

# NZTA draft farebox recovery policy

## Consultation document

This consultation document sets out the NZ Transport Agency's proposed requirements relating to farebox recovery policy in the regions, which is to be implemented by regional councils and the Auckland Regional Transport Authority.



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# 1 Introduction

## 1.1 Purpose of this document

The NZ Transport Agency (NZTA) is consulting over its:

- Draft NZTA Farebox Recovery Policy (appendix 1)
- Draft Fare Policy Decision-Making Guideline (appendix 2).

The purpose of the Draft NZTA Farebox Recovery Policy document is to set out the NZTA's proposed requirements relating to farebox recovery policy in the regions, which is to be implemented by regional councils and the Auckland Regional Transport Authority (ARTA).

The purpose of the NZTA's Draft Fare Policy Decision-Making Guideline is to support regional councils and ARTA to improve value for money on the investment in public transport services through a best practice process for 'fare policy decision-making' or reviewing fares.

## 1.2 Definitions

*What is meant by the term 'farebox'?*

The term 'farebox' is used to describe the revenue collected from tickets (cash, prepaid, passes and electronic purses) purchased by travellers of a public transport system. A fare is the fee paid for the ticket that enables the traveller to access the system. In a literal sense, a farebox is the device/other method used to collect fares for the use of buses, trams, trains and ferries.

*What is a farebox recovery ratio?*

A farebox recovery ratio measures the contribution fares make to the cost of providing public transport services, and is typically expressed as a percentage. Few public transport systems are self-supporting so government subsidies and other revenue, such as advertising and parking fees, are usually required to cover the costs.

This document relates to all modes of public transport, ie bus, rail and ferry.

## 1.3 NZTA consulting on both documents

The NZTA has decided to consult on both documents at the same time. Although they are distinct and separate documents, they are interconnected, as fare policies and structures impact on public transport ridership and farebox revenue. This interconnection, and a desire to make the consultation process efficient, means that it is appropriate to consult on the documents at the same time.

Feedback provided on these documents will be collated and assessed and contribute to the final NZTA Farebox Recovery Policy and Fare Policy Decision-Making Guideline, both of which are planned to be formally released in March 2010.

## 1.4 How this document is set out

Section 1:

- provides background information on why the NZTA has produced these documents
- describes the reviews that have been undertaken to date
- details the consultation period and process
- provides contact details for sending the NZTA feedback.

Section 2:

- describes the Draft NZTA Farebox Recovery Policy section by section
- describes the policy detail related to each section
- explains why this detail is included
- asks 27 specific questions as part of this consultation (submitters are free to raise any other matters for consideration).

Section 3 introduces the Draft Fare Policy Decision-Making Guideline document, and asks for feedback on that document.

Appendix 1 contains the Draft NZTA Farebox Recovery Policy.

Appendix 2 contains the Draft Fare Policy Decision-Making Guideline.

Appendix 3 sets out a list of all of the questions for consultation.

## 1.5 Background information

### 1.5.1 Funding of public transport services

The primary source of revenue to fund public transport services is the amount paid by the users in the form of fares for the journey, the 'farebox revenue'. Where the farebox revenue covers the costs, the service is recognised as a 'commercial service'. In cases where the farebox revenue does not cover the costs, but the regional council or ARTA considers the service necessary, it will contract an operator to provide that service (a 'contracted service'). The shortfall between the total cost of providing the service and the farebox revenue is made up by payments from the regional council or ARTA.

The NZTA assists the regional councils and ARTA with these payments for contracted services by providing a subsidy of approximately half of the amount of the payments through the National Land Transport Fund. If farebox revenue is covering 40 percent of the total cost of providing the services, a subsidy of 60 percent must be provided. Since the subsidy is split roughly 50 percent regional authority and 50 percent NZTA, the regional authority would have to contribute 30 percent of the total cost of providing the services, and the NZTA, 30 percent. This three-way (user-ratepayer-government) contribution is an important funding principle for public transport services in New Zealand. All three contributions may be required to provide an adequate level of service, but it is preferable that users make the greatest contribution through fares, and if possible that contribution should be grown as a proportion over time.

The efficiency and effectiveness of a public transport service is measured by its cost and patronage. This requires a careful balance of contributions from the user (fares), third party

funding or other sources, regional authority (rates) and the NZTA (road user funds derived from fuel tax, road user charges and motor vehicle registration and licensing fees). The desired outcome from the NZTA Farebox Recovery Policy is to ensure that each party is paying its fair share of the costs in a way that contributes to the government's objectives for public transport, as outlined in the Government Policy Statement on Land Transport Funding 2009/10–2018/19 (GPS) (May 2009). Adjusting each party's share will affect, positively or adversely, the use or continuation of a service. Any adjustment needs to be rationally based and transparent.

The NZTA Board envisages that the NZTA will develop a range of funding intervention policies over time, and the farebox recovery policy will be only one of a number of funding interventions designed to ensure that the government's objectives for public transport are achieved.

### 1.5.2 Consistency with local government decision-making requirements for funding

The NZTA recognises that decisions made by regional councils on farebox recovery fit within a broader funding picture. The NZTA does not consider that there is any inconsistency between the Local Government Act 2007 decision-making process for funding public transport and the decision-making requirements for public transport funding under the Land Transport Management Act 2003 and Public Transport Management Act 2008.

## 1.6 Why has the NZTA produced these documents?

### 1.6.1 Significant funder

The NZTA is a significant funder of public transport infrastructure and services and has a strong interest in encouraging improvements in operational efficiency and setting expectations around appropriate levels of subsidy. The NZTA also has an interest in ensuring that its funding is used in the most effective manner, ie to achieve the desired local and central government outcomes. An important part of the NZTA's draft farebox recovery policy is that regional councils must set and publish a formal farebox recovery ratio target. This is one of the mechanisms the NZTA uses to signal that efficiency and effectiveness gains are expected.

### 1.6.2 Government Policy Statement and Investment and Revenue Strategy

As well as reprioritising the government's investment in land transport on increasing economic growth and productivity, the GPS also places increased emphasis on obtaining value for money through more effective and efficient delivery and use of public transport infrastructure and services. The government has expressed an interest in developing and expanding commercial public transport services as well.

The NZTA's Investment and Revenue Strategy translates the government's GPS into workable criteria for the purpose of allocating funding. This Strategy, approved by the NZTA Board, requires all regional councils and ARTA, if using NZTA funds to help pay for public transport services, to have a farebox recovery policy as a condition of funding that sets out their farebox recovery ratio. Since the farebox recovery ratio is an important measure of effectiveness and efficiency, the farebox recovery ratio and the adoption of appropriate farebox recovery policies will be considered as part of the NZTA's assessment for the funding of public transport programmes.

## 1.7 The farebox recovery policy review

The purpose of the review is to respond to the NZTA Board's concerns:

- that public transport users contribute their fair share to the cost of providing services
- that the national farebox recovery ratio has been falling for a number of years and is forecast to continue to decline
- about the wide variation in regional authority approaches to farebox recovery policy
- about whether some regional authorities are being subsidised fairly based on their public transport performance.

The review, and the proposed NZTA draft policy that has been developed from the review, also respond to requests from regional authorities that:

- the NZTA is clearer on its expectations around the contribution public transport users make to the cost of providing services
- the NZTA is more transparent in how it uses farebox recovery ratios when assessing funding applications (note that this is addressed to some extent through recent changes to the NZTA's *Planning, programming and funding manual*, but may require further work).

The review began formally in late April 2009, and we intend to complete consultation with stakeholders and develop a policy for the NZTA Board's approval in February 2010.

## 1.8 Current farebox recovery ratios

Table 1 provides four years of actual farebox recovery ratios by region (this uses the current NZTA calculation approach; which is similar to the recommended formula in the draft policy).

**Table 1** Total farebox recovery ratios (percentage) by region 2004/05 to 2007/08

Region	2004/05	2005/06	2006/07	2007/08
	Actual	Actual	Actual	Actual
Northland farebox recovery ratio	46.0%	39.8%	41.2%	36.9%
Auckland farebox recovery ratio	47.5%	40.9%	43.5%	43.6%
Waikato farebox recovery ratio	34.3%	30.3%	25.8%	29.5%
Bay of Plenty farebox recovery ratio	28.7%	28.9%	26.8%	25.9%
Gisborne farebox recovery ratio	37.1%	38.6%	34.6%	61.0%
Hawke's Bay farebox recovery ratio	n/a*	n/a*	n/a*	n/a*
Taranaki farebox recovery ratio	n/a*	n/a*	n/a*	n/a*
Manawatu-Wanganui farebox recovery ratio	36.8%	27.8%	27.2%	22.7%
Wellington farebox recovery ratio	53.2%	50.3%	53.0%	51.5%
Marlborough farebox recovery ratio	19.4%	25.8%	27.9%	27.1%
Nelson farebox recovery ratio	30.4%	37.2%	42.4%	27.8%
Canterbury farebox recovery ratio	46.2%	43.5%	40.3%	41.1%
Otago farebox recovery ratio	52.4%	45.6%	44.2%	40.5%
Southland farebox recovery ratio	11.6%	9.6%	10.0%	8.6%
National farebox recovery ratio	48.3%	43.2%	44.8%	44.4%

### Notes

All figures account for expenditure and farebox across all modes of operation/subsidy.

