – Chief Executive of COTA Queensland
- Mr Jarrett Walker – Consultant, Jarrett Walker and Associates
- Associate Professor Matthew Bourke – Griffith University
- Mr Robert Dow – Rail Back on Track
- Ms Sharon Boyce – Chair, Queensland Disability Advisory Council
- Mr Neil Scales – Director-General of the Department of Transport and Main Roads
- Mr Trent Zimmerman – Deputy Chief Executive of Tourism and Transport Forum (27 Jul 15 to 3 Nov 15).

A brief synopsis of SEQ Fare Review Taskforce members is provided in Attachment 1.

Secretariat

- Peter Milward, Deputy Director General, TransLink Division
- Wietske Smith, General Manager, Passenger Transport Integration
- Sarah Capstick, Executive Director Service Policy and Investment
- Kerry Wastell, Project Manager.

TransLink provided the secretariat function for the SEQ Fare Review Taskforce, including: collation and dissemination of background information and reports and assistance with the modelling and analysis of options including the commissioning and coordination of community market research activities to better inform and aid the formulation and assessment of suitable options.

1.2 Purpose

This review will inform and guide the development of a new public transport fare strategy for SEQ.

The review will take a holistic view of the existing fare structure and provide a balanced package of recommended options that meet the Queensland Government's specified objectives.

In accordance with the Terms of Reference for the SEQ Fare Review Taskforce, as detailed in Section 1.3 below, the Queensland Government's key objective is to determine the optimum fare strategy for South East Queensland that will:

- be fair;
- be affordable;
- help boost patronage;
- deliver a sustainable fare revenue stream; and
- allow and facilitate the network to continue to grow.

The current ticketing system is nearing the end of its planned life and, as such, some fare and product initiatives are not possible using the existing technology. The SEQ Fare Review Taskforce has recommended options that are readily implementable in the short to medium term (2016 – 2018), under the current ticketing system. These options are consistent with the longer term strategic recommendations and facilitate the progressive development and implementation of a new fare path strategy which will be supported by the next generation of ticketing systems.

1.3 Terms of Reference

The SEQ Fare Review Taskforce has been guided by the following Terms of Reference:

Members of the SEQ Fare Review Taskforce will apply their expertise to:

- review the existing fare structure in SEQ in relation to meeting the government's objectives of promoting fairness, affordability and patronage growth.
- consider potential fare and ticketing initiatives; quantify their financial and budgetary implications; consider the strategic impact of each option and recommend a package of options consistent with the government's objectives.
- The following must be considered:
  - patronage growth
  - benefits to individuals, community and economy
  - cost to individuals and Government subsidy impacts
  - implications for the existing network in terms of changing usage patterns
  - implications for land-use and employment patterns
  - ability to implement changes with existing ticketing system technology and timeframe limitations.

The scope includes consideration of:

- products, ticket types including concession classes
- zonal structure including zonal anomalies network utilisation
- existing travel discount schemes future indexation of fares
- administration and/or system simplification.

Items that are out of scope for this review include:

- removing paper tickets
- requiring additional transport services
- broad discounting across all ticket types, without consideration of further structural reforms
- changing eligibility of existing state and federal concessions
- altering specific purpose products for other uses.

1.4 Approach

Consistent with its Terms of Reference, the SEQ Fare Review Taskforce has undertaken consultation with a range of internal and external stakeholders and has reviewed all relevant data and literature to inform the advice and recommendations to government contained in this report.

An extensive range of information was drawn on to conduct the review, including previous market research and economic analyses, material from expert local and international bodies, submissions to government, and a number of existing government and expert publications.

The SEQ Fare Review Taskforce also commissioned extensive modelling to assess the likely effects of a range of fare policy changes, with input and guidance to the modelling team provided from all SEQ Fare Review Taskforce members.

The final recommendations are the result of a continual and incremental process designed to achieve the best package, on balance, to meet the Queensland Government's key objectives.

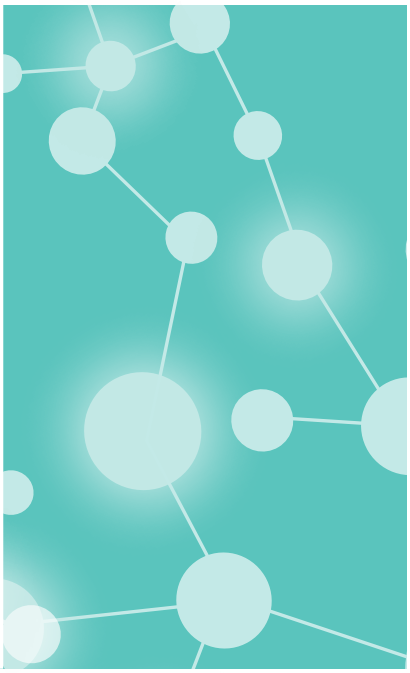
The SEQ Fare Review Taskforce held formal meetings to review and discuss all relevant material and modelling outputs, as well as receive additional targeted briefings from pricing, ticketing and public transport specialists.

An important part of the SEQ Fare Review Taskforce's role was to capture views and input from the broader community, including existing uses of the South East Queensland public transport network and current non-users. Consequently, the SEQ Fare Review Taskforce commissioned the conduct of qualitative and quantitative market research. This additional research provided the SEQ Fare Review Taskforce not only with a better understanding of the key drivers behind current perceptions and mode choices but also what the community, including taxpayers in general, view as 'fair' and 'affordable'.

In our report we have articulated the unavoidable trade-offs required in fares decisions. We have also articulated what we consider to be the key guiding principles for fares reform. These have explicitly influenced and shaped our selection of options. An Evaluation Framework was also developed to assess these options and to select the final package of recommendations.

Rather than re-invent the wheel, the SEQ Fare Review Taskforce has drawn on much previous and current work in undertaking its assignment. A list of key data and research reviewed by the SEQ Fare Review Taskforce is provided at Attachment 2.

The following report is not intended to be a detailed prescription of all matters relating to the complex issue of public transport pricing and ticketing. It is intended to capture what we believe to be the key principles and considerations which define and shape a future fares strategy for South East Queensland and the options which, on balance, best meet the Queensland Government's stated objectives.



2 CONTEXT

2.1 Patronage Trends

Following the establishment of TransLink and the introduction of an integrated multi-modal ticketing system in 2004, the passenger transport network witnessed significant growth in patronage, with 176.26 million passenger transport boardings recorded in 2014/15, a 26 per cent increase over the past 10 years. Recent trends are highlighted in Figure 2-1.

Between 2004 and 2009 patronage on the South East Queensland public transport network grew between five and ten per cent each year. However, of particular concern, since 2009 growth has slowed significantly and total patronage has remained almost steady over the past six years.

Declining patronage directly impacts on TransLink's revenue and increases the need for greater public subsidies, while also reducing the degree to which public transport supports wider socio-economic objectives.

Recent patronage trends are unlikely to solely reflect the impact of fare increases. There are a number of other external factors that may be exerting downwards pressure on public transport patronage. These include, but are not limited to: 1) subdued levels of economic activity; 2) slowing population growth; 3) declining city centre employment; 4) lower costs of vehicle ownership, e.g. fuel; and 5) changes in patronage reporting due to the transition from paper tickets to *go* card.

The SEQ Fare Review Taskforce wishes to stress that price is only part of a package of drivers influencing the choice to use public transport.

For current non-users, the most common reported barrier to using public transport is that private vehicles are considered 'more convenient' and cheaper to use. The perceived inconveniences of public transport include low frequency and reliability as well as poor network connectivity. Further, 42 per cent of infrequent and non-public transport users indicate their knowledge of the network is a key barrier for usage (*TransLink User and Usage Profiles 2013*).

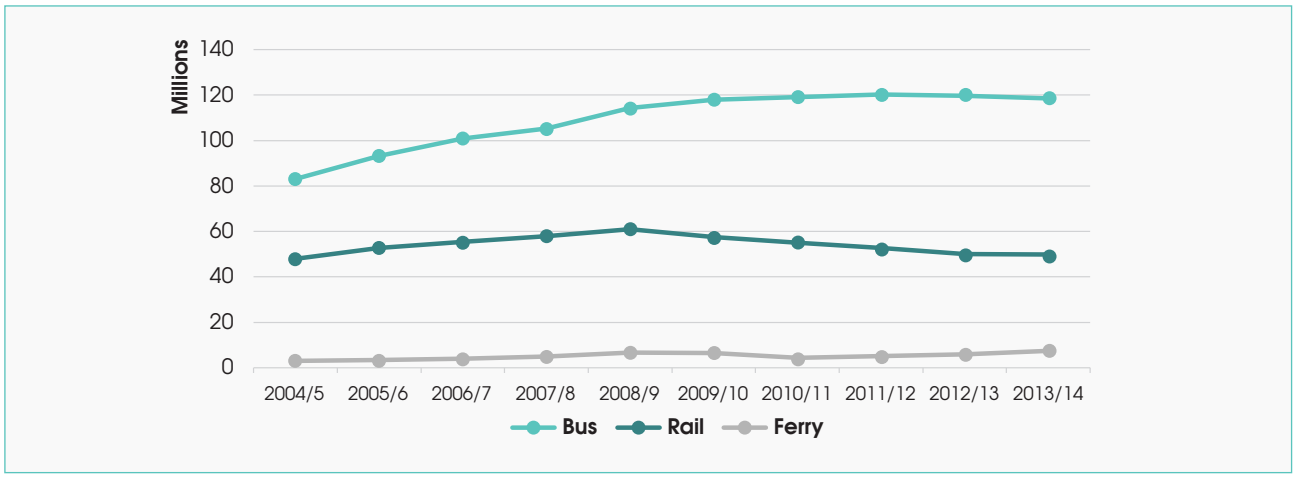
For regular public transport users, the service delivery dimensions for which they currently rate as most important are: proximity – accessibility to services; ease of use; and safety and security. These issues all need to be addressed to maintain (and grow) the public transport mode share.

2.2 Funding and Cost Recovery

Between FY2009 and FY2014 the cost of running the South East Queensland public transport network grew by 50.1 per cent or $558 million. The main reasons for this increase include ongoing service improvements and rising costs of contract operations. Revenue and costs for public transport in South East Queensland over time is illustrated in Figure 2-2.

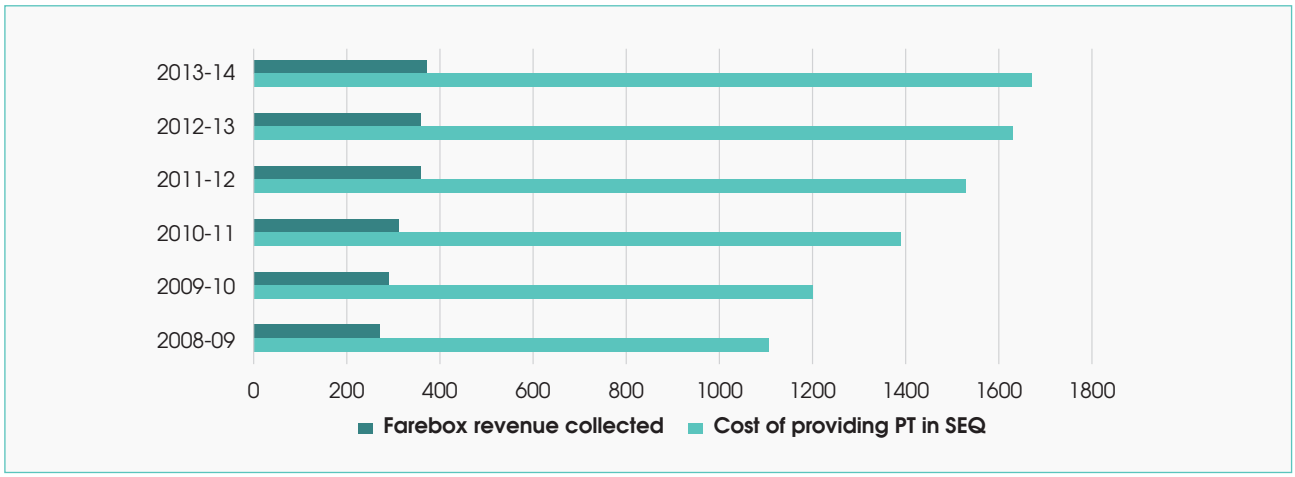
When setting fares it is important to understand that the Queensland Government's funding commitments for public transport have increased significantly in the last six years and historical fare revenues have still not kept pace with increased operational spending.

Figure 2-1 SEQ Public Transport Patronage Trends



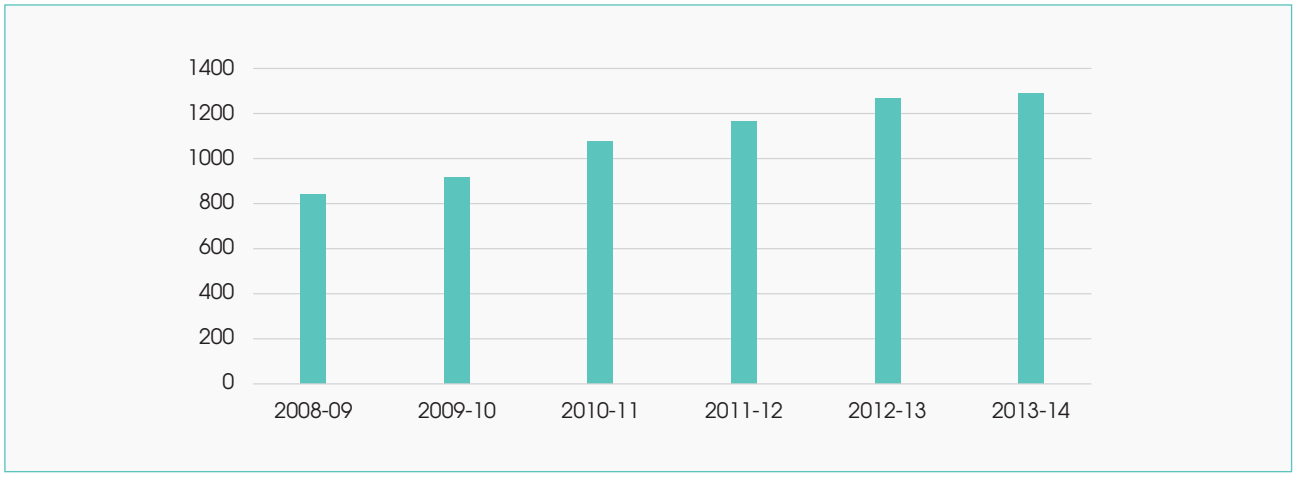
Source: TMR and TransLink Annual Reports FY2009 – FY2014

Figure 2-2 Fares Revenue vs Costs of PT Provision in SEQ



The change in net funding shortfall, or Government subsidy, required to operate public transport in South East Queensland is shown in Figure 2-3. This shows the net funding shortfall increased by approximately $400 million from FY2009 to FY2014.

Figure 2-3 Public Transport in SEQ – Net Funding Shortfall



TransLink recovers less than one-third of the cost of service provision from fare revenue, on average. The difference between the cost of service provision and fares recovery is met by an annual Community Service Obligation (CSO) payment to TransLink from the State's consolidated fund. The average cost of public transport subsidies is forecast to rise from $6.65 per trip to $6.82 per trip in FY2016, partially as a result of smaller increases in public transport fares in January 2015.

In the context of difficult budget circumstances and limited spending flexibility, the Queensland Government is presented with a constrained set of funding and financing options. Recommendations for future public transport fare levels and fare structures must be realistic, achievable, and sustainable.

The key benefits of a greater share of passenger transport usage are well documented and are summarised below:

- **Efficiency:** Public transport capacity can be provided at a much higher spatial density, and at lower per-person capital and operating cost.[1]
- **Economic Benefits:** Passenger transport is critical in maximising economic productivity and competitiveness of a region, providing the following key economic benefits:
  - Greater regional productivity
  - More efficient land use.
- **Social Benefits:** Social benefits flow from the access passenger transport provides to employment opportunities, education and health services as well as recreational facilities. Low-income earners, the unemployed, the elderly and people with a disability are particularly at risk of social isolation as a result of constrained transport options. Improving access to passenger transport for these groups is necessary to facilitate participation in – and contribution to – society, achieve social equity, and to provide access to employment, education, health and community services.
- **Health Benefits:** Since active transport (walking and cycling) to access public transport trips are complements, passenger transport also tends to have public fitness and health benefits.
- **Environmental Benefits:** As it is significantly less emission and resource intensive, increasing the market share of passenger transport services, particularly in major urban centres, will also reduce the negative impacts of congestion and cut carbon emissions.

In light of the direct benefits to the community as well as the positive externalities of public transport for the region as a whole we consider continued, if not greater, subsidisation of public transport provision is warranted to stimulate the economy.

When determining maximum fares we must decide how much of the total cost should be paid by the people who use public transport (through fares) and how much by the community as a whole (through the Government subsidy). Trade-offs inevitably exist between growing public transport patronage today via competitive fares pricing and product decisions, and ensuring sufficient funds are available for the necessary network upgrades to service a broader cross-section of the community and meet the needs of a growing population.

2.3 Recent Fare Increases

From 2002 to 2009 wages in Queensland rose significantly in comparison to fares which remained relatively stable through that period.

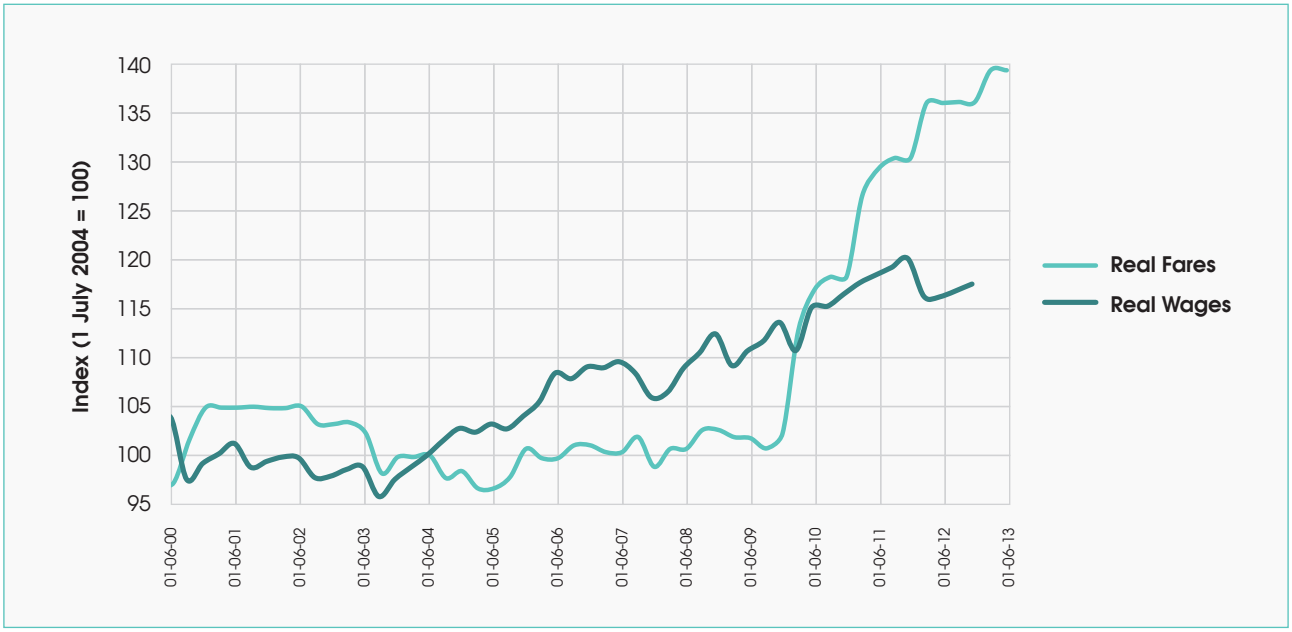
From 2009 to 2012, however, successive years of fare increases above inflation were implemented with the intent of increasing revenue and containing the growth in direct government financial support. These increases substantially outpaced changes in real wages, as shown in Figure 2-4. The significant rise in passenger transport fares from 2009 to 2012 was disproportionate to the rise in employment wages.

Index figures for the three years to December 2012 indicated wages in Queensland had risen by an average of three to four per cent compared to 30 to 35 per cent for passenger transport fares (ABS, 2015). In light of recent patronage trends, this rise in fares may have had a contributing disincentive to commuters, particularly to lower income households.

We note the gap has decreased more recently, due to the five per cent fare decrease introduced on 3 November 2014, and the fare freeze in January 2015. These initiatives assisted in arresting some patronage declines and improving TransLink's Value for Money rating by customers in recent quarterly customer satisfaction research.

1 Transportation Research Board, 2003. Transit Capacity and Quality of Service Manual, 2nd Edition.

Figure 2-4 Relative change in real fares and real wages, Brisbane



Sources: Fares – Table 11 – CPI: Group, Sub-group and Expenditure Class, Index Numbers by Capital City from ABS '6401.0 – Consumer Price Index, Australia, Jun 2013' Wages - Table 11C - Average Weekly Earnings, Queensland (Dollars) – Trend from '6302.0 – Average Weekly Earnings, Australia'

When thinking about fare changes it is important to distinguish between what we refer to as 'headline' versus 'average' fare increases.

So-called 'headline' fare increase relates to the indexing of fare levels that usually takes place in January every year. They typically describe the changes in simple percentage terms, e.g. the 'headline' fare increase in January 2013 was 7.5 per cent. In contrast, the so-called 'average' fare increase describes the change in costs faced by an average user, which is calculated by dividing total revenue by total journeys.

While the 'headline' fare increase is more commonly referred to – and more widely quoted in the media – it will tend to overstate the average fare increase for the following two reasons:

- First, new discounted fare products, such as '9 and free' and changes to off-peak discounting times, are typically implemented simultaneously with headline fare increases, such that the average fare increase – as paid by the average passenger on the network – is likely to be less than the headline figure; and
- Second, when confronted with fare increases passengers will gradually migrate to less expensive products. For example, historical fare increases are likely to have contributed to the quick and continued transition from paper tickets to *go* cards, and possibly some migration from peak to off-peak travel, which reduces the actual cost of travel to passengers.

The SEQ Fare Review Taskforce reviewed recent changes in TransLink's fare levels and structure and provides comment in Section 3.8 on what it considers to be the key outcomes of some recent policy initiatives.

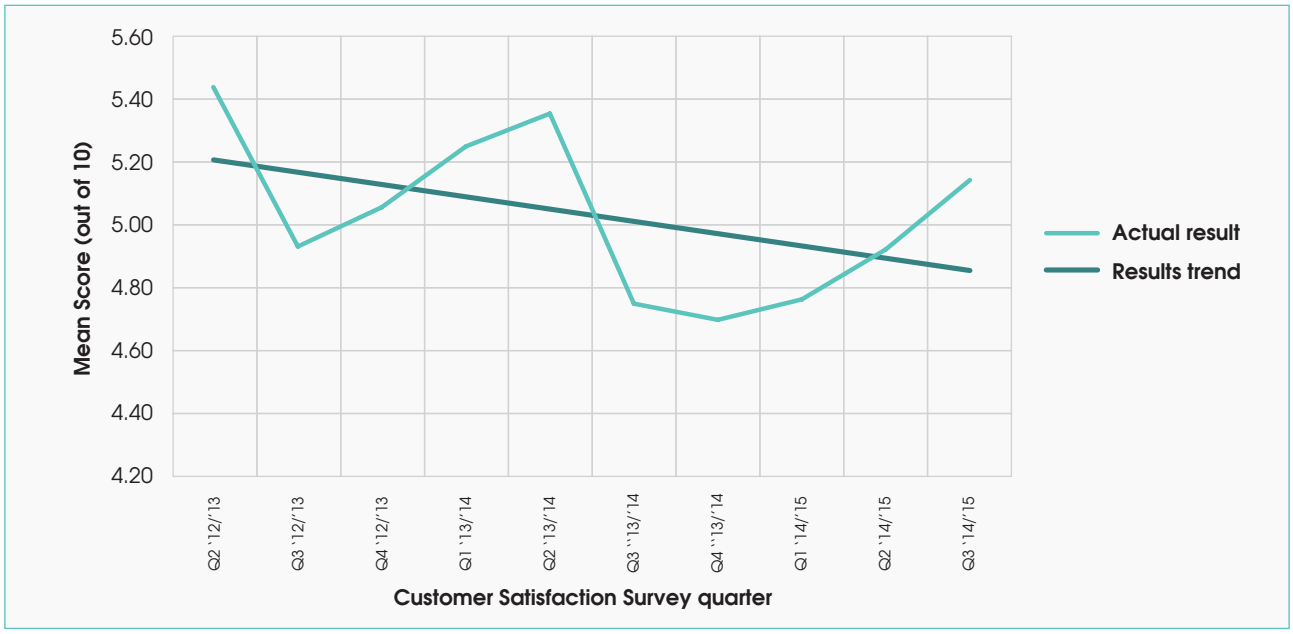
We recommend the Government introduce a system where an independently verified, and transparent fares adjustment mechanism is used for future annual fares reviews, for consistency and public certainty (refer Section 5). Our market research further highlights a generally poor understanding of the level of fares subsidisation and the rationale behind pricing levels and structures. Moving forward, a greater focus on communicating the Government's rationale and strategic objectives may assist with community understanding of, and support for, changes to fares.

2.4 Customer and Community Perceptions

The TransLink Customer Profile shows that affordability, travel time and frequency of services are key barriers to public usage. TransLink's Customer Satisfaction Survey results have clearly demonstrated in the past that satisfaction with affordability has decreased following the introduction of fare increases, impacting on overall satisfaction.

In Q3 2014-15 the TransLink Customer Satisfaction Survey showed that Value for Money received one of the lowest ratings, with a mean score of 5.1 out of 10 recorded. Despite a slight improvement over 2014-15, the rating for value for money has declined since late 2012, as highlighted in Figure 2-5.

Figure 2-5 Perceived Value for Money Rating



Source: TransLink Customer Satisfaction Quarterly Tracking Survey

Furthermore, as recorded by the TransLink 2013 User and Usage Profiles research (2014 reweighted), almost three in four infrequent and non-users rate affordability as a barrier to public transport usage. 37 per cent rated affordability as a major barrier for them personally.

Again, it is important to note price is only part of a package of drivers influencing the perception of 'Value'.

To further understand current perceptions, and the issue of 'Value for Money', the SEQ Fare Review Taskforce commissioned qualitative and quantitative research.

Six focus groups were held in August 2015, with participants representing a broad cross section of the community in South East Queensland, including users and non-users. In addition, 1400 residents across the region were surveyed. 601 respondents were public transport users and 799 were current non users. A summary of the market research results is provided in Attachment 3.

Supporting the recent findings of the TransLink customer tracker research program, 'cost' emerges as the major reported negative associated with public transport in Queensland across the board, particularly for occasional users and non-users.

Initial, unprompted, suggestions for improvement to the South East Queensland public transport system overwhelmingly relate to cost (Figure 2-6).

Figure 2-6 SEQ Fare Review Taskforce Market Research – Unprompted suggestions for improvement to SEQ PT.

For those working in the Central Business District (CBD), public transport is actually seen as cheaper than driving their own car as the cost of parking can be viewed as prohibitive. However, on occasion some will choose to drive and if there are multiple passengers, particularly on weekends, the car becomes a viable alternative.

Overall, full fares are considered expensive:

- especially for those taking short journeys (those staying within the one zone); and
- longer journeys are considered to represent better value.

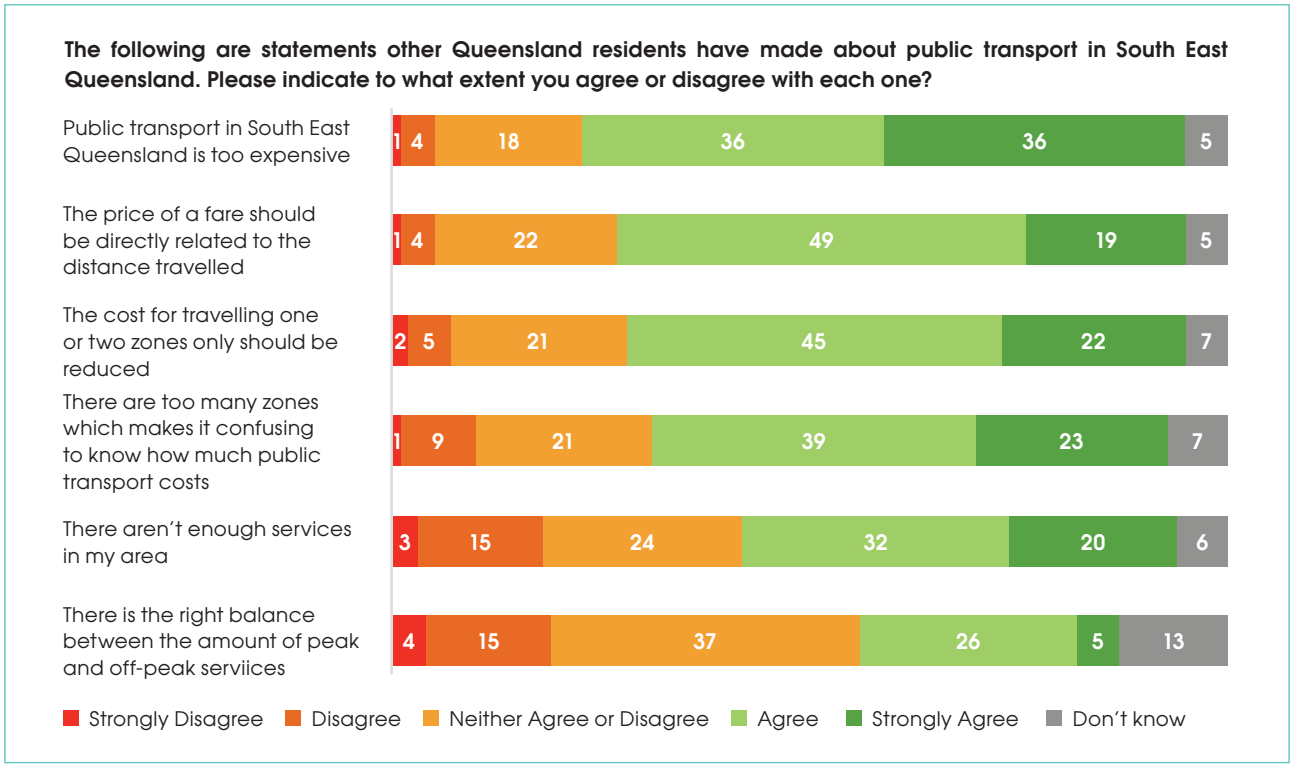
We note the current zonal structure is not well understood, especially by less frequent users. However, there is general agreement that the price of a fare should be directly related to the distance travelled and people perceive shorter journeys should be cheaper.

Overall, there is an expressed preference for the system to be simplified and for fares to be based on distance travelled.

While there is general consensus and acceptance that certain groups should qualify for concessions, users in particular are not prepared to wear any increase in fares to enable others to get concessions. Faced with this possibility, the majority of people report to be satisfied with the current concessions policy.

As highlighted in the TransLink quarterly customer satisfaction research, and further reinforced by the community research undertaken as part of the review (Figure 2-7), it is clearly a priority to address the poor satisfaction ratings in affordability and value for money.

Figure 2-7 SEQ Fare Review Taskforce Market Research – Community Perception Statements



BASE: All respondents (n=1400)
Source: TNS Fare Review Research Report August/September 2015

2.5 Technological Interdependencies

While we are primarily focussed on fare levels and fare structures, our review is inextricably intertwined with developments in ticketing technology.

Any changes to the current fare structure must be integrated with planned changes in ticketing technology. The rapidity of technological change also raises the risk of investing in initiatives which may be superseded in the near future, thus minimising returns on investments. Not only can short-life initiatives be costly, they also can potentially be confusing to the end user. All strategic decisions must be consistent, seamless, and future-proofed as much as is possible.

We acknowledge initiatives recommended for the short term must be able to be implemented under TransLink's existing hardware.

Key aspects of TransLink's current ticketing technology include:

- the system is relatively old, and is constrained by memory at a device level. It has specific constraints on the quantity and type of fare products that can be supported and the controls that can be applied to the calculation of the fares;
- a private company provides the ticketing system and so changes, such as new fare products, are relatively expensive and time-consuming to deliver;
- zones can be changed or simplified as this is controlled by TransLink created data;
- individual pass products can be created, with some limitations;
- the *go* card based system cannot accommodate family based package tickets that do not dilute data quality significantly; and
- although flexibility to introduce significant changes is constrained, we note the current system is relatively cost-effective to maintain and accounts for only 6.6 per cent of total transaction value.

We understand in the coming years TransLink will be upgrading the current ticketing system and will move to an account based system.

In an account based fare system, `the fare medium functions as a single credential to identify the rider to the transit system (for access) and to associate that rider with an account (for transit fare payment). All transit fare payment transactions take place at the back end, within the rider's account, rather than on the fare medium itself'[2].

2 TCRP Report 177 (Feb. 2015) Preliminary Strategic Analysis of Next Generation Fare Payment Systems for Public Transportation

Account-based payment (open standard payment) schemes are highly relevant for transit systems and allow customers to use an ordinary credit card in circumstances that would have previously required the use of cash, a bespoke smartcard, or some other type of membership/identification card. Pre-paid cards can also be made available to those members of the community who would not normally have a credit card.

Account based ticketing systems are more scalable, flexible, and reliable; and enable the addition of more incentives (i.e. loyalty schemes, discounts etc.) and value adding services/products to the transport offer.

Advances in fare technologies offer a wider range of benefits. For passengers these include simplicity and convenience. For the authorities and operators they provide improved data collection for network planning, and the ability to be more flexible in managing demand and/or addressing equity concerns through a greater opportunity for differentiated fares.

TransLink's proposed upgrades to ticketing systems provide the opportunity to further address some current complexities and issues, and introduce flexible ticket products to encourage greater trial and use by discretionary travel segments.

Ticketing technology may also influence the future role of paper tickets. Some cities, such as Melbourne, have adopted paperless systems because they can reduce cash-handling costs and increase boarding speeds. However, disadvantages include the negative impacts on discretionary customers and potentially precluding complete accessibility.

We anticipate the increasing availability of generic, cost-effective, contactless electronic payment media, such as mobile phones (NFC) and credit cards (EMV), may see more agencies adopt paperless systems in the future.

Electronic payment forms will help to attract some passengers who would have not otherwise used public transport, facilitates 'spontaneous' use, as well as generate sales from existing passengers who would have otherwise paid by cash. While the first category of passenger is important from the perspective of growing patronage overall, it is the latter category that is most important to discussions of fares structures, because it has implications for the volume of paper tickets being sold on the system.

Paper tickets currently account for less than 10 per cent of trips on the TransLink network. The proportion of paper tickets has declined steadily over time. Were this trend to continue, and were TransLink to adopt other electronic payment formats, then there may be a point where the economic and financial costs of paper tickets exceed their benefits – at which time they may potentially be withdrawn from circulation. Consideration of the removal of the paper ticket option is outside the scope of the SEQ Fare Review Taskforce's Terms of Reference.

Notwithstanding, these points are relevant to our review because the removal of paper tickets would make it easier to implement some of the more radical fare structures, such as point-to-point fares. Point-to-point, distance-based fare systems are more difficult to implement in large systems where paper tickets are issued on-board, because passengers must specify exactly (down to the name of the bus stop) where they are travelling.

2.6 Special Needs

The SEQ Fare Review Taskforce recognises and supports the Queensland Government's commitment to addressing the needs of the mobility disadvantaged.

Removing social and physical barriers to access and mobility can help improve the lives of people with disability by enabling all to use passenger transport services and facilitating genuine participation in the community. TMR is currently working towards these requirements through its *Disability Action Plan – Improving Access to 2017* (2014) and is also working with the Federal Government to modernise access standards. The Disability Action Plan was developed following consultation with transport operators, disability and non-government sector representative groups, the Local Government Association of Queensland, the Queensland Disability Advisory Council, and members of the public through the completion of a survey on the government's Get Involved website.

