

*Funding*  
AUCKLAND'S  
TRANSPORT  
FUTURE

*Two Pathways*  
— ALTERNATIVE —  
FUNDING FOR TRANSPORT

**AUCKLAND NEEDS TO PLUG A \$12 BILLION TRANSPORT FUNDING SHORTFALL OVER THE NEXT 30 YEARS. THE COST OF DOING NOTHING IS MORE SEVERE CONGESTION. THE PRICE OF ACTION INCLUDES HIGHER RATES AND FUEL TAXES OR PAYING TO USE THE REGION'S MOTORWAYS.**

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## EXECUTIVE SUMMARY

**Auckland faces stark choices. Over the next 30 years the performance of our transport system relies on securing additional funding. The question is: are Aucklanders prepared to pay more for improvements to their transport system and, if so, do they prefer higher rates and fuel taxes or being charged to use the motorway?**

With current funding sources at present levels our city needs an extra \$12 billion to meet the transport objectives of the 30-year Auckland Plan. In today's dollars, this is equivalent to around \$300 million per year over the next 30 years. We could choose not to spend that money, but the impact of doing nothing is considerable.

The main pressure comes from rapid population growth. On current estimates our population is projected to reach two million by 2035. Two-thirds of this growth is expected from our birth rate and internal migration, and one-third as a result of migration from other countries. In order to cope, Auckland's transport system must be upgraded across all modes – roads, public transport, walking and cycling.

The Auckland Plan highlights the challenges faced by Auckland's transport system. Our incomplete roading system and under-developed passenger transport system is reflected by: heavily congested roads, particularly at peak times; a need for significant and ongoing investment in maintenance of existing infrastructure, an

unreliable passenger transport system that is not competitive with private vehicles; and the restricted ability to move freight across the city. At the core of these issues is an historical trend of under-investment in transport infrastructure and system improvements relative to Auckland's fast-paced growth, particularly in the provision of reliable and convenient passenger transport services.

A higher level of investment is required to address current issues and respond to future growth. The analysis indicates that, even with additional funding, maintaining the current performance of the transport system is unlikely.

### The first choice

Auckland Council's Long-term Plan 2015-2025 proposal introduces two levels of investment:

- The Basic Transport Network, under current levels of funding
- The Auckland Plan Transport Network, with additional funding in place.

The **Basic Transport Network** only includes those projects available with funding remaining at current levels. This network involves progress on key public transport projects but otherwise limits public transport services to 2016 levels, other than minor investment to relieve severe overcrowding. This network makes minimal improvements to local and arterial roads, walking and cycling facilities and roads to service key population growth areas. It also defers new capital works and maintenance.

The **Auckland Plan Transport Network** includes all the projects identified in the Auckland Plan, optimised to minimise further deterioration and to provide best value for money. This network is designed to meet the aspirations of the Auckland Plan, including providing public transport services that meet demand and optimise performance, completing the regional cycle network and major improvements to the motorway system and the arterial road network. The Auckland Plan Transport Network provides strong economic benefits compared to the Basic Transport Network. With benefits exceeding costs there is a sound economic justification for the higher level of investment.

Auckland will also face increasing pressure on other infrastructure requirements including housing, water, wastewater, stormwater and other utilities, each competing for limited funding.

To assess funding options, Auckland Council set up a group of Auckland stakeholders. The first phase of that work to assess the full range of funding options was conducted by the Consensus Building Group (CBG) and took place in 2012/13. This new report by the Independent Advisory Body (IAB) goes a step further, focusing on just two funding pathways for the council to consult on during the Long-term Plan 2015-2025 process.

### The second choice

If Aucklanders commit to a higher level of transport investment, and we believe they should, this document presents the two alternative funding pathways. Both options are capable of raising the additional \$300 million per annum needed to implement the Auckland Plan Transport Network.

The two funding pathways are:

- Rates and Fuel Tax – referred to in this document for simplicity as Rates and Fuel Tax, this pathway uses all existing funding tools (rates, development contributions, petrol excise duty, road user charges, public transport fare revenue, tolls on new roads and general government revenue).