Farebox is made up of actual contracted farebox recovery and an estimate for commercial farebox based on contracted fares/pax multiplied by commercial boardings.

Expenditure is expressed in total cost (NZTA and known local share).

Expenditure includes all services, concession payments and any other operational costs across network.

Expenditure does not include any administration costs.

\* Operating a concession arrangement only.

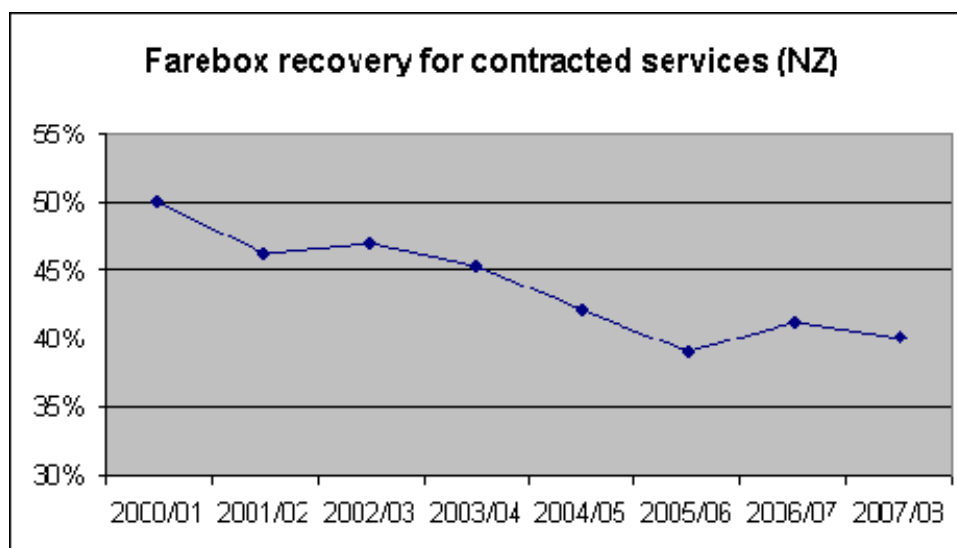
Neither expenditure nor farebox includes SuperGold card subsidy as introduced in 2008/09.



## 1.9 Farebox recovery trend for contracted services

Figure 1 shows a declining farebox recovery trend for contracted services. This at least partly reflects significantly increased government funding for public transport services during the early to mid 2000s, with farebox revenues not keeping pace with costs. This has evened out somewhat in the last three years of this data as fares have kept better pace with costs.

Figure 1 Farebox recovery for contracted services in New Zealand



## 1.10 Fare policy decision-making review

An interlinked issue with the adoption of farebox recovery policies is the issue of fare structures and fare review processes.

It is essential that fare policies, structures, services and levels encourage increased usage of public transport services, and balance ridership maximisation and revenue maximisation. Therefore, we have also reviewed why, when and how regional councils review their fare structures and fare price levels.

This review has culminated in the Draft Fare Policy Decision-Making Guideline. The Guideline is essentially a best practice process for reviewing fares, based on international research and adapted for use in New Zealand. The intention is that better processes will lead to better outcomes.

There are concerns that regional councils may, understandably, change their fares in response to immediate crises such as cost and affordability, rather than taking a planned, long-term approach consistent with fare policy goals. The NZTA believes that there are still opportunities to improve the fare structures and systems in place throughout New Zealand.

## 1.11 Interrelationship with regional public transport plans

The NZTA may (if relevant and reasonable to the activity), as a condition of funding an activity, require regional councils and ARTA to include a farebox recovery policy in their regional public transport plan. As well as an explicit condition of funding, the NZTA's

Regional Public Transport Plan Guideline will include both the NZTA Farebox Recovery Policy and the Fare Policy Decision-Making Guideline and must be taken into account by regional authorities when preparing their plans.

## 1.12 Transition period

Although the NZTA is aiming to have the policy approved by the NZTA Board in February 2010 and commencing in March 2010, there needs to be a period of transition to allow the regional councils and ARTA that decide to adopt a farebox recovery policy time to implement the policy. The NZTA expects this would occur as part of an amendment to the current regional public transport plan, or as part of the development of a new regional public transport plan. We know that each regional authority will be working to different timetables and requirements and would appreciate feedback on when and how this policy could be implemented.

## 1.13 Policy evolution

The final NZTA farebox recovery policy completed by early next year will be the first iteration of such a policy. The policy may require further refinement as our theoretical framework, evidence base and policy approach evolves.

We plan to review the policy three years after its release.

## 1.14 Details of the consultation period and process

To ensure the NZTA Farebox Recovery Policy and Fare Policy Decision-Making Guideline are finalised by early next year, the key tasks and timeframes are:

- Release consultation document 19 October
- Conduct engagement meetings October–November
- Submissions due 30 November
- Collate and assess submissions December
- NZTA Board approval February 2010
- Policy in effect March 2010.

This document is part of a formal consultation process that provides stakeholders with an opportunity to influence the NZTA Farebox Recovery Policy and Fare Policy Decision-Making Guideline development and final content.

We invite all stakeholders to provide submissions on this document by email or post, and encourage feedback on the questions raised throughout this document. We have also attached a complete list of questions as appendix 3. To make providing a submission easier, we will also provide these questions separately in a Word file that you can input your answers into, and any other information or comments you wish to include.

The closing date for feedback is **Monday 30 November 2009**. However, we would appreciate your submissions earlier, if this is possible.

## 1.15 Contact details

Questions, comments and feedback should be emailed or posted to:

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## 2 Draft NZTA Farebox Recovery Policy

### 2.1 Introduction to this section

This section of the consultation paper divides the Draft NZTA Farebox Recovery Policy into sections for comment. It provides a description of the policy detail related to that section and an explanation of why this detail is included, and raises a question or questions for consideration when making feedback. The full draft policy is included as appendix 1.

### 2.2 Objectives and principles

The draft policy has two objectives and two principles.

The objectives are to:

- improve the effectiveness and efficiency of public transport services in New Zealand
- ensure the costs and benefits of these services are fairly apportioned between public transport users and non-users.

In this context, improving effectiveness and efficiency is about providing public transport services and infrastructure that is best able to contribute to the community's and government's desired outcomes, and making better use of, and extracting the maximum value from, past and present investments.

Fairly apportioning the costs and benefits of services between users and non-users is about identifying the costs and benefits both cause and receive, now and in the future, and applying a farebox recovery policy that recognises this.

In the absence of robust theoretical frameworks to determine where the balance should be, and based on equity and/or other considerations, regional politicians have tended to make judgement calls as to the contribution users, ratepayers and therefore contributors to the National Land Transport Fund should make to the costs of providing the services.

The NZTA's proposed principles for developing farebox recovery policy and farebox recovery ratio targets are:

- The contribution public transport users and non-users make to the cost of providing public transport services should reflect the benefits they receive as a result of these services, and the source of the funding.
- The cost of providing public transport services should be shared fairly between users, ratepayers and contributors to the National Land Transport Fund.

The principles essentially drill down from the second objective and reflect the importance of developing policies that apportion the costs based on recognition of the benefits users and non-users receive, but also considering who contributes to the total 'pool of funds' available to pay for public transport services, and equity considerations such as distributing the costs across funding sources and the ability of users to pay.

#### Question 1

Are the objectives and principles appropriate? If not, why not?

#### Question 2

Are there any objectives or principles that should be added, amended or deleted?  
If so, what are your suggested changes?

## 2.3 Section 2: Farebox recovery policy content

Section 2 of the draft policy is designed to bring out how the policy fits with the strategic goals of the organisation, contributes to the government's objectives for, and desired impacts from, public transport, the policy rationale and its application in an operational context, such as its role and assessment in fare reviews.

Currently, not all regional authorities have a farebox recovery policy, and for those that do, policies range from fairly comprehensive to basic and ambiguous.

Please refer to appendix 1, section 2, for a full list of the proposed content.

### Question 3

Is the content required for the policies appropriate? If not, why not?

### Question 4

What should be included or excluded?

## 2.4 Section 3: Farebox recovery ratio target

Section 3 of the draft policy sets out two options regarding a farebox recovery ratio target for regional authorities. Regional authorities must consult the NZTA on their target when developing or making changes to their regional public transport plans. Unless agreed otherwise, regional authorities will have three years in which to achieve the target, ie in time for the next National Land Transport Programme.