TransLink's Transport Access Pass is a significant positive step in this direction and we support its continuation and wider promotion. Our review has also covered an assessment of the current Concessions policies and provides advice to government regarding the adopting of targeted concessions for disadvantaged groups to ensure people with limited financial resources and impaired mobility are able to access public transport services for both social and economic participation.

Our recommendations must support a public transport network that is free of barriers for people with special needs and this includes affordability, ease of purchase, and accessibility. Specifically we have examined the feasibility of:

- extending concessions to disadvantaged and vulnerable groups, such as people on low-incomes, jobseekers, refugees and asylum seekers;

- providing a new *go access* style pass to some concession groups;
- (re)introducing capped fares for commuters;
- introducing further discounts for off-peak or weekend travel; and
- introducing lower cost ticketing options for families.

2.7 Tourism

We must also recognise and respond to South East Queensland's role as a significant tourism destination and a gateway to the rest of Queensland. Transport is an integral part of the visitor experience. Currently, close to 20 million visitor nights per year are spent in Queensland, with South East Queensland accounting for 70 per cent of domestic overnight trips in Queensland, 65 per cent of domestic day trips, and 80 per cent of international visitors to Queensland (DestinationQ 2014).

The tourism industry contributes $10.8 billion to the Queensland economy per year (3.6 per cent of the Queensland Gross State Product) and employs 131,000 people (5.6 per cent of the workforce).[3] A high performing passenger transport system will support continued investment and tourism growth to and within the South East Queensland region.

Tourists, particularly international visitors, are often captive users of passenger transport. To encourage greater accessibility and spontaneous use of the region's public transport system we need to ensure the fares and ticketing system is easy to understand, simple to use and pay for, and ticket products represent reasonable value for money.

It is essential we understand the specific needs and value of leisure and event travel, recognise the vital links between destinations, and provide an easily accessible and user-friendly system that caters for the current and future needs of the community as well as for visitors to the region.

2.8 Fare Evasion

The issue of Fare Evasion poses a philosophical choice:

- Stop fare evasion in principle. Some may argue that we should spend a lot of money to stop fare evasion, as a goal in itself, regardless of the impact on revenue.
- Optimize revenue. In this case, the 'sweet spot' of fare evasion is that level at which further investment in enforcement would not pay for itself in additional revenue collected. This generally means accepting a certain level of fare evasion rate. If getting fare evasion below, for example, 4 per cent would cost more in enforcement than it would collect in revenue, then trying for a lower rate is not good value for the taxpayer.

The SEQ Fare Review Taskforce considered leading research on the psychology of fare evasion by the Institute of Transport Studies at Monash University. This research looks at effective ways to improve compliance by understanding why people choose to evade paying fares. We note, Brisbane public transport users, when compared with other national and overseas jurisdictions, are at the low end of engaging in fare evasion. According to research, habitual fare evaders are the central problem and cause more than two-thirds of all lost revenue. Most fare evasion is made by a 'few frequent users', so targeting them can be effective in terms of both outlay and return on lost revenue, a financially efficient policy.

We note an independent Taskforce was established in 2014 to assist TMR to update its Revenue Protection Strategy for South East Queensland. It has recently made recommendations on revenue protection strategies, including financial considerations, customer outcomes, legislation and policy settings, and risks and benefits.

Given this issue has been investigated separately and in detail, and has recommended a number of specific strategies and activities, the SEQ Fare Review Taskforce did not consider this issue in detail as part of its brief. However, it supports in principle the broad directions recommended by the Revenue Protection Taskforce and is supportive of government's current efforts to reduce fare evasion (intentional and otherwise). Furthermore, our package of recommended options should assist in some way to reducing some fares revenue 'leakage' from the system.

3 Queensland Government (2015) Tourism market profile

3 TRANSLINK'S EXISTING FARE SYSTEM

Fare systems are generally comprised of two key dimensions: structure and levels. For background purposes, the following sub-sections briefly discuss these key dimensions in relation to TransLink's existing fare system. A summary of recent changes to fares policy and associated patronage/ticketing outcomes follows.

3.1 Fare Structure

The term `fare structure' describes the way fares vary with distance. Three common fare structure typologies are:

- Flat fares;
- Distance-based; and
- Zones.

Flat fares do not vary with distance. For this reason they are radically simpler than most alternatives. A flat fare implies the economic costs and benefits associated with public transport are related more closely to the number of passengers carried rather than the distance those passengers travel. In this context a flat fare charges passengers for `accessing' rather than `using' the system. While public transport system costs may be dominated by fixed costs in the short run, this is unlikely to be true in the long run. In the long run, flat fares may stimulate demand for long distance travel to the point where additional services are needed. Such services typically incur relatively high marginal costs.

In contrast, under a distance-based fare structure the fare is calculated based on the distance travelled. Most distance-based fare structures incorporate both a flag-fall component and a distance-based component, which primarily attempt to capture fixed and variable costs respectively. Such fare structures have historically been limited to taxis, long-distance rail, and air travel. The advent of smart cards, however, has enabled more widespread application of distance-based fares to public transport networks.

Zonal fare structures strike a balance between flat and distance-based fares by imposing a flat fare within a zone, beyond which increasingly higher fares apply based on the number of zones entered. There are many types of zonal systems, including concentric rings (as is the case in South East Queensland), concentric rings divided into segments (e.g. Karlsruhe), and honeycombs (e.g. Zurich).

Zonal systems are effectively a `lumpy' distance-based fare. Zonal systems are useful in medium to large systems and/or cities with highly centralised demands, in which the zone structure can be designed to increase the cost of radial journeys bound for the city centre, while discounting peripheral and/or local journeys.

While smaller zones are more cost-reflexive, the resulting structure is more complex – and vice versa for coarser zones. Moreover, irrespective of what zonal structure is chosen it is inevitable boundary issues will arise, whereby short journeys which originate close to boundaries are charged for two zones of travel.

TransLink's current fare structure consists of 23 concentric zones radiating outwards from the city centre (zone 1) and was implemented in 2004 to bring the South East Queensland network under one integrated ticketing system. These zones are illustrated in Figure 3.1 on the next page, along with the underlying population density.

The number of zones travelled is calculated as: high zone – low zone + 1. For example, the fare for a journey from zone 2 to zone 7 is calculated as 7 – 2 + 1 = 6 zones. It is important to note a journey from zone 15 to zone 10 is also a journey of 6 zones. Hence, the primary effect of the current fare structure is to charge similarly for the radial distance travelled, while discounting journeys which travel cross town.

Table 3-1 on the following page outlines the current fares applicable for number of zones travelled (adult *go* card fares provided, concessions and discount policies are discussed in Section 3.2).

Figure 3-1 TransLink South East Queensland Zone Structure

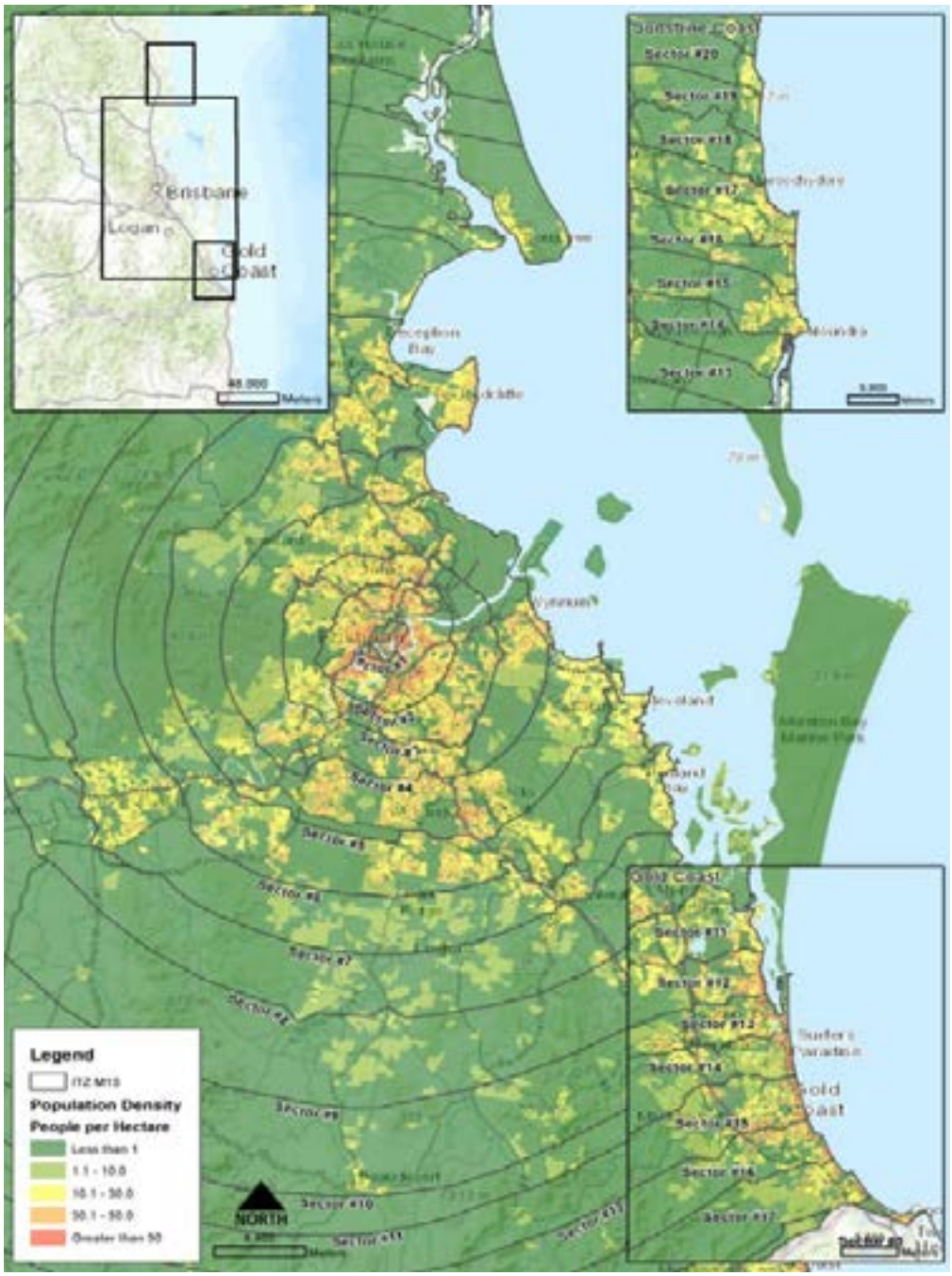


Table 3-1 TransLink's current zonal fares for adult *go* card, off-peak, and paper tickets

Zones	Adult *go* card		Single paper ticket
	Peak	off-peak	
1	$3.35	$2.68	$4.80
2	$3.93	$3.14	$5.60
3	$4.66	$3.72	$6.70
4	$5.24	$4.19	$7.50
5	$5.96	$4.76	$8.60
6	$6.69	$5.35	$9.70
7	$7.27	$5.81	$10.50
8	$7.85	$6.28	$11.30
9	$8.43	$6.74	$12.20
10	$9.74	$7.79	$14.10
11	$10.32	$8.25	$14.90
12	$10.75	$8.60	$15.50
13	$11.20	$8.96	$16.20
14	$12.07	$9.65	$17.50
15	$13.09	$10.47	$18.90
16	$14.10	$11.28	$20.40
17	$15.40	$12.32	$22.30
18	$16.28	$13.02	$23.60
19	$17.14	$13.71	$24.80
20	$18.46	$14.76	$26.70
21	$19.32	$15.45	$28.00
22	$20.33	$16.26	$29.40
23	$21.35	$17.08	$30.90

Off-peak fares currently apply on weekdays from 8.30AM to 3.30PM, after 7PM until 3AM the following day, and all day on weekends and state-wide Queensland gazetted public holidays.

South East Queensland's fare system also has a couple of spatial idiosyncrasies namely:

- Spider legs. These are remnants from the integration of bus and rail fares, when there was a desire to keep the maximum fare increase with integration at less than 15 per cent. This means some rail stations are located in lower zones than they theoretically should be; and
- Precincts. These are designed to mitigate the effects of zone boundaries on people travelling to/from major destinations and/or adjacent rail stations, by ensuring important destinations close to a zone boundary are included within both zones.

As previously mentioned, a key insight from our market research is the current zonal structure is not well-known or understood (especially by occasional users) and current complexities may be a deterrent to use. Two in three respondents agreed the price of fare should be directly related to the distance travelled. The ability to travel from one side of town to the other (but stay within the same zone for payment) is perceived as extremely good value.

3.2 Fare Levels

The term 'fare levels' describes how fares vary by ticket type, time period, and/or passenger type. Fare levels are normally applied on top of the underlying fare structure; i.e. in TransLink's current case, zones.

Differential fare levels, commonly called 'discounts', are typically offered for three distinct reasons:

- As a method of targeting price sensitive passengers, e.g. an off-peak discount lowers the price for people who are generally not employed full-time and who are typically price sensitive;
- As a means of 'locking in' patronage, e.g. a discounted season ticket requires some level of prior commitment and, once paid, passengers face zero marginal cost; and
- To achieve other strategic objectives, such as TransLink's case to increase *go* card share, to spread demand across time, and to achieve other network and service efficiencies (e.g. utilise available capacity more fully and potentially delay the requirement to add services to the network).

TransLink's current fare levels vary in two major dimensions: by ticket type, e.g. *go* card versus paper, and by passenger type, e.g. adult versus concessions. Several 'travel discounts' are also automatically applied to *go* cards used under certain conditions.

These two dimensions are summarised in Table 3-2.

Table 3-2: Summary of fare levels by ticket type, passenger type, and fare products

Ticket type	Passenger type		Fare products		
	Adult	Concession*	Off-peak?	9 and free?	2 journey daily cap?
go card	100%	-50%	-20%	Yes	Seniors / Pensioners / Gold Repat
Paper	145%**	-72.5%	No	No	No

* This percentage is applied to the equivalent adult *go* card fare for that ticket type, i.e. a concession *go* card peak fare = 50% of 100% of Adult *go* card Peak Fare rounded up to the nearest cent, whereas a concession paper ticket fare = 50% of adult peak *go* card fare multiplied by 145% and rounded up to the nearest 10 cents.

** The adult peak *go* card fare multiplied by 70 percent

A *go* card may be purchased and topped-up on line, over the phone via TransLink's contact centre, and at over 625 locations across South East Queensland, including any 7-Eleven store, many Queensland Rail and G:link stations, some busway stations and selected newsagents, as well as on board Brisbane City Council ferries (adult, senior and child concessions only).

Below are some of the passenger types currently qualify for a concession fare [4](Note: Children aged under 5 years travel for free):

- Seniors
- Veterans
- Pensioners
- Tertiary students
- School students
- Visually impaired persons
- Companion travellers
- Travelling trainers.

We note that there are also some additional tickets/fares offered on TransLink's network, including:

- *go access*
- TAP (TransLink Access Pass)
- VITP (Vision Impairment Travel Pass)
- Special events. Many special events (e.g. sports events) cover public transport in the ticket price as part of their travel demand management efforts. TransLink is typically paid by the event organiser to cover costs incurred in operating services.

TransLink's existing fare levels have a number of attractive features, most notably the 'trip based' simplicity. This reflects earlier efforts to reduce the role of periodical paper tickets, e.g. annual and monthly passes. The absence of periodical paper tickets also provides TransLink with more robust data which in turn can support more informed planning and decision-making.

TransLink offers several discounts in place of periodical tickets including a discount applied for the use of *go* cards rather than paper tickets. This is complemented by initiatives such as '9 and free' and the 20 per cent off-peak discount. Restricting travel discounts to *go* card users provides an additional incentive to reduce the use of paper tickets and speed up boarding times. This combination of incentives has contributed to increasingly high levels of *go* card uptake. *go* card transactions now account for more than 90 per cent of journeys across the network. Even higher rates of *go* card use are observed at peak times, when the benefits of faster boarding times are more pertinent. We note *go* card usage is highest in Brisbane, with varying rates of *go* card uptake across other regions of SEQ.

Maintaining high levels of *go* card usage is desirable for many reasons. First, it increases the speed with which passengers board buses, thereby reducing dwell times at stops. This speed is particularly important in congested sections of the network. Second, it reduces administration costs for cash-handling. Third, it provides detailed data on boarding/alighting locations, routes, and times, which are extremely useful for network planning/modelling.

We note it can be a problem for people with high level disabilities to buy or purchase their tickets at point of use and also to use a *go* card. This may create a difference with the choices made. We recommend the continuation of, and greater awareness be made of, current passes which mean users do not need to touch on and off like a *go* card if they have an eligible disability.

4 Full terms and conditions for eligibility for concession fares is available on http://translink.com.au/tickets-and-fares/concessions

3.3 Recent TransLink Fare Changes

A brief history of TransLink's recent fare changes is summarised in Table 3-3 (below). This lists 'headline' fare increases and accompanying policy changes for *go* cards and paper tickets. Headline fare increases have recently declined and also have been offset by more generous travel discounts for regular users (e.g. the 50 per cent discount originally applied to travel after 10 journeys per week which become a 100 per cent discount for travel after 9 journeys per week in June 2012).

Aside from the headline fare increases, we note TransLink's fare changes have tended to:

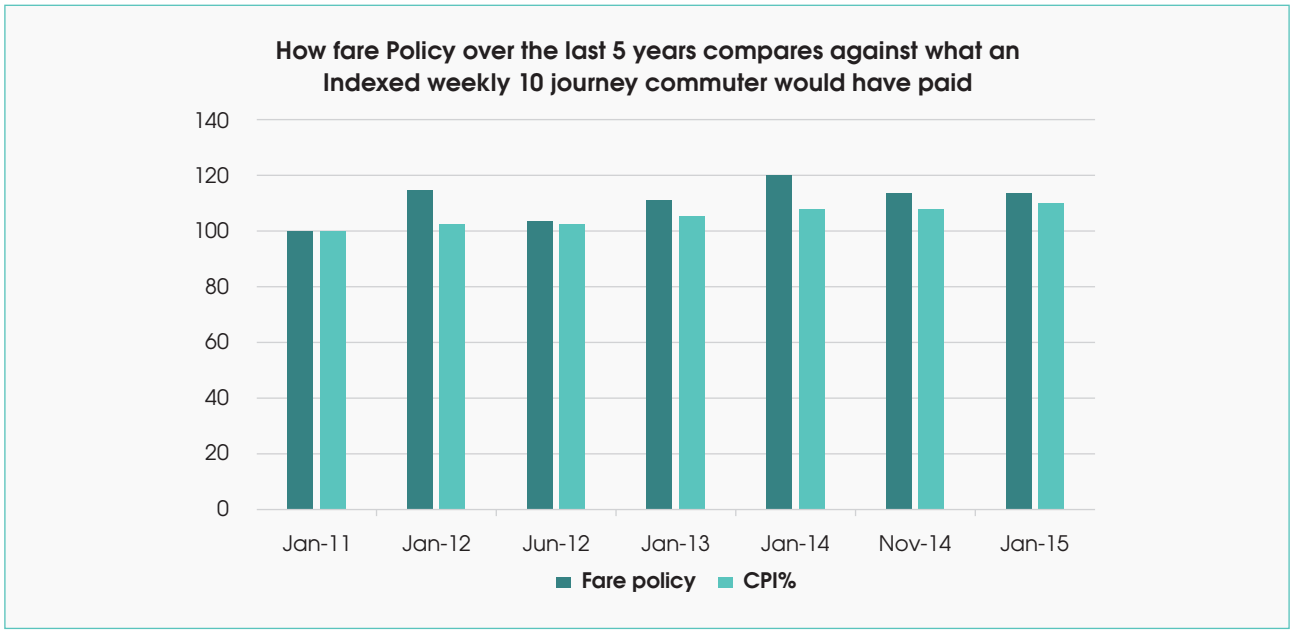
- phase out periodical and paper tickets; and
- gradually increase the off-peak discount.
- incentivise *go* card take up.

Between 2010 and 2014 the headline increases represented a compounded increase equal to 183 per cent of 2010 prices. Figure 3-2 (right) compares what fares would have been had they increased by CPI over the last five years (for the average weekly commuter) compared to what they are under current fare policy.

Table 3-3 Summary of historical fare changes

Year	*go* card		Paper tickets	
	Headline Increase	Other changes	Premium	Other changes
Jan 2010	approx. 20%	10% off-peak discount. Maintain 50% discount after 10 journeys	45% premium to 2010 *go* card fare	Remove 6 and 12 month rail passes (adult / concession only).
Jan 2011	15%	15% off-peak discount. Daily capping after 2 journeys for seniors / pensioners	Maintain 45% gap between paper and *go* card.	Removal of daily, off-peak, weekly and monthly paper tickets.
Jan 2012	15%	20% off-peak discount (from 15%). 100% discount after 10 journeys. (i.e. 10 and Free policy)	Maintain 45% gap between paper and *go* card.	-
June 2012	-	100% discount after 9 journeys, i.e. '9 and Free' policy	-	-
Jan 2013	7.5%	-	-	-
Jan 2014	7.5%	12 month trial to move the beginning of the off-peak period (and 20% discount) from 9AM to 8.30AM		
Nov 2014	5% Fare decrease			
Jan 2015	Fare freeze			

Figure 3-2 Fare Increases



Other more specific policies and products recently introduced include:

- Ekka 'add on' removed and a ticket created which allows for a single ticket purchased with an Ekka ticket to be used for return journeys;
- Inclusion of the Southern Moreton Bay Ferry Services under TransLink services and ticketing;
- Introduction of the Gold Coast *go explore* product tailored for the tourist market.

Also within the SEQ network local councils have introduced other transport initiatives such as:

- Free off-peak seniors on the Gold Coast (paid for by City of Gold Coast and for bus only); and
- Free City Hopper services – inner city monohull ferry service providing a half hourly service free of charge (funded by Brisbane City Council).

3.4 Trends by Passenger Type

As part of this project, TransLink has undertaken some analyses of recent trends in revenue and patronage for different types of journeys. Such trends are useful for gaining insight into the impacts of historical fare changes.

The main caveat on this data is changes in average fare can be driven by a large number of factors aside from changes in the actual fare levels. Declining paper ticket sales, for example, will tend to reduce average fare because paper tickets are more expensive than the equivalent journey by *go* card. This should be kept in mind when interpreting these results.

The table on the next page summarises the change in journeys, revenue, and average fare by passenger type for both *go* card and paper tickets (NB: As the most recent financial year was not complete at time of analyses, only the first 10 months of FY2010, FY2012, and FY2014 have been included for comparative purposes).

Table 3.4 on the next page indicates adult journeys (both *go* card and paper) are charged more than the current average fare ($3.36). All other combinations of ticket and passenger type pay less than the average fare. This most likely reflects the effects of the 50 per cent discount given to concession journeys, as well as the fact that adults are more likely to travel for longer distances and at peak times – hence incurring higher fares.

Table 3-4 Impacts of Recent Changes to Fares Policies

Indicator	FY	*go* card				single paper		Totals / Averages
		Adult	Child/School	G+P+Se1*	Tertiary	Adult	Other	
Revenue (GST Inc.)	2010	$179,838,268	$23,774,925	$14,397,729	$37,572,981	$62,848,526	$40,142,081	$358,574,510
	2011	$234,722,702	$31,218,387	$20,574,464	$43,815,392	$52,943,497	$31,325,703	$414,600,145
	2012	$242,590,794	$33,552,659	$22,943,352	$44,576,253	$43,536,716	$25,106,869	$412,306,641
	2014	$253,366,533	$36,451,714	$25,905,813	$48,353,522	$40,156,326	$23,278,740	$427,512,648
	2015	$274,163,209	$34,654,781	$26,763,077	$39,117,605	$36,917,138	$20,564,561	$432,180,372
Journeys	2010	51,850,514	16,056,528	9,532,586	24,409,253	12,492,677	16,113,985	130,455,543
	2011	59,471,631	18,472,691	12,352,318	25,641,305	7,974,204	11,284,804	135,196,953
	2012	59,598,630	18,940,948	13,057,291	25,414,992	5,673,804	8,343,794	131,029,459
	2014	58,123,007	19,206,281	13,427,455	25,832,845	4,821,258	7,192,538	128,603,384
	2015	64,314,409	18,271,822	13,804,917	21,164,091	4,590,123	6,449,674	128,595,036
Av. Fare	2010	$3.47	$1.48	$1.51	$1.54	$5.03	$2.49	$2.75
	2011	$3.95	$1.69	$1.67	$1.71	$6.64	$2.78	$3.07
	2012	$4.07	$1.77	$1.76	$1.75	$7.67	$3.01	$3.15
	2014	$4.36	$1.90	$1.93	$1.87	$8.33	$3.24	$3.32
	2015	$4.26	$1.90	$1.94	$1.85	$8.04	$3.19	$3.36

* DVA Gold card, pensioners, and seniors

Some other observations that emerge from examining this data are:

- In the period from FY2010 to FY2014 total revenue increased by approximately 20 per cent, total patronage declined by approximately 1 per cent, while the average fare increased 22 per cent;
- During this period, the combined Gold card, pensioners and seniors category was the fastest growing passenger type, with a 45 per cent increase in total journeys undertaken on *go* card; and
- The Tertiary Transport Concession Card was implemented in July 2014 and appears to have had some impact on adult (positive) and tertiary (negative) patronage.

Finally, while there was a decline in patronage from FY2012 to FY2014, it is important to note this recording is partly attributed to the continued phasing out of periodical paper tickets, and increased uptake of *go* card. The multipliers previously used to estimate patronage associated with periodical paper tickets appear to have been too high, such that the resulting patronage was overstated. As the users of periodical tickets have converted to *go* card, actual patronage data is now being captured more accurately.

3.5 Trends by Ticket Type

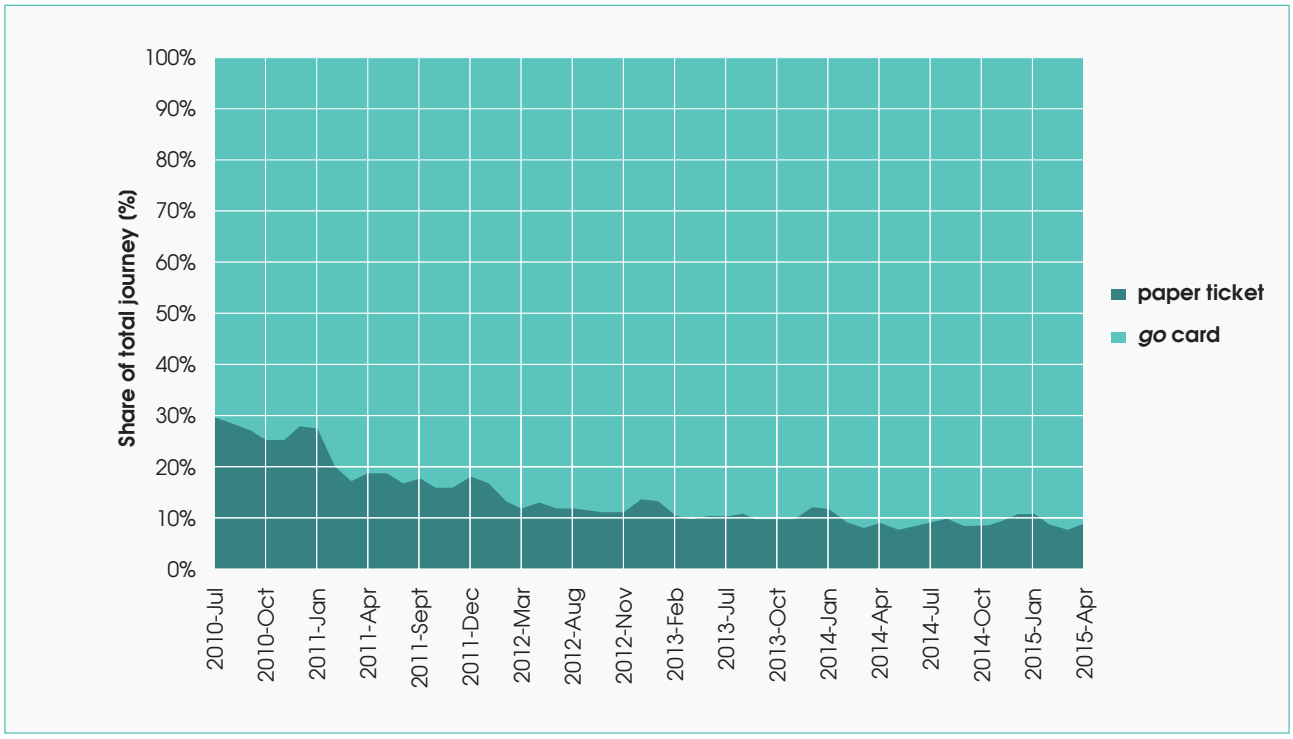
Figure 3-3 shows trends by ticket type (*go* card and paper). This shows paper tickets declining as a proportion of total sales, such that they are now used for less than 10 per cent of journeys. As paper tickets have a higher average fare, they represent a larger proportion of total revenue at 15 per cent.

The data shows a relatively rapid drop in the share of paper tickets in the period from July 2010 to March 2012, since which time the rate of change has stabilised.

Finally, we note there is a spike in paper ticket market share every Christmas period, which is likely to coincide with greater numbers of infrequent users using the public transport system at that time.

Adult *go* card journeys make up nearly half of all journeys and two thirds of all revenue.

Figure 3-3 Trends in ticket type – Share of journeys per month



3.6 Trends by Time

Figures 3.4 to 3.7 further break down journeys and revenue by time of travel, defined as the hour in which each journey started.

On weekdays, demand (journeys) and revenue exhibit a strongly defined peak in the morning between 7AM and 8AM, and a more diffused peak in the afternoon between 3pm and 6pm. We note the afternoon peak in demand occurs between 3PM and 4PM, while the afternoonpeakinrevenueoccursbetween5PMand6PM.

This is likely because the 3PM to 4PM peak in demand is driven by school students, who pay half the fare of adults.

It is also worth noting the revenue profile is more stretched than the demand profile. This is not just because of the off-peak discount, but also because peak journeys tend to be made by more adult passengers who are travelling relatively longer distances.

On weekends, we observe a relatively steady demand and revenue throughout the day.

Figure 3-4 Total annualised journeys on weekdays by time of travel

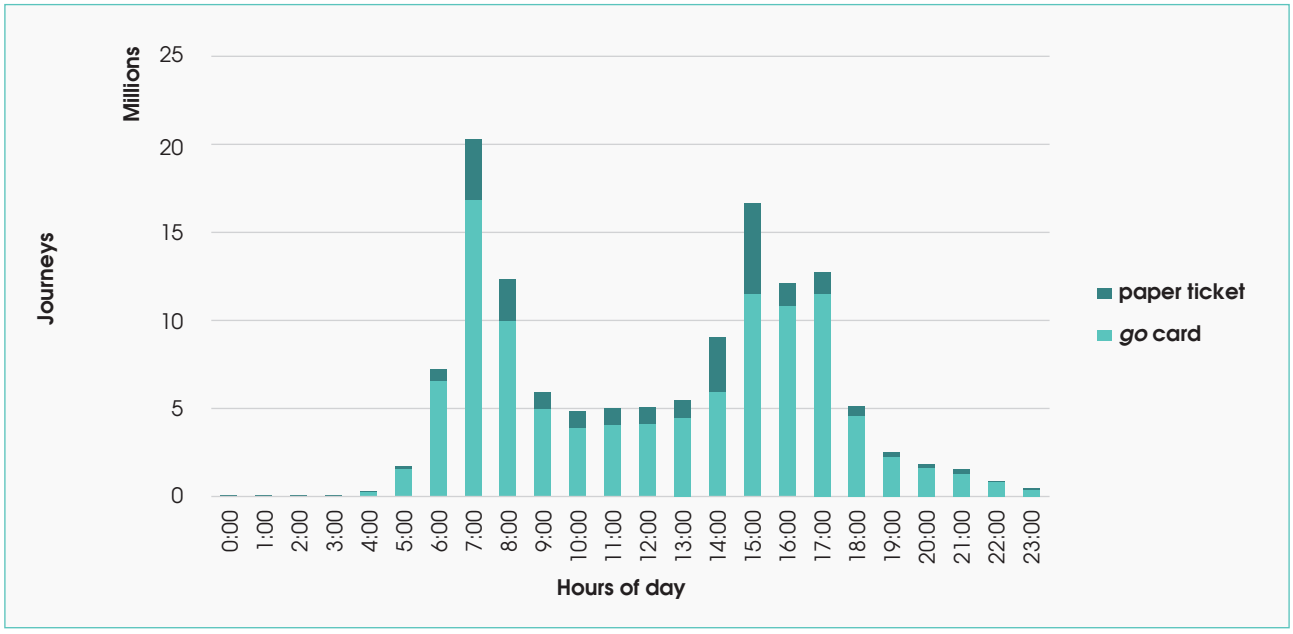


Figure 3-5 Total annualised revenue on weekdays by time of travel

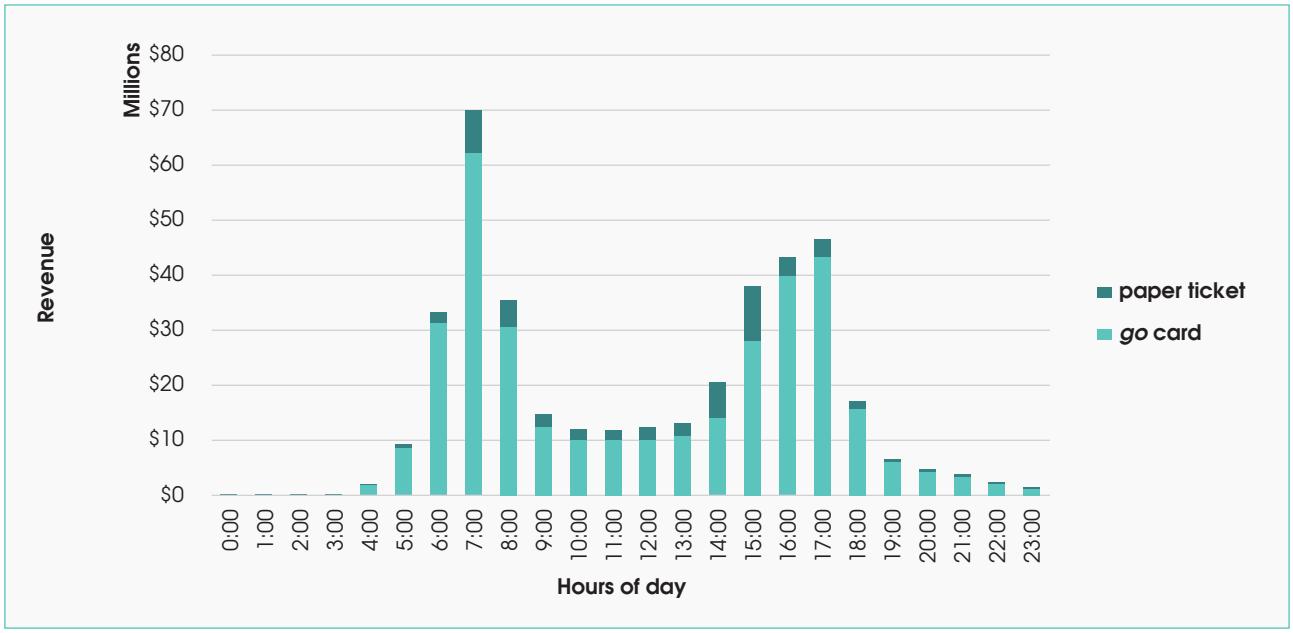


Figure 3-6 Total annualised journeys on weekends by time of travel.