- Motorway User Charge – a charge on motorists each time they use the motorway network which may vary by time of day or day of the week.

Do Aucklanders favour higher levels of Rates and Fuel Tax or the introduction of a Motorway User Charge?

To meet the desired funding target with Rates and Fuel Tax would require average annual rates increases of around one per cent (in addition to increases signalled by the council) and annual fuel tax increases of 1.2 cents per litre (in addition to increases signalled by the government) every year for the next nine years. Under this pathway costs are spread broadly across households and businesses. After making any changes to their travel behaviour the average household would pay increased costs of \$348 in 2026. This pathway can be achieved at low implementation cost with little or no legislative change required.

If Aucklanders opt for a Motorway User Charge they would pay an average charge of \$2 when they enter Auckland's motorway system. Under this pathway, after making any changes to their travel behaviour, the average household would be paying an additional \$345-371 per annum in 2026. A Motorway User Charge is more complex to introduce, expensive to implement and requires legislative

change. However, compared with Rates and Fuel Tax, this pathway provides greater ability to manage transport demand. It aligns the costs with those who use it, and delivers them benefits in return. Implementation requires investment but the economic benefits of doing so significantly outweigh the costs. This pathway would provide economic benefits more than three times greater than the Rates and Fuel Tax pathway.

Under either pathway, a small number of Auckland's most vulnerable households would face greater financial hardship. The most effective ways to mitigate against the severity of either pathway are to keep new charges low and affordable and to ensure provision of reliable, safe and cost-effective alternatives.

It is our collective view that Rates and Fuel Tax is the more regressive approach, albeit simpler. On the other hand, a Motorway User Charge provides a long-term funding solution and has secondary benefits as a demand management tool, although it is significantly more complex and costly to implement. Although the primary purpose of our work was to identify two schemes that can raise sufficient revenue, not manage demand, a scheme that achieves both clearly has merit.

# Section 1 INTRODUCTION

## INTRODUCTION

No matter where we live in Auckland, transport is critical to our enjoyment of living and working here. To build, maintain and operate critical transport projects, we must begin by identifying the best funding sources and ensure they are in place to provide the funds when needed.

Auckland Council has proposed two possible transport networks as part of the Long-term Plan 2015-2025. They are the Basic Transport Network and the Auckland Plan Transport Network. The council will ask Aucklanders to consider the higher investment requirement of the Auckland Plan Transport Network and whether they are prepared to contribute more to reap the benefits. That increased investment would come at a cost of \$300 million per annum in today's dollars.

To provide options, Auckland Council set up a group of Auckland stakeholders to investigate alternative funding. This report by the Independent Advisory Body (IAB) provides Auckland Council with two pathways capable of raising the additional revenue required. The first pathway considers a combination of rates and fuel taxes, including some tolls on new roads. The second pathway considers the introduction of an entirely new charging scheme that can be broadly described as road charging.

We have refined the two pathways and evaluated their impact, leaving it to Aucklanders and the council to consider which of the two schemes they favour through the Long-term Plan process. We were not asked to assess the Auckland Plan transport projects. We do, however, reaffirm the findings from the Final Report of the Consensus Building Group (CBG) that to keep Auckland moving, significant improvements to the transport system are critical and urgent.

## CONSENSUS BUILDING GROUP

In July 2012, Auckland Council committed to bringing together an independent group of stakeholders who could build a broad consensus on the funding sources needed to improve Auckland's transport system. It was called the 'Consensus Building Group' (CBG).

The principal finding of the CBG was that unless Aucklanders are prepared to accept significantly higher rates increases and heavier congestion, introducing some form of road pricing by 2021 will be required.

At the conclusion of its initial work on Alternative Transport Funding for Auckland in July 2013 the CBG made the following recommendations:

1. That Auckland Council makes a decision by 2015 to pursue one of the funding pathways identified in recommendation (2).
2. That Auckland Council further investigates and introduces one of two alternative pathways for funding the transport gap:
  - a) Primary reliance on rates, fuel taxes, tolls to fund major new roads and significant government contributions and increased fare revenue from public transport, with agreed annual increases to rates and fuel taxes commencing in 2015

- b) Initial increases in rates and fuel taxes and increased fare revenue from public transport commencing in 2015, followed by the introduction of some form of road pricing and additional government contributions.