### **Option 1: Formalised status quo – regional authorities set their own farebox recovery ratio target based on the NZTA's objectives and principles for farebox recovery policies**

This option requires all regional authorities to set a farebox recovery ratio target for their region based on the NZTA's objectives and principles for farebox recovery policies.

Not all regional authorities have a formal published farebox recovery ratio target. It is thought that formalising and publishing this target (in the regional public transport plan), and checking performance after three years, will encourage measures designed to improve farebox recovery ratios, and therefore arrest the decline of farebox recovery ratios.

This option provides regional authorities with greater flexibility over, and ownership of, the farebox recovery ratio target for their region.

### **Option 2: The adopted farebox recovery policies set farebox recovery ratio targets of 50 percent for Auckland, Wellington and Canterbury, with the ability to seek funding approval from the NZTA for the activities on the basis of an alternative target (if satisfactory justification is provided). All other regional authorities set their own targets.**

This option requires ARTA, Greater Wellington Regional Council and Environment Canterbury to adopt policies that set a farebox recovery ratio of no less than 50 percent. All other regional authorities set their own farebox recovery ratio target according to the NZTA's objectives and principles for farebox recovery policies.

ARTA, Greater Wellington Regional Council and Environment Canterbury can apply for funding for activities based on an alternative farebox recovery ratio target. These applications will be considered on a case-by-case basis.

Applicants (ie ARTA, Greater Wellington Regional Council or Environment Canterbury) for an alternative farebox recovery ratio target should supply evidence justifying why an alternative is necessary. The NZTA will consider all or some of the following matters:

- evidence that the efficiency of operating costs has been maximised
- evidence that further improvement to ridership numbers is unlikely
- evidence that increasing fare prices will make the service or services unaffordable, significantly impact ridership or lead to significantly reduced levels of service
- an assessment of the impact that higher fares or reduced services are likely to have on the transport disadvantaged
- any other information considered relevant to the NZTA's funding approval decision.

The NZTA considers that setting a target for the larger regions is justified and reasonable for the following reasons:

- It sets out clear expectations from the NZTA on the total levels of subsidy appropriate for the larger regions (25 percent of the total operating costs, unless significant wider benefits can be demonstrated).
- It is similar to the targets already set by these regions.
- It is reasonably close to the ratios ARTA, Greater Wellington Regional Council and Environment Canterbury are already achieving, but still constitutes a stretch target or a reasonable and challenging target to continue to achieve.
- It places emphasis on regions where the biggest gains in terms of operational efficiencies and patronage growth can be made.
- The larger regions can apply for approval of services based on an alternative farebox recovery ratio.

Auckland, Wellington and Canterbury receive approximately 90 percent of the NZTA's expenditure for public transport services and operations, and account for 91 percent of the patronage.

This option enables all other regional authorities to set their own target based on the NZTA's objectives and principles for farebox recovery policies. Services in these regions tend to be provided primarily for social rather than economic reasons (eg congestion relief), although in some cases it may be a mixture of social and economic reasons. It may be harder to achieve operational efficiencies and significant levels of patronage in these regions because of factors such as the supplier market, population densities, the number of services, plentiful and cheap parking, and staff resources.

Both options allow for an extension of time to be sought to achieve the target in circumstances where patronage growth from significant service changes may take time to build up.

In the future, the NZTA may require that farebox recovery ratio targets are set by mode as well as by region.

#### **Question 5**

What of the two suggested options should be included in section 3, and why?

#### **Question 6**

Is a 50 percent farebox recovery ratio target for Auckland, Wellington and Canterbury appropriate? Why?

#### **Question 7**

Is it appropriate for all regional authorities to set a farebox recovery ratio target? Why?

## 2.5 Section 4: Operating principles

Section 4 sets out an intervention hierarchy when regional authorities are looking to improve their farebox recovery ratio. The principles indicate that it is important to consider, first of all, whether the services are operating as efficiently as they could be. This focuses attention on the importance of a sound network plan to achieve efficiencies. Secondly, can patronage gains be made through, for example, improvements to service or information quality, and simpler, easier-to-understand and easier-to-use fares and ticketing? Thirdly, will fares need to increase to improve or maintain farebox recovery ratios?

The NZTA acknowledges that raising fares may be the only realistic option available to some regional authorities. However, careful consideration must be given to the likely impact of any fare increase on passenger demand and the transport disadvantaged, and the community's and the government's goals and priorities.

The final operating principle is that any changes to fare prices should be managed incrementally. In the past, in some regions, fare changes were sporadic. This led to static fare prices for long periods of time followed by periods of substantial fare increases to catch up. The NZTA does not consider that such an approach is sensible.

### Question 8

Are the proposed operating principles appropriate? Why?

### Question 9

Are there any principles missing that should be included?

## 2.6 Section 5: Farebox recovery ratio formula

Section 5 of the draft policy sets out a standardised formula for calculating farebox recovery ratios in New Zealand.

Generally, a farebox recovery ratio is calculated by taking the farebox revenue and dividing it by the cost of providing the services. The calculation should take into account the whole network, including contracted and commercial services and those services that are provided free to users.

Direct cost information (with the possible exception of rail going forward) is difficult to obtain in New Zealand due to the contractual, private sector nature of public transport provision. Therefore, the approach we recommend uses operator income (from farebox revenue and public funding) as a proxy for operator costs, including profit margins.

At this stage, we are including operator costs only. In time, as the policy is revised and new iterations are made, other costs could also be included, such as other system operations and maintenance costs, public transport administration costs, and rail capital expenditures or charges associated with the long-run replacement of assets. There are a number of issues associated with including these costs at this point, as listed below.

### System operations and maintenance costs

- While information on these costs is currently provided by regional councils and ARTA and assembled by the NZTA, there are doubts whether these costs are categorised on a consistent basis between regions and over different years. In some cases, they are not broken down by mode.

### **Public transport administration costs**

- There are also doubts as to whether administration costs for public transport are allocated and reported on a consistent basis across regions, and generally they are not broken down by mode.
- The NZTA is currently undertaking a review of public transport administration costs, along with system operations and maintenance costs (above). Once this review is completed, it is suggested these should be considered for inclusion in the farebox recovery ratio formula.

### **Capital expenditures or capital charges associated with the long-run replacement of assets**

- It would also be desirable to include an estimate of long-run capital charges relating to asset replacement for each region/centre/mode: operator costs already include a large proportion of capital charges relating to the bus mode (eg for bus replacement), but only a small proportion (if any) of capital charges relating to the rail mode, thus causing a substantial modal bias if including these costs. The estimation of the appropriate capital charges is not a simple process, but some work on this topic for the Auckland and Wellington rail systems is currently being undertaken by the Ministry of Transport. Once that work is completed, it would be appropriate to review the formula to include these costs in farebox recovery ratio assessments for future years.

To get a better understanding of the farebox recovery ratio performance of public transport systems in New Zealand, the proposed approach to the formula takes account of commercial as well as contracted services.

In the farebox recovery ratio formula, the NZTA has included SuperGold card payments made to operators as farebox revenue. This is because ideally the payments covering public transport use would have been administered by the Ministry of Social Development as an additional benefit to SuperGold card holders. It was decided that it was easier to implement the benefit through the NZTA and regional authorities. Therefore, it is in effect a fare payment substitute. If the scheme was stopped, the passenger would continue paying for their fare or stop making trips; ratepayer and National Land transport Fund contributions would be unaffected.

#### **Question 10**

Given the information available to regional councils, is the proposed formula for calculating the farebox recovery ratio appropriate? If not, how would you calculate it?

#### **Question 11**

Does your regional council currently receive revenue data from commercial services? The Public Transport Management Act 2008 provides for regional authorities to obtain this data, but if you do not, what are the barriers that prevent you from doing so?

#### **Question 12**

In the absence of commercial service farebox revenue data, is the alternative method for calculating commercial services' farebox revenue appropriate (commercial services patronage × average fare on contracted services)? If not, how should it be calculated?

#### **Question 13**

Do you think SuperGold card revenue should be treated as fare revenue? Why?



**Question 14**

Please identify any difficulties in calculating operating subsidies across regions, including rail contract payments.

**Question 15**

In future iterations of the policy, should other system operations and maintenance costs and administration costs be included in the farebox recovery ratio formula? Why?

**Question 16**

In future iterations of the policy, should public transport capital expenditure associated with the long-run replacement of assets be included in the farebox recovery ratio formula?

For ARTA and Greater Wellington Regional Council: Please comment regarding rail specifically. This is particularly important for rail.