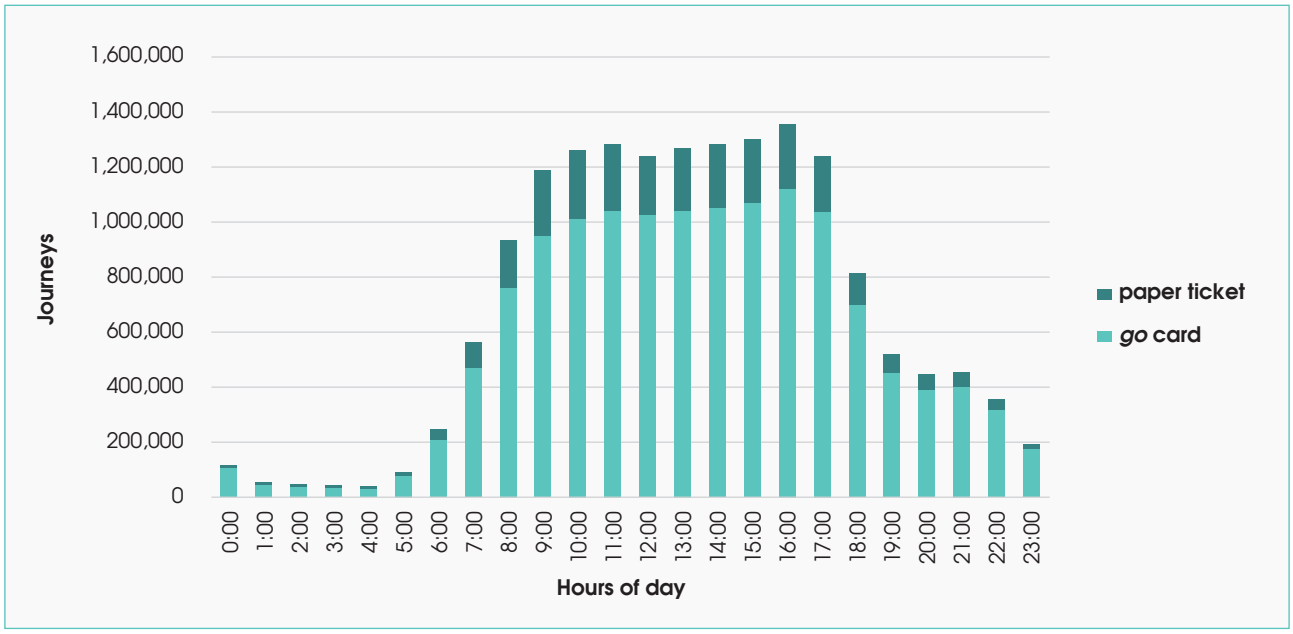
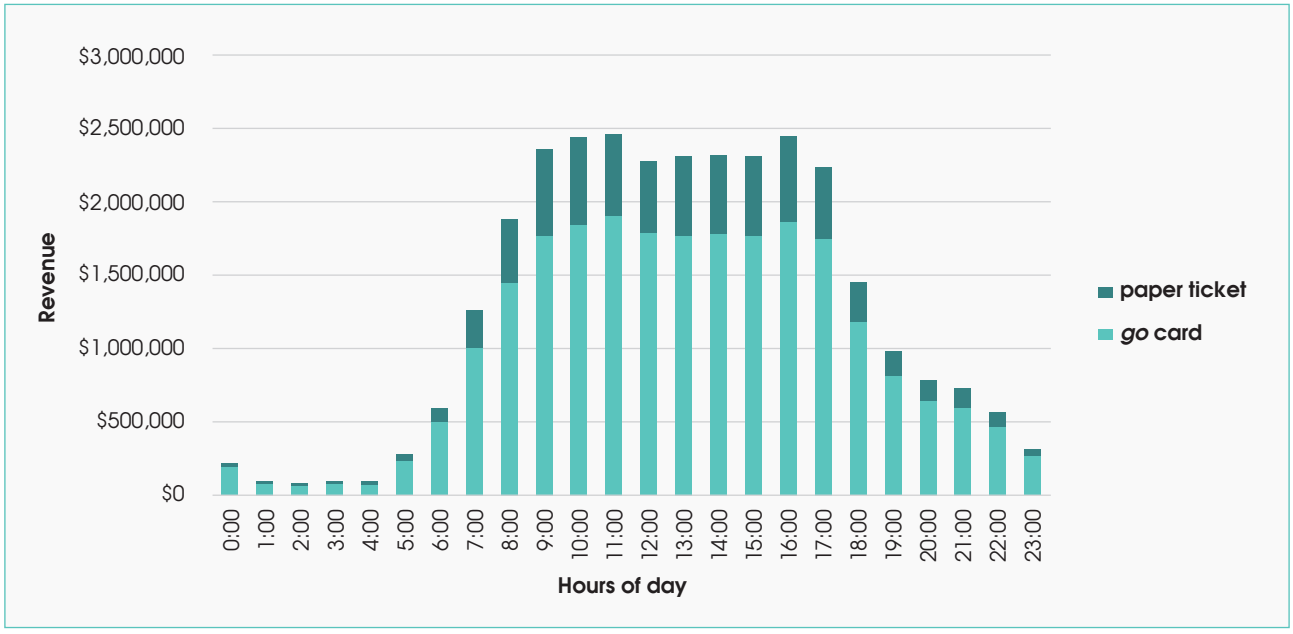


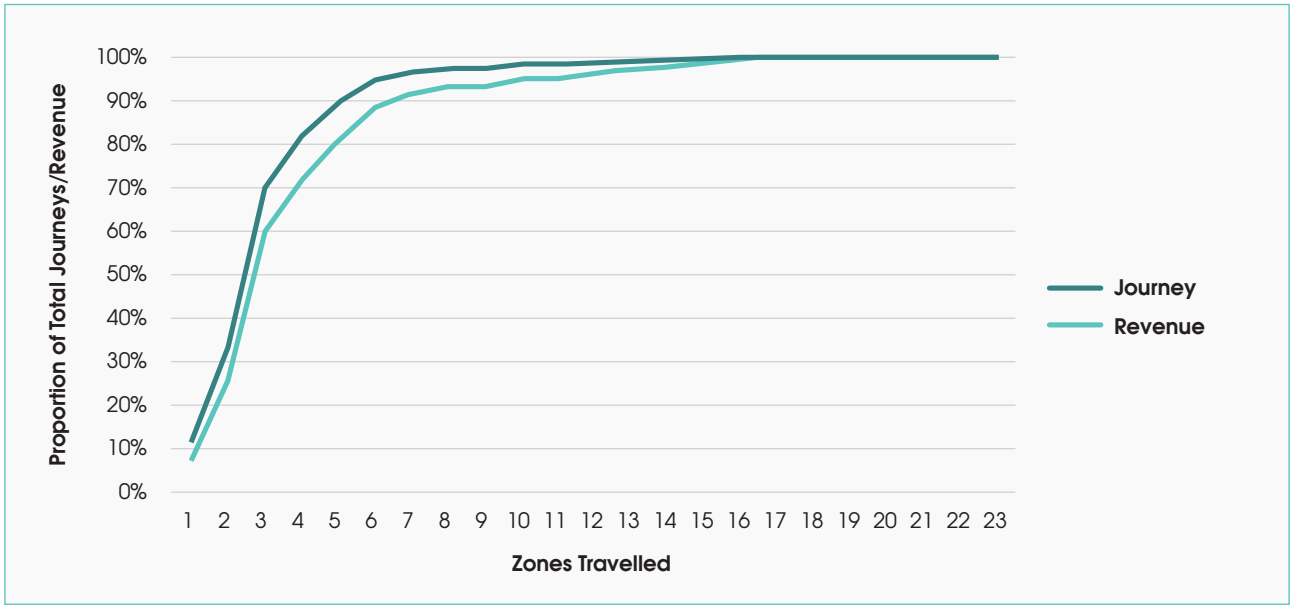
Figure 3-7 Total annualised revenue on weekends by time of travel.



3.7 Trends by Zones Travelled

Figure 3-8 summarises the cumulative proportion of journeys and revenue associated with each number of zones travelled. Approximately 90 per cent of demand and 80 per cent of revenue is associated with journeys of 6 zones or less, while very little demand/revenue is associated with journeys of 18 or more zones.

Figure 3-8 Cumulative journey and revenue by number of zones travelled.



3.8 Key Impacts of Previous Fares Policies

Investigations were conducted for TransLink in 2013 (MRCagney, *Development of a Fare Path Strategy*, October 2013). This work identified a number of issues with the current fare structure (2013), including complexity, revenue leakage, and poorly targeted discounts. A summary of issues is provided in Table 3.5 (next page).

Key outcomes from the most recent changes to TransLink South East Queensland fares policies are summarised briefly below:

- Successful transition away from paper tickets to *go* card usage, with over 85 per cent of all public transport trips in South East Queensland made with *go* card in 2014/15. In the month of October 2015, there were 820,696 active *go* cards across the network.
- Shift from '10 and free' to '9 and free' appears to have foregone considerable amounts of revenue for very little patronage gain, but may have prevented some loss of passengers from the system.
- Significant fare rises since 2010 have contributed in some part to patronage losses.
- The 5 per cent fare reduction in November 2014 has had a small positive impact on overall patronage, but may have prevented further patronage declines.
- The change in off-peak times (for pricing discounts) has been mildly successful at shifting demand, but has had little to no impact on total demand.

Results suggest the recent '9 and free' policy has had divergent impacts – the 15 per cent of *go* card users who regularly benefit from the policy seem to be travelling more than they were previously. However, the 75 per cent of *go* card users who were, on average, travelling less than 9 journeys per week have not benefitted enough from the policy to offset other factors affecting their demand for public transport.

It is worth noting the '9 and free' policy implemented in June 2012 is essentially a continuation of a long-established policy direction in South East Queensland, which has sought to provide increased incentives for frequent users. This direction was initially set in January 2010, when a 50 per cent travel discount was introduced on *go* cards used for more than 10 journeys per week. The frequent travel discount after 10 journeys was subsequently increased to 100 per cent from January 2011, before the most recent policy change (June 2012) applied the 100 per cent discount after 9 journeys, as opposed to 10.

MRCagney's analysis suggests '9 and free' may have generated a small amount of new patronage, although most of the benefits have fallen to people who were already travelling regularly. Meanwhile, less frequent users who do not qualify for '9 and free', but are still travelling at peak times, are likely to have felt the full brunt of the recent fare increases. We note '9 and free' is not particularly relevant to these users, which are the majority of TransLink's existing and potential new customers.

Table 3-5 Perceived Issues with TransLink's current fare structure (2013)

Perceived Issues	Discussion
Complexity	The current fare structure has 23 zones (31 zones when NSW cross border travel is included), which is relatively high by international standards. It also has a number of precincts, where locations sit within more than one zones, and spider-legs, where rail stations sit within a zone lower than the surrounding bus zone. Together these features result in a fare system that is relatively complex and difficult to communicate to customers.
Revenue protection	The complexity of the current system often makes revenue protection more difficult and increases risks of revenue leakage. For example, the high number of zones makes it easier for passengers to purchase a paper ticket for a certain number of zones, but then 'override', i.e. travel further than they are supposed to.
Impact on short journeys	There is a sense the fare structure (in 2013) for a zone two journey has a relatively high flag fall ($2.71 adult *go* card journey in peak) – the actual fare including the component for distance is $3.28 (2013 fare), which will in turn tend to discourage people from using public transport for short journeys. These issues are exacerbated in locations that are in close proximity to a zone boundary, where a relatively short trip may cross a boundary and incur a two zone fare.
Boundary irregularities	The current system has a number of features designed to moderate the impact of boundaries. These features are, however, applied in an irregular fashion. Precincts, for example, are much more common on the rail network than they are on the bus network. Irregular treatment across modes creates additional opportunities for revenue leakage.
Under-priced cross-city journeys	Fares are currently charged based on the number of zones entered, which is calculated as high zone – low zone + 1. So a passenger who travels from zone 12 to zone 1 is charged for 12 zones. Similarly, a passenger who travels across the city from zone 12 to zone 12 will also be charged 12 zones, rather than 24.
Frequent user rewards	There is a perception recent efforts to reward frequent users have been poorly targeted. For example, the shift from '10 and free' to '9 and free' appears to have forgone considerable amounts of revenue for little patronage gain. This would suggest the regular commuters who have benefitted from frequent user rewards have inelastic demand for public transport.
Insensitive to sub- regional travel	The current zone structure is based on 23 (31 including NSW cross border travel) fairly equally spaced concentric zones emanating from the Brisbane city centre. The importance of travel to the city centre, however, declines in the more peripheral sub-regions, such as the Gold Coast, Sunshine Coast, and Ipswich. Internal travel in these sub-regions is essentially priced in a similar way to inner-city travel.

Source – MRCagney, Development of a Fare Path Strategy, October 2013

3.9 How Does South East Queensland Compare to other Cities?

Table 3-6 (next page) provides a snapshot of different fare systems currently operated in six other Australian cities.

We note, in general, Perth provides the most 'comparable' peer city to Brisbane. Perth has a similar metropolitan population to Brisbane, but does not have the same geographical extent as South East Queensland. Perth also has a similar mix of public transport modes and relatively similar ticketing technology for a similar length of time as Brisbane.

Comparing public transport fares across different cities and countries is not a simple undertaking. There are vast differences in the way fare systems can be structured and regions also vary considerably in geographic size as well as economic and socio-demographic profiles. Also, as mentioned previously, price is not the only dimension to consider in the 'value' equation. Frequency, reliability and accessibility to public transport services along with coverage of public transport services all contribute to the value proposition.

Local consultant NineSquared recently undertook a benchmarking survey of fares and fare levels (2015 Fare Benchmarking Report). It used publicly available data across 29 fare systems in cities in Australia, North America, Asia and Europe to provide cities with information about where they sit relative to their peers.

To overcome the difficulty of comparing different fare structures, products, concession and discounting policies, NineSquared normalised the price of fares by comparing it to the minimum wage in each of the countries in the study. It then compared the number of minutes that would need to be worked, at the minimum wage, to purchase travel across a number of pricing scenarios.

This study highlighted, for shorter distances, the fare systems of Australian jurisdictions (including the TransLink South East Queensland network) appear to represent good value for money compared with the cost of using public transport in other cities, ranking between 13th and 26th most expensive. London is the most expensive city requiring more than 42 minutes of labour at the minimum wage rate to make a 1 zone return journey. At the other extreme, Beijing requires its workers to spend just 7.1 minutes to be able to afford a single zone journey.

The maximum distance that can be travelled varies significantly across the benchmarked cities. While the highest South East Queensland zonal fares require the longest amount of time spent working at minimum wage to pay for travel, there is no other jurisdiction among those benchmarked, apart from Sydney Train which offers customers a comparable journey distance. NineSquared then estimated the cost (in terms of minutes needed to be worked) per kilometre of service for each of the longest possible trips for each of the jurisdictions. When adjusted for distance, South East Queensland rated 16th out of 29 systems, performing much better than London, Vancouver, and Sydney buses.

However, from our focus group responses along with a number of social media conversations we know South East Queensland residents perceive the current public transport system to be relatively expensive compared to other systems.

Table 3-6 Comparison of Australian Public Transport Fare Structures

	Fare Structure	Off-peak Discount Times	Ticket Incentives Frequent Travel	Passes, Capped Fares
Adelaide	Zonal	9AM – 3PM Weekdays, Sundays & Public Holidays	10 trip, 10 2 hour trips (paper)	Daily cap
Canberra	Flat	9AM – 4.30PM, after 6PM and all day weekend and public holidays	-	Day, daily fare cap, 40 trip monthly cap
Hobart	Section	-	Transfer between services for free within 90 minutes of the first boarding	Day, daily fare cap
Melbourne	Zonal	Certain locations with certain conditions	-	Day, week, month, year
Sydney	Section	Trains 9AM – 4pm 6.30PM – 7AM Trainlink 8AM – 4PM 6.30PM – 6AM	8 paid journeys, then free for rest of week	Sunday $2.50 cap
Perth	Zonal	Free for seniors 9AM – 3.30PM 7PM to last service	-	Day
Brisbane	Zonal	8.30AM – 3.30 PM (Mon to Fri) 7PM – 3AM (Mon to Fri) All day weekends	Nine and FREE One, Two, FREE (seniors / pensioners)	*seeQ* card *go explore* card

5 2 hours for up to 4 zones, with 3 hours for 5 zones or more.

4 GUIDING PRINCIPLES

4.1 From Journeys to Passengers

The objective of any public transport fare system is to charge passengers in order to recover part of the cost of providing the services they use to meet their travel demands. Every agency must answer the basic philosophical question of how much passengers should be charged to travel, and in turn how fares should vary in relation to:

- Affordability and Willingness-to-pay, as influenced by socio-economic factors, e.g. concessionary discounts; price of substitutes, e.g. parking costs; and trip-purpose.
- Costs of provision, as influenced by service characteristics, e.g. modes and service type; resource utilisation, e.g. distance travelled; infrastructure utilisation; and variable demands, e.g. peak vs off-peak periods.
- External factors such as current fare levels, civic values, urban form, and available technology.

Public transport agencies are required to make conscious decisions about how to balance 'willingness to pay' versus 'costs of provision' and in turn how these interact with external social factors to produce an effective fare structure. The primary decision we must make is how fares vary both in space and time across the network, which is what we loosely refer to as the 'fare structure'.

While 'willingness-to-pay' is a superficially simple concept, it tends to have several dimensions. When deciding whether to use public transport, for example, people may weigh up both the cost of an individual public transport journey and the cost of using public transport across a period of time, such as one day and/or week.

PWC (8th Transport Revenue and Data Management Forum, October 2014) noted that willingness to pay informs decisions on fare relativities (spatial, temporal, customer type) against efficiency and equity criteria. PWC outlined several dimensions over which we can consider leveraging differences in willingness to pay (initiatives are discussed further in the options and recommendations sections of this report):

- Time of Day / Week
  - Common practice to offer off-peak discounts or peak surcharges.
  - Lower off-peak / weekend fares both aim to increase patronage and reflect reduced service levels, and spare capacity, in the off-peak.
- Mode of Travel
  - Higher fares for modes with higher cost of provision of level of customer amenity (e.g. premium, express services).
- Distance Travelled
  - Reflect a willingness to pay related to distance travelled and/or competition with transport alternatives (e.g. impact of active modes for short trips).
- Origin / Destination
  - Premium pricing where willingness to pay may be higher (e.g. to the CBD, airport).

- Travel Purpose
    - In practice, it is difficult to employ price discrimination according to purpose of travel so the tendency is to use a proxy (e.g. time of day pricing).

Our analysis of fare structures needs to consider not only the price of individual journeys, but also the total cost of travel within time periods that are most relevant to people's decisions. Decisions on fare structures need to consider how people's travel demands might be aggregated, or linked, and how this aggregated demand may impact on a customer's willingness-to-pay.

Groups of people create another level of complexity. For example, households are likely to weigh up the price of public transport across all members, who may in turn travel individually or collectively depending on what they are doing. The costs of public transport may ultimately inform inter-related household decisions, such as where to live/work and how many vehicles to own.

While the complexity of aggregated travel demands quickly becomes overwhelming, the primary implication is passengers, or people, should be placed at the centre of discussions on fare structures. Rather than simply considering the price of individual trips on the network, there is merit in thinking more generally about people's aggregate travel demands, and how agencies can incentivise and reward customers who use the system in ways which are ultimately more efficient. In some public transport systems, including in South East Queensland, this has resulted in incentives for travelling at off-peak times. In short, we want to try and interpret the impacts of possible fare structures not just in terms of their implications for individual journeys, but also in terms of how they relate to the travel patterns of individual passengers.

4.2 Motivating Goals

The SEQ Fare Review Taskforce is informed by many goals and demands. A core danger of a fare review is it can appear to have just too many moving parts and too many, often competing objectives, for anyone to grasp and to derive an ultimate package of reform recommendations.

A key task therefore was to clearly decide on and enumerate the overarching goals, define how one would measure them, and then present an organising diagram enabling the discussion of trade-offs among just three major objectives rather than tens or potentially hundreds.

These three major objectives (outlined in Section 4.3) are:

- Patronage (Journeys);
- Distance Travelled (Coverage); and
- Advantages for Specific Groups (Social Equity).

Below are some key outcomes and goals often brought to fare debates and how they ultimately tie to our three over-arching objectives.

4.2.1 Urban Sustainability Goal

Sustainable urban planning generally involves goals such as:

- Urban intensification: Creating dense centres where active modes take up a larger share of trip making, thus decoupling congestion and prosperity and achieving a range of other health and environmental impacts. Lowering parking demand is critical to making urban intensification viable.
- Self-containment: Organising land uses to minimise the need for longer journeys, for example by achieving a balance, within each sub-area, of jobs with housing at the right price point for those workers.
- Transit oriented development: Placing major trip attracting activities together and creating denser residential and employment clusters around public transport stations.
- Emissions: Reduction of both local pollution and greenhouse gas emissions.

These four goals all tie to **Patronage** (journeys). Urban intensification and self-containment are about encouraging shorter trips, which are also the trips that transit serves most efficiently, thus maximizing total patronage (journeys).

4.2.2 Other Environmental and Economic Goals

A separate cluster of environmental and economic goals tend to be met by reducing Vehicle Kilometres Travelled (VKT) rather than just vehicle trips. For example:

- Congestion/GDP. To bypass the vexed question of whether public transport reduces congestion, we recommend focusing on a ratio that is essentially congestion/prosperity (which should be low). This goes to the point that when congestion is truly intolerable, people begin not making trips, and this causes valued economic or social activity to not occur. Congestion will cap economic growth unless the congestion/prosperity ratio continues

to fall. This is one of many issues where the short-term perception of the issue differs somewhat from the long term. Short term answers to congestion (other than adding capacity) tend to be about directly reducing VKT, so they link to the Distance Travelled goal, not the Patronage goal. However, long-term solutions to the problem lie heavily in the urban sustainability strategies mentioned above, especially urban consolidation and self-containment. Via these strategies, congestion mitigation is linked to the **Patronage** (journeys) goal.

- Emissions are mostly tied to vehicle trips rather than VKT, but they have a relationship to both. So there are strong links to the Patronage goal but some to the Distance Travelled goal. Again, one could make a long term / short term argument here, exactly as for congestion/GDP, namely sustainable urban form is so good for emissions the primary link should be to the **Patronage** (journeys) goal via that link.

4.2.3 'Fair Share of Cost' Goal

The Terms of Reference required the SEQ Fare Review Taskforce to determine what a 'fair' fare is. During the course of our review, we have found 'fairness' means very different things across the community in general, depending on personal circumstances and transport usage. Our market research has also highlighted perceptions of 'fairness' tend to differ widely depending on whether one is currently a regular user, an occasional user, a visitor to South East Queensland, or a resident who is currently a non-user of the public transport network.

Fairness is a complex concept with several dimensions relevant to public transport fares. At a high-level, we must consider not just the users of the public transport system in South East Queensland, but also the State Government and the communities it represents.

More specifically, any reduction in fares will require either:

- an increase in government subsidies, which impacts on taxpayers across all of Queensland, and potentially reduces the money available to other areas of government activity; and/or
- a reduction in the costs of delivering public transport, i.e. a cut in other parts of TransLink's budget. This impacts directly on users, both now and in the future.

Once the question of fairness at a system level has been answered, there remains the issue of understanding how to define what is (or is not) a 'fair fare' for users of the system itself. Some aspects to consider when defining a 'fair fare' include:

- Cost-reflexive: To what degree should fares reflect the costs the journey places on the public transport system?
- Affordability/Ability to pay: To what degree should fares reflect users' ability to pay for their travel?
- Relative contributions: To what degree should some users be subsidised by other users?

These are complex questions which often involve normative value-judgments. If a group of friends decides to share a ride somewhere, they are likely to split the cost of the petrol, maybe with a discount for the one who provided the vehicle. If they don't do this explicitly, some form of barter often captures the same idea: You pay for the petrol; I'll bring lunch.

'Fairness' can mean this. But there is also a competing meaning, which is essentially a synonym for redistribution, which implies specific attention to disadvantaged categories of people. We have largely avoided the term fairness because it is prone to this fatal confusion between two very different ideas – 'fair share of cost' and redistribution – and these two ideas mean different things for fare policy. We suggest 'fair share of cost' rather than 'redistribution' is the more universal meaning of fairness.

However, the notion of 'fair share of cost' – which does not include any redistributive objective – is a sensible goal in itself. A 'fair share of cost' implies a kind of transparency which is appealing to many people. Broadly speaking, a 'fair share of cost' goal will align more heavily with the **Patronage** (journeys) goal, because it will encourage lower fares for the services most people want to use.

We believe, supported by the market research undertaken as part of our review, most people understand costs vary by distance, and distance-based fares are especially 'fair' in this sense.

4.2.4 Equity by Area, Low-density and Long-distance Goal

Low-density peripheral communities, especially in the aggregate, generate the need for longer trips. Low density is also heavily correlated with low public transport patronage. Nevertheless, people who live in low-density areas are taxpayers too, and bring expectations of service that will also translate into expectations of reasonable fares even though their long trip distances, and often low patronage, mean a very high cost per passenger. Serving these low-density and long-distance interests in the way they expect links to the **Distance Travelled** goal, rather than the Patronage (journeys) goal.

4.2.5 Affordability Goal

Some people can't afford the fare, and therefore don't travel by public transport. This has two separate consequences that fare policy must consider separately:

- Consequences for these people, and indirectly for the society and economy; and
- Consequences for patronage.

Concessions that respond to this problem – targeted to low-income people – can possibly serve the **Patronage** (journeys) goal. If this is not the case, then a low-income concession belongs under the goal of '**Advantages for Specific Groups**'. In this category the outcome is social and economic, rather than a public transport outcome such as patronage or revenue.

As noted previously, affordability also means to what is a sustainable level for government (and the broader community as taxpayers) and what the broader community is prepared to subsidise through taxpayer contributions.

4.2.6 Simplicity Goal

Simplicity in fare systems relates to minimising the variety of ticket types and products; making it easier for customers to understand what ticket they need (and how much it will cost); and consequently making it easier for them to use the public transport system.

While it is useful to consider differences in the marginal benefits and costs of meeting the demand for different public transport journeys, it is not practical to set fares perfectly in response to these differences. This is because pursuing such an approach would result in an extremely complex fare structure, where fare levels varied by service, time-of-day, by passenger and even exact distance travelled. Such a fare system would provide little certainty to users, and would most certainly require the modal disintegration of the fare system.

The role of simplicity has changed with technology. Electronic ticketing and pre-paid fares (smart cards) mean many, but not all, passengers are now less concerned about what the individual fare will be, because they can trust their smart card to take care of it. Online journey planners and mobile apps have also helped to 'simplify' fare structures for passengers who genuinely need to know what the fare is for an individual journey. Notwithstanding, the market research highlights a complex system is considered to be a barrier to use, particularly by non-users and occasional users.

Simplicity is strongly linked to the key **Patronage** goal. Simplicity also has a role in revenue protection. Payment in flat fare systems, for example, is relatively easy to verify via ticket inspections. More complex systems can introduce opportunities to evade or at least minimise fares. Zone systems, for example, can experience revenue leakage from passengers who purchase fewer zones than they should and subsequently 'override'.

Trade-offs between simplicity, fairness, and revenue are always required, especially in an area like South East Queensland, which has a relatively large and complex urban form. Here we list a few of the key trade-offs which should be considered when developing fare systems generally.

- **Simplicity vs Fairness:** Charging for distance may be fair, but it is not simple to explain/implement. Fewer zones increase 'simplicity' but decreases 'fairness', especially across zone boundaries.
- **Simplicity vs Revenue:** Increasing fares on parts of the network that are less price sensitive, such as peak travel into the CBD, can increase revenue but reduce simplicity. While flatter fare systems are simpler, they tend to reduce opportunities for price-discrimination and may therefore reduce revenue.
- **Fairness vs Revenue:** Fairness and revenue objectives can work well together. Charging incrementally the further a passenger travels is both fair and increases revenue. Discounted off-peak travel is fair as it encourages people to use the system when willingness-to-pay is likely to be lower (e.g. on weekends). Discounts for concessionary passengers are usually considered to be fair, yet impact revenue.

4.2.7 Sustainable Fares Revenue Stream Goal

When confronted with limited budgets most public transport agencies try to maximise patronage subject to constraints on total subsidy (i.e. gross costs less fare revenue).

For this reason revenue goals will often try and align fares to some degree with 1) passengers' willingness-to-pay and 2) the costs of operating services. This generally means charging higher fares in situations where passengers are less price-sensitive (and hence will tolerate higher fares without reducing their demand) and vice versa. Similarly, agencies often try to charge more for services that incur higher costs.

Many common fare systems charge some passengers much less than they might be willing to pay, e.g. peak travel to the CBD, where congestion is prevalent and parking is priced. In these situations additional revenue might be able to be raised without significant patronage loss from targeting these customers, e.g. applying a peak supplement for travel to/from the CBD. In this case, the fairness

(cost of supplying the peak service) and revenue (willingness-to-pay) objectives are aligned, but at the expense of simplicity.

As many fare options can affect revenue, we suggest setting constant revenue as an overriding goal that all other goals must be reconciled with. Thus, we consider how, given the need to achieve at least constant revenue, other goals relate to one another.

A key advantage of holding revenue constant in our analysis is it forges a useful distinction between fare structure and fare level.

Fare structure is about what mix of fares you offer, and the ratio of one fare to another. For example, the ratio of a day pass price to a single ticket price is a fare structure question, and so is the ratio of a 20km fare to a 2km fare. The pattern of discounts, with their values expressed as percentages, is also a fare structure issue.

Given those ratios, fare levels can be turned up and down in entirety. It is 'fare levels' which should escalate with CPI, so the strategic ratios in the fare structure are not changed inadvertently at the same time. Turning down fares will turn up patronage, and there may be a sweet spot of maximum revenue.

4.3 Three Key Organising Goals

In summary, while many goals can be articulated, we have focussed on three goals:

1) Patronage – maximum number of public transport journeys. (One person going 20km has the same value as one person going 3km, if both reach their destinations.)
2) Distance Travelled – maximum number of passenger kilometres travelled. (One person going 30km has the same value as ten people going 3km.)
3) Advantages to Specific Groups (where not patronage-justified). This category captures the motive for all concessions that do not pay for themselves through the patronage these discounts motivate. Deals made with any interest group that does not pay off in patronage also go in this category. This collection of goals tends to be in conflict with patronage goals whatever way they may be defined.

We recommend focusing on these three goals because they are:

- **Contrasting.** In practice, they pull policy in different directions so they are genuinely different from each other;
- **Comprehensive.** Every other goal is effectively pursued if we pursue one of these goals; and
- **Measurable.** The first two have very clear measures. The third is hard to measure but not hard to define by exclusion of the other two.

While an ideal fare structure would deliver all three outcomes, unavoidable trade-offs tend to arise in practice.

We wish to acknowledge up front, there are inevitably winners and losers in any proposed fares strategy and there is a need to responsibly identify outcomes / impacts on different groups as well as for the public transport system as a whole.

4.3.1 Patronage (Journeys)

A patronage goal is implied by many other goals for public transport, but it also has a strong value in itself. Patronage is simply the number of people who reached their destinations, and therefore engaged in some kind of economic or social activity. Almost all patronage generates some social or economic or cultural benefit, individual and collective.

Productivity is patronage per unit of operating cost – it's 'cost/rider' but with the ratio turned right-side-up so high means good. Since there will always be some limitation to the operating budget, productivity and patronage should be seen as interchangeable goals. One can certainly increase patronage by increasing the operating budget, but there are also many ways to do it within any given budget, which is our focus here. For this reason, efficiency in delivering patronage is implicitly part of the patronage goal, rather than broken out from it.

An interesting alternative to patronage is access, sometimes called accessibility. Access measures ask: for each resident, how many jobs (or retail opportunities, or whatever) are reachable within a given travel time, on public transport plus walking? Access really helps focus the network design conversation, because it is foundational to patronage and also because it is a measurable fact about a network rather than a prediction of future behaviour, as patronage always is.

One could translate access into a fare discussion by asking how many jobs/opportunities are reachable within a certain price. We believe this will track closely with patronage, but in any case, improving access is a good way of improving patronage, and also helps us focus on the kinds of network and fares which do that.

4.3.2 Distance Travelled (Coverage)

When we measure passenger-kilometre instead of passenger trips, we are saying the core thing we value is how far people go instead of how many people go. This correlates to some demands which value long trips, such as the interests of employers

who seek more specialised skills and therefore tend to draw commutes over longer distances. It may also align with the interests of low-density areas in general, since the need to travel greater distances for many things is intrinsic to that development form.

This goal's tension with the first goal is obvious. In network planning, a passenger-kilometre measure tends to create more investment in long-distance services and relative neglect of shorter-distance markets. Because the total patronage (in person or journeys) is lower, the resulting network touches fewer people's lives, and may therefore struggle for South East Queensland-wide public support, though it may be ideal for support in the low-density areas that most benefit.

4.3.3 Advantages to Specific Groups (Social Equity)

There is a widespread view certain groups are entitled to particular advantage for any of a variety of reasons. This view emerged strongly from the market research. Typical categories mentioned are senior citizens, disabled persons, low income persons, and students or youth. If there is a unifying principle to these discounts it is disadvantage. However, disadvantage does not fully explain Australian concession practice or the impulses behind it. After all, fixed incomes are not necessarily low incomes. So we define this more generally as 'Advantages to Specific Groups, for non-patronage purposes'. It may be further broken it into two sub-goals: 'Redistribution for Social Goods' (i.e. concessions focused on low income) and 'Advantages to Other Specific Groups', which go well beyond concessions to include specific deals made with employers or other bulk purchasers – again usually for reasons other than maximizing Patronage (journeys) or Distance Travelled.

In all cases, this category is needed to capture the fact that fare policies do have features that don't necessarily maximise patronage (journeys) or distance travelled, but that may serve larger cultural values or specific needs. It helps to be clear, at every stage, whether a concession, discount, or deal is supporting a patronage goal or being offered for a different reason. If it's a different reason, it goes in this category.

4.4 Balancing Trade-Offs

Attaining all of these goals can be difficult because fare practices that advance one policy goal often work against others. In making recommendations concerning the fare structure, we face the challenge of considering all the potential outcomes and balancing these trade-offs.

By gathering many different goals and impulses into three organising ones, we can simplify the number of goals we need to take into an evaluation of options and policy trade-offs, and also see how each goal implies different positions on those trade-offs. For the purposes of illustration, the right hand column of Figure 4-1 shows just two examples of policy impacts.

First, it shows how simplicity is tied to the Patronage (journeys) goal. One key reason is shorter journeys are more likely to be spontaneous, and spontaneity – the ability to make journeys you don't make routinely, and without much planning – requires simplicity.

In the second column, we show how the three goals track against the question of how sensitive to distance fares should be. Patronage (journeys) is maximised by giving a major focus to shorter trips – mostly within Local Government Area (LGA) – and these benefit from a steeper variation of fares by distance so shorter trips are affordable. Melbourne illustrates the opposite priority, aligning to a Distance Travelled goal: the vast area of flat fare effectively asks short trips to subsidise the longer ones, a clear favouring of the latter.

Finally, on the question of how many zones should be used to create any variation of fares by distance, the **Distance Travelled** goal is lined up against the other two. The **Patronage** (journeys) goal, which favours relatively short journeys, benefits from a flat fare across a large area with large zone steps beyond. This generates flatter fares so fare gradations do not introduce complexity for the local travellers who are ultimately the majority across the whole system, and the ones most cost-effectively served.

Figure 4-1 Fares Goals and Impacts on Policy Decisions

Figure 1. Conceptual Map of Goals and Policies.
Jarrett Walker, MRCagney.