3. That this investigation includes:

- a) detailed work on the design and impacts of possible road pricing schemes, focussing on the single cordon and motorway network schemes
- b) further analysis of the affordability and social impacts of the funding alternatives and ways to mitigate any adverse effects
- c) analysis of possible governance and revenue administration arrangements.

4. That the following should not be pursued further as funding tools:

Regional lottery, Regional payroll tax, Regional GST/sales tax, Visitor bed tax, Departure tax, A levy on vehicles registered in Auckland, New forms of parking levies, Managed toll lanes, Tax increment financing/betterment, Double cordon, Area charging, Full-distance charging.

5. That before imposing substantially greater transport costs on businesses and households, there should be increased investment in affordable and reliable transport alternatives in place. These should include improved public transport and a connected network of safe and attractive walking and cycling options.
6. That central government increases its funding for transport in Auckland, beyond what can be expected from the National Land Transport Fund, to reflect Auckland's growing population and its contribution to the national economy.

7. That mechanisms are established to achieve ongoing agreement between Auckland Council and the government to align the strategy and funding of transport in Auckland.

8. That Auckland Council works with Auckland Transport and the New Zealand Transport Agency (NZTA) to optimise the sequence and timing of the investment programme, and to ensure consistency with the Auckland Plan, the Unitary Plan and the available funding.

Upon receipt of the report, Auckland Council's governing body resolved that they:

- a) receive the final report of the Consensus Building Group on Alternative Funding for Transport, entitled "Funding Auckland's Transport Future – Alternative Funding for Transport"
- b) note that advice on the next steps is being prepared and will be presented to the incoming Governing Body from November 2013.

## INDEPENDENT ADVISORY BODY

On 12 December 2013, Auckland Council's Finance and Performance Committee considered a report, which outlined the proposed approach to the next stage of work on Alternative Transport Funding. The report provided an overview of the scope of work and the Committee resolved to progress to the next phase.

On the basis of this recommendation, the Mayor appointed the Independent Advisory Body ('the IAB'). The IAB comprises the following members:

- ▶ **Stewart Milne**  
IAB Chairman
- ▶ **Andy Smith**  
Walk Auckland
- ▶ **Cameron Pitches**  
Campaign for Better Transport
- ▶ **David Aitken**  
National Road Carriers
- ▶ **Donna Wynd**  
Child Poverty Action Group
- ▶ **Gary Taylor**  
Environmental Defence Society
- ▶ **Kim Campbell**  
Auckland Business Forum
- ▶ **Paul Shortland**  
Cycle Action Auckland
- ▶ **Robert Reid**  
New Zealand Council of Trade Unions

- ▶ **Shaun Awatere**  
Landcare Research
- ▶ **Simon Lambourne**  
Auckland Airport
- ▶ **Stephen Selwood**  
New Zealand Council for Infrastructure Development

▶ **Tony Garnier**  
Auckland Business Forum

The group was supported and received professional advice from: Peter Winder, Mark Fleming, Nadia de Blaauw, Don Houghton, Steven Boyd, McGredy Winder & Co, John Williamson, Deloitte, Market Economics, Gravitass, Auckland Council and Auckland Transport. Funding was provided by Auckland Council.

This document reflects the consensus view of the group on alternative transport funding options. It does not necessarily reflect the views of their respective organisations, board of directors or chief executives.

## THE OBJECTIVES

The IAB's task was to advise Auckland Council on how best to progress transport funding options. We were asked to consider the impacts of potential schemes from two alternative pathways and provide robust evidence-based advice on which funding pathways to include in the Long-term Plan.

The council intends to make a decision on which path to follow in June 2015 as part of adopting the Long-term Plan 2015-2025. To achieve this, the IAB was asked to refine its choice of funding pathways and complete the analysis, evaluation and reporting necessary to enable the council to have a set of informed and robust proposals to consult on.