## 2.7 Section 6: Fare reviews

Section 6 of the draft policy requires regional authorities to conduct regular fare reviews (specifically, fare price levels, discounts and ticket types yearly, and fare structures every three years). These reviews are designed to ensure that farebox recovery ratio targets are met, but also that other possible fare structures are considered to determine whether or not the existing structure remains the most effective and efficient way of achieving broader fare policy goals.

This section highlights that regional councils and ARTA will not be compelled under an adopted policy to increase fare prices every year. Whether or not to change fares is a decision for regional councils to make after their fare reviews have been undertaken.

A draft guideline for reviewing fares has been produced and is attached as appendix 2.

**Question 17**

Are the proposed fare review requirements appropriate? Why?

## 2.8 Section 7: Reporting

Section 7 of the draft policy sets out the information regional councils and ARTA must provide to the NZTA for performance monitoring purposes under an adopted policy. Performance reporting is proposed by region, centre and mode. Performance reporting is proposed to occur on an annual basis alongside the normal end-of-year NZTA reporting requirements.

There is also a proposed requirement that adopted policies require reporting on services where the ratios fall below 25 percent. This service-level monitoring is designed to give the NZTA a better understanding of the services and types of services with low levels of farebox recovery. This is a change from current system-wide monitoring only to system-wide monitoring with some components of service-level monitoring. We welcome your feedback on whether this is appropriate.

**Question 18**

Are the proposed reporting requirements appropriate? Why?

**Question 19**

Should the NZTA monitor services that are not achieving a farebox recovery ratio of 25 percent? Why?

## 2.9 Further research

We are planning to undertake research to establish optimal fare and subsidy settings for public transport systems in New Zealand. The research would provide the NZTA and its stakeholders with a more robust understanding of where financial assistance might best be targeted, and a framework for establishing whether fare and subsidy settings are appropriate. The objective will be to develop an evidence base and a set of analytical tools for evaluating the costs, user benefits and non-user benefits of different policy settings. The tools will be able to quantify the trade-offs being made between fare and service levels and provide estimates of optimal farebox recovery ratio targets and funding allocations.

### Question 20

Should the NZTA research optimal fare and subsidy settings for public transport systems in New Zealand? Why?

## 2.10 General

### Question 21

Are there any other issues with the draft policy?

### Question 22

Does the draft policy enable regional councils to fulfil their obligations under the Local Government Act 2002?

### Question 23

How will regional councils and ARTA implement this policy? How long will this take? (See section 1.12.)

### Question 24

What do you consider to be the relationship between developing commercial services, where possible, and farebox recovery? (See section 1.6.2.)

### Question 25

Do you think increasing the number of commercial services would help improve your farebox recovery ratio? If not, why not?

## 3 Draft Fare Policy Decision-Making Guideline

### 3.1 Purpose

The NZTA recently surveyed six regional authorities to find out about their fare structures and systems, and why, when and how they reviewed their fare structures and fare price levels (the survey results are available on request). The NZTA believes there are opportunities for improved fare structures and systems currently employed throughout New Zealand. As a result, the NZTA has developed the Draft Fare Policy Decision-Making Guideline for regional councils and ARTA.

This Guideline will be incorporated into the NZTA's Regional Public Transport Plan Guideline, which must be taken into account by regional authorities when preparing their plans.

### 3.2 Feedback

#### Question 26

Please comment on:

- the Guideline's relevance, practicality and usefulness
- whether you think anything should be amended, omitted or inserted into the Guideline.

#### Question 27

Please identify any other feedback you may have on the draft Guideline.

# Appendix 1: Draft NZTA Farebox Recovery Policy

<p><b>Introduction</b></p>	<ol style="list-style-type: none"> <li>1. The Land Transport Management Act 2003 (LTMA) requires the NZ Transport Agency (NZTA) to ensure that activities or combinations of activities it approves for funding contribute to the LTMA’s objectives in an ‘effective and efficient manner’. The LTMA also requires the NZTA to ‘use its revenue in a manner that seeks value for money’.</li> <li>2. The Government Policy Statement on Land Transport Funding 2009/10–2018/19 (May 2009) reinforces this expectation by requiring the NZTA to achieve value for money by, among other things, maximising value within the resources available.</li> <li>3. Section 20B of the LTMA allows the NZTA to ‘approve activities or combinations of activities, subject to any terms and conditions, which must be relevant and reasonable, which the Agency thinks fit’.</li> <li>4. The NZTA may require compliance with the NZTA Farebox Recovery Policy as a condition of funding for public transport services, where it considers it to be relevant and reasonable.</li> </ol>
<p><b>Objectives</b></p>	<p>The objectives of the NZTA Farebox Recovery Policy are to:</p> <ul style="list-style-type: none"> <li>• improve the effectiveness and efficiency of public transport services in New Zealand</li> <li>• ensure the costs and benefits of public transport services are fairly apportioned between public transport users and non-users.</li> </ul>
<p><b>Principles</b></p>	<p>The following principles must be considered when developing farebox recovery policy and farebox recovery ratio targets:</p> <ul style="list-style-type: none"> <li>• The contribution public transport users and non-users make to the cost of providing public transport services should reflect the benefits they receive as a result of these services, and the source of the funding.</li> <li>• The cost of providing public transport services should be shared fairly between users, ratepayers and contributors to the National Land Transport Fund.</li> </ul>
<p><b>Interpretation</b></p>	<p><b>ARTA</b> means the Auckland Regional Transport Authority of the Local Government (Auckland) Amendment Act 2004. Reference to ARTA in this document includes any successor organisation to ARTA.</p> <p><b>Farebox</b> means the revenue collected from tickets (cash, prepaid, passes and electronic purses) purchased by travellers of a public transport system, and includes SuperGold card revenue.</p> <p><b>Farebox recovery ratio</b> measures the contribution fares make to the cost of providing public transport services, and is typically expressed as a percentage, and is based on the formula set out in section 5 of this policy.</p> <p><b>Farebox Recovery Policy</b> means a policy adopted by a regional council complying with this policy.</p>

	<p><b>Fare structure</b> is the structural approach taken to fares and the specific fare levels. It refers to a flat or distance-based structure, with consideration for zones, sectors, trip kilometres or point-to-point fares. Further differentiation within a fare structure could be different fares for different times of the day, different levels of service, or fares designed to cater for a particular market such as tourists.</p> <p><b>Regional council</b> means a regional council within the meaning of the Local Government Act 2002, and includes ARTA, but excludes the Auckland Regional Council and the Waikato Regional Council (in respect of that part of its region within Franklin District).</p> <p><b>Service</b> means a public transport service operating on a distinct route.</p>
<b>Commencement</b>	This Policy will take effect from 1 March 2010.
<b>Minimum requirements</b>	
<b>Section 1 Funding policy</b>	<ol style="list-style-type: none"> <li>1. The NZTA intends that: <ol style="list-style-type: none"> <li>a. regional councils have a farebox recovery policy in place for public transport services</li> <li>b. each farebox recovery policy conforms at a minimum to the requirements set out below</li> <li>c. regional councils will achieve the farebox recovery ratio target set out in section 3 below within three years.</li> </ol> </li> <li>2. ARTA and regional councils must include a farebox recovery policy in their respective regional public transport plans.</li> </ol>
<b>Section 2 Farebox recovery policy content</b>	<ol style="list-style-type: none"> <li>1. A farebox recovery policy must at a minimum include the following: <ol style="list-style-type: none"> <li>a. the contribution it makes to the strategic goals of the organisation</li> <li>b. the contribution it makes to the objectives of the LTMA and the impacts of the current Government Policy Statement on Land Transport Funding 2009/10–2018/19</li> <li>c. the contribution it makes to improve the efficiency and effectiveness of the public transport system</li> <li>d. a farebox recovery ratio target or target range in accordance with section 3 below</li> <li>e. any relevant transition period.</li> </ol> </li> <li>2. A farebox recovery policy must include an explanation of why a particular farebox recovery ratio target or target range has been chosen, and how it will be applied, including its role and assessment in fare reviews.</li> </ol>