Sample Policy Impacts

Does Simplicity and Legibility Matter?	Relationship of Fare to Distance	How many zone steps?
VERY. Very important to spontaneous tripmaking common in inner cities, centres.	**STEEP.** High distance charge discounts cheaper-to-serve shorter trip.	**FEW, LARGE zones.** Maintain flat fares over self-contained subareas (up to the size of an LGA)
Somewhat. Flat fare is itself simplifying but average long distance commuter has a more regular pattern, so needs simplicity less.	**FLAT.** Short trips subsidize long ones to favor the latter. (Melbourne)	**MANY, SMALL zones, or fine units of distance** (Sydney). More subtle gradations of distance cater to diverse trip lengths.
Somewhat. Concessions can breed complexity and this is higher priority than simplicity.	**STEEP**, if most concession-targeted groups have shorter than average trip lengths, as they usually do.	**FEW, LARGE**, if most concession-targeted groups have shorter than average trip lengths, as they usually do.

4.5 Our Guiding Principles

The Terms of Reference provided to the SEQ Fare Review Taskforce (Section 1.3) gave a very clear brief of the Government's requirement to recommend a package of options that is:

- fair;
- affordable;
- boosts patronage;
- delivers a sustainable fare revenue stream; and
- allows and facilitates the network to continue to grow.

Consistent with this brief, and after considering in detail the range of goals and unavoidable tensions and trade-offs between the organising goals, the SEQ Fare Review Taskforce established the following Guiding Principles.

- The package of options should deliver a system which is affordable for both users and the government;
- The options should, as far as possible, contribute to patronage growth;
- The options should, as far as possible, support the development of a sustainable urban form, while recognising the need to address coverage across the region, particularly to meet specific mobility needs of communities and to improve access in areas where demand may not warrant scheduled services;
- The options should be responsive to the concerns of individuals experiencing acute affordability and mobility needs;
- The options need to ensure a sustainable revenue stream for the Government in order to continue to build, operate, and maintain an efficient and effective network;
- The short term options must be readily implementable under the current ticketing system;
- The package of recommended options must provide a consistent, progressive path towards a longer term fares strategy enabled by technological improvements and Next Generation Ticketing systems, and complement a shift from 'journey management' to 'mobility management'.

These Guiding Principles have been applied to select, evaluate, and prioritise from a vast range of potential fares policy options.

5 OPTIONS DEVELOPMENT

The following sections describe the approach taken to assess a range of fares options and the rationale for the SEQ Fare Review Taskforce's selection of recommended initiatives. A more detailed presentation of the assessment methodology, along with the modelling outputs, are provided in Attachment 4.

5.1 Approach

Key features of our assessment approach included:

- The development of an assessment framework and a set of assessment criteria that reflected the SEQ Fare Review Taskforce's Terms of Reference, organising goals, and Guiding Principles.
- The evaluation of options against the assessment criteria:
  - determining a longer term 'optimal' fare structure for South East Queensland;
  - testing various levels of pricing and discounting levels;
  - assessing the strategic advantages and disadvantages of initiatives;
  - considering the practical requirements for implementation – i.e. whether initiatives are possible under existing ticketing systems and align with next generation ticketing systems; and
  - modelling the financial and patronage implications of those options which, on balance, best met the specified objectives and guiding principles.
- A particular focus on the development of options that can be implemented under the current ticketing system. However, recommendations are made to align with and build upon the strengths and flexibilities provided by new ticketing systems, rather than being just a 'translation' of the existing fares/ticketing system.

Our initial selection of options was informed and shaped by the following:

- Our Terms of Reference and Guiding Principles, as outlined in preceding sections of this report.
- The unique features of the South East Queensland region which need to be considered in deriving an optimal fares structure. In particular, the fare structure needs to knit together some disparate elements:
  - the very strong demand for short journeys in city centres.
  - the economic pull of the Brisbane Central Business District which also creates demand for some rather long distance commuting trips.
  - the presence of sub-regions – e.g. Gold Coast, Ipswich, Sunshine Coast, can function somewhat independently.
- The understanding that trade-offs between simplicity, fairness, and revenue are always required, especially in an area like South East Queensland, which has a relatively large and complex urban form.
- Patronage trends in South East Queensland and market responses to previous fares and ticketing changes.

- Recent submissions to the State Government from a range of industry representatives and stakeholders.
- Market research undertaken by the SEQ Fare Review Taskforce (refer Attachment 3).
- Experience/evidence from comparable jurisdictions.
- Learnings from a number of fare strategy reports prepared for TransLink and other government agencies by industry experts (refer Attachment 2).

5.2 Evaluation Framework and Criteria

A set of assessment criteria was developed for the comparative assessment of options. These criteria are set out in Table 5-1 below.

Table 5-1 – Evaluation Framework

Objective	Criteria	Notes
Patronage Growth	Patronage	Change in trips per annum.
Coverage/Affordability	Average fare	Change in average fare per journey ($ per journey)
	Fare revenue	Change in revenue (including leakage) per annum.
	Maximum increase	% and $ difference between current/proposed fare (for *go* card)
Fairness/Willingness to Pay	Fare/distance travelled Fares revenue Cost reflexivity	Considers also the degree to which fares reflect costs to the Government.
Simplicity	Ease of understanding Removes anomalies	Indicates extent to which users/potential users find the fare structure simple and easy to understand, and therefore are not discouraged from using the services and paying appropriate fares. Considers complexity of fare structure and levels, e.g. number of zones, number of products and eligibility/ applicability conditions.
Feasibility	Costs/Systems	Including systems capabilities and support, both upfront and ongoing
	Timeframes	Implementation timeframes, and the consideration of other TransLink projects such as Next Generation Ticketing.
	Capacity constraints	Modelled in TransLink Incremental Model Considers whether strategies support efficient network design, operations and asset utilisation.

Not all options explored were evaluated in detail. Some options considered simply did not pass 'first principles' in delivering upon the Government's stated objectives and our Guiding Principles. Similarly, not all measures were evaluated for all options. Some criteria – such as capacity constraints – are best modelled for the package of selected options as a whole, rather than for individual options per se.

There are also implications beyond changes in fare revenue and patronage. Implementation costs and timeframes for the recommended package of options have not been calculated in detail at this stage. We suggest this work, along with more detailed modelling of the final package selected, would follow once the Government has considered the SEQ Fare Review Taskforce report and consulted further with the wider community.

In the discussion below, we present two 'key performance indicators' for the short listed initiatives; namely their impacts on fare revenue and patronage. These impacts are analysed in an 'incremental and isolated sense', i.e. we measure how each initiative affects TransLink's revenue and patronage in comparison to the Base (current) scenario, where other initiatives are held constant.

5.3 Modelling Methodology

The SEQ Fare Review Taskforce was assisted by MRCagney in the modelling of options. Three key tools were used to evaluate a range of scenarios:

- **netBI** – integrates data from ticketing, scheduling, and real-time systems.
- **TransLink Incremental Model (TIM)** – uses data on demand, services, and infrastructure to model how services/passenger flow through network and how they respond to changes:
  - Uses a 'generalised cost model' that assigns demand based on monetary and non-monetary elements, e.g. fare, wait-time, and travel-time.
  - Demand response combines both travel diversion and generation.
- **TransLink Journey Model (TJM)** – uses demand data to model fares scenarios in detail.
  - TJM considers how a change in fares impacts on demand and revenue.
  - It can also be used to analyse the distribution of impacts, i.e. 'winners and losers', at a high level of detail.

The impacts of fare changes are typically analysed by way of an 'elasticity', which measures the percentage change in patronage expected for a percentage change in price.

Elasticities are typically negative, because an increase in price results in a reduction in demand. The larger the size of the elasticity, then the more price-sensitive demand is to changes in fares. Price sensitivity can vary between different market segments depending on the nature of the journey and/or the nature of the passenger. Based on a review of the literature on urban public transport elasticities, the following conclusions may be drawn:

- The average (short run) fares elasticity is likely to be approximately -0.35. This means a 10 per cent increase in real fares will result in a 3.5 per cent reduction in patronage. Long run impacts are typically 15 to 50 per cent larger than the short run impact.
- There is evidence to suggest the following journeys are more price-sensitive:
  - Inter-peak, evening, and weekend journeys;
  - Higher income passengers, possibly due to higher levels of vehicle ownership;
  - Short journeys, possibly because fares are a larger percentage of the total journey cost; and
  - Journeys to destinations outside of the city centre.

A 'market segmentation framework' for assessing price sensitivity was used for the modelling of impacts. This incorporates differences in elasticity between different market segments, e.g. peak versus off-peak periods, long versus short trips, and short-run versus long-run impacts. Econometric analyses of the effects of historical fare changes in South East Queensland were also undertaken to refine and derive South East Queensland-specific fare elasticities. More detailed information on the underlying fare elasticity research used to inform the modelling and evaluation is provided in Attachment 5.

5.4 Fare Adjustment Mechanisms

Broadly, we have considered three key areas for fares adjustments:

- **Changes in Zone Structure.** This type of fare structure change is concerned with the basis on which fares are calculated. The fare structure basis may be a flat (single) fare for the entire system or a major proportion of it, a sectoral or zonal fare that starts with a common base fare and then adds an increment to it each time a zone boundary is crossed, or a distance-based fare.
- **Method for Base Fare Adjustments.** This type of change involves increases or decreases in adult fares accompanied by corresponding changes in the other fare categories. The percent changes in fare levels among fare categories are kept generally the same, except for differences that occur because of rounding.
- **Changes in Fare Levels** – Pricing Relationships. This strategy involves altering the pricing relationships among current fare categories. In other words, it does not keep the percent changes in fare levels among fare categories the same. An example is the discounts for *go* card use instead of paper tickets. Also covered in this category are the charging of different fare levels for different hours of the day and days of the week, and provision of targeted concessions.

5.5 Options

The following sub-sections briefly describe the rationale behind the short listing and selection of preferred options. A full list of recommendations is provided in Section 6. For the purposes of discussion, our key initiatives have been categorised as follows:

- Fares Structure (zonal consolidation and simplification)
- Off-peak Pricing and time based discounts
- Concessions
- Frequent travel incentives
- Other Product/Process improvements.

5.5.1 Fare Structure (Zones)

Considering the South East Queensland regional context, and the need for our recommendations to align with current ticketing systems, we conclude, a zonal-based structure best meets the range of objectives.

A flat fare system, the most extreme form of zonal consolidation, is rejected on the grounds that:

- fares would not bear any relationship to the costs of the different services (i.e. they would not be 'cost reflective'); and
- a flat fare system, to be affordable to the government and the community as a whole, would result in very high fares for short-distance trips. This would be seen as very 'unfair' and would result in a substantial loss in patronage. A revenue neutral point would lead to the base fare costing around $4.50. Concession travellers in particular would all be required to pay more (on the whole) than currently, because they tend to make shorter trips.

Given these factors, we recommend the continued adoption of a zonal-based structure as the primary basis of the future fare structure for the region, where fares depend on the number of geographic zones in which travel takes place, with the same policies of free transfers between routes and modes as required to complete a journey.

We note zone-based fare structures are an approximate form of distance-based charging and the market research has highlighted the community considers a distance-based formula for fares to represent 'fairness'.

However, as discussed in preceding sections, the current fare structure has 23 zones (31 zones when NSW cross border travel is included), which is relatively high by international standards. It also has a number of precincts, where locations sit within more than one zones, and spider-legs, where rail stations sit within a zone lower than the surrounding bus zone. Together these features result in a fare system that is relatively complex and difficult to communicate to customers.

The complexity of the current system also has the potential to make revenue protection more difficult and increases risks of revenue leakage.

There is also a sense the current fare structure has a relatively high flag fall, which will in turn tend to discourage people from using public transport for short trips. These issues are exacerbated in locations in close proximity to a zone boundary, where a relatively short trip may cross a boundary and incur a two zone fare.

We also note 90 per cent of demand is currently associated with journeys of six zones or less, suggesting the current 23 zone structure is considerably more complex than it needs to be.

Modelling was undertaken to test the relative performance of a number of simplified sector fare structures.

An 8 zone fare structure has been derived, using existing zone boundaries as follows (boundaries are shown below, and a series of zonal maps providing more detail is provided in Attachment 6):

- Zones 1 and 2 merged to form new zone 1
- Zones 3 to 5 merged to form new zone 2
- Zones 6 to 8 merged to form new zone 3
- Zones 9 to 11 merged to form new zone 4
- Zones 12 to 15 merged to form new zone 5
- Zones 16 to 18 merged to form new zone 6
- Zones 19 to 21 merged to form new zone 7
- Zones 22 and 23 merged to form new zone 8.

5.5.1.1 Reduce Base Fare

Following the selection of a preferred zonal structure, the SEQ Fare Review Taskforce then modelled several scenarios using different base fares and flag fall levels. This was undertaken to address the current perceptions of 'comparatively' high fares for short trips and the cost associated with crossing a zonal boundary.

We consider our simplified zonal structure substantially addresses this issue. Notwithstanding, with our growing patronage objective in mind, we evaluated how to balance base fares to stimulate an increase in ridership without an unsustainable leakage for Government in fares revenue and also ensuring TransLink's system has the capacity to absorb increases in demand of this magnitude. The zone increment and associated fares (at 2015 prices) for the proposed simplified fare structure are summarised in Table 5-2.

Table 5-2 Recommended Zonal and Fares Structure

Zone	Current fare structure *go* card	Proposed 8 zone	Proposed Fare *
1	$3.35	1	$ 3.00
2	$3.93		
3	$4.66	2	$ 4.70
4	$5.24		
5	$5.96		
6	$6.69	3	$ 6.70
7	$7.27		
8	$7.85		
9	$8.43	4	$ 9.40
10	$9.74		
11	$10.32		
12	$10.75	5	$ 12.40
13	$11.20		
14	$12.07		
15	$13.09		
16	$14.10	6	$ 16.20
17	$15.40		
18	$16.28		
19	$17.14	7	$ 20.20
20	$18.46		
21	$19.32		
22	$20.33	8	$ 24.40
23	$21.35		

* At 2015 prices – rounded.

The key benefits of our recommended simplified zonal structure and reduced base fare are:

- Fares have been set to ensure 'minimal losers'. In fact, the significant majority of customers see better value for money and more zone distance for their fare.
- Modelling predicts a large increase in demand for journeys within 2-6 zones.
- Zone structure creates 'sub regions' – with mostly one zone journeys within inner Brisbane, Ipswich and Logan areas, substantially reduced zones for the Gold and Sunshine Coasts, Redlands, Moreton Bay and greater Brisbane. This should encourage more intra-regional travel by public transport.
- Effectively targets fare reductions to the more price sensitive shorter journeys in inner-suburban and peripheral urban areas.
- Addresses the community's general 'willingness to pay' for distance, as highlighted by the market research.
- Addresses simplicity and affordability as well as 'fairness' to whole communities and value to the tax payer.
- Spider leg anomalies / precinct adjustments can be relatively easily ironed out.

In the longer term, under new ticketing system technologies consideration may be given to pricing structures which reflect distances travelled more closely.

5.5.2 Off-peak Pricing and Time Based Discounts

Based on the documented cases and reviews, the key motivations for cities to adopt time-based public transport fare pricing strategies are listed below:

- Manage peak hour travel demands / optimise use of off-peak capacity:
  - Facilitates public transport capacity being more efficiently utilised by relieving crowding during the peak hours while helping to make optimal use of the spare capacity during the off-peak periods.
- Reflect the appropriate service costs:
  - Both unit and marginal costs of peak services are higher than off-peak periods (though not always).
- Increase off-peak patronage and fares revenue:
  - Peak hour commuters tend to be less sensitive to fare increases than other markets, largely because most of them have to adhere to a fixed work schedule and are making essential trips.
  - Off-peak rebates potentially increase passenger numbers as industry research indicates fare elasticities for off-peak travel are typically 1.5 to 2 times higher in magnitude than peak-period elasticities.
- Maintain social equity:
  - Assist low-income and disadvantaged customers with a lower fare alternative, providing affordable services and hence improved mobility.

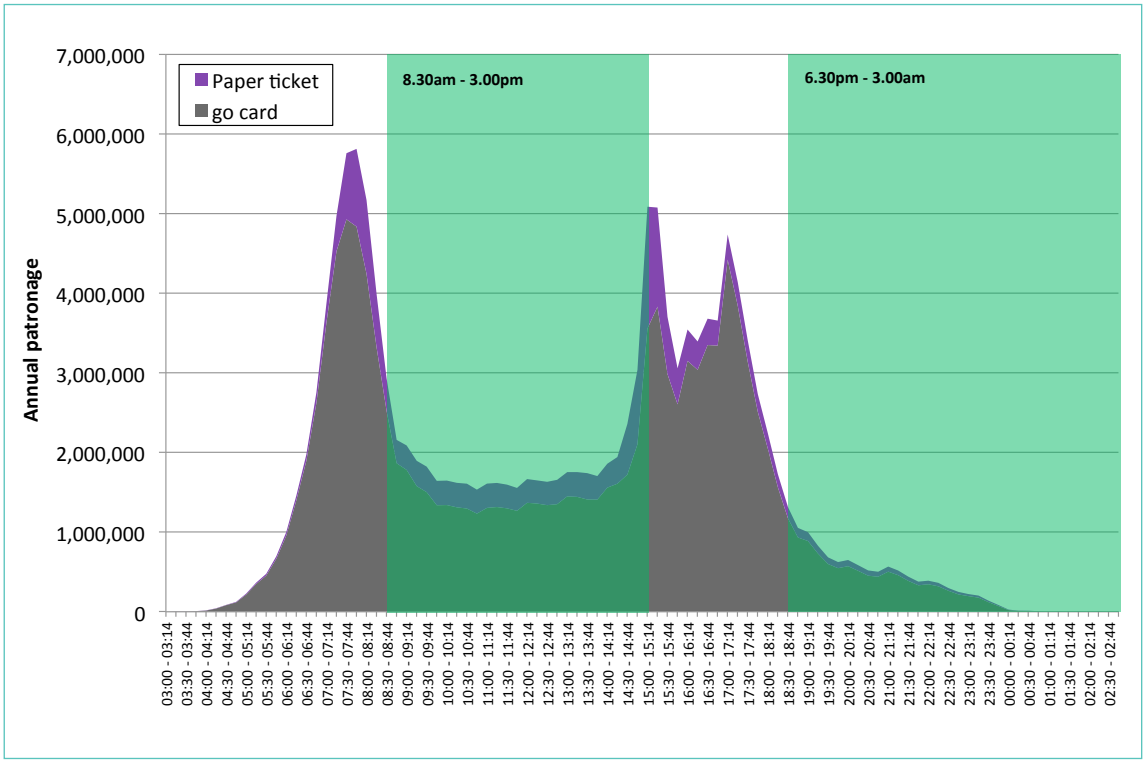
Public transport systems in many large cities in Australia and around the world have significant loading variability, with morning and/or evening peak demand stressing system capacity and affecting service levels. Addressing these problems solely through investment to increase capacity is not always possible due to financial, technical, and time constraints. Spreading peak demand through differential pricing is strongly supported as it provides a plausible demand-management solution in a cost efficient manner.

People who have the option of travelling off-peak should be encouraged to do so, because off-peak capacity is usually abundant, while peak capacity is constrained and costly to provide. This strategy helps build off-peak patronage, which supports more all-day service, which leads directly to public transport that is more relevant to the entire life of the city rather than just the commute. All-day frequent service is the only type of service that can support transit-oriented development and thus change the shape of the city in more sustainable ways. Therefore, an effort to shift demand away from the peak is supported.

The goal of TransLink's current off-peak pricing policy is to encourage more people to travel in off-peak periods, i.e. to spread peak demands. The policy also recognises passengers who travel in off-peak periods are typically more price sensitive, i.e. the fare elasticity in off-peak periods is higher. However, off-peak travel represents a relatively sizable discount for a relatively large proportion of TransLink's revenue base.

The SEQ Fare Review Taskforce considered whether the weekday peak / off-peak times and fare levels could shift to coincide better with prevailing demand and supply patterns. The current peak/off-peak times are illustrated in the following Figure 5-1, where they have been overlaid on top of 15-minute demand and revenue segments. In this figure demand has been split by *go* card (grey) and paper ticket (purple).

Figure 5-1 2013 weekday peak / off-peak periods versus demand



The Queensland Government has recently brought the end of the morning peak period forward by half an hour to 8.30am, where it previously had started at 9.00am. The purpose of this change was to encourage 'peak spreading', whereby passengers may avoid travelling in the peak period. This has the consequential benefit of alleviating some crowding on services without the need for additional services and/or infrastructure. However, we note the impact of this recent initiative has been minor to date.

Under current policies, the off-peak fares (for *go* card users only) apply if they touch on during the following times:

- Weekdays: 8.30AM to 3.30PM, and 7PM to 3.00AM the next day;
- Weekends: all day; and
- State-wide Queensland gazetted public holidays: all day.

go card users receive an additional 20 per cent discount on fares if they travel in off-peak times.

Peak fares should cost more than off-peak fares. Our market research has also indicated passengers generally understand their trips have different costs to the operator (and other passengers in terms of crowding and delays) depending on their trip timing.

We find shifting demand out of peak is possible as long as peak/off-peak fare differentials are significant. Furthermore, we find people are more willing to change time for travel to before-peak rather than after-peak periods in the morning and passengers travelling longer distances and those with time flexibility are more sensitive to differential fares pricing.

The SEQ Fare Review Taskforce modelled various off-peak discount levels (for *go* card users, the aim here being to continue to encourage pre-purchase rather than paper ticket purchase). Determining the appropriate level of discount was challenging. This initiative dissipates revenue earned in off-peak periods, which actually represents the bulk of the time for which the network is operating. Further increasing the off-peak discount would mean weekend fares are also lowered. Weekend discounting will not realise any benefits from peak spreading, which would be expected to follow from a general increase in the off-peak discount. The costs of providing weekend services are typically higher than off-peak weekday services, because the former can attract higher labour costs. For these reasons, off-peak pricing differentials represent a relatively sizable discount for a relatively large proportion of TransLink's revenue base.

Based on our evaluations, and on balance with other fare initiatives proposed, we are of the opinion an increase in discount from 20 to 30 per cent produces the best outcomes, in terms of balancing objectives.

We also recommend the morning off-peak period be extended from 3:00AM until 6:00AM.

In the medium to long term, under the pricing flexibility enabled by new ticketing systems, we recommend consideration be given to also introducing 'shoulder peak' pricing (i.e. 10 per cent discount off fares in the thirty minutes immediately before and after the designated peak periods).

We consider further levels of off-peak discounts and times would strongly contribute to TransLink's cost structures without generating additional patronage.

5.5.3 Daily Products

Another alternative mechanism to apply time-based discounting is fixed daily cap pricing. This is not currently possible under the current ticketing system. However, we recommend it be considered as part of the fares package for a next generation, account based ticketing system.

The SEQ Fare Review Taskforce considered the re-introduction of a daily paper ticket. Daily paper tickets may be considered attractive for the following reasons:

- They can appeal to infrequent public transport users and visitors who are less likely to use *go* card.
- They can reduce the number of cash transactions, which improves boarding speeds.
- Substituting the existing single trip paper ticket for a daily ticket may reduce revenue leakage from single tickets being used for free return journeys within the allowed two hour window.

On the other hand, daily paper tickets would most likely encourage a shift away from *go* card and back to paper tickets, which in turn could contribute to the following issues:

- Reduced boarding speeds when the ticket is initially purchased.
- More cash handling requirements for operators and associated transaction costs for TransLink.
- The need for more paper ticket inspections and revenue protection.
- Undermines TransLink's financial and patronage data (NB: *go* card data is TransLink's key tool in making informed recommendations and decisions).

It is also difficult to implement an attractive/equitable 'all zone' daily ticket in South East Queensland because – to avoid revenue leakage – the price would need to be set equal to the most expensive single paper ticket available on the network. To be attractive to users (and affordable to government) a daily ticket would need to be priced differently for each zone. This would require the introduction of several new fare products into the TransLink system, once the number of zones and concessionary fares were accounted for. While the complexity introduced into the fare system could be partly mitigated by using a standard price multiplier – e.g. the daily paper ticket could be priced at 2.5 times the cost of a single paper ticket – it still represents a major expansion in fare system complexity.

Ongoing growth in the *go* card market share suggests a daily paper ticket would now appeal to a smaller number of passengers and therefore such an initiative is not considered to be a priority. We suggest it would be more effective for TransLink to focus on considering value-based daily caps for card users, under the next generation ticketing system, rather than delivering a paper daily ticket.

In the interim, extended use of products like the TransLink Access Pass card, *go explore* and seeQ card (discussed below) may be an option.

5.5.4 Other Weekend Discounts

Our market research indicated public transport on weekends, for family groups in particular, is considered 'unattractive' or 'uncompetitive with private vehicle use', despite the off-peak discount applying.

For this reason, the SEQ Fare Review Taskforce considered and evaluated a range of pricing mechanisms to encourage greater weekend travel on public transport, particularly for families.

We recommend the Government considers offering free travel for children age five to 14 inclusive travelling on a child *go* card. Combined with the simplification of zones, the off-peak discounts and proposed frequent travel discount incentive, this recommendation supports benefits to the individual, community and local economy by making public transport more affordable at weekends.

As discussed in the preceding section, the SEQ Fare Review Taskforce supports the continued policy of discounts not applicable to paper ticket purchasers to encourage continued take up of card use with its associated operational efficiencies and data collection benefits.

go card users would receive a proposed 30 per cent off-peak discount on travel, above the discount which is applied for *go* card use compared with the fare for paper tickets. Concession travellers also receive a 50 per cent discount on top of these cumulative discounts. This level of discounting is considered to be 'fair' and 'affordable' to these markets and, given the higher costs associated with the provision of weekend services, no further weekend discounting is recommended.

5.5.5 Concessions

The goal of concession fare pricing, whereby discounts of up to 50 per cent are offered to eligible passengers, is to ensure all segments of society have access to public transport. In Australia, concession fares are offered to groups who are likely to have below average income levels or who are particularly dependent on public transport, such as children, students, seniors, people with disabilities and war veterans.

Concession policies have a significant material impact on cost recoveries. For example, the number of journeys taken using concession fares and the level of discount offered equates to an overall dilution in farebox revenue of more than $100 million across the TransLink South East Queensland region.

Our views have also been guided by the market research findings. Generally people felt more should benefit, however they were not prepared to pay increased fares to support increased concessions.

With the growth and ageing of the population, the proportion of people entitled to concession fares under the current system is likely to continue to increase in the future. This is likely to encourage further debate into the rationale for offering whole sectors of society, with varied income levels, access to the same concession discounts.

The SEQ Fare Review Taskforce believes the recommended package of fares initiatives addresses both `fairness' and affordability (to government, the community, and users) whilst also ensuring key social justice objectives are met.

We recommend extending further concessions to assist asylum seekers and recipients of the Newstart Allowance.

Initial estimates put the cost of extending concessions to Newstart Allowance recipients and asylum seekers at around $4.3 million per annum.

go access is a current product favoured by the SEQ Fare Review Taskforce to distribute concessions for Newstart Allowance recipients and Asylum seekers. The government departments with generic responsibility for these disadvantaged groups could obtain these cards and manage the process of distribution and eligibility enforcement. The product is currently being trialled successfully by the conference sector who buys in bulk and issues to delegates.

We note the issue of concession travel for all international students has been raised in submissions to the Government. Most full-time international tertiary students are currently eligible for concessional travel. However, there are some courses and institutions which are ineligible. To cover all courses would require an additional cost (subsidy by the State) of $12 million per annum. International students could possibly be managed under the *go access* system and funded by the respective institutions, however it would be considered expensive. Our recommended package of fares initiatives spreads benefits across the greater community, including these students.

The impacts of extending concession fares to include Newstart Allowance recipients and asylum seekers are:

- **Cost: Asylum Seekers-** There is limited information available for numbers or travel patterns on this group. There are currently 3500 recipients in this category and based on estimated usage of 24 times per year at Average Fare of $2.33 equates to around $195,720. The SEQ Fare Review Taskforce recommends funding for this concession should be passed to Government as per Centrelink costs and possible application through use of corporate cards.
- **Cost: Newstart Allowance Recipients-** Based on a usage of 24 times per year at an average fare of $2.33, fare revenue in the range of $4.1 million to $4.9 million will be lost. The SEQ Fare Review Taskforce recommends funding for this concession should be passed to relevant Government Departments and possible use of *go access* or a similar product.

5.5.6 Frequent Travel Incentives – 8 and 50 per cent

The SEQ Fare Review Taskforce undertook further analysis to find out how many weeks each *go* card typically benefited from the `9 and free' discount incentive since its introduction in June 2012.

It is worth noting the `9 and free' policy implemented in June 2012 is essentially continuation of a long-established policy direction in South East Queensland, which has sought to provide increased incentives for frequent users. This direction was initially set in January 2010, when a 50 per cent travel discount was introduced on *go* cards used for more than 10 journeys per week. The frequent travel discount after 10 journeys was subsequently increased to 100 per cent from January 2011, before the most recent policy change (June 2012) applied the 100 per cent discount after 9 journeys.

Up to 83,000 passengers per week have travelled for free having undertaken 9 previous journeys in that week, which represents approximately 7.5 per cent of total annualised weekly *go* card journeys recorded on the South East Queensland network.

The more important policy question, however, is whether the '9 and free' policy (and its precedents) have stimulated additional journeys, above and beyond what would have occurred otherwise? Answering this question requires identifying those users who were making fewer than 9 journeys per week prior to the introduction of the policy, who subsequently chose to make 10 or more journeys per week after the policy was introduced. Of course, in reality we can never know precisely what motivated changes in people's travel behaviour, even if it coincided with the introduction of the '9 and free' policy.

Our analysis suggests '9 and free' may have generated some new patronage, although most of the benefits will have fallen to people who were already travelling regularly. Meanwhile, less frequent users who do not qualify for '9 and free', but are still travelling at peak times, are likely to have felt the full brunt of the recent fare increases. We note '9 and free' is not particularly relevant to these users, which are the majority of TransLink's existing and – more importantly – potential new customers and is costly to government for the benefit of relatively few.

For this reason we see little value in providing further incentives for frequent users via this mechanism. We believe our recommended simplification of the zonal structure is 'fairer' by providing comparatively better fares for more people. In effect, this provides a renewed incentive for those less frequent – but nonetheless regular – users. Given the large size of this market segment this focus yields greater pay-offs than delivering further benefits to a relatively small number of frequent users.

Notwithstanding, the offer of incentives or rather a 'reward' for frequent public transport usage has merit. For this reason, we modelled a range of incentive discounts and we recommend the Government consider the offer of '8 journeys and 50 per cent discount' for additional journeys within a week.

We note the current '1, 2, and free' discount for seniors and pensioners has generated minimal additional journeys per annum. It is estimated approximately 10% of seniors, pensioners and DVA Gold card *go* card holders make three or more journeys on any given day and could be eligible for the 1,2 and free discount. Increasing the general discount for off-peak travel has the potential to benefit far more concession travellers and we recommend the savings from removing this discount be reinvested to provide the suggested 30 per cent discount and applicable off-peak times, for all off-peak travel by go card, along with the 50 per cent fare for *go* card journeys after eight journeys.

The SEQ Fare Review Taskforce tested a number of options which provided a more equitable frequent travel incentive: one which benefitted more people than the current products. In addition to the consolidated zonal structure and extended off-peak discounting offers, we recommend after 8 paid journeys, all subsequent journeys in the same week are discounted by 50 per cent.

This recommendation has largely been made on the basis that this would be an interim initiative. A dollar limit capping system (when the adoption of new ticketing technology enables this to occur) would likely replace the '8 and 50 per cent' in due course.

5.5.7 Other Product/Process Improvements

5.5.7.1 Tourism Products

The SEQ Fare Review Taskforce supports the initiative of discount multi-journey 'pass card' products to encourage greater use of the region's public transport system during their visits to South East Queensland. Future ticketing systems will enable greater integration of products and services (including attraction passes, accommodation etc.), facilitating a 'mobility management' approach for tourists and residents alike. We recommend this initiative be actively explored during the development and introduction of the next generation of ticketing systems for TransLink.

The SEQ Fare Review Taskforce reviewed the current seeQ card which provides a combined period-based travel and attraction entry pass. Whilst the concept is sound, the very low take up rates for such products suggests the package and price structure is not attractive in its current form. The SEQ Fare Review Taskforce recommends the Government consider removing the Airtrain eligibility from the product to make the product more affordable to tourists/visitors, many of which do not require access to and from the airport.

.Furthermore, the SEQ Fare Review Taskforce recommends TransLink increases its promotion of the ease of use and value for money *go* card product, with its associated discount levels, and that it further promotes the level of off-peak discounts to encourage greater use by tourists/discretionary markets who usually have the flexibility to avail of these discount times.

Greater use/extension of the Access pass cards is supported as an interim measure under the current ticketing system – for visitors, delegations, and more broadly for purchase by employers and associations. Discounted fares may also then be subsidised by the appropriate agency rather than being absorbed and reflected in the general cost structures for provision of passenger transport operations.

5.5.7.2 Fare Adjustment Mechanisms

As part of its review, the SEQ Fare Review Taskforce also considered methods for setting public transport fares and evaluated the option to independently regulate public transport fares as in other Australian states (notably, NSW).

Fare setting and adjustment practices can be distinguished according to their underlying goals, the management of the fare regulation process, the regularity of the adjustments, and the actual adjustment mechanism. In many countries, fare regulation practices are quite weak (adjustments are irregular). However, some have comprehensive fare policy statements. These include:

- Long-term goals (e.g. maximize ridership, maximize revenue, maximize social equity, encourage higher density urban forms etc.);
- Short-term objectives (e.g. recovery ratio or ridership target);
- Guidelines for reviewing/changing fares (e.g. review annually, tie fares to inflation etc.);
- Technology- agency makes fare structure changes to take advantage of new technology (e.g. smart card) ; and
- Service-driven: agency makes fare structure changes to accommodate a new mode or type of service (e.g. light rail transit, express bus).

The SEQ Fare Review Taskforce considered the fare-setting approaches and practices adopted in Australian states (and territories) in which fare changes are subject to determination by an independent tribunal: the states covered are:

- NSW (Independent Pricing and Regulatory Tribunal);
- Tasmania (Government Prices Oversight Commission); and previously also
- ACT (Independent Competition and Regulatory Commission).

In all other states, fare-setting is the responsibility primarily of the state department of transport (or equivalent department): in these cases, the principles, objectives and approaches adopted are generally less formalised and transparent than in the states with independent tribunals.

From a review of the Tasmanian and NSW cases, we do not necessarily suggest a separate pricing tribunal unless such an oversights agency has responsibilities which are wider and include transport prices in general, i.e. road user charges, tolls, vehicle registration, as this would enable integration in price changes across modes. Instead, we point to the benefits of developing and publishing a fare setting process, similar to Singapore, which describes the process through which fares are adjusted per year.

Hong Kong, Singapore, Montreal and Washington, D.C. use a fare setting formula which accounts for costs and wages. The fares are adjusted according to the formula with some regularity, although the timing and frequency of adjustments may not conform to an established schedule. In Singapore, the fare adjustment cap formula now adopted is set out in Figure 5-2.

Figure 5-2 Singapore Public Transport Fares Adjustment Mechanism

Fare Adjustment Formula

- **Fare Adjustment = Price Index – 0.5%**

  Price Index = 0.4 (cCPI) + 0.4 (WI) + 0.2 (EI)

  cCPI = the change in core Consumer Price Index over preceding year

  WI = the change in average monthly earnings for all workers over the preceding year, adjusted for any change in the employer's CPF contributions

  EI = the change in Energy Index over the preceding year. The Energy Index is a composite index based on diesel costs and electricity tariff

  0.5% is productivity extraction set for 5 years (2013 to 2017)

- **Fare review exercises always based on previous year's indices**

Source – The fare review mechanism committee, affordable fares, sustainable public transport, 2013

Similarly in Hong Kong, fare adjustment has been subject to an objective and transparent Fare Adjustment Mechanism ('FAM'). Under the current FAM, the fare adjustment rate for the prevailing year is determined in accordance with a direct-drive formula linked to the year-on-year percentage changes in both the Composite Consumer Price Index ('CCPI') and the Nominal Wage Index (Transportation Section) ('Wage Index') in December of the previous year, as well as a productivity factor.