The work we have done includes the design and assessment of the impacts of two potential funding pathways. The first used only existing funding tools (rates, development contributions, petrol excise duty, road user charges, public transport fare revenue, tolls on new roads and general government revenue), referred to in this document as Rates and Fuel Tax. The second was the design and assessment of a 'single cordon' (around the city and city fringe) and a 'motorway network' charging scheme in sufficient detail to support the inclusion of one of these in the Long-term Plan.

Detailed consideration of the economic, social and affordability impacts associated with each funding pathway was a critical element of the IAB's decision-making and is explored in detail throughout this report and in the supporting documents.

## METHODOLOGY

To arrive at our preferred scheme design, we tested and compared indicative schemes that met the desired revenue target. The list of potential designs was filtered through a high-level evaluation of impacts, acceptability and practicability.

As the preferred schemes were developed, outputs from Auckland Council's Auckland Regional Transport Model (ART3) were used to estimate revenue and identify impacts on the road and public transport networks. ART3 outputs were also used to identify the social and economic impact on transport users.

Within the road charging option, a number of potential schemes were considered. These included two potential cordon locations, charging for use of the motorway and charging for the distance travelled on the motorway. For each, parameters had to be set on the level of charge, whether to vary charges by time of day, weekday, weekend, or vehicle type, and whether to provide any exemptions, caps or discounts.

The method we used to arrive at a preferred scheme involved three rounds, moving from coarse screening to more in-depth evaluation, then detailed evaluation of the final options. All three rounds used an evaluation framework which included: strategic alignment with the Auckland Plan and government transport objectives, revenue potential, administrative

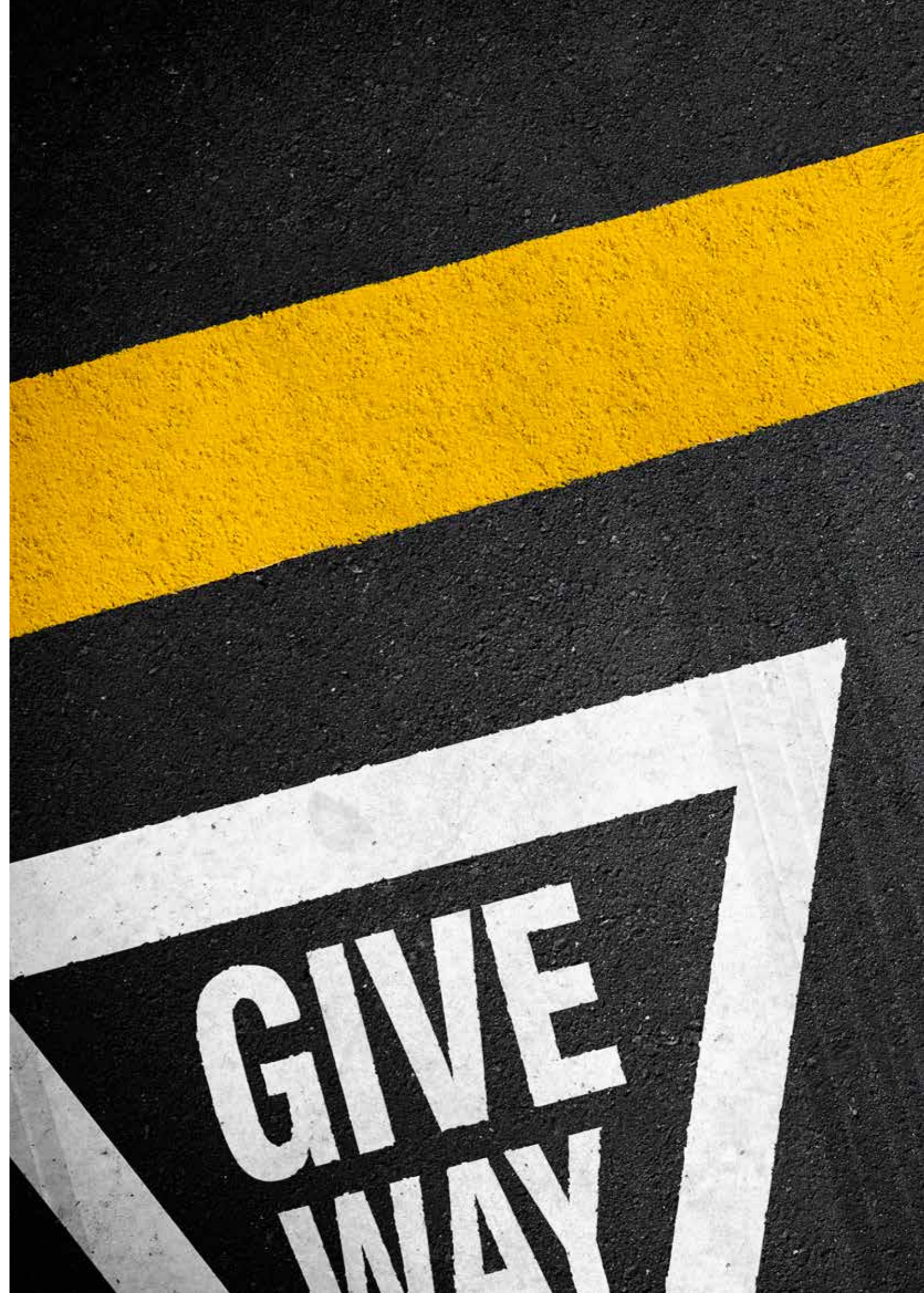
simplicity, efficiency, fairness, risk and public acceptability.