<p><b>Section 3</b></p> <p><b>Farebox recovery ratio target</b></p>	<p><b>Option 1</b></p> <ol style="list-style-type: none"> <li>1. Regional councils must set a farebox recovery ratio target for the public transport network as a whole.</li> <li>2. Regional councils may set a target range rather than a single target figure.</li> <li>3. The target must be consistent with the objectives and principles of this Policy.</li> <li>4. New services should aim to meet a 25 percent farebox recovery ratio within two to three years from the date the service commenced.</li> <li>5. Regional councils may apply for a longer time period to achieve the target to enable new services or significantly revised services to build ridership; the NZTA may at its discretion approve this alternative time period.</li> </ol> <p><b>Option 2</b></p> <ol style="list-style-type: none"> <li>1. Regional councils must set a farebox recovery ratio target for the public transport system as a whole.</li> <li>2. ARTA, Greater Wellington Regional Council and Environment Canterbury shall set a farebox recovery ratio of no less than 50 percent.</li> <li>3. Where ARTA, Greater Wellington Regional Council or Environment Canterbury elects to set a target range, the lower end of the range shall be no less than 50 percent.</li> <li>4. All other regional councils must set their own farebox recovery ratio target, consistent with the objectives and principles of this policy.</li> <li>5. The NZTA may at its discretion approve an alternative farebox recovery ratio target.</li> <li>6. When considering submissions seeking approval of an alternative farebox recovery ratio target, the applicant must provide the following information: <ol style="list-style-type: none"> <li>a. evidence that the efficiency of operating costs has been maximised</li> <li>b. evidence that further improvement to ridership numbers is unlikely</li> <li>c. evidence that increasing fare prices will make the service or services unaffordable, significantly impact ridership or lead to significantly reduced levels of service</li> <li>d. an assessment of the impact that higher fares or reduced services are likely to have on the transport disadvantaged</li> <li>e. any other information deemed appropriate by the NZTA.</li> </ol> </li> <li>7. Regional councils may apply for a longer time period to achieve the target to enable new services or significantly revised services to build ridership; the NZTA may at its discretion approve this alternative time period.</li> </ol>
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<p><b>Section 4</b> <b>Operating principles</b></p>	<ol style="list-style-type: none"> <li>The following intervention hierarchy must be applied when considering improvements to the farebox recovery ratio: <ol style="list-style-type: none"> <li>improving operating efficiency</li> <li>improving ridership productivity</li> <li>increasing fare prices.</li> </ol> </li> <li>It is desirable that any changes to fare prices be managed incrementally.</li> </ol>																																		
<p><b>Section 5</b> <b>Farebox recovery ratio formula</b></p>	<ol style="list-style-type: none"> <li>The farebox recovery ratio (FRR) must be calculated using the formula below: <div style="text-align: center; border: 1px solid black; padding: 5px; width: fit-content; margin: 10px auto;"> <math display="block">FRR = (F_T + S_3) / (F_N + S_T)</math> </div> <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <thead> <tr style="background-color: black; color: white;"> <th colspan="2">Definitions and data requirements</th> </tr> <tr style="background-color: #f2f2f2;"> <th>Item</th> <th>Notes</th> </tr> </thead> <tbody> <tr> <td><b>Farebox revenues</b></td> <td></td> </tr> <tr> <td><math>F_N</math> Farebox revenues</td> <td>Farebox revenues – net contract + commercial services</td> </tr> <tr> <td><math>F_G</math> Farebox revenues</td> <td>Farebox revenues – gross contract services</td> </tr> <tr> <td><math>F_T</math> Total farebox revenues</td> <td><math>F_N + F_G</math></td> </tr> <tr> <td><b>Operating subsidies</b></td> <td>Cover total payments to operators, from whatever source (apart from farebox)</td> </tr> <tr> <td><math>S_1</math> Contract payments</td> <td>Contracted services</td> </tr> <tr> <td><math>S_2</math> Concession fare payments</td> <td>Contracted and commercial services (as applicable)</td> </tr> <tr> <td><math>S_3</math> SuperGold card payments</td> <td>Contracted and commercial services</td> </tr> <tr> <td><math>S_T</math> Total subsidy payments</td> <td><math>S_1 + S_2 + S_3</math></td> </tr> </tbody> </table> <p><b>NOTES</b></p> <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <thead> <tr style="background-color: black; color: white;"> <th>Issue</th> <th>Notes</th> </tr> </thead> <tbody> <tr> <td>Operating subsidies</td> <td>As direct cost information is not generally available, operator incomes (from farebox revenue and public funding) are used as a proxy for operator costs, including profit margins.</td> </tr> <tr> <td>SuperGold card revenue</td> <td>Treated as fare revenue. It is Crown support to SuperGold card holders to replace the fares they would have paid on public transport services.</td> </tr> <tr> <td>Free services</td> <td>Must be included in ‘contract payments’.</td> </tr> <tr> <td>Commercial services’ farebox revenue</td> <td>Can be obtained from operators using section 14 of the Public Transport Management Act 2008. Alternatively, this can be calculated by: commercial services patronage × average fare on contracted services.</td> </tr> <tr> <td>School services funded by regional authorities</td> <td>To be included in ‘contract payments’.</td> </tr> </tbody> </table> </li> <li>The farebox recovery policy must set out how the regional councils will obtain data on the relevant commercial services operating in their jurisdiction (eg section 14 of the Public Transport Management Act 2008).</li> </ol>	Definitions and data requirements		Item	Notes	<b>Farebox revenues</b>		$F_N$ Farebox revenues	Farebox revenues – net contract + commercial services	$F_G$ Farebox revenues	Farebox revenues – gross contract services	$F_T$ Total farebox revenues	$F_N + F_G$	<b>Operating subsidies</b>	Cover total payments to operators, from whatever source (apart from farebox)	$S_1$ Contract payments	Contracted services	$S_2$ Concession fare payments	Contracted and commercial services (as applicable)	$S_3$ SuperGold card payments	Contracted and commercial services	$S_T$ Total subsidy payments	$S_1 + S_2 + S_3$	Issue	Notes	Operating subsidies	As direct cost information is not generally available, operator incomes (from farebox revenue and public funding) are used as a proxy for operator costs, including profit margins.	SuperGold card revenue	Treated as fare revenue. It is Crown support to SuperGold card holders to replace the fares they would have paid on public transport services.	Free services	Must be included in ‘contract payments’.	Commercial services’ farebox revenue	Can be obtained from operators using section 14 of the Public Transport Management Act 2008. Alternatively, this can be calculated by: commercial services patronage × average fare on contracted services.	School services funded by regional authorities	To be included in ‘contract payments’.
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<p><b>Section 6</b> <b>Fare reviews</b></p>	<ol style="list-style-type: none"> <li>1. ARTA and regional councils must: <ol style="list-style-type: none"> <li>a. annually review fare price levels, discounts and ticket types within the existing fare structure</li> <li>b. review fare structures at a minimum once every three years.</li> </ol> </li> <li>2. Nothing in this policy compels ARTA or regional councils to increase average fare prices on an annual basis.</li> </ol>
<p><b>Section 7</b> <b>Reporting</b></p>	<ol style="list-style-type: none"> <li>1. The farebox recovery policy must provide for the following information to be supplied to the NZTA on an annual basis: <ol style="list-style-type: none"> <li>a. the aggregate farebox recovery ratio across the organisation's public transport network</li> <li>b. the aggregate farebox recovery ratio for each centre within an organisation's region</li> <li>c. farebox recovery ratio by mode (ie bus, rail and ferry)</li> <li>d. the farebox recovery ratio and services where the ratio is falling below 25 percent.</li> </ol> </li> </ol>



# Appendix 2: Draft Fare Policy Decision-Making Guideline

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# 1 Purpose

The objective of this project was to develop national guidelines for fare policy decision-making. This report proposes a process for regional councils and the Auckland Regional Transport Authority (ARTA) to consider in order to help them develop or review their fare policies or fare structures. This report will be used to inform the NZ Transport Agency's (NZTA) guidelines and funding policies contained within the guidelines for regional public transport plans and the *Planning, programming and funding manual*.

# 2 Background

The government's current focus is to improve investment returns by optimising the capacity and productivity of existing transport networks and services. The government aims to ease severe traffic congestion, improve overall reliability of urban transport networks and maximise value for money from new and existing public transport expenditure. It is therefore essential that fare policies, structures, services and levels encourage increased use of public transport and balance ridership maximisation (subject to economic viability) and revenue maximisation. To facilitate this, and to address overall funding constraints, some regions may need to re-evaluate services with low ridership and the periods where this is an issue.

The NZTA currently has no fixed policy position or formal guidelines for fare policy decision-making. This has implications for the level of subsidy required and how funding is split among users, ratepayers and funding from the National Land Transport Fund through fuel excise duty, road user charges, licences and fees. This also has an impact on the ability to maintain and improve services used to foster patronage. In addition, under the Public Transport Management Act 2008, it is now possible for ARTA and regional or territorial authorities to impose integration controls on a commercial service, eg by allowing them to set and apportion integrated fares. This could lead to deregistration of some commercial services affecting the overall level of subsidy required. Thus, a necessity for the NZTA Board is to ensure that the provision of the funding for public transport services and the improvements represent value for money and support an appropriate mix of funding (ie from users, ratepayers and the National Land Transport Fund).

Due to the lack of a nationwide structure for fare policy decision-making, regional councils and ARTA have developed varying fare policies, structures and decision-making processes. There are concerns that regional councils may, understandably, change their fares in response to a mixture of immediate crises such as cost, affordability, availability and capacity, rather than taking a planned, long-term approach consistent with defined fare policy goals. Such an approach may require adjustments to future funding programmes to ensure adequate resources are allocated to public transport services. As it is a priority to increase the use of public transport networks and improve investment returns, the guidelines presented in this report aim to identify gaps and opportunities by providing an end-to-end process for regional councils to consider.