The FAM is reviewed every five years. An 'Affordability Cap' has also been introduced where no matter the outcome of the direct-drive formula in future, the fare increase rate of that year will not be higher than the change in Median Monthly Household Income ('MMHI') for the corresponding period to address public affordability.

An independent method for setting fare indexing for TransLink is considered to be attractive for the following reasons:

- Stability – an independent method for indexing fares can provide greater stability to TransLink's customers by ensuring fare levels are updated in a regular but predictable manner;
- Transparency and neutrality – an independent policy for indexing fares that is linked to an external body or indicator, such as wage price index (WPI), should mean that future fare increases are perceived as being more neutral, which in turn should avoid negative media attention; and
- Balance – we suggest an appropriate fare indexing policy can support affordability for both the government and the user, while allowing annual fare increases to be independent of both.

Two alternative fare indexing methods are discussed below, for Government's consideration.

5.5.7.3 Link Fares to Wage Price Index (WPI)

The wage price index (WPI) captures movements in average wages. Queensland Treasury's forecast for WPI is currently 2.4 and is forecast to be 2.75 for 2016/17.

Indexing fares by WPI has a number of natural advantages. First, movements in wages are closely linked to changes in household income, which means WPI is a reasonable approximation for changes in people's ability to pay for a range of household items, including public transport. Second, wages are an important input into public transport costs, and changes in WPI are likely to be strongly correlated with movements in TransLink's costs.

Indexing by WPI should therefore maintain fares at a level relatively consistent with what TransLink's customers are able to pay, as well as the costs TransLink pays to its operators. However, we note the WPI includes only wage-related payments to employees. The former Labour Price Index (LPI) combined wage and non-wage payments (leave, superannuation, payroll tax and workers compensation) into a single measurement of total labour cost movements, though was discontinued after FY2011. Also, a primary cost driver missing from the WPI equation is fuel prices, but this will tend to vary between modes and over time

Because WPI typically exceeds CPI, on the surface it would appear this fare indexing option will cause fares to continue increase in real-terms, albeit more slowly than they have in the past. This interpretation, however, does not account for the aforementioned distinction between 'headline' and 'average' fare increases (discussed previously). In short, headline fare increases typically exceed average fare increases because passengers respond to higher fares by migrating to more cost-effective products. For this reasons, headline fare increases of WPI may result in average fare increases similar to CPI.

5.5.7.4 Link Fares to Consumer Price Index (CPI)

The consumer price index (CPI) tracks changes in the price of a bundle of common household items. In this way, CPI is a broad measure of the cost of living faced by TransLink's customers. There are multiple factors which may affect future movements in inflation over the forward period. This includes:

- movements in the exchange rate, which can impact prices for tradable items; and
- a relatively subdued outlook for the labour market, which may exert downward pressure on wages and therefore inflation.

The RBA, however, has maintained current inflation expectations will remain within the 2 to 3 per cent target inflation band.

CPI is attractive because it would link fare indexing to a widely understood, broad-based measure of costs. On the downside, the costs of providing public transport services tends to increase more rapidly than general movements in consumer prices. This means indexing to CPI will, over time, lead to fares increasing at a slower rate than costs, which may exacerbate funding constraints. This issue will be exacerbated by the fact that headline fare increases of CPI will translate to average fare increases lower even than CPI.

It is assumed moving to a CPI fare indexing path would see fares increasing at 2.5 per cent per annum in the coming year, although this simply means they remain broadly constant in real-terms.

In summary, a regulatory framework and deterministic formulae in place is more transparent to the public and also provides the transport agencies with greater planning certainty. Success in the use of a fare adjustment formula lies in striking a balance between transparency and flexibility. In addition we would encourage the development of a comprehensive revenue strategy for public transport, beyond fares box revenue, including charging from users and beneficiaries of the transit system.

The following section of this report (Section 6) provides a summary of our key recommendations which have been formed as a result of our options development and testing. The SEQ Fare Review Taskforce believes these recommendations, based on the preceding discussions, will:

- work with each other to provide the best possible outcome for fares in South East Queensland;
- provide a fare system which is fairer, more affordable and provides the best outcomes to the greatest number of people;
- address short term needs and pave the way for longer term fare reform; and
- stimulate longer term patronage growth and sustainable revenue for the Government.

6 SUMMARY OF RECOMMENDATIONS

6.1 Recommendations

1.0 It is recommended the Government adopts the following key reforms to fare structures and policies as a package:

Overall this package addresses a number of the concerns the public has (as highlighted in TransLink's and the SEQ Fare Review Taskforce's market research and submissions to Government) with the current fare structure and pricing: in short the perceived high cost for relatively short distances.

More than 30 options were initially modelled before the SEQ Fare Review Taskforce settled on recommending the following core fares reform package:

	Current	Recommendation 1 (and elements)
Zones	23 Zones	8 Zones
Off peak discounts	20 per cent to all users travelling with a *go* card	30 per cent to all users travelling with a *go* card
Off peak times	7PM – 3AM (Mon to Fri) All day weekends 8.30AM – 3.30PM (Mon to Fri)	7PM – 6AM (Mon to Fri) No change No change
Incentives	9 and FREE 1,2 and FREE (seniors / pensioners)	Remove Remove Replace with 8 paid journeys and 50 per cent off subsequent journeys per week (all users)
Children	Standard concession (50 per cent off adult *go* card fare)	Children 5-14 years can travel free on a weekend with a *go* card

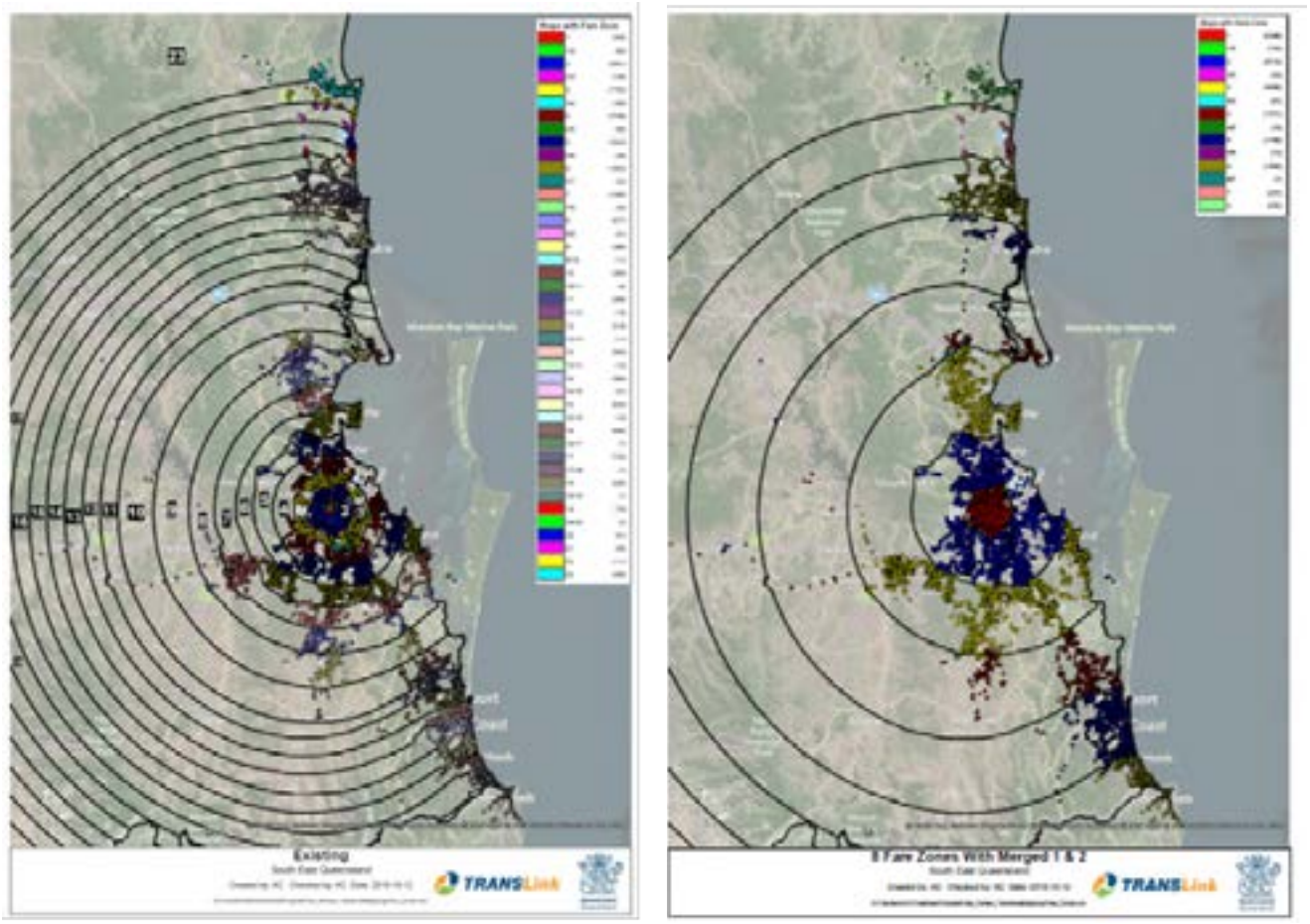
1.1. It is recommended TransLink adopt a zone simplification to eight zones for the South East Queensland region (merging existing zones 1 and 2, and subsequent merging of current 23 concentric zones). As part of this Recommendation, the SEQ Fare Review Taskforce recommend a one zone journey fare be set at $3.00 upon implementation in order for short journeys on public transport to become more appealing and affordable.

- Market research indicates customers feel short journeys are expensive and the SEQ Fare Review Taskforce is of the opinion public transport users should be charged relative to the distance travelled. Therefore this recommendation gives better value for money for short journeys and reflects the experts' view, nationally and internationally, that there is a justified move towards distance based fares.
- The SEQ Fare Review Taskforce has recommended a future fare price structure, based on 2015 prices, as an indication of what the adult *go* card fare price would be if implemented in 2015. The recommended fare for one zone journeys is $3.00, with increases on fares with distance (i.e. additional zones travelled) up to a maximum of $24.40. However the SEQ Fare Review Taskforce accepts that fares for 2 or more zone journeys may be set higher, depending on the date of implementation.

Zone	Proposed fare structure ADULT *go* card fares at 2015 prices
1	$ 3.00
2	$ 4.70
3	$ 6.70
4	$ 9.40
5	$ 12.40
6	$ 16.20
7	$ 20.20
8	$ 24.40

- The primary rationale for this is having a reasonable and clearly understood *go* card fare a single zone journey. It is recommended for the initial year of implementation all figures are rounded to the nearest ten cents in order to help customers clearly identify and remember the fares changed for public transport under this Recommendation. Other rationale for the proposed fare levels in the simplified 8 zone structure include:
  - reflecting distance based travel costs
  - make short journeys fair and affordable
  - aims to encourage patronage growth when applied to the zone simplification as one zone journeys cover a greater distance (north-south and east-west directions)
  - seeks to increase the appeal of public transport to travel to local activity centres
  - provides low income and disadvantaged groups affordable access to local centres for essential trips (especially when considered with concession and off-peak travel discounts)
- A fare system structured on distance-based travel is important for South East Queensland given the geographic size of the area and makes it 'fairer' for the majority of users (around 84 per cent of public transport users travel 4 zones or less across the current system).
- The current fare structure is based on fare increase margin reduces the further from zone 1 you go.
- This consolidated zonal structure strongly encourages local travel and amenity use by public transport, including local city travel, such as within the Gold Coast and Sunshine Coast and Ipswich and surrounds. The proposed zonal structure encourages local journeys (noting 1 zone would be much larger in size under recommendations, promoting north-south as well as east-west travel).
- The SEQ Fare Review Taskforce also recommends TMR undertake a detailed review of zone boundaries to ensure the removal of existing anomalies (spider legs and precinct legacy issues). The proposed structure assists with the removal of spider legs and precincts and addresses changing land-use patterns, population density growth in suburban areas by adding more affordable local travel.
- This recommendation takes account of existing technical constraints and is consistent with distance-based application opportunities under future ticketing systems.
- The proposed zonal structure and recommended fare structure is summarised in Figure 6-1.

Figure 6-1 Indicative Zone Simplification from 23 to 8 Zones and Recommended fare structure



1.2. It is recommended the off-peak discount be applied at the rate of 30 per cent.

- The recommended increase in discount level from 20 to 30 per cent will encourage greater peak demand spreading and new patronage to the off-peak network.

1.3. It is recommended the morning off-peak be extended through to 6AM.

- Services running at 3AM (which are currently designated as a peak hour service) do not reflect the current frequency of those expected with peak hour travel (and associated fare prices) and hence can be perceived as poor value for money and not representing a fair fare.
- Moving the morning peak start time may encourage some re-distribution of travel in the morning peak and potentially new patronage, particularly from long distance trips, such as the Gold Coast and Sunshine Coast.

1.4. It is recommended that children aged 5 to 14 years travel free at the weekend on a child *go* card.

- This recommendation 'returns the city to society' and encourages family travel at weekends (which is designated as off-peak so reduced adult fares would also apply. Regular commuters may also benefit from the proposed 8 and 50 per cent discount).
- The requirement of a *go* card encourages take up of child *go* cards and encourages the development of a public transport culture and familiarisation from an early age. *go* card requirement is also strongly recommended for data capture reasons, allowing the effectiveness of this option recommendation to be monitored, and to ensure eligibility.
- Combined with the consolidation/ simplification of zones, this recommendation supports benefits to the individual, community and local economy by making public transport more affordable at weekends.

1.5. It is recommended the '9 and free' and '1,2, and free' products are removed and replaced by '8 and 50 per cent' for all *go* card users – after 8 paid trips, all subsequent trips in the same week are discounted by 50 per cent.

- Market research highlights customers are happy to pay for a service if it reflects efficiency and value for money. This recommendation offers a more equitable approach to discounted fares, applicable to a greater proportion of the market.
- This recommendation is on the basis that this is 'step one' leading to a dollar limit capping system (when technology enables this to occur in years to come). A capped fare would replace the 8 and 50 per cent in due course.

2.0 It is recommended consideration be given to possible longer term zone refinements, including investment into research and modelling on concentric hubs around Brisbane, Gold Coast, and the Sunshine Coast.

- This recommendation further supports distance based travel and encourages public transport use around urban, social and economic centres. As a longer term plan this will reflect the growing population of South East Queensland and may provide a model that can be rolled out regionally.
- A full review of zone boundaries should be undertaken to take account of new and upcoming developments and local centres to avoid dividing communities by a zone boundary. This will encourage local travel to local amenities by public transport.

3.0 It is recommended two versions of *seeQ* card product be provided, one with removal of the Airtrain option from the *seeQ* card.

- Tourists visiting South East Queensland by road (bus or coach travel, rather than flying in to Brisbane Airport) are believed to be deterred from the use of this product due to the costs of the Airtrain component which significantly increases the price. Removal of the Airtrain component is likely to provide better value for money for travellers not arriving by plane via Brisbane Airport and wishing to use the SEQ Translink network.

4.0 It is recommended TransLink continue to invest in the rollout of the *go explore* product on the Sunshine Coast.

- Due to the success of *go explore* on the Gold Coast, it is felt this would benefit public transport users and visitors to the Sunshine Coast and investment should continue with this strategy. This recommendation supports benefits to the individual, community and local economy by making public transport more attractive to visitors.

5.0 It is recommended TransLink continue to explore the corporate use of *go access* cards for events, conferences and other similar events.

- This will encourage uptake of patronage and *go* card use for visitors to the region and will benefit the community and economy by encouraging business visitors to use local services and amenities and potentially boost patronage. Currently a significant number of events do not offer a travel pass with the event ticket and without a simple system to do so, visitors may not choose to explore local areas by public transport.

6.0 It is recommended the Government reviews its concessions framework and consider extending applicability to Newstart allowance recipients and Asylum Seeker groups.

- These disadvantaged groups require access to public transport whilst on little or no income. Providing concessions to these groups allows these individuals to get to services and amenities they need.

- With a growing number of disadvantaged and special groups seeking concessions, it is important the government also has a framework in place for assessing eligibility to concession schemes. This will give a transparent and open process by establishing criteria that would need to be applied for new concessions and concession groups.
- A product like *go access* may be suitable for use by Newstart recipients (and other defined groups).

7.0 Whilst acknowledging this could take some time and investment to implement, it is recommended consideration be given to the government agency with generic responsibility of Newstart managing the issuing of concession travel passes and budget for this group of public transport users.

- It is recommended some disadvantaged concession groups be funded as standalone items separate to the operational efficiency of TMR.
- Whilst recognising the need for disadvantaged groups to receive concessions, such as Asylum Seekers, adding these costs to the operational budget is not recommended. Consideration should be given to the funding of concessions from the relevant government departments.
- Funding for the public transport system is required for an efficient network development and management. The funding of concessions for disadvantaged groups would be better identified, costed and responsibility placed in other departments. How this takes place requires review by all parties, but could be through the use of *go access* cards purchased by the relevant department who is then able to manage the changing circumstances of individuals (for example, those moving from unemployed through to Newstart through to employed adults).

8.0 It is recommended TransLink continues to move away from paper based ticketing and initiatives continue to support and encourage the take up of *go* cards (including pricing differentiation).

- Benefits include value and savings through use of a *go* card for customers, improved data tracking for network design, reduced transaction costs to TransLink, and improved operations such as on time running (speed up boarding times).
- Pricing differentiation between *go* cards and paper tickets is recommended to remain as per current differentiation. The current pricing differentiation has been most successful in the take of *go* cards and less use of paper tickets. This trend must continue for operational efficiencies and better travel times for the customer.

9.0 It is recommended, where possible and practical, bus operators move towards a rear door loading model.

- More efficient boardings will lead to more reliable journey times and therefore better value for money as well as improving operational efficiencies. This is especially relevant on Pre-paid services. The SEQ Fare Review Taskforce notes this may lead to an increase in over-riding, but could be offset by increased revenue protection officers or gated systems. The SEQ Fare Review Taskforce notes investment into further research and studies may also be required.

10.0 It is recommended an on-going review of the urban fringe communities be undertaken to include transition of rural communities away from paper ticket fares – this is subject to the implementation of a new ticketing system.

- Some communities have a different ticketing system for local travel – the next generation ticketing system may encourage greater uptake due to greater flexibility of a new account based card. This could be reviewed in one of the regular/annual meetings recommended by the SEQ Fare Review Taskforce.

11.0 It is recommended TransLink adopts a time-based Fares Cap ($ limit) when ticketing technology allows this to take place.

- This will reward regular users of public transport, therefore encouraging more use in any defined period.

12.0 It is recommended a taskforce or expert-led group is established for an independent and transparent appraisal process to review the general principles and appropriateness for fare setting and changes. This includes the possibility of CPI as a starting point when considering future fare changes.

- A Future Fare Path Strategy needs to be developed and a set of principles applied based on a transparent fare setting process.
- This recommendation is made to keep fares fair and affordable, whilst delivering a sustainable fare revenue stream and boosting patronage and network growth. It would also remove the political aspect which can lead to uncertain and ad hoc adjustments of fare prices and products.
- A substantial review of the fares setting mechanism should take place every 5 years.

13.0 It is recommended the (or a) taskforce meets again to check the course set by the taskforce during these deliberations continues.

- This process will identify any additional recommendations or changes in public transport products that may require further review/comment and to ensure the recommendations remain on track for implementation and are relevant to community needs.

14.0 It is recommended Community Engagement should include an education process and seek to market the public transport network and its full benefits and capabilities.

- Market research undertaken for the SEQ Fare Review Taskforce indicates, in general, few people are aware of the operational costs of running public transport, the subsidies required, and the true costs of driving a car and parking to a destination. As such fares are perceived to be high. The SEQ Fare Review Taskforce favours the idea of an element of the public engagement process to include comparing travel by public transport with driving, and the pros and cons between the two.
- The SEQ Fare Review Taskforce also favours an approach to educate users on the public transport system as a whole and what fares and benefits are available to maximise travel opportunities and minimise travel time (for example – finding the most efficient connections) and find the cheapest fares/ fare products to meet their travel needs. Whilst this may be done through the public engagement process specific to the current review, it is also recognised appropriate resourcing is provided for ongoing information, education and promotional activities.

15.0 It is recommended funding is allocated to the improvement of networks generally, while acknowledging fares need to be kept relevant.

- In light of market research, people perceive public transport is expensive, although many wouldn't mind the cost if the services they received were efficient and improvements made, i.e. a broader 'value for money proposition rather than considering price of fare alone'. Network improvements are likely to lead to increased passenger growth and more efficient systems.

16.0 It is recommended Government re-addresses discussions about phasing out free services (for example, City Hoppers, Gold Coast Seniors Card)

- In order for fares to be 'fair' and providing a sustainable revenue stream, the SEQ Fare Review Taskforce recommends these discussions be held with a view to removing the anomalies in the system. The only free transport service the SEQ Fare Review Taskforce recommend (apart from arrangements for the specified disadvantaged groups) is for children aged five to 14 years on a child *go* card at the weekend.

17.0 It is recommended movement to an account based ticketing system should take place as soon as reasonably and practicably possible.

- This will help the stepped approach recommended by the SEQ Fare Review Taskforce to be implemented and the recommended fare strategy and structure to be most effective.

6.2 Summary of Key Benefits and Costs

Below we summarise the key benefits of Recommendation 1, and supporting initiatives, under our three organising goals (outlined in Section 4.3):

Grow Patronage/Address Affordability

- Significantly addresses affordability via the recommended zonal consolidation and reduction in base fare to $3.00 (Adult one zone *go* card fare).
- Our modelling indicates significant additional demand will be generated for zones 1- 6 travel.
- Our recommended zone structure also strongly supports and encourages a more sustainable and compact urban form.
- The recommendation will create subregions with mostly one zone journeys within inner Brisbane, Ipswich and Logan areas, substantially reduced zones for the Gold and Sunshine Coasts, Redlands, Moreton Bay and greater Brisbane. This overcomes the current disparity between north-south travellers on the Gold and Sunshine Coasts who tend to cross zone boundaries and pay more than east-west travellers who may travel further distance but only pay a single zone fare.
- The recommended zonal structure will also remove anomalies in the system, such as spider legs and precincts, which assists system legibility and 'fairness'.
- Further increases the off-peak discount incentive from 20 to 30 per cent.
- Extends the hours for off-peak discount.
- Encourages families to travel on public transport at weekends, via the increased off-peak discount and the free travel for children travelling on child *go* cards.
- Less fare products and zone simplification means a more legible public transport system. This helps address the issue of confusion as a barrier to greater public transport use which was highlighted in the market research findings.
- Standardises the incentive and off-peak discount offers across all user segments.
- Increased off-peak discounts, along with the improved zone structures, should also significantly assist the majority of Seniors, which helps defray the impact of the removal of '1,2, and free' from people who currently avail of this product.

Distance Travelled (Coverage)

- The recommended fares structure applies a distance-based proxy, simplified by adoption of a zonal fares structure
- The recommended new zonal structure encourages sub-regional travel by zonal consolidation.
- Currently 85.9 per cent of journeys are four zones or less and under Recommendation 1 would be at a lower fare for a significantly large portion of these journeys.
- The main package of recommendations (Recommendation 1) encourages use of public transport for shorter journeys and to local activity centres, by making these new one zone journeys more affordable.

Address Equity/Advantage to Specific Groups

- Recommended initiatives supporting our proposed fares package also include extending concessions applicability to include Newstart/ Asylum seekers.
- The package also significantly increases affordability to financially disadvantaged groups.
- Children on child *go* cards travel for free on weekends, making family travel by public transport more affordable.
- Standardises the incentive and off-peak discount offers across all user segments.

Table 6-1 summarises the modelled results for Recommendation 1 based on a fare structure at current (2015) prices. The taskforce considers the no elasticity figure overstates the cost, as the elasticities used are conservative industry standards. However the figure is included for completeness.

Table 6-1 Modelled Implications for Recommendation 1 – Core Package of Reforms

Indicative foregone TransLink revenue (excl GST)	Additional Annual patronage (journeys) modelled	% *go* card holders benefit	Average Fare Change			
			Adult	Tertiary	Child / Student	Senior / pensioner / veteran
$31.8m – $32.3m (and up to $49.3m with no elasticity)	7.3m – 8.0m	86%	-$0.57	-$0.22	-$0.39	-$0.24

We note these recommendations are for implementation as soon as possible, however this may not be until 2017, upon which fare adjustments may need to be made to reflect 2017 prices.

7 NEXT STEPS

Our recommended package of initiatives will be subject to further evaluation following any refinements to discount levels or products.

There are also implications beyond changes in fare revenue and patronage. Implementation costs and timeframes for the recommended package of options have not been addressed at this stage. Our understanding is the zonal consolidation recommendation would take around six months of software development to implement. Implementation costs and timeframes will need to be addressed immediately following the Government's decision on the final fares strategy to be adopted.

It is important TransLink is resourced appropriately to implement the fare reforms arising from this current review as well as for the significant ticketing changes and marketing and communication requirements associated with the development and implementation of next generation systems.

New fares strategies will also need to be subject to robust post-evaluation. This will enable TransLink to gain organisational knowledge of the revenue and patronage impacts of decisions, which can then be used to inform future changes. This is particularly important given the pending change to new ticketing systems in the coming years and the associated flexibilities and more targeted pricing differentials that can be applied under new technologies.

ATTACHMENT 1 – TASKFORCE MEMBERS

The SEQ Fare Review Taskforce comprises a small group of local, national and international public transport experts, advocates and user group representatives selected by the State Government for their ability to apply both their international expertise and local knowledge to the review.

- **Chair – Mr Neil Cagney, Chairman, MRCagney** – Neil has more than 40 years' experience in transport management and engineering expertise. Neil leads highly-respected transport consultancy MRCagney as the Chairman and has been the head of Brisbane Transport.
- **Mr Mark Tucker-Evans, Chief Executive, COTA Queensland** – Mark has held CEO roles with research, media, industry and professional associations in New South Wales and Queensland. He represents COTA Queensland on a number of roundtables and forums in the State. COTA Australia is the peak national organisation representing the rights, needs and interests of older Australians.
- **Mr Jarrett Walker, Consultant, Jarrett Walker and Associates** – Jarrett is an international consultant in public transit network design and policy, based in Portland, Oregon. He has 20 years' experience working with government on major planning projects in cities and towns across North America, Australia, and New Zealand. He is the author of *Human Transit: How clearer thinking about public transit can enrich our communities and our lives.*
- **Associate Professor, Matthew Burke, Associate Professor, Griffith University** – Associate Professor Matthew Burke is Deputy Director and an Australian Research Council Future Fellow at Griffith University's Urban Research Program. He coordinates most of Griffith's transport research and currently leads large research grants exploring light rail, transport and land use relationships, and the funding and financing of urban transport. He has previous experience as a transport planner at Commonwealth and State Government level.
- **Mr Robert Dow, Administrator, Rail Back on Track** – Robert is the Spokesman and Administrator for Rail Back on Track, an organisation who provides a forum to promote and lobby Australian Governments to use railway transportation and public and active transport for the benefit of all Australians.
- **Ms Sharon Boyce, Chair, Queensland Disability Advisory Council, Regional Chair, South West Regional Disability Advisory Council** – Sharon runs an experiential educational consultancy practice 'Discovering Disability & Diversity' and won the Australian Human Rights Award for Individuals 2008 for this initiative. Sharon is a professional member on a number of boards and councils in Queensland. Creating inclusive communities is one of her main priorities.
- **Mr Neil Scales, Director-General, Department of Transport and Main Roads** – Neil has almost 43 years' transport experience. Prior to joining the Queensland public service, Neil led the transport authority for Merseyside in England. He received an Officer of the Most Excellent Order of the British Empire (OBE) for services to public transport.
- **Mr Trent Zimmerman, Deputy Chief Executive, Tourism and Transport Forum** – (Taskforce Member 27 Jul 15 to 3 Nov 15) Trent has 20 years' experience in Local, State and Federal Government, and extensive understanding of the workings of government, politics and the transport sectors. He is Deputy Chief Executive Officer of TTF and has led much of TTF's transport policy development, the peak industry group for Australian tourism, transport and aviation sectors.

ATTACHMENT 2 – TASKFORCE REFERENCE LIST

Document Title	Author	Date
2015 Fare Benchmarking Report	Nine Squared	Jun 2015
Draft Report 2.0: Barriers to Off-Peak Public Transport Travel in South East Queensland	TransLink	Nov 2012
Advice regarding public transport concessions for Pensioners and Seniors	TransLink	Jul 2015
Article 13.5hr for Metro Card, New York The Guardian	The Guardian, Australian Edition	Sep 2014
Briefing Note School Rail Passes	TransLink	Aug 2015
Charter Letter The Hon Jackie Trad MP	Premier of Queensland	May 2015
Correspondence for SEQ Fare Review Taskforce	Electorate Offices	2015
Customer Satisfaction – Quarter 3 2014-15 results and monthly reporting (March 2015)	Department of Transport and Main Roads	Mar 2015
Recap for the SEQ Fare Review Taskforce: SEQ Fare Review Project as at 17 September 2015	TransLink	Sep 2015
SEQ Fare Review Taskforce meeting combo options SEQ Fare Review: Summary of costs and benefits	TransLink	Sep 2015
Recap for the SEQ Fare Review Taskforce: SEQ Fare Review Project as at 17 September 2015	TransLink	Sep 2015
SEQ Fare Review Taskforce Purposes Memo	Jarrett Walker MRCagney	Aug 2015
Conceptual Map of Goals and Policies	Jarrett Walker MRCagney	Aug 2015
TransLink Smart Card Product Suite (modified)	TransLink	Aug 2015
Graph – Satisfaction with Affordability SEQ Public Transport	TransLink	Jul 2015
Regulation of Fares Overview from NC	NC	Sep 2015
Integrated Ticketing an Fares Policy Manual	TransLink	
Issues Paper – Finding the best fare structure for Opal – Public transport fares in Sydney and surrounds – July 2015	Unknown	July 2015
Key insights – Frequency of use and cost of a journey Public Transport and Taxi Use in Queensland – A Profile of Users and Usage	TNS (Market Researchers)	Mar 2014
TransLink Fare Review – Workshop #4 Modelling	Peter Nunns MRCagney	Sep 2015
Modelling Request and Results – SEQ Fare Review Taskforce Meeting 2	Department of Transport and Main Roads	Aug 2015
TransLink Fare Review Presentation – Workshop #1 Background	Stuart Donovan MRCagney	Jul 2015
SEQ Fare Study 2015 – Memo 1 Set-up and preliminary results	MRCagney	May 2015

Document Title	Author	Date
TransLink Fare Study – Evaluation Memo Evaluation of Historical Fare Initiatives	Stuart Donovan MRCagney	Jun 2015
QR Patronage, Fares and Zones	Queensland Rail	Aug 2015
Commuter costs and potential savings: Public transport versus care commuting in Australia	Dr Jian Wang Southern Cross University for the Australasian Railway Association	Nov 2013
Design and impact of a scheme to spread peak rail demand using pre-peak free fares	Graham Currie Monash University	Jul 2015
Smart Card Ticketing Overview Presentation: Constraints and Opportunities	Department of Transport and Main Roads	Jul 2015
Presentation to SEQ Fare Review Taskforce	Mark Streeting Price Waterhouse Coopers	Sep 2015
Public Transport and Taxi use in Queensland – Profile of Users and Usage	TNS (Market Researchers)	Nov 2015
Public Transport Willingness to pay	Mark Streeting Price Waterhouse Coopers	Oct 2014
Rail Back on Track Brief	Robert Dow	Mar 2015
SEQ Fare Taskforce and Context and Issues Paper (Working Draft V4)	Department of Transport and Main Roads	Jul 2015
SEQ Fare Review Taskforce 8 Zone Presentation	TransLink	Aug 2015
SEQ Fare Review Taskforce – Reading Material Pack	TransLink	Aug 2015
Transport and Main Roads Strategic Plan 2015 – 2019	Department of Transport and Main Roads	Jul 2015
TTCC Replacement Project – Tertiary Pass Presentation	Unknown	Aug 2015
Understanding the Psychology of Fare Evasion	Professor Graeme Currie Monash University	Mar 2014
Zone Clarification for SEQ Fare Review Taskforce	TransLink	Sep 2015

In addition, a number of submissions or correspondence on fare related issues was referred to the taskforce for consideration during its options development and analysis work.

ATTACHMENT 3 – SUMMARY OF MARKET RESEARCH FINDINGS

Insights and Recommendations (taken from Market Research undertaken August/ September 2015)

Key Insights	Recommendations
Fares • Reduced fares is the initiative that is most likely to increase patronage of public transport in South East Queensland. • Fares are the number one negative associated with public transport in South East Queensland. Fares are considered relatively expensive when compared to driving or even to other day to day expenses. • The issue can be polarising however, with many seeing the "good value" in public transport costs compared to other forms. • People are after some sort of reward or incentive to embrace using public transport. Typically it is a convenient alternative however many would still prefer to drive if some of those barriers were removed (generally parking issues, availability and/or cost).	• Consider reinstating discounts when certain thresholds are reached, e.g. Maximum costs for travel in 1 day, 1 week, 1 month etc. after which travel is discounted or free. • Communication should address the convenience and cost-effectiveness of public transport use compared to driving. However, this should be carefully targeted (e.g. it is relevant to commuters, but not perhaps a family of four travelling off-peak).
Zones • The current zone circle system is not well known or understood (especially by the more occasional users) with support for a wide-ranging zone review. • When looking at cost comparisons for longer and shorter journeys, it is the shorter journeys that are considered the most expensive. • The ability to travel from one side of town to the other (but stay with same zone "circle") is perceived as extremely good value.	• Consider a significantly discounted rate for "within same zone" travel. • Inform and educate the public about the zones system and how zones are calculated. By increasing awareness of the zone system people may be encouraged to plan trips accordingly (e.g. travel to another stop or station to save zones travelled through and reduce trip costs). • If the current system is driving higher costs, then a review is suggested.
Distance / Fare relationship • There is support for a more equitable fare / distance relationship, with two in three agreeing that the price of a fare should be directly related to the distance travelled and that shorter journeys should be cheaper.	• Consideration should be given to including the relationship between fare and distance in any review of fares / zones.

Key Insights	Recommendations
Concessions • There is a relatively high awareness of concession fares and who is eligible. However while some felt that other segments should qualify for concessions, they are not prepared to wear the cost of increased full fares. • Allowing seniors to travel free on public transport is seen as the largest single initiative that would encourage increased patronage.	• Evaluate the possibility of whether Healthcare card holders could be eligible for some form of discount (assuming the card is linked to low-income status). • This may enable already financially compromised residents better access to services etc. by being able to travel at a reduced cost. • Maintain the current level of discount for Seniors (50%), however review entitlements for Pensioners to see if their fares could be reduced or even provided for free.
Payments & incentives • Frequent travellers would be willing to top up their go cards with larger amounts if there was an incentive to do so (to them personally). The most desired incentive is free travel. • Two in five users currently take advantage of the nine paid journeys and travel free initiative, and when offered a choice between this offer and a small discount across all journeys, the latter is preferred by the majority.	• Consider offering incentives to use auto top up and to top up with substantial amounts. For example, • 1 free trip after x journeys • % of extra journeys based on top up amount (e.g. $50 top up = $55 of credit on the *go* card etc.) • Consider a review of the effectiveness of the nine paid journeys and then travel free initiative. If replaced, communication should stress benefits of any replacement system to minimise discontent among current users of the initiative.
Continuation of Journeys • The system of 'continuation of travel' and any additional costs incurred is not well understood.	• Consider an awareness campaign on board transport to encourage use of the 'continuation of travel' system. • Promote that return travel within a certain time period is a continuation and not an additional cost. This may prompt shorter, incidental trips on public transport.
Supply & Demand • There are concerns about supply of public transport meeting demands of the market given that there are already concerns about overcrowding, inability to get a seat, passengers being left at bus stops etc.	• Increase usage would have to coupled with a review of available services, network planning etc. to ensure that demand does not outweigh supply.