To support and guide our findings we commissioned specialist advice that focussed on the design, cost and performance of potential schemes and the social and economic impacts of their introduction. Our work involved the design, evaluation and refinement of schemes

The conclusions presented here complete the refinement of those previous scheme designs. In some respects they are slightly different from the material presented in the supporting documents. This material is available online at [www.shapeauckland.govt.nz/longtermplan](http://www.shapeauckland.govt.nz/longtermplan).

Our work relied on revenue and costs spread over 30 years, as estimated by Auckland Transport, Auckland Council and NZTA. All financial projections are presented in inflation-adjusted dollars, unless otherwise stated.

We are confident our testing and research has enabled us to present a refined estimation of the funding gap and the revenue requirements for the Auckland Plan Transport Network.



# Section 2

# MEETING THE CHALLENGES OF AUCKLAND'S GROWTH

## AUCKLAND'S GROWTH STORY

Over the next three decades Auckland will face increasing pressure on infrastructure including housing, transport, water, wastewater and other utilities. These pressures compound the need for greater levels of funding for transport.

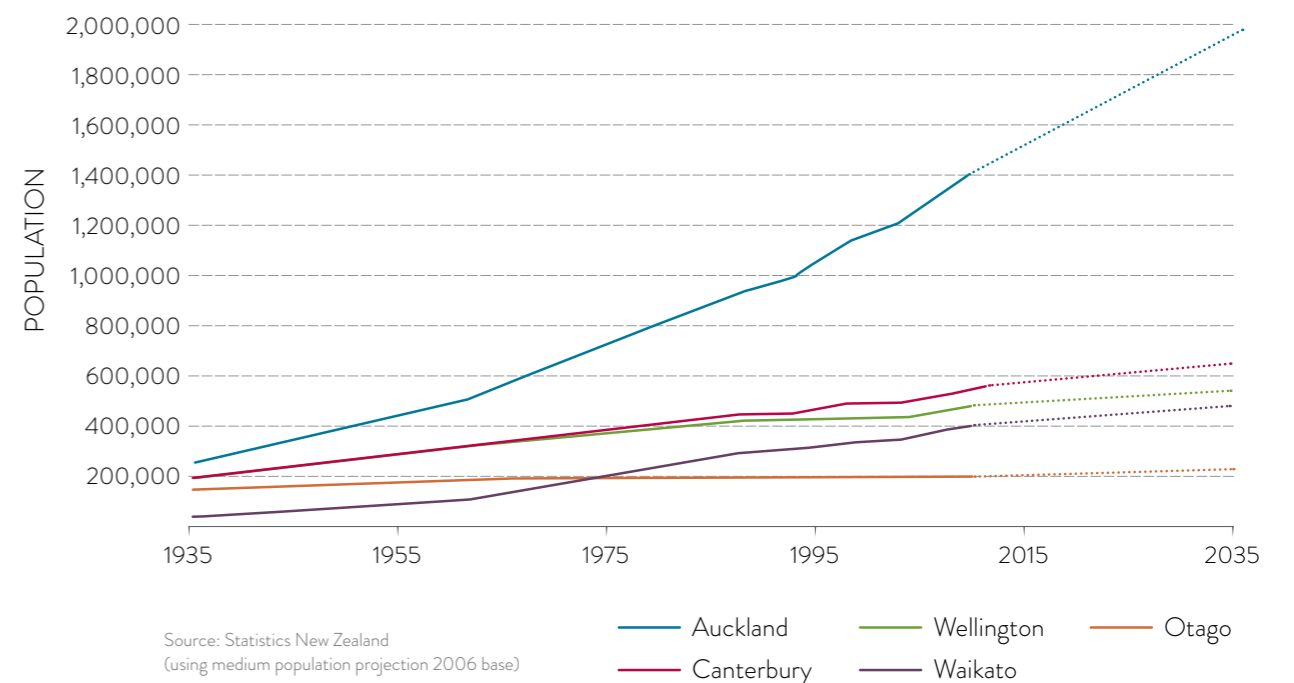
Consistent with Auckland Council's planning our group considered the impact of medium population growth. Projections suggest that Auckland will reach two million residents by 2035 (see Figure 1). For every person added elsewhere in New Zealand, another two are added here. Of these, one-third will be international migrants who are

largely filling specific shortages in our labour market; the other two-thirds will come from other parts of New Zealand or from births in Auckland. There is limited ability to control how fast the population is growing.

Our analysis shows a steady decline in the performance of the transport system, stemming

largely from predicted levels of population growth. It supports the findings of the CBG that, "the challenges facing transport in Auckland are considerable, but our biggest failure would be to do nothing."

FIGURE 1 – HISTORIC AND FORECAST POPULATION ESTIMATES BY REGION





## TWO LEVELS OF INVESTMENT

In preparation for the 2015-2025 Long-term Plan, Auckland Council has identified two potential investment levels. The council is preparing to consult on whether transport improvements should be constrained by the existing funding available or whether Aucklanders would prefer a transport network that delivers on the promise of the Auckland Plan.