### 3 Definition and calculation of farebox recovery ratio

It is noted that the discussion about farebox recovery is often limited to the discussion of fare price levels. Also, regional councils and ARTA currently use different methodologies to calculate farebox recovery ratios. Therefore, it is important that we define 'farebox recovery', discuss the determining factors and define a basic general calculation method.

Farebox recovery is the proportion of the amount of revenue generated through fares (tickets) by its paying customers as a fraction of the cost of its total operating expenses. Therefore, the calculation of farebox recovery is essentially a sum of the average ticket price multiplied by the number of passengers, then divided by the costs of service. The average ticket price needs to be calculated for various target groups, as each target group will have different ticket types and average ticket prices.

$$\text{Farebox recovery} = \frac{\sum \sum (\text{average ticket price} \times \text{passenger number})}{\text{costs of service}}$$

Note: this formula is for explanatory purposes only.

Direct cost information (with the possible exception of rail going forward) is difficult to obtain in New Zealand due to the contractual, private sector nature of public transport provision. Therefore, the actual formula in the **NZTA Farebox Recovery Policy** uses operator income (from farebox revenue and public funding) as a proxy for operator costs, including profit margins.

The calculation should take into account the whole network, and so include free, contracted and commercial services. It is not accurate or reasonable to calculate farebox recovery ratios only for contracted services. In areas with mixed systems (like in Auckland and Wellington), commercial services operate on routes and at times with high patronage and the contracted services often run on routes with lower patronage, so just measuring contracted services does not provide information on the whole picture.

If there is no information about the costs of commercial services, these costs can be estimated by using commercial services' patronage and multiplying this by the average fare on contracted services.

It may be useful or necessary, however, to calculate the farebox recovery of specific services or service times, considering different regions and service lines, eg to evaluate night services, route extensions or new routes. The farebox recovery rate should include all costs related to running the services, but exclude costs for infrastructure, management and marketing. Examples of infrastructure costs are bus stops, including passenger information equipment, train tracks and stations and rail vehicles. Other income types within the industry, eg from advertising at bus stops or on buses, should be excluded when calculating the farebox recovery ratio.

Several measures can be used to increase farebox recovery ratios – it is not just a matter of fare price levels. Increasing farebox recovery ratio can be achieved by (a) increasing average ticket prices (unless of course this has a negative impact on patronage), (b) increasing patronage and (c) reducing the costs of service. The following sections provide options in order to increase farebox recovery ratios.

### 3.1 Measures to increase average ticket prices

In order to increase average ticket prices, decision makers can consider revising the fare structure or raising the fare level. Another way is to avoid offering free services, as any passenger who receives a free service essentially means a ticket price of \$0, decreasing the farebox recovery ratio.

### 3.2 Measures to increase patronage

Some measures that positively increase patronage are improving service quality and information quality and simplifying the integrated ticketing system.

Improving service quality can be achieved by improving the network, providing transfers, increasing frequency and service times, and reducing travel times. Other factors are reliability, comfort and tidiness of vehicles and stops, as well as the customer service or friendliness of staff members.

#### **New initiatives to be considered**

Job tickets can also increase patronage. Job tickets are a result of a contract between the operator/public transport agency and employers. Employers essentially purchase tickets for all their employees. Employees who constantly use public transport can potentially receive more value, but, since not all employees are expected to use public transport, operators are also able to benefit from the contractual arrangement. Because employees will automatically receive the job ticket (whether the employer deducts it from their pay or not), they will be encouraged to use public transport. The reason for introducing job tickets is to promote public transport in a win-win situation. It is not intended as a measure that will save taxes.

Currently, information to the public is mainly accessible through the internet, via information call centres, in the vehicles and at stops. By considering these key channels, it is important to look at the information available regarding the network and service, the real time departure/arrival times and the fare system. The information provided should be consistent, kept up-to-date and understandable to the public. There will be less buy-in to public transport if the information provided is poor and fare systems overcomplicated.

### 3.3 Measures to reduce costs of service

Several measures can be applied to reduce the overall costs of service. Note that costs of service do not necessarily reflect the quality of service. It is feasible to reduce costs without decreasing service quality. Decreasing service quality would negatively impact the number of passengers who use the services.

One approach is to optimise schedules, frequencies and service times. This can be achieved by considering and then developing an integrated and structured network that is more adaptable to passenger demand. Another approach is to increase the availability of bus priority lanes or other priority measures, as this reduces travel times and the number of required buses, and can increase the number of passengers as it improves service quality and reliability.

Offering job tickets and monthly passes are ways to reduce costs as this reduces travel times, since boarding and transaction times would be shorter because passengers would not need to buy a ticket at the time they board. As a result, the number of buses required would be reduced. Lastly, another way is by establishing competition for public transport operation through the use of service standards, eg regarding bus equipment, emissions and passenger

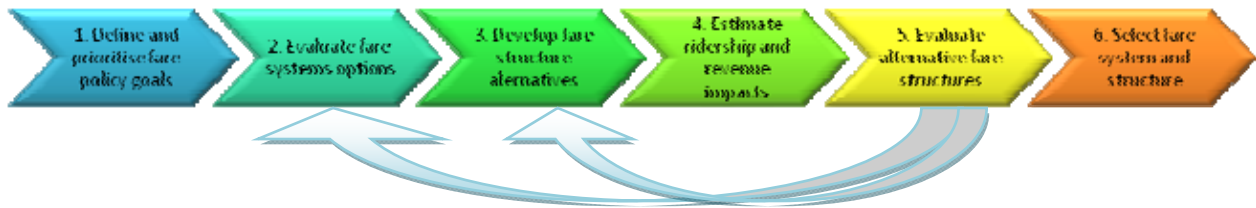
information. More competition could be created by using options or possibilities given by the Public Transport Management Act 2008.

Due to the interrelated nature of the options or measures specified above, each option must be calculated very carefully and the effects identified. For example, when considering implementing bus priority lanes, this can positively impact the number of passengers and reduce the costs of service. On the other hand, when considering implementing a flat fare structure, while the number of passengers may increase, the average ticket price may also decrease and therefore such considerations need to be calculated carefully to ensure that the overall effect is positive.

## 4 Decision-making process

Figure B1 depicts the six-phase decision-making process. The first phase looks at defining and prioritising fare policy goals. The second phase looks at evaluating fare system options. This phase may be carried out concurrently with the third phase – developing fare structure alternatives – since the structure can only be enabled by the system that supports it. After the fare system and structure have been selected, the impact to ridership and revenue should be calculated (phase 4). Phases 2–4 should be repeated until the most viable and beneficial option is apparent (phase 5). Before selecting a fare system and structure, it is important that the effects or impacts on stakeholders are considered and calculated while also adhering to the government’s requirements.

Figure B1 Six-phase decision-making process



### 4.1 Phase 1: Define and prioritise fare policy goals

The first phase is to define and prioritise the fare policy goals. In doing this, it is important to consider the various types of goals and the existing fare policy and systems. This allows the regional council and ARTA to analyse how current fare policy goals have worked with government requirements, systems and users. Other factors to consider when prioritising goals are ridership trends, revenue requirements and legal requirements. By consulting stakeholders and the public, decision makers will be able to make a more informed decision as insights and explanations towards ridership trends are discovered. Some tools that enable this phase to be effectively carried out are an overview of fare policy goals and analysis of case studies.

#### 3.2.1.1 Fare policy goals framework

Figure B2 categorises fare policy goals into four key areas: customer, financial, management and political. By separating goals into these categories, decision makers are able to conceptualise and think about the various dimensions and prioritise goals accordingly. This model will also be applied in phases 2 and 5 when evaluating fare systems and structures, and matching evaluation criteria against fare policy goals (as demonstrated later in this report).

Figure B2 Fare policy goals framework



**Case studies**

Case studies are an excellent way of learning from others’ experiences in a variety of situations or contexts to inform decision makers when considering implementing a new fare structure or system. Based on experiences, policy goals differ significantly. For example, some areas focus predominantly on customers, while others prioritise maximising revenue.

When reading case studies, it is important to highlight the reasons for both success and failure, but at the same time be aware that they contain different goals, priorities, processes, barriers, impacts and lessons learnt. As a result, a case study should be read from within its context or perspective and key lessons cannot be simply adapted to the New Zealand context without carefully considering its effects within that context.

Nevertheless, case studies have identified that the integration of multiple agencies to deliver regional fares is very complicated and that agencies generally participate in new types of partnerships. Studies have also shown that funding programmes are more often linked to specific market segments. Other key points from research indicate that interoperable electronic ticketing is successful, although additional applications are becoming more important. Employer and university pass programmes have also been very successful, but the pricing parameters for these types of passes have to be designed very carefully, with the calculation reviewed annually.