ATTACHMENT 4 – METHODOLOGY/ ASSESSMENTS[6]

Overview

The purpose of this note is to briefly review the modelling undertaken on behalf of the South East Queensland Fare Review Taskforce (SEQ Fare Review Taskforce), provide an overview of the most recent modelling outputs, and explain the modelling approach.

It is difficult to provide a full overview of model outputs for all individual options and packages of options tested throughout the Fare Review. Modelling was conducted in several stages in response to requests from the SEQ Fare Review Taskforce. In addition, we have made some technical refinements to the model in response to requests from TransLink staff. These refinements have not materially affected the results, but they meant we reported results differently. As a result, we focus on providing a high-level overview of the process followed throughout the SEQ Fare Review Taskforce meetings.

Stages in modelling

Modelling was conducted in several stages using the TransLink Journey Model (TJM). Following initial demonstrations of model outputs, the SEQ Fare Review Taskforce requested further modelling on a 'long list' of policy options. After reviewing these model outputs, they focused in on a shorter list of options, which was then combined to create several 'packages' of option that were then compared and progressively refined. The following table summarises key stages in the modelling, along with their timing.

Taskforce meeting (date)	Modelling outputs presented at taskforce meeting	Model refinements following meeting
Second taskforce meeting (6 Aug 2015)	TJM and other modelling tools introduced. Indicative modelling results presented for the following options: • Blanket discounts (useful benchmark) • Zone consolidation: 6/7/8 zone models and flat fares (distance-based fares can be tested) • '1,2, and free' – remove, expand to all, change to 1,2,3 • '9 and free' – remove, '8 and free', '10 and free' • Daily dollar cap – $10, $15, $20, and $25	• Elasticity of demand with respect to generalised cost of travel was re-calibrated to be more conservative. • TJM was extended to enable more flexible modelling of peak / off-peak periods, including shoulder peaks and changes to peak boundaries.
Third taskforce meeting (30 Aug 2015)	Following taskforce requests, we presented modelling results for a number of distinct options, several of which had a number of variants. Options covered everything from removal of or changes to existing concessions (9 and free, 1, 2 and free, off-peak discounts, concession card discounts), changes to fare zones, flat fares, further reductions in off-peak and evening fares, and targeted discounts or premiums (e.g. CBD premium, free weekend travel for children).	• TJM was extended to model retiming of trips around peak / off-peak boundaries in response to changing off-peak discounts. • TJM was extended to model the allocation of stops / stations to underlying zones, to enable us to test the impact of simplifying precincts and 'spiderlegs' on the rail network.

6 SOURCE – MRCagney November 2015

Taskforce meeting (date)	Modelling outputs presented at taskforce meeting	Model refinements following meeting
Fourth taskforce meeting (17 Sept 2015)	Following taskforce decisions about which options to focus on, we presented modelling outputs for a series of 'combination' packages of options. These options reflected: • An 8-zone fare structure with no increases on current fares • Extension of the off-peak period from 3AM to 6AM • Increasing the off-peak discount to 30%, 40%, or 50% • Free or 50%-off weekend travel for persons under 15yrs • Removal of 9 and free and 1, 2 and free, replaced by 8 and 50% in some options.	• No significant model refinements
Fifth taskforce meeting (30 Sept 2015)	At this stage, the taskforce requested considerable further modelling of alternative 8-zone fare structures as variations on the combination options modelled for the fourth taskforce meeting. Fare structures generally entailed a mix of fare increases and decreases, with complex effects in some zones.	• Elasticity of demand with respect to generalised cost was re-calibrated for paper ticket users only, to be more conservative / realistic.
After fifth taskforce meeting	Final round of modelling conducted, reflecting taskforce's preferred package along with individual components.	

Overview of final modelling

The final package of options modelled included the following elements. We have modelled these changes in combination and individually to help understand the marginal impact of each individual change.

Package component	Description / modelling notes
Simplified 8 zones with fare structure C6	This fare structure flattens the existing 23 zones down into 8 zones. Zones 1 and 2 are consolidated, as are outer zones. One-zone fares are dropped from $3.35 to $3.00, while fares in outer zones are generally increased. Due to zone simplification, a considerably higher share of journeys becomes eligible for one-zone fares. We also tested spiderleg / precinct adjustment alongside fare zone simplification, finding it had a relatively marginal (and possibly even negative) impact on revenue.
Off-peak discount raised to 30%	At present, off-peak *go* card fares are discounted by 20%. This option would raise the discount to 30%. TJM models the potential for re-timing of journeys in the half-hour periods before and after peak periods. As this option increases the difference between peak and off-peak fares, it is expected to encourage some people to re-time their travel.
9 and free replaced with 8 and 50%	At present, *go* card users who take more than 9 journeys per week qualify for free travel for journeys 10+. This option would replace 9 and free with 8 and 50% – i.e. journeys 9+ are discounted by 50%. This option would move away from free travel while ensuring commuters who currently use 9 and free do not face a fare increase for their regular commute journeys.
1, 2 and free removed	At present, seniors and pensioners who take more than 2 journeys per day qualify for free travel for journeys 3+. This option would remove 1, 2 and free.
Off-peak extended to 6am	At present, the morning peak period runs from 3am to 8:30am. This option would shift the start of the morning peak back from 3AM to 6AM, enabling people who travel during this time period to qualify for off-peak discounts. By lowering the cost of travel during this period, this option is expected to encourage additional patronage in this period, including some re-timing of journeys around the new 6AM peak / off-peak boundary.
Persons under 15 years travel free on weekends	This option would allow child *go* card users (14 years and under) to travel free on the weekend. Because child *go* card users may choose to retain their card rather than switch to a student *go* card, we have assumed both child and student *go* card holders will access this discount. This is a conservative position to account for possible fare leakage.

The following table describes the fare structure used in final modelling, and compares it to the existing fare structure.

Zone	Current fare structure *go* card	Proposed 8 zone	Proposed Fare *
1	$3.35	1	$ 3.00
2	$3.93		
3	$4.66	2	$ 4.70
4	$5.24		
5	$5.96		
6	$6.69	3	$ 6.70
7	$7.27		
8	$7.85		
9	$8.43	4	$ 9.40
10	$9.74		
11	$10.32		
12	$10.75	5	$ 12.40
13	$11.20		
14	$12.07		
15	$13.09		
16	$14.10	6	$ 16.20
17	$15.40		
18	$16.28		
19	$17.14	7	$ 20.20
20	$18.46		
21	$19.32		
22	$20.33	8	$ 24.40
23	$21.35		

Key elements of model

This section briefly discusses key elements of the TransLink Journey Model.

Model applications

TJM was developed to enable TransLink to understand the impact of various types of fare policy changes on public transport demand (patronage) and TransLink fare revenues. Fare structure changes can be complex and may entail multiple overlapping changes that may push prices or demands in different directions.

Following model updates implemented in the course of the South East Queensland Fare Study, TJM can be used to model changes to:

- Zone-based fares (e.g. 5 per cent fare increase)
- Off-peak discounts (e.g. 30 per cent off-peak discount)
- Changes to peak/off-peak periods
- Changes in discounts for individual passenger types (e.g. increase senior/pensioner discount)
- Changes to 1, 2 and free or 9 and free
- Consolidation of fare zones; removal of precincts / spiderlegs

However, it does not model discounts for new passenger categories – e.g. asylum seekers – as no data on current demands is available for new passenger types.

Model outputs

TJM enables considerable flexibility around the format and detail of outputs. The key outputs from the model are:

- Modelled impact on TransLink revenue (low-high range reflecting different assumptions about patronage response)
- Modelled impact on patronage (assuming a non-zero elasticity of demand with respect to price)
- Modelled average fares paid.

Outputs can provided in aggregate format (i.e. a total across all passenger types) or disaggregated by characteristics such as:

- Passenger type (adult, tertiary, student, child, senior, pensioner, veteran, paper ticket)
- Time of day – broken down by peak / off-peak periods
- Journey length – e.g. separate out impacts for short journeys (<2km) or long journeys
- Origin point of journey – e.g. broken down by Statistical Area 1
- *go* card ID number – e.g. distributional impacts for individual passengers can be analysed using anonymised IDs assigned to individual *go* cards.

In addition, custom outputs can also be created – e.g. to analyse case studies of impacts for individual users across the course of a week.

Model inputs

TJM is based on one week's worth of public transport user data for South East Queensland. Data has been extracted from netBI, which integrates data from ticketing, scheduling, and real-time systems.

The input dataset includes every *go* card and paper journey taken during a one-week period from 9 March 2015 to 15 March 2015[7]. This week was selected as it falls within school terms and does not include any public holidays or other disruptions to service or demand. During this period:

- Approximately 498,000 *go* card users took at least one journey
- Users took a total of approximately 2,620,000 journeys.

This data has been used to model potential changes in patronage and TransLink revenues. The intuition behind the model is when certain *types of journeys* become cheaper under alternative fare structures, they will tend to become more attractive to users.

Overview of model workings

Changes to public transport fares have a range of primary and secondary effects:

1. In the first instance, changes to fare policies will reduce fares paid by some types of users, some types of journeys, and/or different time periods, and increase fares for other users, journeys, and/or time periods. Consequently, TJM begins by modelling how changes to fare policies would change the fares paid for all existing journeys in our dataset.
2. This will in turn affect demand for different types of journeys – all else equal, we would expect lower prices to result in higher demand, and vice versa. To model this, TJM applies an elasticity model to estimate how changes to fares for individual journeys may result in changes in demand for those types of journeys.
3. This will flow through into outcomes for revenues collected by TransLink (and hence levels of subsidy required). TJM outputs can be used to calculate the net impact of fare changes on TransLink revenues, taking into account both changes in prices and changes in demand.

7 A very small number of late-night journeys also 'spilled over' into 16 March 2015.

4. Lastly, changes in public transport patronage may also have flow-on effects in other 'markets', such as demand and congestion on roads or the efficiency of labour markets in dense areas. These impacts are not modelled in TJM, as it deals only with the public transport network. However, TJM outputs could in principle be used to assist in an assessment of these impacts.

Modelling fares

In order to model changes in fares, it was first necessary to build a model that predicted / replicated fare outcomes under the current fare structure.

The model of fare structures includes the following elements:

- Fares that are calculated for entire journeys, regardless of how many times users transfer between services.
- A zonal fare structure that charges users different prices depending upon the highest and lowest zone they pass through on their journey. For example, if a user travelled from zone 5 to zone 1, transferred to another service, and then travelled out to a final destination in zone 2, it would be counted as a five-zone journey (zone 5 to zone 1).
- Fare discounts for off-peak travel.
- Fare discounts for selected *go* card passenger types (child, student, tertiary, senior, pensioner, veteran).
- Fare discounts that apply after a certain number of journeys per day or per week. There are currently two of these products – 1, 2 and free, which offers seniors and pensioners free travel after taking two journeys in a day; and 9 and free, which offers all *go* card users free travel after taking nine journeys in a week.
- Specific logic to reflect Airtrain, which is integrated with QR services but which has a separate fare structure, and some misalignments with zones arising from 'spiderlegs' on the rail network and precincts on the bus network.

Overall, we are able to match modelled fares with actual fares paid with a high degree of precision – matching observed outcomes to within ~0.5 per cent. However, a small number of fares remain difficult to model.

Modelling changes in demand

TJM models changes in patronage as a function of changes in the generalised cost of making individual journeys. Generalised cost includes both fares paid and (monetised) travel time, waiting time, and transfers. We have used a value of time of $12.875 for public transport users – this reflects the average from the TransLink Incremental Model, a general-purpose transport model.

Note a key assumption is all changes in fare are real fare changes – i.e. inflation relative to the base year has been netted out. In order to calculate CPI adjustments, we have had to add inflation back in to final results.

There are two reasons why TJM model patronage outcomes based on the generalised cost of travel rather than fares alone:

- First, it is more consistent with the transport economics literature and other modelling approaches, which emphasise users face both monetary and time costs when using transport networks
- Second, it enabled us to model free fares for some journeys, which cannot be modelled using a fare elasticity function (e.g. changing fares from $0 to $1 would represent an infinite increase in fares and hence potentially an infinite increase in demand).

We have modelled changes in demand for individual journeys based on the following function:

$$D_{opt} = D_{base} * \left(\frac{GC_{opt}}{GC_{base}} \right)^{\varepsilon}$$

Where D_{opt} = modelled demand under a new fare structure; D_{base} = current demand; GC_{opt} = generalised cost of the journey under the new fare structure; GC_{base} = generalised cost of the journey under current fare structure; and ε = elasticity of demand with respect to generalised cost.

We have calibrated this elasticity to ensure it is consistent with an overall fare elasticity of demand of -0.35. The elasticity has been estimated to ensure a 10 per cent across-the-board reduction in *go* card fares results in a modelled 3.5 per cent increase in *go* card patronage. However, individual types of journeys may experience smaller or larger changes.

Following comments from TransLink staff, we have estimated and separate values for elasticity of demand with respect to generalised cost for two types of users:

- *go* card users: ε = -2.33
- paper ticket users: ε = -1.48

The lower estimated elasticity for paper tickets is lower to reflect the fact that paper ticket fares tend to make up a higher proportion of overall generalised cost. In principle, there may also be a case for applying separate elasticities to different types of *go* card users or for peak versus off-peak journeys. However, previous work suggests further segmenting *go* card users tends to add further complications, which are not necessarily supported with a lot of empirical evidence, without resulting in major changes to overall model outputs.

Annualising demand and revenue impacts

Model outputs have been annualised – i.e. converted from weekly outputs to annual values – using the annualisation factors shown in the table below.

Table 4: Annualisation factors used in model (weekly to annual factors)

Ticket	Passenger	Demand	Revenue
go card	Adult	47	48.5
	Tertiary	36.5	38
	Sc+Ch	37.7	38.6
	P+Se+V+C	48	49.2
Paper		46.5	53.4

In addition, as TJM models gross fares paid by users, inclusive of GST, it is necessary to adjust model outputs to obtain net revenue impacts for TransLink. We have done this by dividing gross revenue figures by 1.1 to account for Australia's 10 per cent GST.

Modelling re-timing of journeys around peaks

One caveat associated with TJM is it does not explicitly model revenue leakage arising from people choosing to respond to fare changes by, for example:

- Switching between different *go* card products (e.g. users retaining tertiary student cards after graduating)
- Re-timing journeys between peak and off-peak periods
- Sharing rides or driving to start journeys on the other side of zone boundaries (e.g. 'hide and ride').

This may mean TJM over- or under-estimates patronage and revenue impacts arising from some changes to fare structures.

In response to queries from TransLink staff, we extended the model to account for re-timing of journeys around peak/off-peak boundaries. The aim of this was to understand the potential magnitude of patronage impacts – more re-timing means patronage growth estimates will tend to be over-optimistic – and also the potential implications for service planning and peak vehicle requirements.

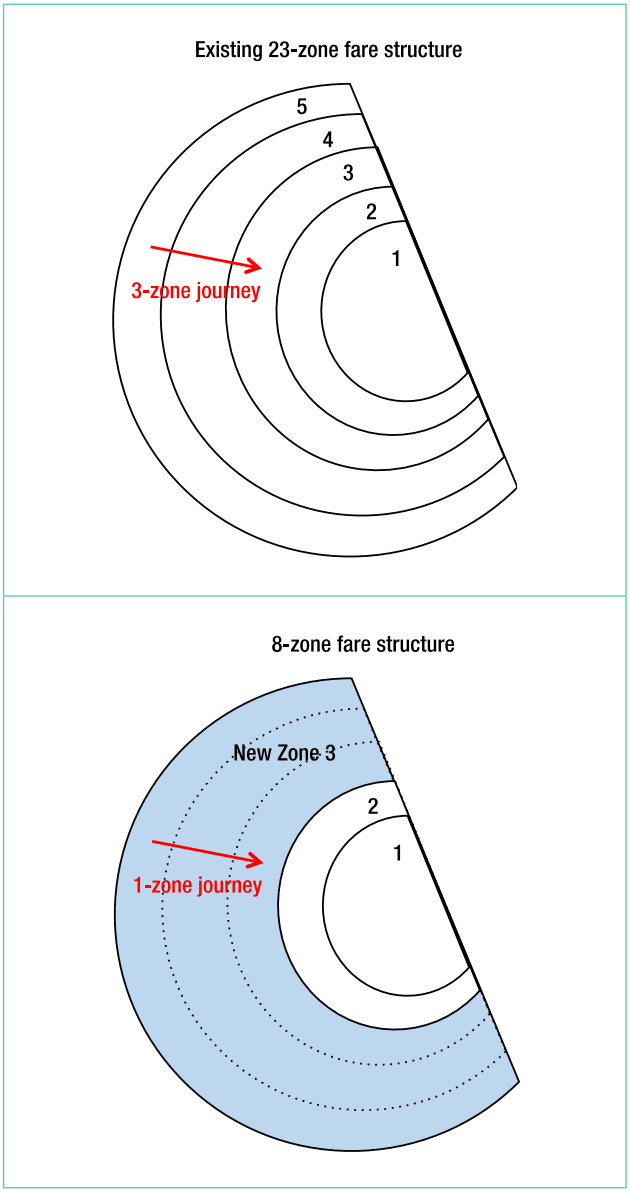
While data on re-timing of journeys is not commonly available, a review of previous research suggests people are willing to shift commute journeys by 15-45 minutes. Based on an analysis of patronage outcomes following a 2014 change to the morning peak boundary, we estimated 25 to 75 per cent of the added journeys during the 30 minute periods around the peak could reflect re-timing of journeys. Consequently, we updated TJM to include an estimate of re-timing of journeys in 30-minute shoulders around peaks.

Modelling changes to zone boundaries and precinct/spiderleg adjustment

TJM allows us to model changes to the existing zone structure. All stops and stations within the network are coded with a zone ID – a number from 1 to 23 – that enables us to identify where journeys start and end.

As originally designed, TJM can model changes in the zone structure by 'collapsing' multiple zones into one larger zone. This is illustrated in the following figure, which shows how several zones could be simplified into one new zone.

Figure 2: Hypothetical example of zone simplification



Following discussions with TransLink staff, we extended TJM to allow us to reallocate stops between different (concentric) zones in a more sophisticated way. This allows us to 'geo-bin' stops – i.e. match stops to the zone in which they are physically located.

This change enables us to:

- Test the impact of removing precincts / spiderlegs – i.e. anomalies created as a result of legacy fares carried over from the rail network or bus precincts around retail centres
- Test different zone boundaries – e.g. targeted adjustment at zone edges – given a GIS shapefile defining a new zone system.

Results for precinct / spiderleg adjustment are difficult to interpret due to difficulties in predicting existing fares in these areas. Taking that caveat into account, when we tested this change, we found moving to 8-zone fare structure would already capture most of the positive revenue impacts of precinct adjustment. In fact, aligning precincts with an 8- zone fare structure could in fact benefit many passengers with lower fares.

ATTACHMENT 5 – REVIEW OF FARE ELASTICITIES[8]

Average Short-run Elasticities

This section covers typical elasticity values, averaged over all market segments, which would be expected after about 12 months following a fare change (relative results for the short-run and longer-run are given in the next section).

Several earlier influential reviews (1970s and 1980s) concluded a reasonable 'rule and thumb' for a (principally bus) fare elasticity internationally was 0.30, which supported the Simpson-Curtin formula of 0.33. This figure was widely acknowledged to be appropriate until the early 1990s. However, since that time the evidence suggests there has been a draft upwards, to around -0.40. Several comprehensive international studies support this conclusion:

- APTA (1991) provided a comprehensive examination of fare elasticities for the bus transit mode based on analysis of 52 transit operators in the US. The results indicated an average value of 0.41.
- Balcombe et al (2004) suggested an overall value of 0.41 in its review of evidence for bus mode from the UK and internationally.
- Dargay & Hanly (1999) estimated a value of 0.40 for UK bus mode.
- In Europe, ISOTOPE (1996) estimated an average value of 0.42.
- Goodwin (1992) revealed slightly lower SR estimates generally ranged from -0.21 to -0.37 based on a comprehensive review of international literature.

The above values are based primarily on the bus mode. There is some evidence (refer section 8) values for rail/rapid transit/metro services are rather lower than this, but values for suburban rail services are rather higher. We suggest a best overall estimate for the South East Queensland system of 0.35 (range 0.20 to 0.50).

Longer Time Horizons

Values within 12 months after a fare change ('ramp-up')

The international evidence is remarkably sparse on the topic of how patronage 'ramps-up' over the first 12 months following a fare change. While there is now some robust evidence available on the initial 'ramp-up' profile for service changes as a result of recent work[9] [10], to our knowledge there is no evidence of comparable quality for ramp-up in response to fare changes.

At this stage, we are unable to comment on whether the fares ramp-up profile will be faster or slower than for service changes. Some 'rebound' effect may be observed, with a substantial initial loss in patronage following a fare increase, with the extent of loss then reducing as those concerned have found the alternatives are less attractive than they thought (a similar 'rebound' effect was encountered in one of the SIEF assessments on the effects of network restructuring).

If any estimates are required at this stage for fare elasticities during the first 12 months relative to the month 12 ('short-run') value, then we would suggest using the typical ramp-up profile found (in the SIEF and Off-peak Bus Service projects) for service frequency changes, In summary:

- Patronage change in the first 12 months averaged about 86 per cent of the end-Q4 (month 12) value.
- Relative to the Q4 level, patronage growth by end Q1 was approximately 75 per cent, by end Q2 approximately 90 per cent, and by end Q3 approximately 96 per cent.

'Medium' and 'long-run' values

We define the 'medium' run as 3-5 years after the fare change, the 'long-run' as 10-15 years following the change. The weight of international evidence is in the long run (LR), fare elasticities are typically double short-run (SR) values, with a range of typically 1.5 times to 3.0 times.[11] This would suggest medium-run elasticities are typically around 1.5 times SR values, with a range of say 1.25 to 2.0 times. The international evidence also indicates very similar MR/LR growth factors (relative to the SR estimates) for both service changes and travel time changes.

However, the more recent research in Australia/New Zealand casts some doubts on these factors in the case of service levels. The ramp-up profile for service levels noted above has an increase of only about 4 per cent in Q4, with the growth rate rapidly diminishing. The Off-peak Bus Services Project found subsequent growth of around 4 to 5 per cent

8 SOURCE: MRCagney 2013
9 Off-peak Bus Services Project (NZTA).
10 SIEF Project (TL).
11 For example, Wallis 2004; Balcombe et al 2004.

in year 2, 2 to 3 per cent in year 3 and around 1 per cent or less in subsequent years. This suggests the patronage growth by year 5 will be only around 10 per cent higher than at end Q4.

If this conclusion were to also apply to fare level profiles, this would indicate an MR patronage change only about 10 per cent greater than the SR change, and a LR change around 20 per cent greater.

Given the disparity between the 'conventional' assumptions from the international literature and the recent Australia/NZ evidence (albeit related to service levels), it is apparent this topic warrants further investigation. While we propose to attempt such investigation in our econometric analyses of South East Queensland patronage since 2009, this may well be unsuccessful given fares have been increased on an annual basis (and thus the MR effects of each increase become confounded with the SR effects of the following increase).

In the absence of better evidence, we suggest caution in any MR/LR estimates of the patronage effects of fare changes. For MR (5 year) estimates, we would suggest applying a range of assumptions:

- Low patronage increase: a loss of 1.5 * the SR loss.
- High patronage increase: a loss of 1.15 * the SR loss.

Time period (trip purpose) factors

Arguably, elasticity differences are influenced more by the purpose of the trip (e.g. essential v discretionary trips, ability to pay, length of time at destination – which influences parking charges, single person or group trips) than they are by the time of day at which the trip is made (with different PT service levels, extent of congestion, etc.). In practice, there is a strong correlation between trip purpose and time of day. For convenience in application, we focus more on market segmentation by time of day, subsuming the mix of trip purposes in each time period.

There are pronounced differences in fares elasticity between peak trips and non-peak trips. A typical conclusion from the international evidence is '(Fare) elasticities for off-peak/non-work trips are typically twice those for peak/work trips; while weekend elasticities are higher still'. (Wallis 2004). Recent work on bus service elasticities in Australian/NZ cities[12] found the following elasticities relative to the overall period average:

Day	Time Period	Elasticity factor
All week	N/A	100%
Weekday	Peak	70%
	Interpeak	80-100%
	Evening	100-140%
Weekend	overall	120-150%
	evening	160-220%

These ratios are not inconsistent with the weight of international evidence relating to fare elasticity differences. Given this, we consider they are the best guide available to relative fare elasticities by time period, i.e.:

- Weekday (relative to average) – peak c. 60 per cent, interpeak around average, evening c. 120 per cent.
- Weekend (relative to average) – weekend overall c. 135 per cent, weekend evening c. 200 per cent.

We suggest these factors be applied to deriving fare elasticities by time period from any overall (all time periods) estimates.

Passenger Type Factors

This section is concerned with the variation of fares elasticity values from the overall market average according to different passenger segments, i.e. by income, car ownership, gender, age group and disability.

The Table on the next page provides a summary of the international evidence on this topic, largely drawing on UK research (Balcombe et al 2004). The main conclusions can be drawn are as follows:

- Elasticities tend to increase with income (and car availability).
- On average, males tend to have higher elasticities than females (probably in large measure reflecting differences in car availability).
- The evidence on the variation in elasticities with age group (and disability) is mixed and not conclusive.
- Relative elasticities by passenger category are summarised in the following table.

12 Off-peak Bus Services Project.

Variable	Findings/Commentary
Income	Higher income travellers more likely to have car available for trip, hence relatively elastic; but less affected by fare changes, hence relatively inelastic. On balance, likely to be more sensitive to fare changes for longer trips. Lower income travellers likely to be more sensitive for shorter trips, where walk/cycle alternative is feasible. Overall, elasticities appear to increase with income. Relative to medium-income travellers, elasticities for low income group are c. 15% – 30% lower; whereas elasticities for high income are typically 20% – 50% higher.
Car availability	For people with car available, elasticity is c. 20% – 25% above the population average; for those without a car c. 20% – 25% lower than average. For those holding a driving licence, the differences are greater: elasticities for licence holders are c. 50% above the population average, for those without licences c. 40% below average.
Gender	Fare elasticities for males were found to be c. 20% above the overall average, for females' c. 20% below the average. We hypothesise this difference is the result of males having greater car availability (this gap may be closing in cities such as BNE over recent years).
Age group and disability	Several international studies have indicated elasticities tend to decrease with age, e.g. relative to the general population, a typical elasticity was around 75% higher for the youngest age group, 50% lower for the oldest age group. However, the relative elasticities for children need to be treated with caution, as a large proportion of their trips are to/from school (often not included in surveys), and hence are likely to have low elasticities. The few international studies on the topic do not come to clear conclusions on relative elasticities for adults, children and the elderly and/or disabled. Many of the trips by the latter group will be discretionary, hence high elasticities might be expected; but, on the other hand, many in this group would not have ready alternatives, hence low elasticities may apply.

Trip Distance

In terms of how fare elasticities vary with distance travelled, not all the international evidence is consistent:

- For very short trips (say < 1 mile), elasticities are almost always higher than average, reflecting walking is a competitive alternative for such trips. For instance, in Melbourne the elasticity for City short bus trips were estimated at 1.39, as compared with 0.28 and 0.85 for 1 and 10+ sections.)
- For medium-length trips (the majority of the market), the elasticity drops rapidly from its very high level to a 'normal' level.
- For the longer trips, there is conflicting evidence of elasticity trends. One source (White 2002) suggests medium/long trip elasticities 'increase gradually with distance, until a peak point after which they decrease to a lower level for very long distances'. Another source, which examined elasticities for Sydney rail trips (IPART 1996), found elasticities continued to fall strongly as trip length increased (i.e. without any intermediate peak values).

In the South East Queensland context, we consider it is highly likely that:

- Short-distance trips (up to say 1 mile/2km) are the most elastic, with elasticities up to twice or greater than the overall average.
- Longer-distance trips (predominantly by rail) are likely to be the least elastic, although the extent to which elasticities fall with distance is unclear.

Trip Destination: CBD v NON-CBD

There is strong evidence, in Australia and internationally, that trips to/from the CBD are significantly less price elastic, particularly in peak periods, than trips to/from non-CBD destinations. This difference will particularly reflect the difficulties and costs of parking in the CBD, especially for all-day commuters.

For example, research on rail elasticities in Sydney found (IPART 1996) that:

- For peak period travel, elasticities for trips to/from the CBD were between 37 per cent (short trips) and 68 per cent (medium-distance trips) of the corresponding values for non-CBD trips.

- Similarly, for off-peak travel, CBD elasticities were between 57 per cent (long trips) and 94 per cent (short trips) of the corresponding values for non-CBD trips.

This appears to be the most relevant research available to the South East Queensland context (although it does not cover bus services). Based on this, we suggest the following factors be applied to adjust overall fare elasticities to differentiate between CBD and non-CBD trips:[12]

- Peak trips: CBD trips 35 per cent below average, non-CBD trips 35 per cent above average.
- Off-peak trips: CBD trips 20 per cent below average, non-CBD trips 20 per cent above average.

Mode: Bus vs Rail

Most literature covers bus and rail fare elasticities separately, and usually derives elasticity estimates for the two modes that are significantly different. However, we suspect these differences are more a function of the market segments using each mode (e.g. in terms of journey purpose, incomes/car availability, trip lengths) rather than intrinsic to the mode. In a previous report (Ian Wallis for NZTA) stated that:

`From the evidence it is unclear whether the elasticities for rail-based services are systematically different from those for bus-based services, or whether the apparent differences are instead a function of the characteristics of the trips made on each mode (e.g. rail trips tend to be longer than bus trips and hence have higher in-vehicle time elasticity might be expected). While a common perception would be rail is more attractive than bus as an alternative to the car, and therefore rail elasticities might be higher (particularly for service levels and in-vehicle time), there is no clear evidence this is the case.'

We suggest at this stage no attempt is made to differentiate between bus and rail fare elasticities; but note that application of the approach proposed will in practice result in different elasticities, given the difference in market segments on the two modes.

Base level of fares

The difference in fare elasticities between situations with high 'base' (initial) fares and those with low fares has been given scant attention in the literature. TRRL (1980) explains the likely response using the generalised cost framework. It maintains, for higher fare levels, passengers can be expected to be more price-sensitive to a given percentage fare change because fares form a larger proportion of the total travel cost (in time, money and effort). Thus fares elasticities would be expected to increase at higher levels. However, it found no empirical evidence to support this.

The principal source of evidence on variations in fare elasticities with fare levels is Dargay & Hanly (1999).

The summary of this report states that:

`There is statistical evidence demand is more price-sensitive at higher fare levels. This conclusion is drawn on the basis of a model in which the fare elasticity is related to the fare level. The variation in the elasticity ranges from -0.13 in the short-run and -0.27 in the long-run for the lowest fares (27 pence in 1995 prices) to -0.77 in the short-run and -1.6 in the long-run for the highest fares (£1 in 1995 prices).'

The analysis by Dargay & Hanly and their conclusions are the most persuasive of all the available references, although they are also supported by a number of other studies. They are based on econometric analyses of UK bus passenger data for the period 1976-96, at national, regional and county levels, and testing a range of model formulations. Their conclusions are broadly consistent with the hypothesis that fares elasticities are directly proportional to the fare level. This implies the patronage proportionate response is similar for all absolute ($) fare changes, irrespective to fare levels.

Magnitude of Fare Changes

Relatively little empirical evidence is available on how fare elasticities change with the magnitude of the fare change – although it is often asserted the response to large changes is proportionately greater than the response to small changes. However, most of the limited evidence does not support this assertion. For instance Mayworm et al (1980, and cited in Pratt et al, 2000) concluded the magnitude of the change has been shown to have no discernible effect on fare elasticity.

However BGC (cited in Rosenberg et al 1997) concluded large changes in public transport fares have a more than proportional effect compared to small fare changes. Rosenberg examined the effect on public transport use at different fare levels. Their results found elasticities were lower at high price levels than at the current price level. They explain normally the price elasticity increases when price rises, and this outcome potentially reflects the rise in fares has forced public transport users into their cars, while only so-called public transport captives continue to use public transport.

At this stage, our proposed framework assumes elasticities are unaffected by the size of the fare change.

12 Proportions assume c. 50% of all PT trips have CBD destinations.

Direction of Fare Changes

Very limited data exists to suggest the patronage response to fare changes differs significantly according to the direction of the fare change: most evidence available indicates the fare elasticity for fare increases and decreases is very similar. For example, Mayworm et al (cited in Pratt et al 2000) in their review of 23 fare changes in the US, found the fare elasticities were not significantly different for fare increases and fare decreases. Similarly Bly (1976), Fairhurst & Morris (1975) and Wardman (cited in Pratt et al 2000) concluded the elasticity for fares decreases was the same as the elasticity for fare increases. Dargay & Hanly (1999) also found no indication of asymmetry of response in any of their models after specifically testing for evidence. However they noted this may be because the fares analysed were primarily rising over time, with few instances of reductions: they suggested more disaggregate data, including for fare reductions, would be needed to fully test their hypothesis.

Of the evidence available to date, only marginal differences between fare increases and fare decreases have been found. Some of the key findings included:

- Hensher & Bullock (1979) found the fare elasticity for Sydney rail fare increases was almost the same as for fare decreases (i.e. values of 0.21 and 0.19 respectively).
- Dargay & Hanly (1999) examined disaggregate county-level data and found an indication that the response to fare changes was slightly higher for fare increases compared to fare decreases (i.e. values ranged from 0.27 to 0.56 for fare decreases compared to 0.36 to 0.74 for fare increases).

In the light of this evidence, our proposed analysis framework assumes elasticities are 'symmetric', i.e. the same for fare decreases as for increases.