These two options are referred to as the Basic Transport Network (no alternative funding in place) and the Auckland Plan Transport Network (with alternative funding). These networks are the result of work by Auckland Transport and NZTA to optimise and prioritise transport investment, in timing, impact and value for money. The Auckland Plan Transport Network is designed to meet the Auckland Plan's objectives.

The Auckland Plan highlights the challenges faced by Auckland's transport system. Our incomplete roading system and under-developed passenger transport system is reflected by: heavily congested roads, particularly at peak times; a need for significant and ongoing investment in maintenance

of existing infrastructure, an unreliable passenger transport system that is not competitive with private vehicles; and the restricted ability to move freight across the city. At the core of these issues is an historical trend of under-investment in transport infrastructure and system improvements relative to Auckland's fast-paced growth, particularly in the provision of reliable and convenient passenger transport services.

The council's proposed budget over the next 10 years aims to keep annual average rates increases to 2.5-3.5 per cent, focus new investment on transport and to limit the increases to council debt. With this level of funding Auckland Transport would need to focus only on the highest-priority

projects and delay approximately \$1.9 billion worth of new capital projects and \$1.5 billion of renewals until after 2025. Investment in operating areas, particularly public transport, would be constrained to 2016 levels other than minor investments to relieve severe overcrowding. The Basic Transport Network is what can be delivered with this lower level of funding.

A higher level of investment is required to address current issues and respond to projected future growth. However, our analysis shows that expected growth exceeds the additional capacity of the Auckland Plan Transport Network and that maintaining the current performance of the transport system is unlikely.

## THE TWO NETWORKS

The key components of both networks are summarised below and in the tables on pages 16-20. The details of the transport investment programme will be finalised through consultation on the Regional Land Transport Programme, which forms the Auckland Transport (AT) component of the Auckland Council Long-term Programme (LTP).