The industry continues to favour simplified fare structures, as users are more likely to use public transport due to the ease of understanding and being able to easily analyse their options. Most agencies reduce discounts and avoid deep discounts. Most agencies continue to reduce fare zones and instead use flat fare structures without zones and peak/off-peak differentiation. Lastly, research has identified that free fare projects resulted in higher patronage, but increased the costs to provide the services.

## 4.2 Phase 2: Evaluate fare system options

The second phase is to evaluate fare system options. Within this phase, potential systems (in terms of the technology) need to be identified and evaluated against a set of criteria. The weighting applied to each criterion will need to be debated among the decision makers. As a result, an analysis of system functionality, in particular its limitations, lifespan and ability to enable policy objectives and priorities (identified in the first phase), must be defined for each system. The potential systems should also be matched against the authority's own capability to deliver existing and planned fare structures. This phase often goes hand-in-hand with phase 3, but for the purpose of this report it has been separated to demonstrate that they are different processes and therefore require different considerations. Lastly, the financial costs, benefits and budget constraints must be considered as this impacts on the likelihood of obtaining a return on the investment.

Some examples of fare collection systems are barriers, conductor validation, pay on boarding and proof of payment. These systems depend on the feasibility or availability of purchasing tickets at different locations. Some technologies provide electronic or cash passes, which could be magnetic, contact or contact-less. Some common procedures for electronic systems are check-in, check-in-check-out and be-in-be-out. Check-in systems require the passenger to make contact with the terminal to ensure payment is made at the time of boarding. Check-in-check-out requires the passenger to interact with the terminal at the time of boarding and departing in order to calculate the fare price. Be-in-be-out is more innovative, as it is able to detect automatically whether the boarding passenger has a valid ticket without any interaction needed from the passenger.

Mobile phones have also shown to be an effective way to make payments, using Near Field Communications (NFC) and/or Java applications.

Table B1 applies the fare policy goals framework to evaluate potential systems. Each goal may or may not have a criterion specified for fare systems. For example, within the customer category, potential systems should be evaluated against its ease of use and understanding. When considering the financial aspects, the system's security, and the cost of media and equipment, should be taken into account. Within the management dimension, the impact on operations, detail of data, its accessibility, complexity, connectivity and ability to meet a flexible pricing arrangement should also be considered. The '-' symbol means that there is no evaluation criterion specified for the goal as the system's ability to maximise social equity, for example, provides no clear relationship that is measurable.

**Table B1** Fare system: application of fare policy goals framework

Category	Goal	Evaluation criteria
Customer	Maximise ridership	-
	Maximise social equity	-
	Increase convenience	Ease of use
	Increase fare options	-
	Reduce complexity	Ease of understanding
Financial	Increase revenue/minimise ridership loss	-
	Reduce fare abuse and evasion	Security
	Improve revenue control	Accountability
	Reduce collection costs	Cost media, equipment
	Increase payment/reduce use of cash	-
Management	Improve data management	Detail of data, accessibility
	Improve modal integration	-
	Increase pricing flexibility	Flexibility regarding options
	Maximise ease of implementation	Complexity of roll-out
	Improve fleet/demand management	Ability to connect into other public transport systems
	Improve reliability of fare equipment	Reliability of technology
	Improve operations (maximise throughput)	Impact on operation
Political	Maximise political acceptability	-
	Achieve recovery ratio requirement	-



### 4.3 Phase 3: Develop fare structure alternatives

The third phase involves developing an alternative fare structure. When working through this phase, it is important to always bear in mind the government’s objectives and priorities and how the potential fare structures will contribute.

Fare structures are generally classified as either flat fare or distance-based, considering zones, sectors, trip kilometres or point-to-point fares. However, there are potential differentiations within a particular fare structure, as they can also be time-based (peak/off-peak), service-based or market-based through passes that can offer discounts. The existing fare structures and types should be assessed in order to understand the current state and have justifications for reasons to change. Therefore, the advantages and disadvantages of fare structures and types will need to be identified (see table B2).

**Table B2** Fare structure options

Fare types	Advantages	Disadvantages
Flat fare	<ul style="list-style-type: none"> <li>• Easy to understand</li> <li>• Low cost to implement and administer</li> <li>• Low level of fare abuse</li> </ul>	<ul style="list-style-type: none"> <li>• Places inequitable burden on customers making short trips</li> <li>• A fare increase will cause greatest loss of riders</li> </ul>
Distance based	<ul style="list-style-type: none"> <li>• Potential to generate most revenue</li> <li>• Considered equitable, longer trips have the highest costs</li> </ul>	<ul style="list-style-type: none"> <li>• Difficult to use, to implement and to administer</li> <li>• Could require specialised equipment</li> <li>• May be vulnerable to fare abuse</li> <li>• Could be unpopular with longer-trip customers</li> </ul>
Time based	<ul style="list-style-type: none"> <li>• Should increase ridership</li> <li>• Allows management of fleet usage through shift to off-peak</li> <li>• Considered equitable, commuters pay more</li> </ul>	<ul style="list-style-type: none"> <li>• Potential for conflict between customers and drivers</li> <li>• Potential for fraud</li> <li>• Could require specialised equipment</li> </ul>
Service based	<ul style="list-style-type: none"> <li>• Relatively easy to understand</li> <li>• Considered equitable, higher quality or higher priced services cost more</li> <li>• High revenue potential</li> </ul>	<ul style="list-style-type: none"> <li>• Unpopular with customers using higher cost services</li> <li>• Complicates transfers – may require payment of ‘upgrade’ fare in transferring</li> </ul>
Market based	<ul style="list-style-type: none"> <li>• Increase of ridership</li> <li>• Generally considered equitable, offers the ability to pay less</li> <li>• Can make fare increases politically acceptable</li> <li>• Can minimise ridership loss with fare increase</li> <li>• Maximises prepayment</li> </ul>	<ul style="list-style-type: none"> <li>• Produces lowest revenue per passenger</li> <li>• Potentially higher level of abuse</li> <li>• Requires extensive marketing to increase ridership</li> <li>• Higher media production and distribution costs</li> </ul>

Lastly, when considering alternative fare structures, as specified in the previous phase, this is subject to functionality or limitations of the fare collection system since the fare structure can only be enabled by the system implemented. Potential legal, political and implementation constraints will need to be discussed or debated along with the criteria and weightings for evaluation as well.

#### 4.4 Phase 4: Estimate ridership and revenue impacts

Once a potential fare structure has been developed, the next step (phase 4) will involve estimating ridership impacts and the impacts on generating revenue. Ridership trends are affected by a variety of factors. The data used for estimating must be reliable along with the model and elasticities. Without ensuring reliability, results may be inaccurate and can cause the implementation of an unfeasible fare system or structure, and not obtain the required ridership or revenue to justify the change. Therefore, appropriate financial and human resources must be available for modelling.

At the time of writing, there are no up-to-date elasticity estimates available for New Zealand. Past evidence suggests that they do not differ significantly from those for Australia or the UK. Typical short run values would be in the range of  $-0.2$  to  $-0.6$  for bus and  $-0.2$  to  $-0.5$  for rail with long run values typically double the short run. This suggests that while raising fares will increase revenue, most of the effect on revenue will be dampened in the long run by the offsetting fall in passenger demand.

Other research findings include:

- **Trip purpose/time.** Elasticities for off-peak and non-work trips are typically twice those for peak/work trips; while weekend elasticities are higher still.
- **Trip distance.** Elasticities are highest for very short trips (up to 1–2km, where walking is a ready substitute); lowest at medium distances (typically 4–8km); then increase somewhat, but decrease for longest distance trips (often beyond the urban area).
- **City size.** Some international evidence suggests that elasticities are lower in larger cities (over 1 million), although this is not conclusive and likely to be compounded with other effects, such as trip length.
- **Base fare level.** Some evidence suggests that elasticities are proportional to the absolute level of fares, and are not constant over different fare levels.

#### 4.5 Phase 5: Evaluate alternative fare structures

As with previous phases when evaluating alternative fare structures, it is always important to reassess whether potential options presented align with the government's goals and priorities. Phase 5 is a cyclical process, evaluating alternative fare structures and price levels until the best option is visible. There are essentially two levels:

- 1 the evaluation of the fare structure (eg zonal fare vs flat fare)
- 2 the evaluation of price levels, discounts and ticket types that fit in the structure.

Fare structures should be evaluated once every three to five years, whereas price levels should be evaluated yearly, as costs or external factors, such as employees' income, fluctuate. Factors to consider are again the criteria and weighting for evaluation, as well as the different pricing and discount arrangements. Tools that can aid this process are presented in tables B3, B4 and B5.