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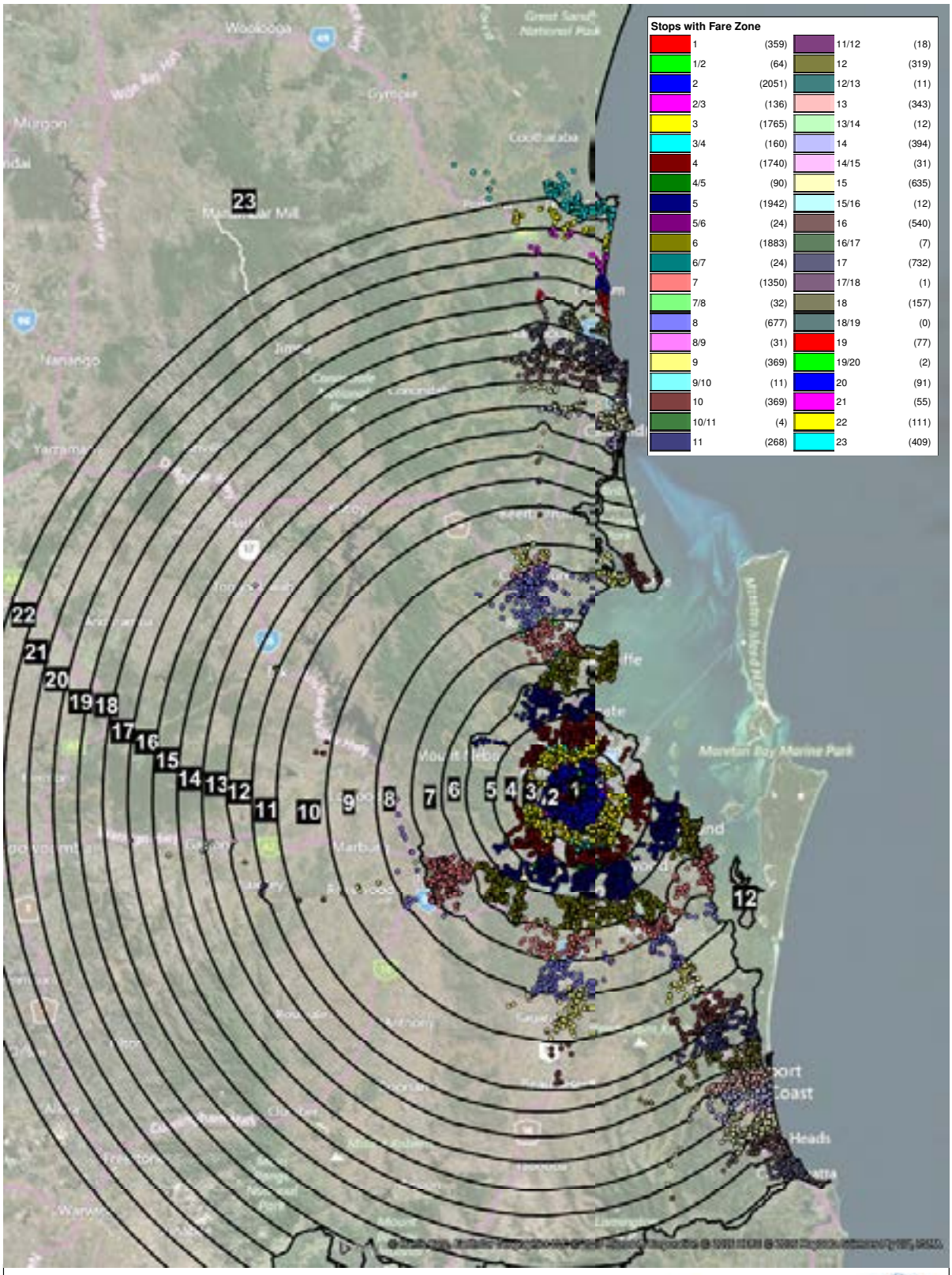
ATTACHMENT 6 – FULL COMPLEMENT OF ZONAL MAPS



South East Queensland Existing Zone Map

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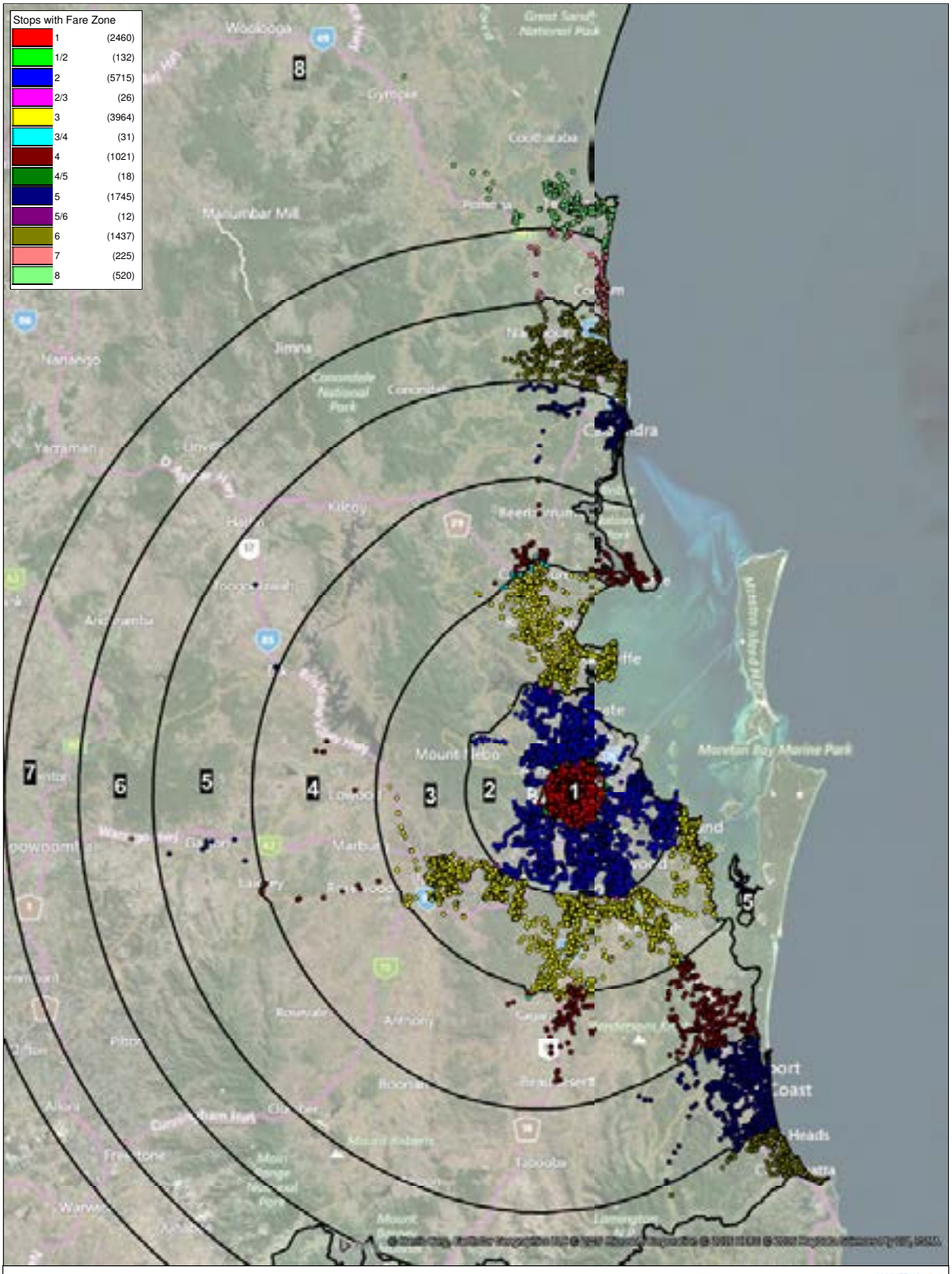

South East Queensland Indicative Proposed 8 Zone Map

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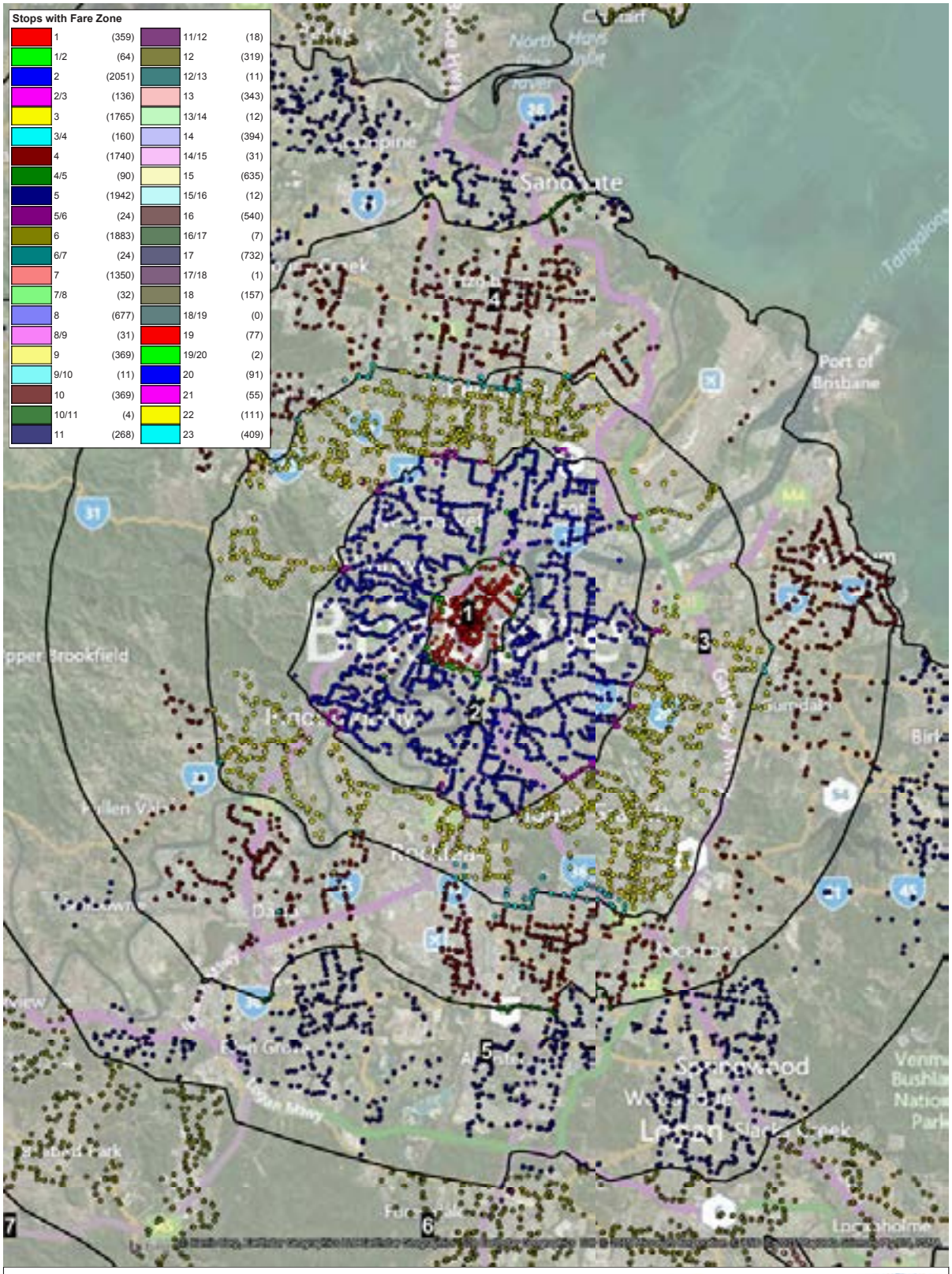

Brisbane Region Existing Zone Map

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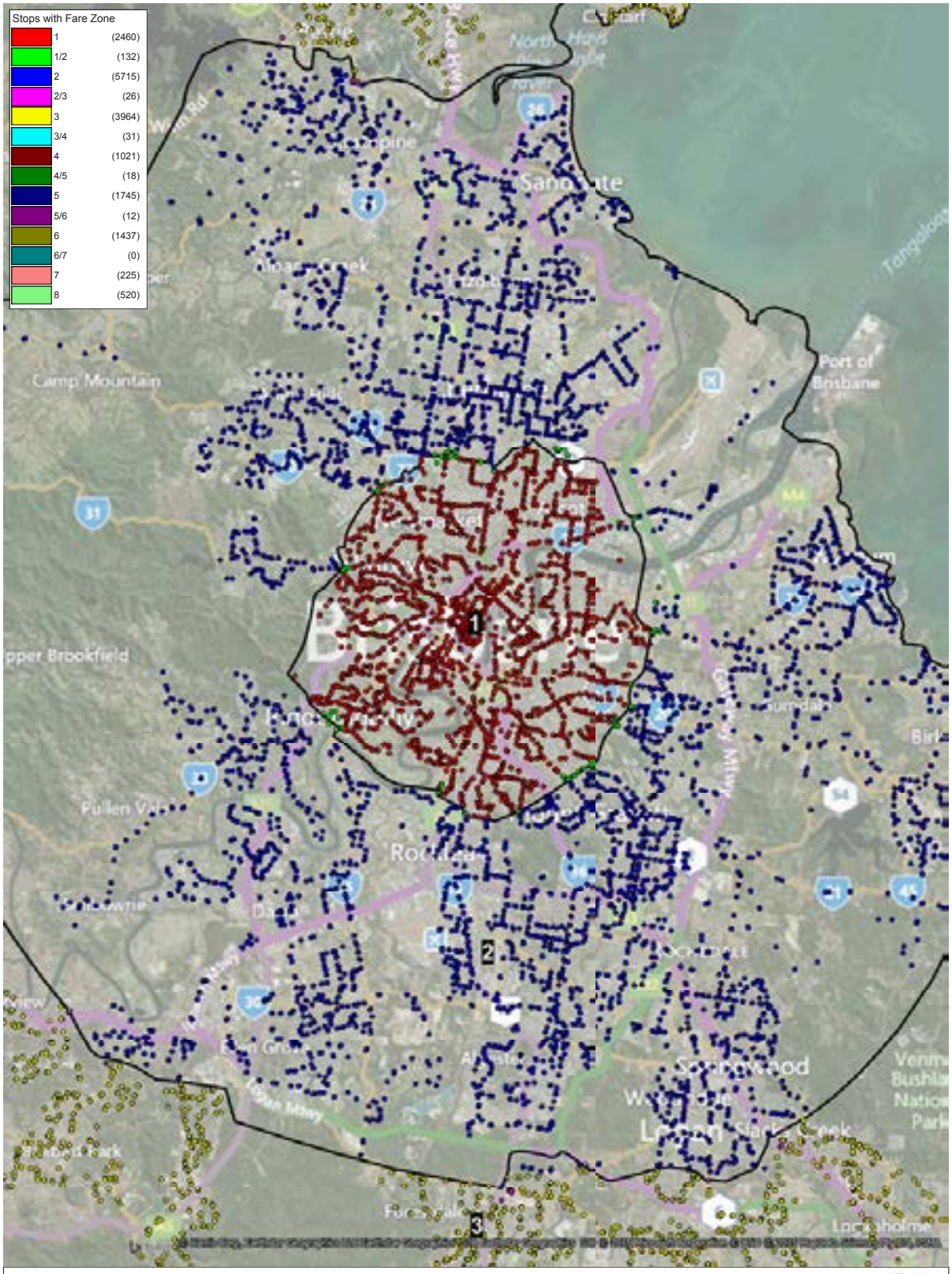

Brisbane Region Indicative Proposed 8 Zone Map

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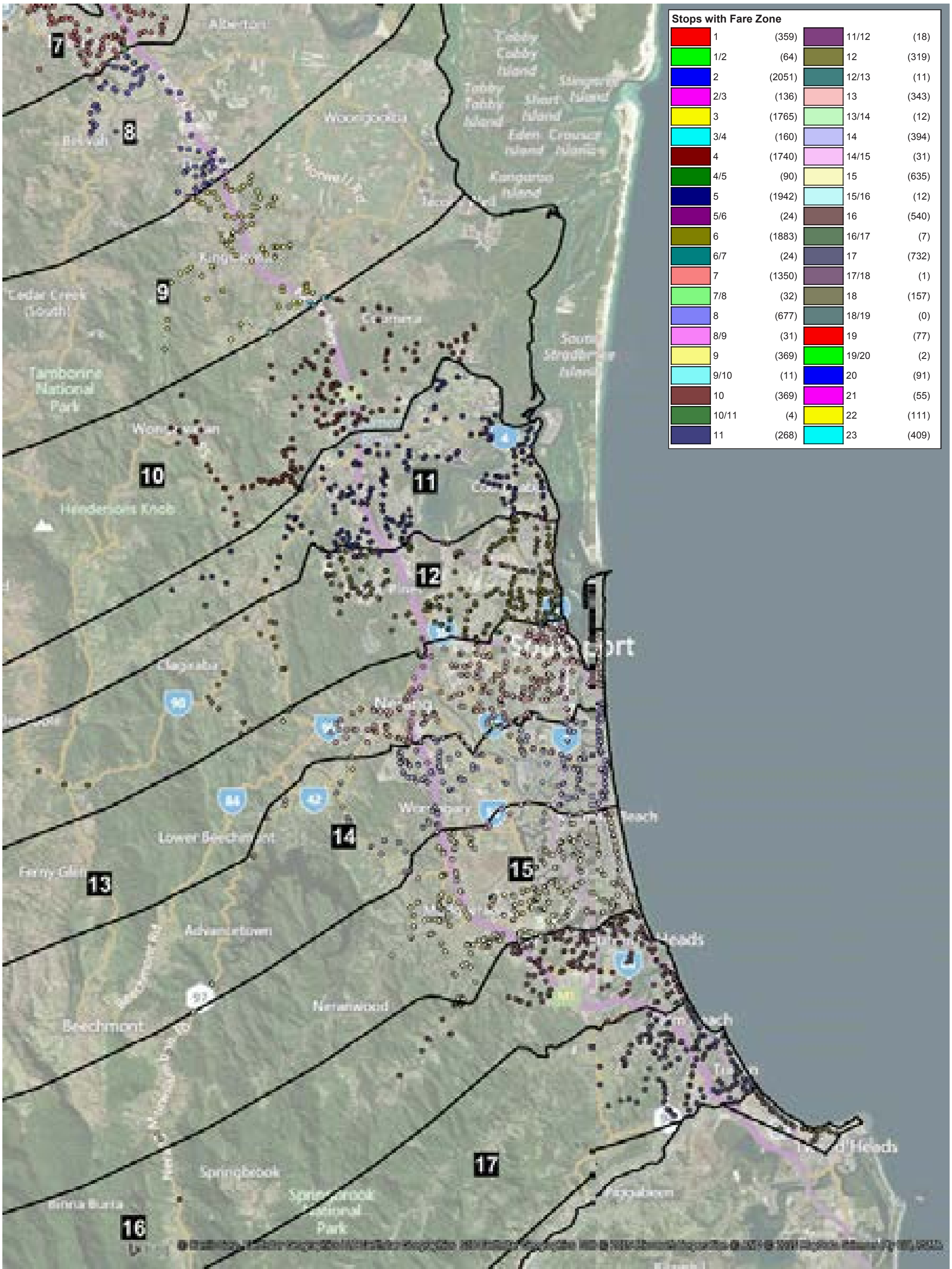

Gold Coast Region Existing Zone Map

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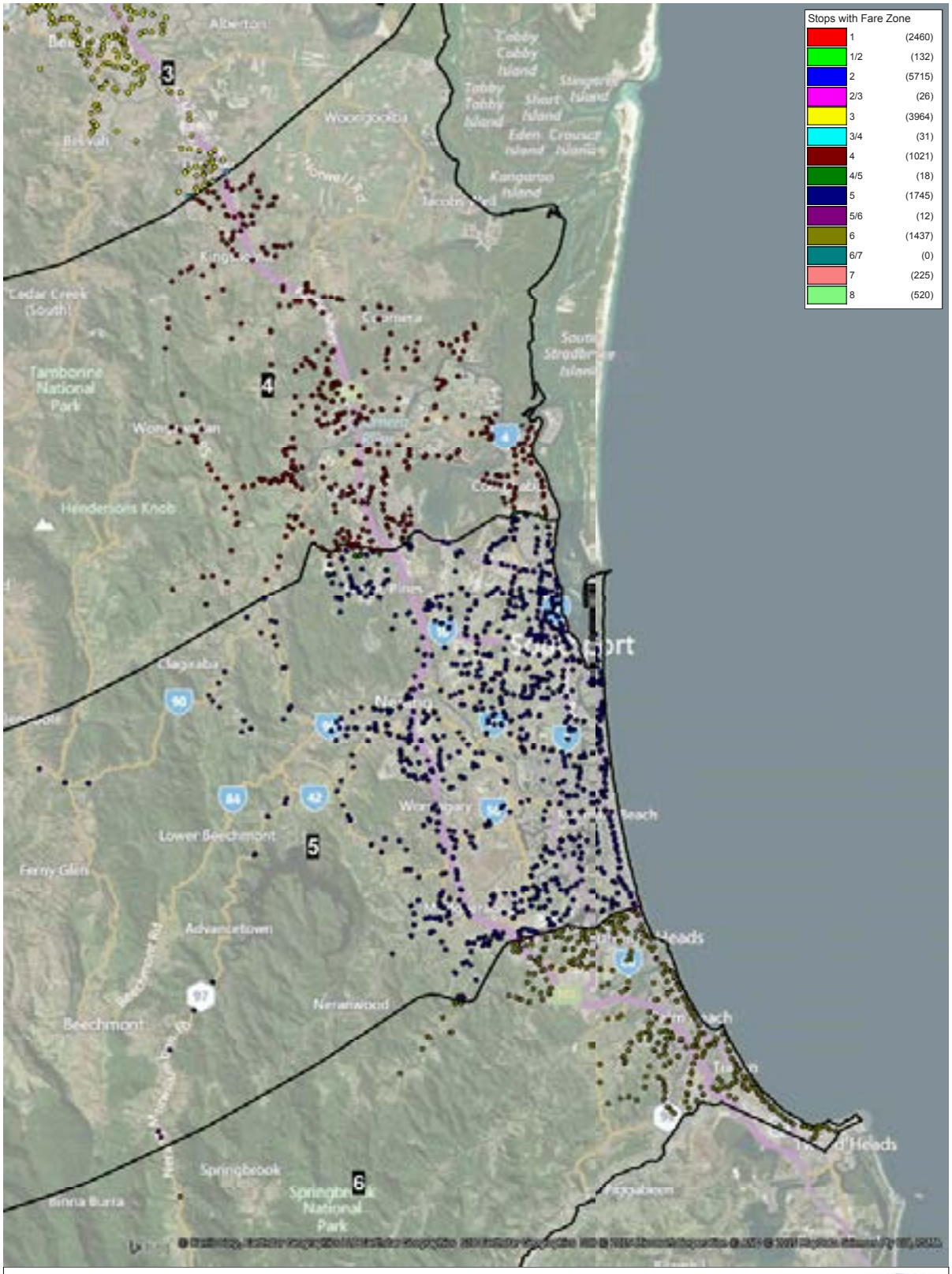

Gold Coast Region Indicative Proposed 8 Zone Map

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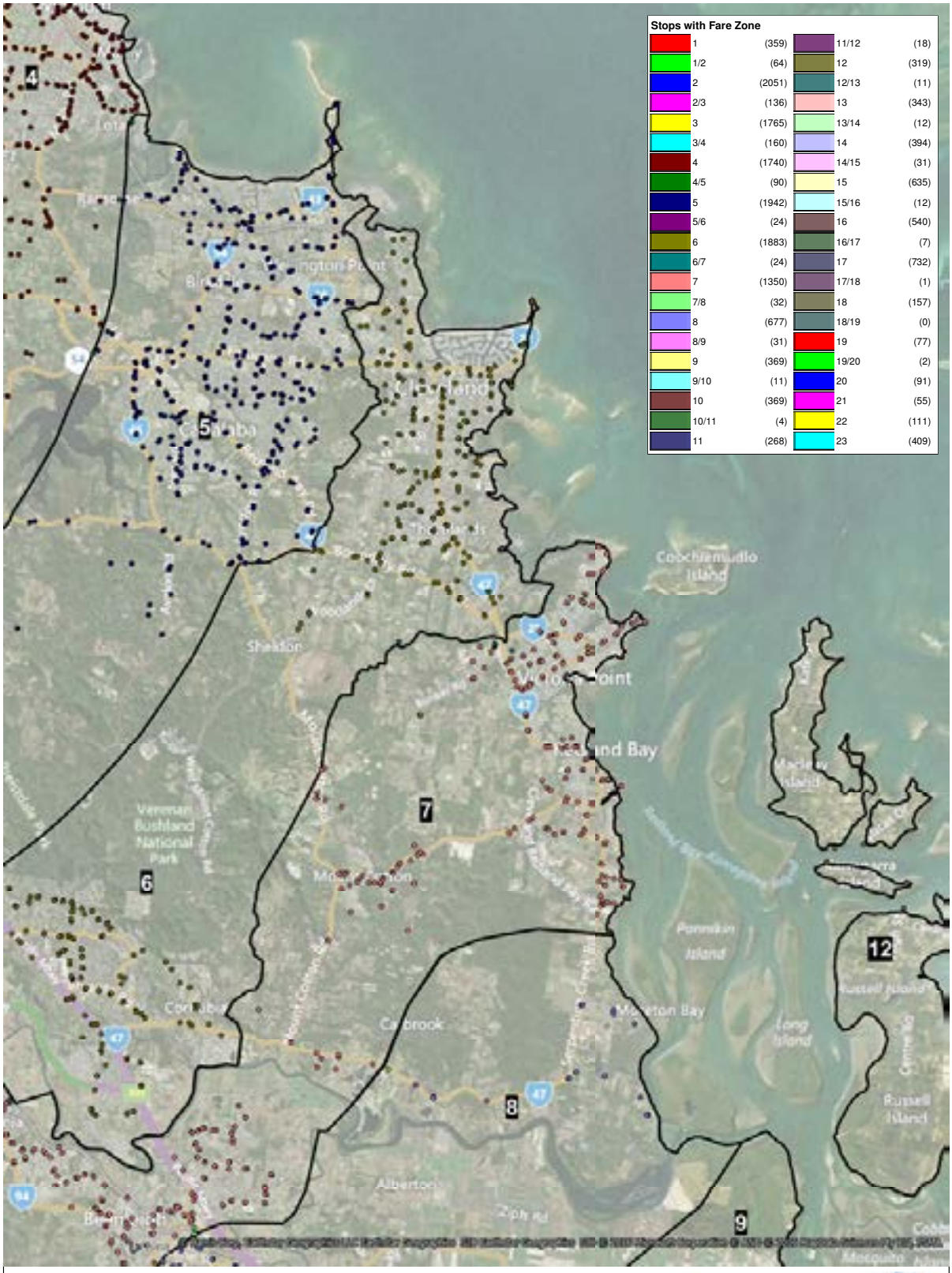

Redlands (Eastern) Region Existing Zone Map

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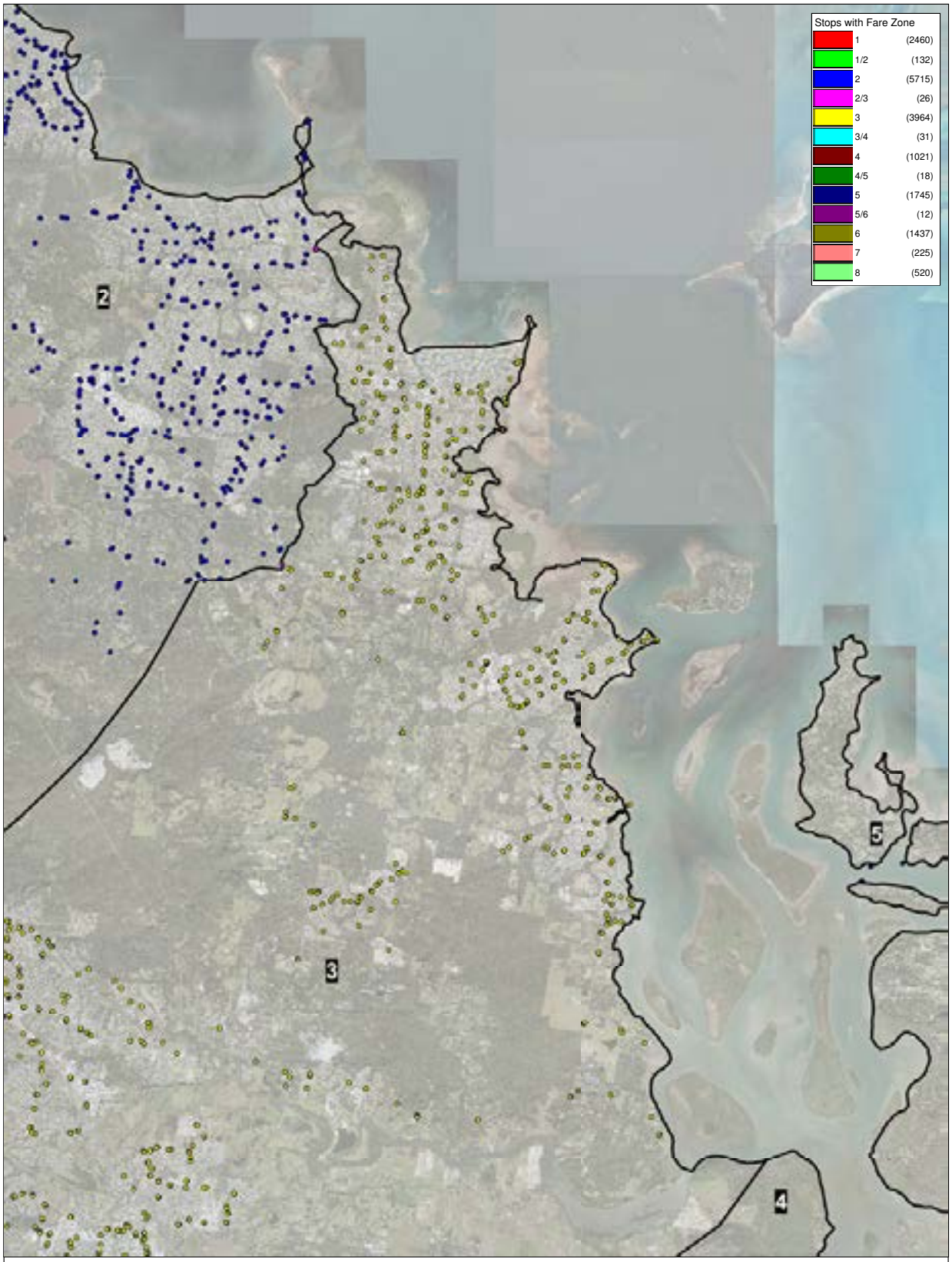

Redlands (Eastern) Region Indicative Proposed 8 Zone Map

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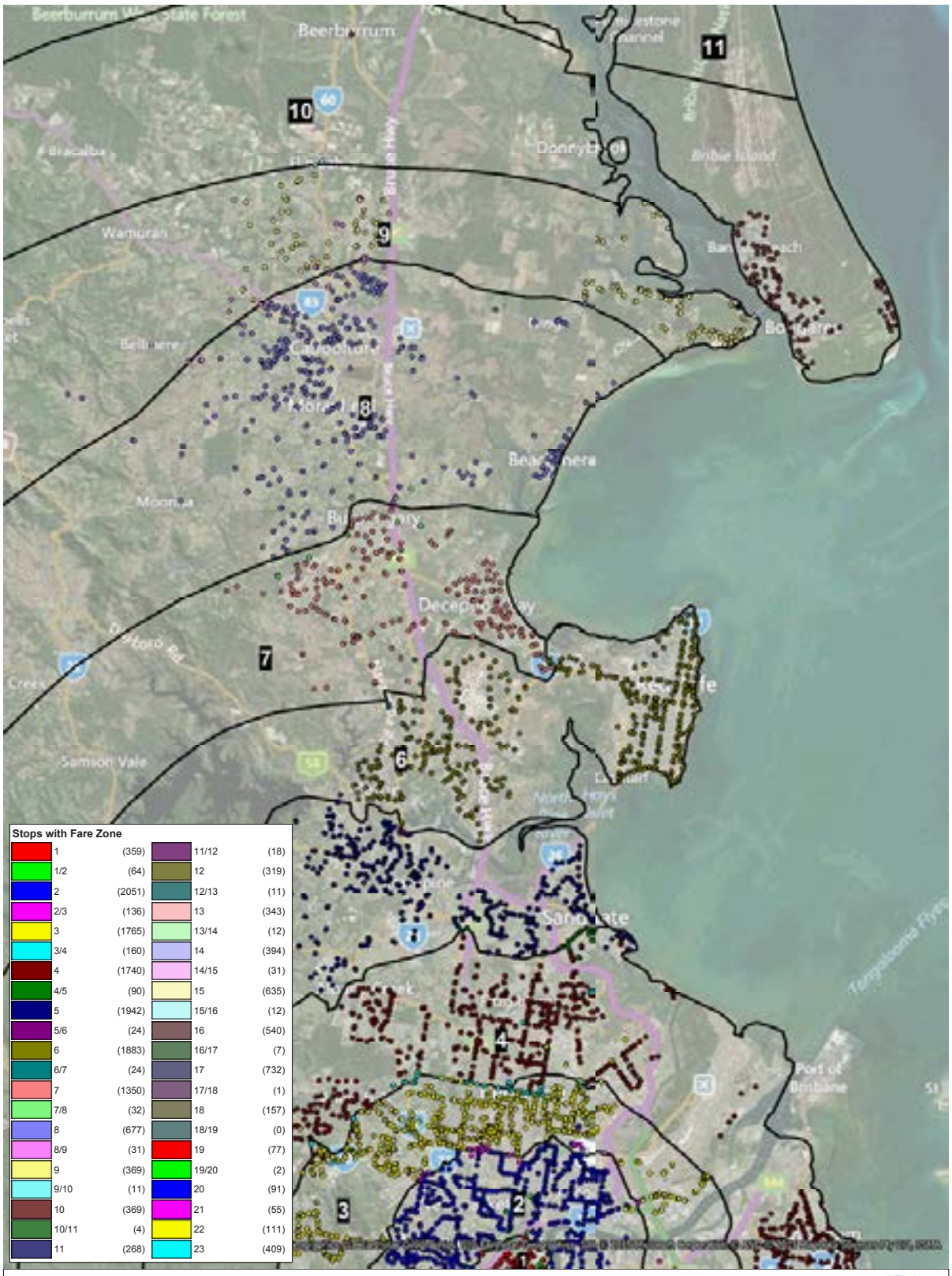

Moreton Bay (Northern) Region Existing Zone Map

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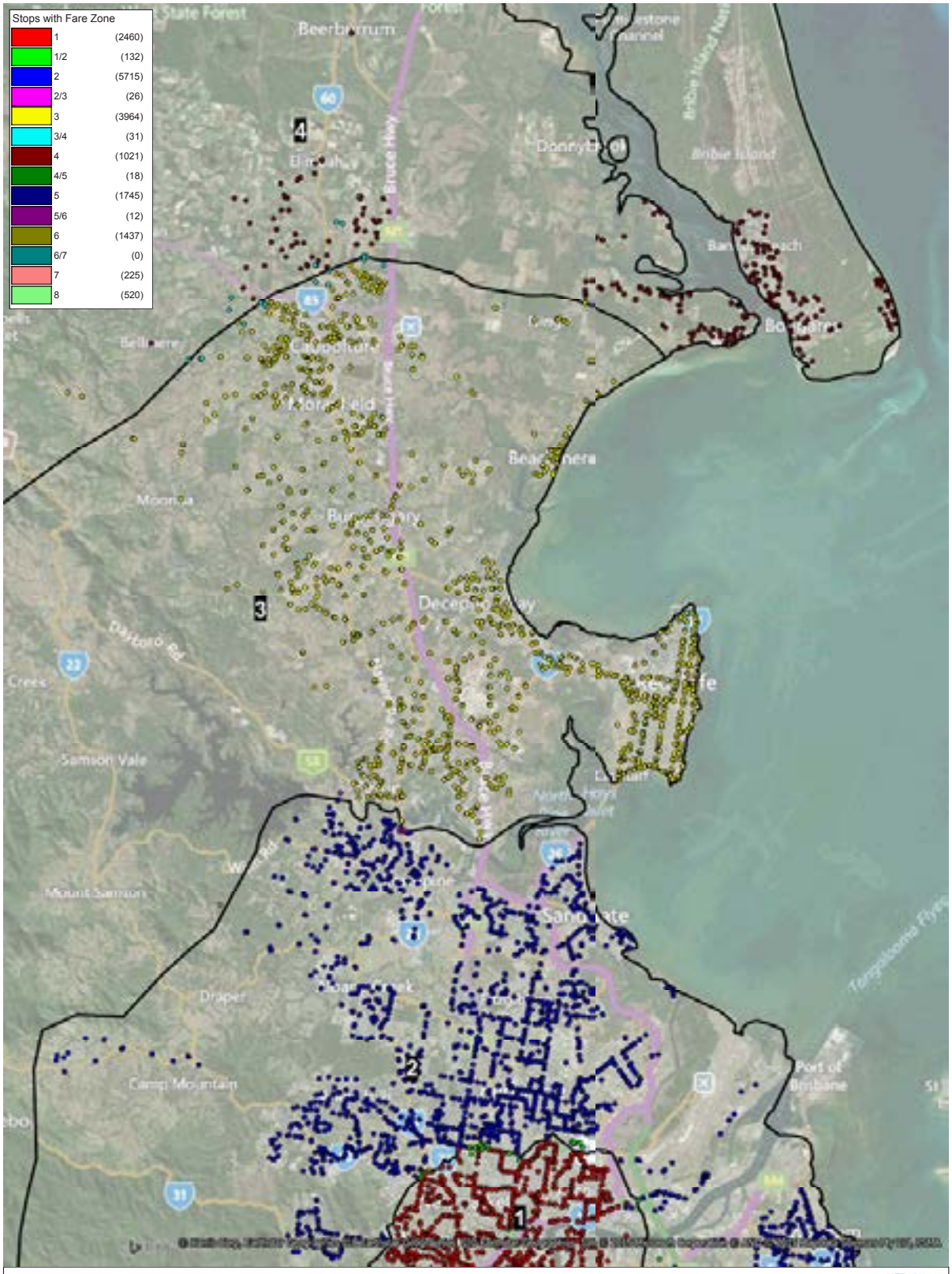