### The main elements of the two networks are:

- The State Highway programme is very similar for both networks. State Highways are funded 100 per cent through the National Land Transport Fund and are not reliant on rates or other local funding.
- The Basic Transport Network's high-priority public transport projects will proceed but, once they are completed, very few improvements will take place. Service levels will only increase to relieve severe overcrowding.
- The Auckland Plan Transport Network will connect Auckland, metropolitan centres and the city centre through Rapid Transit (either rail or rapid bus services). In addition, passenger transport service frequencies, facilities and bus priorities will all be significantly improved.
- Arterial road improvements in the Basic Transport Network will be limited to a small number of priority projects and a modest provision for other arterial road improvements. The Auckland Plan Transport Network includes approximately \$1 billion in additional arterial improvements over the period to 2045.
- Safety improvements will continue in the Basic Transport Network but operational improvements, route optimisation, intersection upgrades and intelligent transport system initiatives will be limited.
- In the Basic Transport Network the Auckland Cycling Network will be only 70 per cent complete by 2045 and other walking and cycling initiatives will be very limited.
- Maintenance and renewals in the Basic Transport Network will be funded at 75 per cent of the desirable levels. Some assets are likely to fall into "very poor" condition.
- The Basic Transport Network will fund only 40 per cent of the desired transport investment to planned growth areas in the southern area (Pukekohe/Paerata/Drury); the Northwest (Kumeu/Huapai/Whenuapai) and the north (Warkworth and Silverdale/Dairy Flat).

## OUTLINE OF BASIC NETWORK AND AUCKLAND PLAN NETWORK

The table below outlines the two networks and identifies some key projects and programmes. The complete programme will

be itemised in the Regional Land Transport Programme, which will be consulted on by Auckland Transport in conjunction with

consultation on the Auckland Council LTP.