Table B3 applies the fare policy goals framework introduced in phase 1. Criteria needs to be specified in order to ensure goals are addressed and therefore impacts have been considered before coming to a decision.

**Table B3** Fare structure: application of fare policy goals framework

Category	Goal	Evaluation criteria
Customer	Maximise ridership	Impact on ridership
	Maximise social equity	Impact on equity
	Increase convenience	Ease of use
	Increase fare options	Range of options
	Reduce complexity	Ease of understanding
Financial	Increase revenue/minimise ridership loss	Impact on fare revenue
	Reduce fare abuse and evasion	Impact on fare abuse
	Improve revenue control	-
	Reduce collection costs	Impact on collection costs
	Increase payment/reduce use of cash	Impact on payment
Management	Improve data management	-
	Improve modal integration	(depends on pricing options)
	Increase pricing flexibility	-
	Maximise ease of implementation	Ease of implementation
	Improve fleet/demand management	Impact on demand management
	Improve reliability of fare equipment	-
	Improve operations (maximise throughput)	-
Political	Maximise political acceptability	Political acceptability
	Achieve recovery ratio requirement	(depends on pricing of options)

Table B4 rates the various fare structure options (specified in table B2) against its ability to meet each criterion (as specified in table B3). The weightings for each criterion in contributing to the overall goal will need to be debated and filled in the appropriate field (as shown below), as the priorities for various regions differ. The ratings for each fare structure is indicative and can be changed to reflect the decision makers' agreed opinion. The rating scale could also be 1-5, 1-10, etc. In this instance, a rating of 3 means that the structure provides a high impact to the criteria even if the criteria may have a low weighting to the overall score, whereas a rating of 1 indicates that structure provides a low impact. For example, a market-based structure can have a highly positive influence (or impact) on ridership, whereas distance-based or service-based structures have the lowest impact on this criteria/goal. Table B4 can be used to rate the existing fare structure and to compare it with other options. If combined systems need to be evaluated, eg a flat fare structure with a services-based differentiation, for each criterion the average rate should be considered (in this case, the rate for impact on ridership would be 1.5).

This assessment should be done every 3-5 years to ensure that the structure is most optimal for the public and achieves the government's goals and priorities.

Table B4 Fare structure evaluation matrix

Goal	Criteria	Weight	Rating				
			Flat fare	Distance based	Time based	Service based	Market based
Customer	Impact on ridership		2	1	2	1	3
	Impact on equity		1	3	2	2	3
	Range of options		2	1	2	2	3
	Ease of use		1	1	2	2	3
	Ease of understanding		3	1	2	2	2
Financial	Impact on fare revenue		2	3	1	3	1
	Impact on fare abuse		1	3	2	3	1
	Impact on collection costs		3	2	2	2	1
	Impact on prepayment		1	1	2	2	3
Management / political	Ease of implementation		3	2	1	2	2
	Impact on demand management		2	2	2	3	2
	Political acceptability		1	3	3	2	3
TOTAL		100%	Overall ranking	Overall ranking	Overall ranking	Overall ranking	Overall ranking

Table B5 categorises the goals/criteria into two dimensions: quantitative and qualitative. The quantitative dimension looks at maximising ridership and farebox recovery, whereas the qualitative dimension focuses on goals that cannot be easily quantified in monetary terms, such as public acceptability, equity, convenience and ease of use. As a result, qualitative goals are scored against the various options, rather than being calculated percentage wise as with the quantitative goals. The score could be '+1' if the impacts are positive, '0' if there is no major influence and '-1' if the impacts are negative. This assessment should be done yearly in order to improve the existing fare structure and to adjust to fluctuations in costs and income of the public. The quantitative criteria can be transformed to scores using '+1' for high increases of ridership/revenue and '-1' for high decreases to be able to calculate an overall score. If a higher differentiation is necessary, the scores for all criteria could have a bigger range, eg from -3 to +3.

Table B5 Price level evaluation matrix

Criteria		Weight	Percentage of change/score			
			Existing situation	Option 1	Option 2	Option 3
quantitative	Maximise ridership		%	%	%	%
	Maximise farebox recovery		%	%	%	%
qualitative	Public acceptability		score	score	score	score
	Equity		score	score	score	score
	Convenience		score	score	score	score
	Ease of use		score	score	score	score
TOTAL		100%	Overall score	Overall score	Overall score	Overall score

4.6 Phase 6: Select fare system and structure

Once a thorough evaluation has been carried out, the most beneficial and feasible structure and system should be selected. Documentation should be kept together and signed off by the relevant parties in order to justify any decisions and enable revision at a later stage.

5 Conclusion

Since calculation of farebox recovery ratios focuses on average ticket prices, passenger levels and costs of service, each of these factors must be considered individually and carefully. When deciding to increase ticket prices (whether it be through changing the fare structure and price levels, or price levels alone), the impacts on the public and the government’s goals/priorities must be calculated using reliable data and information. It is realistic to expect that the fare structure will not be revised every year, but should be revised every 3–5 years. The price levels, discounts and ticket types within the existing fare structure, however, should be revised yearly to ensure that the target farebox recovery ratio is met.

Note that farebox recovery is only one criterion to evaluate the effectiveness and efficiency of public transport systems. Other important criteria are capital costs for infrastructure, management costs and service cost/revenue per service kilometre, per passenger and per capita.

## **Appendix 3: Complete list of consultation questions**

### **Question 1**

Are the objectives and principles appropriate? If not, why not?

### **Question 2**

Are there any objectives or principles that should be added, amended or deleted? If so, what are your suggested changes?

### **Question 3**

Is the content required for the policies appropriate? If not, why not?

### **Question 4**

What should be included or excluded?

### **Question 5**

What of the two suggested options should be included in section 3, and why?

### **Question 6**

Is a 50 percent farebox recovery ratio target for Auckland, Wellington and Canterbury appropriate? Why?

### **Question 7**

Is it appropriate for all regional authorities to set a farebox recovery ratio target? Why?

### **Question 8**

Are the proposed operating principles appropriate? Why?

### **Question 9**

Are there any principles missing that should be included?

### **Question 10**

Given the information available to regional councils, is the proposed formula for calculating the farebox recovery ratio appropriate? If not, how would you calculate it?

**Question 11**

Does your regional council currently receive revenue data from commercial services? The Public Transport Management Act 2008 provides for regional authorities to obtain this data, but if you do not, what are the barriers that prevent you from doing so?

**Question 12**

In the absence of commercial service farebox revenue data, is the alternative method for calculating commercial services' farebox revenue appropriate (commercial services patronage × average fare on contracted services)? If not, how should it be calculated?

**Question 13**

Do you think SuperGold card revenue should be treated as fare revenue? Why?

**Question 14**

Please identify any difficulties in calculating operating subsidies across regions, including rail contract payments.

**Question 15**

In future iterations of the policy, should other system operations and maintenance costs and administration costs be included in the farebox recovery ratio formula? Why?

**Question 16**

In future iterations of the policy, should public transport capital expenditure associated with the long-run replacement of assets be included in the farebox recovery ratio formula?

For ARTA and Greater Wellington Regional Council: Please comment regarding rail specifically. This is particularly important for rail.

**Question 17**

Are the proposed fare review requirements appropriate? Why?

**Question 18**

Are the proposed reporting requirements appropriate? Why?

**Question 19**

Should the NZTA monitor services that are not achieving a farebox recovery ratio of 25 percent? Why?

**Question 20**

Should the NZTA research optimal fare and subsidy settings for public transport systems in New Zealand? Why?

**Question 21**

Are there any other issues with the draft policy?

**Question 22**

Does the draft policy enable regional councils to fulfil their obligations under the Local Government Act 2002?

**Question 23**

How will regional councils and ARTA implement this policy? How long will this take? (See section 1.12.)

**Question 24**

What do you consider to be the relationship between developing commercial services, where possible, and farebox recovery? (See section 1.6.2.)

**Question 25**

Do you think increasing the number of commercial services would help improve your farebox recovery ratio? If not, why not?

**Question 26**

Please comment on:

- the Guideline's relevance, practicality and usefulness, and
- whether you think anything should be amended, omitted or inserted into the Guideline.

**Question 27**

Please identify any other feedback you may have on the draft Guideline.



## Further information

The NZ Transport Agency (NZTA) is consulting over its Draft NZTA Farebox Recovery Policy and Draft Fare Policy Decision-Making Guideline.

The Draft NZTA Farebox Recovery Policy document aims to set out the NZTA's proposed requirements relating to farebox recovery policy in the regions, which is to be implemented by regional councils and the Auckland Regional Transport Authority (ARTA).

The Draft Fare Policy Decision-Making Guideline aims to support regional councils and ARTA to improve value for money on the investment in public transport services through a best practice process for 'fare policy decision-making' or reviewing fares.

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