Moreton Bay (Northern) Region Indicative Proposed 8 Zone Map

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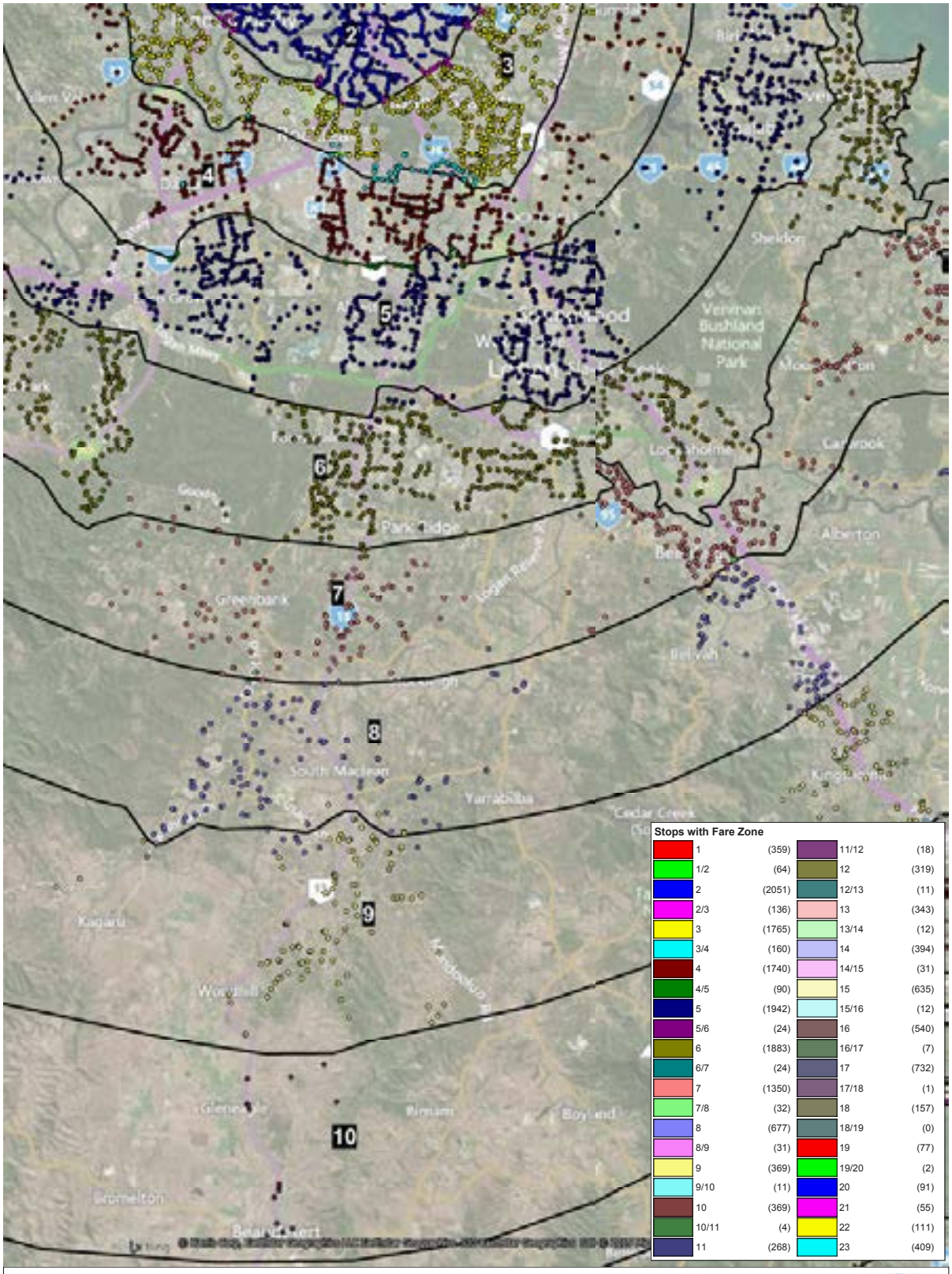

Logan (Southern) Region Existing Zone Map

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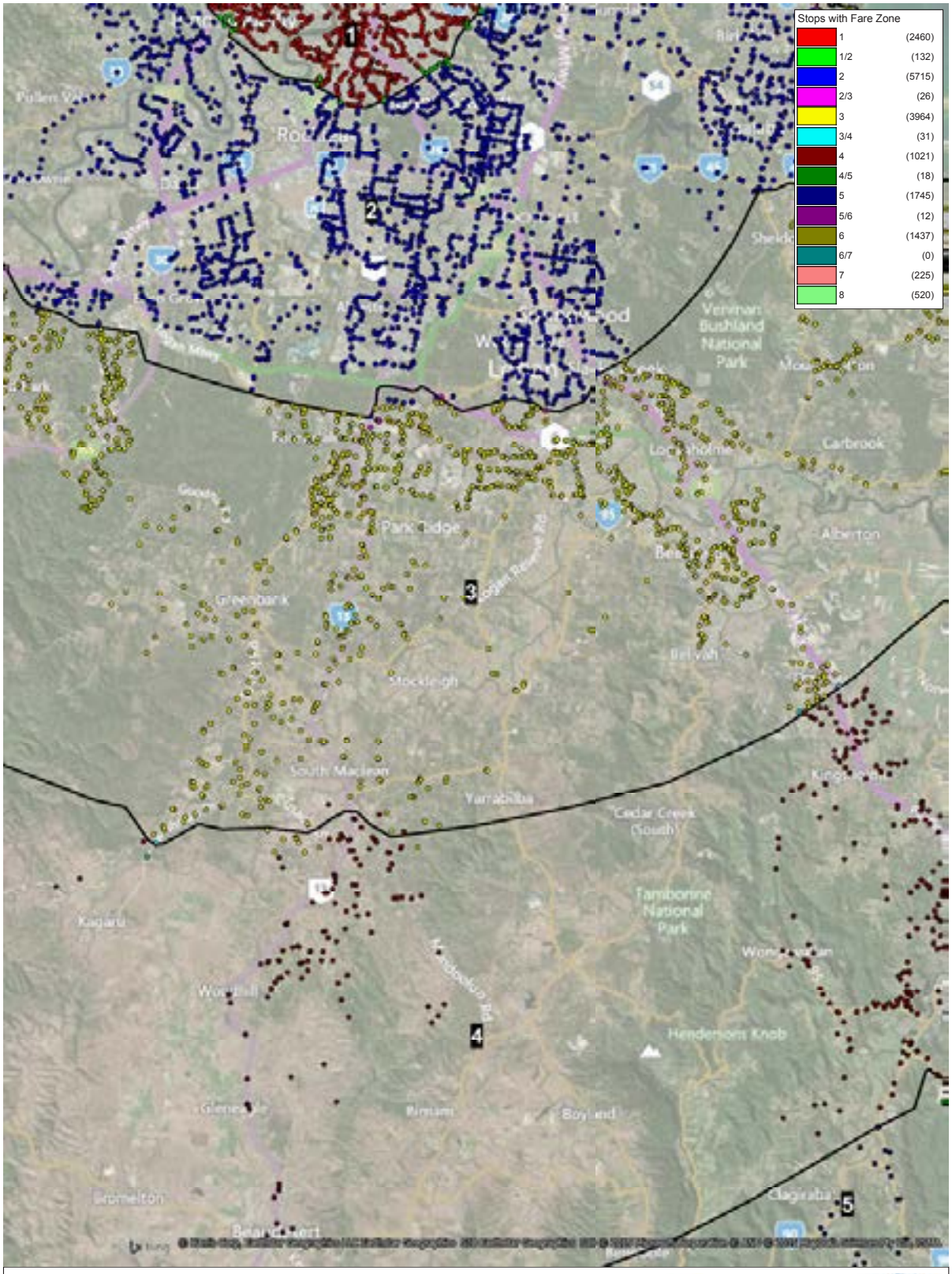

Logan (Southern) Region Indicative Proposed 8 Zone Map

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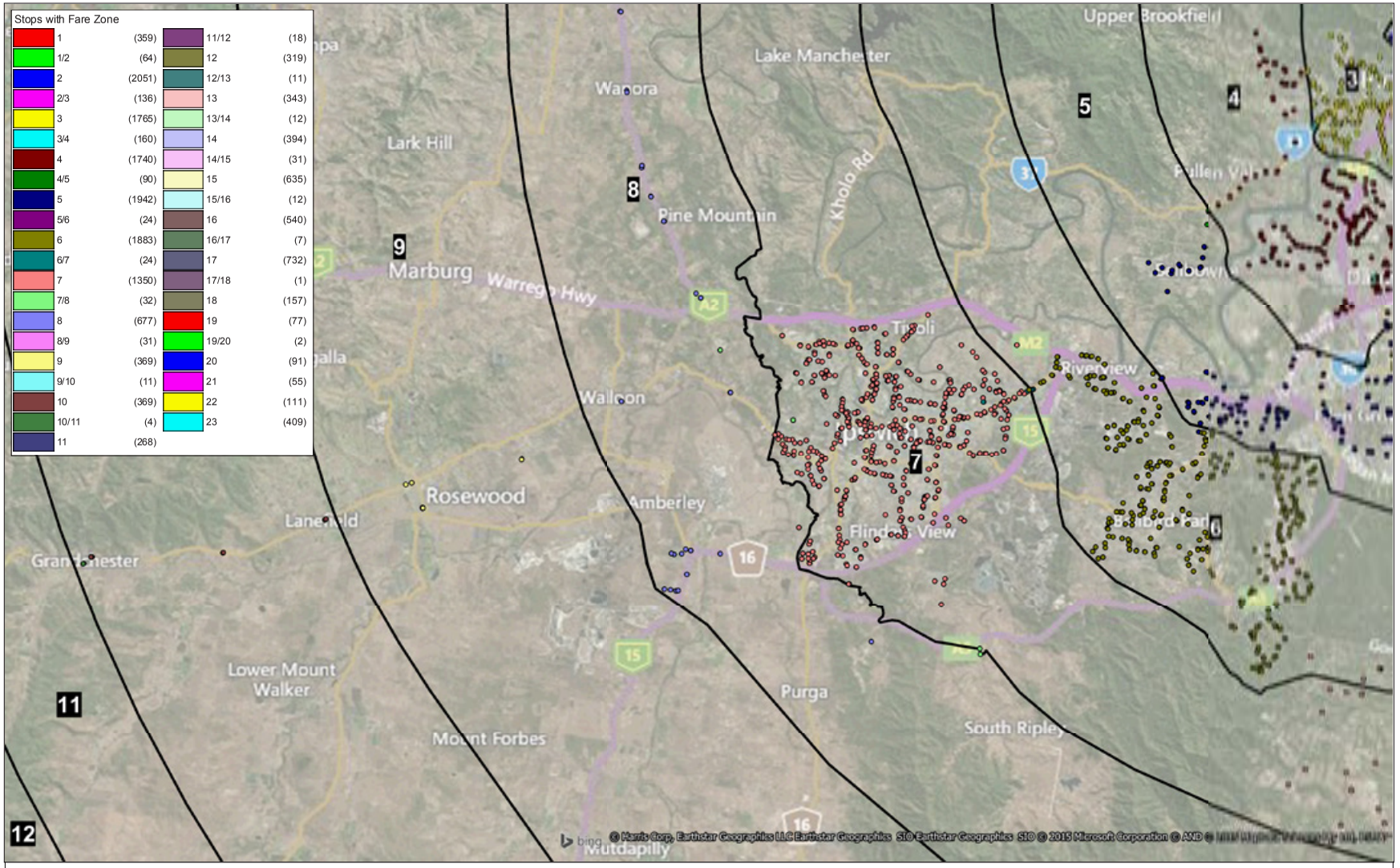

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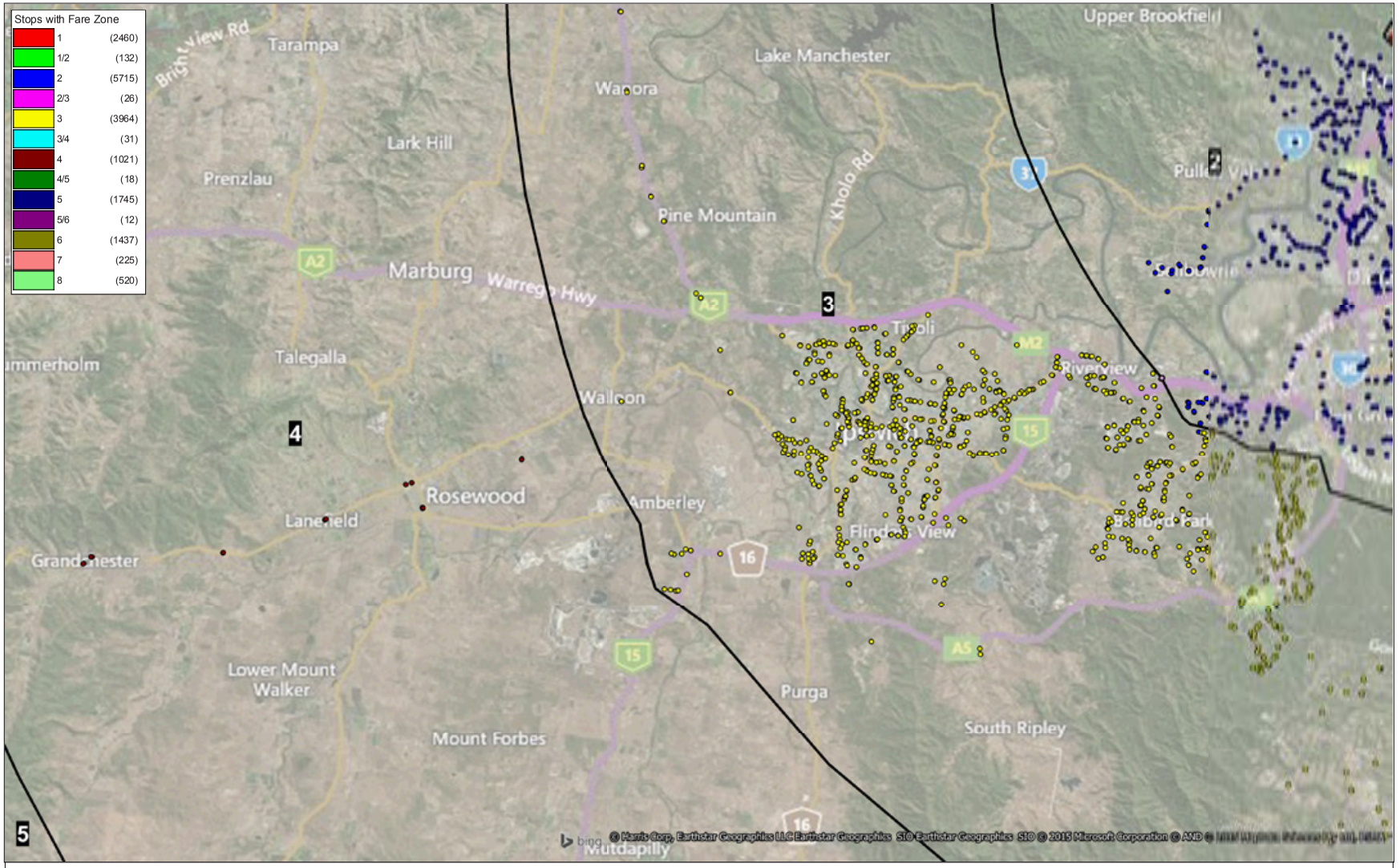

Ipswich/Springfield (Western) Region Indicative Proposed 8 Zone Map

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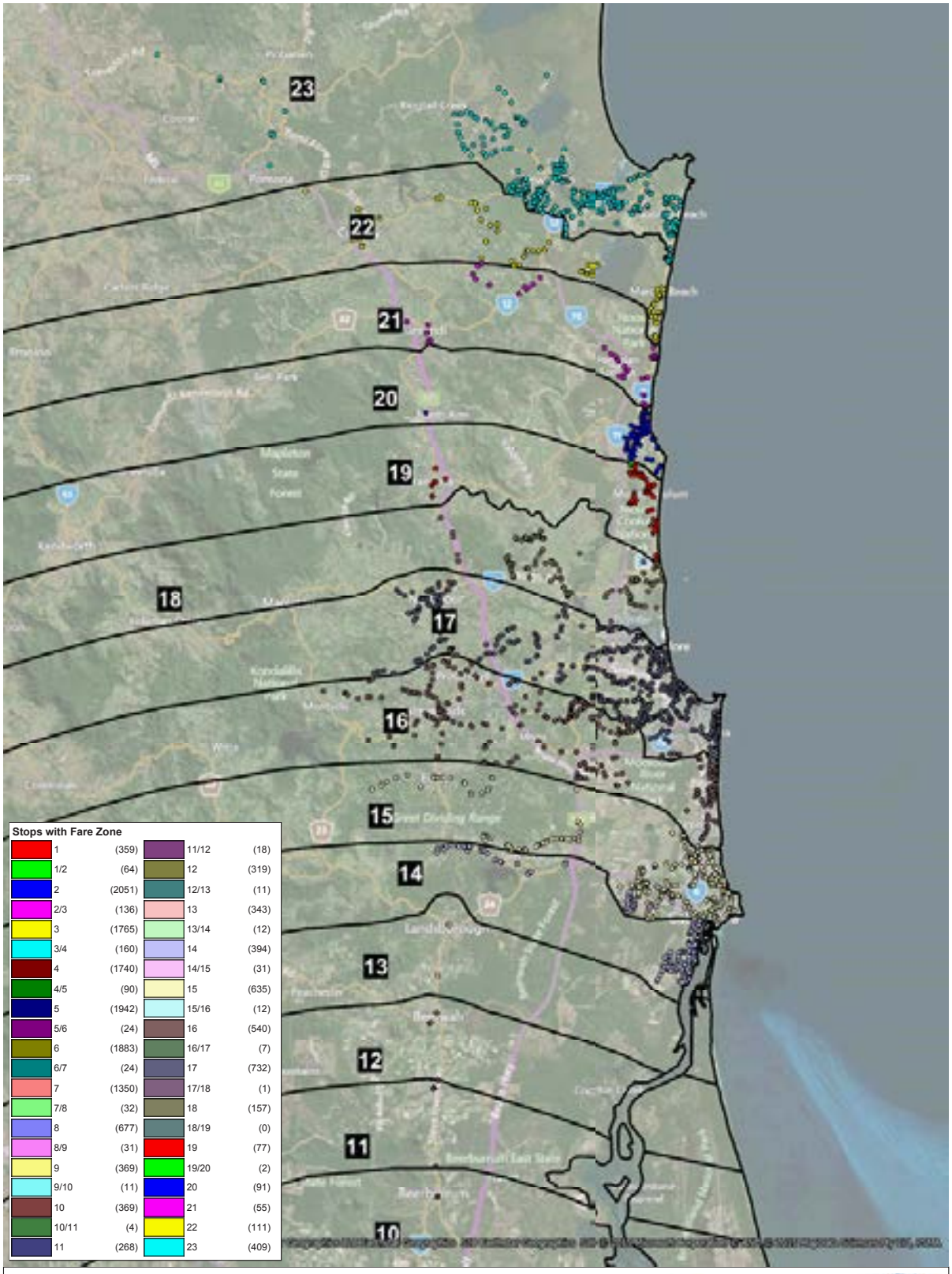

Sunshine Coast Region Existing Zone Map

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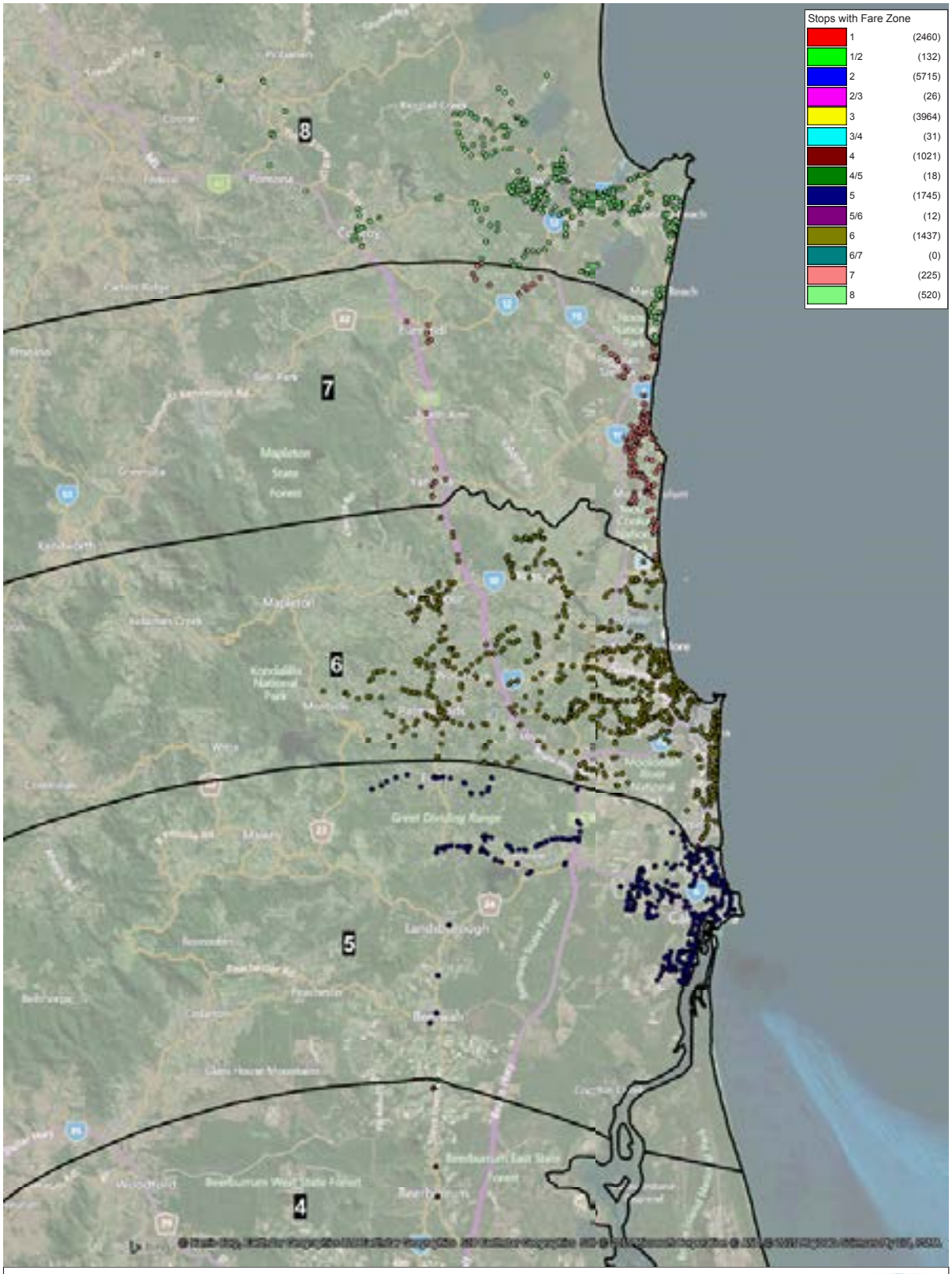

Sunshine Coast Region Indicative Proposed 8 Zone Map

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ATTACHMENT 7 – GLOSSARY

Account based ticketing system	A system which allows customers to use their bank-issued contactless cards to pay for their public transport just like they pay for any other retail purchase. Account information is stored remotely in a computer network and fare payment information is sent from the card reader to the network to charge the account. With prepaid fare systems like *go* card, fare charges are tracked using information stored on a chip inside the card.
Adult	A person fifteen (15) years of age and older who is not enrolled full time at an approved primary or secondary school or tertiary or post-secondary institution and is not entitled to travel concessions afforded to holders of Australian Pensioner Concession Cards or Queensland Senior Cards.
Adult fare	The normal full fare with no discounts (including GST) for a nominated one-way journey.
Airtrain	A privately owned and operated railway that provides a railway service linking Brisbane's International and Domestic Airports with Brisbane city and the Gold Coast. Airtrain has its own ticket pricing structure applied to passengers travelling to stations on the Airtrain line.
Asylum seeker	A person who has left their home country as a political refugee and is seeking asylum in another.
Auto top-up	A transaction to automatically top up your *go* card with a set amount from a bank account or credit card, each time the balance falls below the trigger value. A form of *go* card top up where every time the card reaches the auto top-up threshold trigger amount, the card is automatically reloaded from a bank account or credit card account nominated by the cardholder. The amount of value added in each transaction is set by the cardholder. This form of top up is only available to registered cardholders.
Child	A person who is aged five (5) years to 14 years inclusive.
Child *go* card	TransLink's electronic ticket for children aged 5 to 14 years old (inclusive). These cards expire on the child's 15th birthday.
CityHopper	A free CBD ferry service on the Brisbane River which is funded by the Brisbane City Council.
Commuter	A person who travels regularly between home and work or school/university.
Concession fares	Reduced ticket-price or rate offered to customers who meet certain criteria. Translink's concession fares are 50% cheaper than adult fares and apply to children, full time secondary and tertiary students, pensioners, seniors and defence force veterans. Children under 5 travel free.
Distance-based pricing/fares	Fares are higher for journeys that cover greater distances. The fares could either be on a per kilometre basis or a set of fare zones that establish incremental fares based on certain regions of the city.
Fairness	The Taskforce used a definition of `fair; based on market research which showed most people believe the price paid by a user is fair if it reflects the distance they are travelling. This is known as distance-based pricing.
Fare	The price of a ticket calculated on zones covered by a journey for a specific passenger type and ticket type and the time of travel.
Fare adjustment mechanism	How fare increase decisions are made.
Fare elasticity	The change in number of people using public transport services in response to fare increases or decreases.
Fare evasion	The act of travelling on public transport in disregard of the law and/or regulation, having deliberately not purchased the required ticket to travel (having had the chance to do so).

Fare levels	How fares vary by ticket type, time period, and/or passenger type. Fare levels are usually applied on top of the underlying fare structure. TransLink's current fare levels vary by ticket type (paper or *go* card), time period (peak or off-peak) and passenger type (adults or concession).
Fare strategy	A plan for future ticketing products and fares.
Fare structure	How fares vary with distance. For example, fare structures can be based on zones, per kilometre charges or they can have flat fares. Zone-based fare structures strike a balance between flat and distance-based fares by having a flat fare within a zone and increasingly higher fares based on the number of zones travelled in one journey.
Fare system	The system set up to determine how much is to be paid by various passengers using the system at any given time. Public transport fare systems are generally made of two key elements: a fare structure and fare levels.
Farebox revenue	The money or tickets collected as payment for rides. Farebox revenues rarely cover the full operating expenses for a public transport system.
Fare zone	The area between zone boundaries to which a particular fare applies.
Fixed fare	The amount TransLink charges to a *go* card if a customer does not touch off at the end of their journey.
***go access* card**	An electronic ticket, like a *go* card, with added features to help businesses, organisations and schools easily use public transport. For example the go access Corporate Events Card is a ticketing solution for conference or event organisers who want to provide attendees with an easy way to get around while they are in SEQ.
***go* card**	A secure plastic card the size of a credit card which contains a microchip and passive antennae. The *go* card may have value added to the card balance, which may be used to pay for the cost of travel. Card readers and other system devices can communicate with the card to calculate and deduct the cost of travel from the card balance and to allow further funds to be added to the card balance. A touched on *go* card is a valid form of electronic ticket for travel on the TransLink network.
***go explore* card**	TransLink's daily electronic ticket for tourist use on all TransLink Gold Coast bus and tram services.
Gold Coast Free Seniors Travel	Eligible seniors can travel for free on Gold Coast Surfside buses from 8.30am - 3.30pm, Monday to Friday. This is funded by the Gold Coast City Council.
Higher density urban forms	A city area with an above average number of people living in it.
Infant	An infant is a person four (4) years of age or under, and is permitted to travel free of charge on TransLink services.
Integrated ticketing	Passengers can use the same ticket to travel on, and transfer between, TransLink's bus, train and ferry services, across the 23 zone network.
Journey	A journey is the distance travelled from the origin to the final destination (eg. from home to work). A journey may involve several trips using different transport modes. The sum of these trips make up one journey.
Land-use planning	A method of urban planning which seeks to manage land use in an efficient and ethical way, which allows Government bodies to plan for the needs of the community while safeguarding natural resources.
Mobility disadvantaged	People who cannot carry out a reasonable level of desired activity outside the home because of lack of available or accessible vehicle, road facility or public transport service.
Mobility management	An approach to managing transit systems which moves beyond traditional public transportation management approaches to integrate land-use planning, congestion and air quality factors into planning decisions. This aims to ensure balanced and sustainable development of all transport modes through actions that include technical, promotional and marketing-based measures as well as infrastructure.
Mode	A particular method of travel. For example, bus, train, bicycle, walking or car.
Model	An analytical tool (often mathematical) used by transport planners to assist in making forecasts of land use, economic activity, and travel activity.
Network	The configuration of public transport modes, vehicles, infrastructure and routes that constitute the total public transport system.

Newstart Allowance	A Centrelink payment for people 22 years or older but under age pension age who are unemployed and seeking work.
Next generation ticketing	The future ticketing technology which will replace or enhance *go* card. Also referred to as NGT.
Nine and FREE	'Nine and FREE' is a weekly incentive that allows all *go* card customers to travel for free after their ninth paid journey in a seven day period, from Monday to Sunday.
Off-peak time	Non-rush periods of the day when travel activity is generally lower and fewer transit services are scheduled. TransLink's off-peak time is any time from 8.30am to 3:29:59pm and after 7:00pm weekdays until 2:59:59am the following day and all day weekends and gazetted public holidays. Customers travelling in off-peak periods may be eligible for a discounted fare.
One, Two, FREE	'One, Two, FREE' is a daily incentive that allows seniors and pensioners to travel free for the rest of the day after two paid journeys in the day. People travelling on Seniors Card *+go*, senior *go* cards, pensioner concession *go* cards and DVA Gold health concession *go* cards are eligible for 'One, Two, Free'.
Paper ticket	A single ticket for infrequent public transport users and short-term visitors in South East Queensland. A single paper ticket is a one-way ticket which can be used on buses, trains, ferries and trams.
Pass	A pass is generally a non-*go* card ticketing product which customers must show to the operator upon boarding a service or gaining access through a gated station. For example the TransLink Access Pass, Assistance Animal Pass, TPI/EDA Veteran Travel Pass, Travel Trainer Pass and STAS bus pass.
Passenger	A person who rides a public transportation vehicle, excluding the driver.
Patronage	Measurement of the total number of passenger trips on the TransLink network, or on a particular service or mode.
Peak (also called normal time)	Those times where passenger demand for public transport services is highest. TransLink's peak time is any time from 3:00am to 8.29.59am and 3:29:59pm to 6:59:59pm weekdays, except public holidays.
Peak - morning peak	The morning commute period, about two hours, in which the greatest movement of passengers occurs, generally from home to work or place of study and when the greatest level of patronage is experienced and service is provided.
Pensioner	A pensioner is defined as a person who is the holder of a current Australian Pensioner Concession Card (PCC). Only the card holder is entitled to the concession fare. Dependents listed on the Pensioner Concession Card are not entitled to concessions.
Post-Secondary or tertiary students	Post-secondary or Tertiary students are those enrolled full time in an approved course at an accredited University, TAFE or post-secondary educational institution.
Price sensitivity	The degree to which price affects the sales of a product or service. (see also fare elasticity)
Public transportation	Shared passenger services (for example, bus, trains) available to the public which run on fixed routes to provide regular and continuing general or special transportation to the public, usually for a fare.
QR	Queensland Rail
Revenue protection	The prevention, detection and recovery of losses due to fare evasion.
Ridership	The number of passengers using a particular form of public transport. (see also patronage)
School student	A school student is a student enrolled full time at an approved primary or secondary school in Queensland. This includes mature age students. The QR school travel fare, calculated at one third the full adult fare, is only available to school students up to the age of 19 years, however, a student 19 years or older may be eligible for transport assistance provided they are in full time secondary study which commenced prior to their 19th birthday. All full time school students are entitled to a concession fare (but not the QR School Travel Fare). A student fare is 50% of the applicable adult fare.
Senior	A senior is defined as a person who is the holder of a Seniors Card. Holders of cards issued by all Australian states and territories are entitled to a concession fare on TransLink services.

Seniors fare	The 50% concession ticket-price offered to people with a senior *go* card or seniors card *+go*.
Senior *go* card	TransLink's electronic ticket for people who hold a current Australian Seniors Card.
Senior Network Officer (SNO)	Operational staff that patrol the TransLink network. The role of a SNO is to provide customer service, security and revenue protection services. In the case of serious incidents, SNOs have the power to detain serious offenders until the police arrive.
South East Queensland (SEQ)	For the purposes of the Fare Review, SEQ refers to the TransLink South East Queensland network where *go* card can be used on public transport services. This includes TransLink services in Greater Brisbane (including Ipswich), and the Sunshine and Gold Coast regions. The TransLink SEQ network stretches from Gympie in the north to Coolangatta in the south and west to Helidon.
Social equity	When all people within a specific community have the same rights and freedoms and equal access to social goods and services.
Southern Moreton Bay Ferry Services	The passenger ferry to Southern Moreton Bay Islands (Russell, Macleay, Lamb and Karragarra) which leaves from Weinam Creek, Redland Bay. This service is part of the TransLink network.
Spider legs	A legacy from the introduction of integrated ticketing which means some rail stations are nominally in lower zones than they really should be.
Time-based fare cap	Once the total cost of all fares within a certain period of time (for example, 24 hours or 7 days) reaches a certain amount customers won't have to pay for any more journeys for the rest of the time period. This is called a fare cap.
Top up	The act of increasing the balance of stored value on a *go* card by crediting funds to the card.
Touch Off	To touch a *go* card to a card reader on completing a journey or trip, resulting in a response from the card reader that the transaction is successful. The applicable fare is calculated by the card reader at touch off. Current terminology in the Transport Operations (Passenger Transport) Act 1994 states tag off.
Touch On	To present a *go* card to a card reader on commencing a journey or trip, resulting in a response from the card reader that the transaction is successful. A pre-set amount (see fixed fare) is deducted from the smart card by the card reader at touch on.
Transfer	A transfer is the movement of a passenger between services or modes of transport when more than one trip is required to complete a journey.
Transit oriented development	A mixed-use residential and commercial area designed to maximize access to public transport, and often incorporates features to encourage public transport use.
TransLink	A Division within the Department of Transport and Main Roads that administer integrated ticketing for public transport services in South East Queensland. TransLink is the brand name for passenger transport services in south-east Queensland, and includes TransLink buses, trains, ferries and trams.
TransLink Service	A scheduled passenger service administered by TransLink, provided under contract to TransLink, by the public transport operators listed in Section 1 introduction.
Trip	The travel from when a passenger boards a service to when they leave the service. A trip may be your full journey or part of your journey.
Zone	A sector which forms part of the public transport fare structure. TransLink operates services across 23 zones in South East Queensland. In South East Queensland the zone system works in a circular pattern, with zone 1 starting in Brisbane CBD and working its way north to the Sunshine Coast and Gympie, south to the Gold Coast and west out to Helidon.
Zone boundary	A line dividing the TransLink service network into fare zones for the calculation of TransLink prices.
Zone-based fare structure	A fare system where the public transport service area is divided into sectors which are used to calculate fares. Zone based fare structures strike a balance between flat and distance-based fares by having a flat fare within a zone and increasingly higher fares based on the number of zones travelled beyond the first zone.