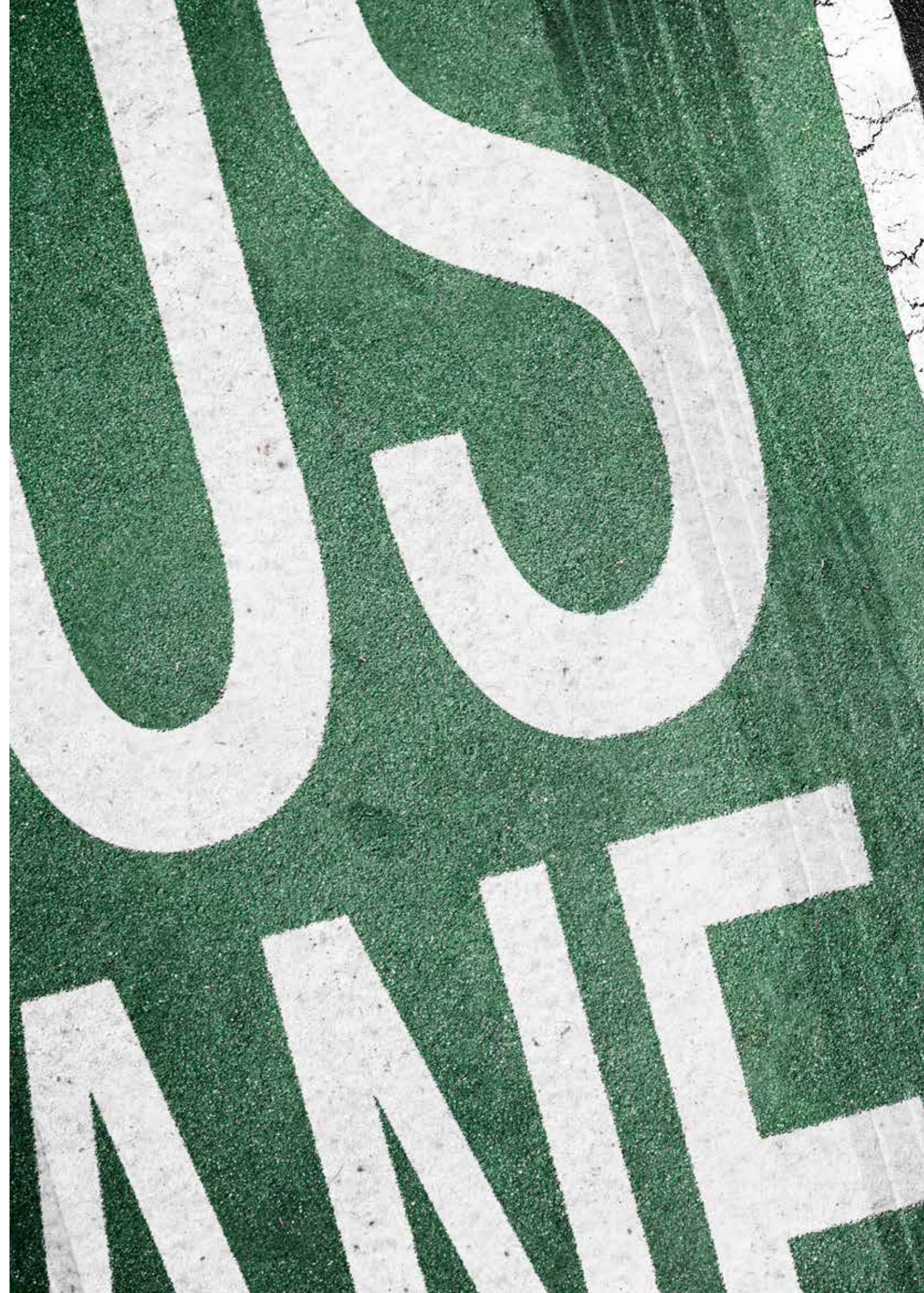
		FIRST DECADE 2016 - 2025	SECOND DECADE 2026 - 2035	THIRD DECADE 2036 - 2045
BUS AND FERRY	BASIC TRANSPORT NETWORK	<ul style="list-style-type: none"> <li>Busways               <ul style="list-style-type: none"> <li>SH1 Northern Busway Constellation to Albany</li> <li>Panmure to Pakuranga (AMETI)</li> </ul> </li> <li>Bus/rail and bus/bus interchanges (“essential” elements only)</li> <li>Integrated fares</li> <li>Limited new bus lanes to support frequent public transport network</li> <li>Limited service increases to avoid severe overcrowding</li> <li>Mangere – Otahuhu – Sylvia Park bus route improvements</li> </ul>	<ul style="list-style-type: none"> <li>Busways               <ul style="list-style-type: none"> <li>SH1 Northern Busway Albany to Silverdale</li> <li>Pakuranga to Botany (AMETI)</li> </ul> </li> <li>New bus lanes to support frequent public transport network</li> <li>Limited service increases to avoid severe overcrowding</li> </ul>	<ul style="list-style-type: none"> <li>New bus lanes to support frequent public transport network</li> <li>Limited service increases to avoid severe overcrowding</li> </ul>
	AUCKLAND PLAN TRANSPORT NETWORK	<p><b>All Basic Transport Network improvements plus:</b></p> <ul style="list-style-type: none"> <li>Bus/rail and bus/bus interchanges (“highly desirable” and “desirable” elements)</li> <li>Additional new bus lanes to support frequent public transport network</li> <li>Service increases</li> <li>Park-and-ride programme</li> <li>Ferry terminal upgrades</li> <li>Bus stop improvement programme</li> <li>Improvements in bus service frequency and capacity</li> </ul>	<p><b>All Basic Transport Network improvements plus:</b></p> <ul style="list-style-type: none"> <li>SH16 Northwestern Busway</li> <li>Continued roll out of park-and-ride programme</li> <li>Bus stop improvement programme</li> <li>Improvements in bus service frequency and capacity</li> <li>Rapid transit buses running Botany – Flatbush – Manukau – Auckland Airport</li> </ul>	<p><b>All Basic Transport Network improvements plus:</b></p> <ul style="list-style-type: none"> <li>Rapid transit buses:               <ul style="list-style-type: none"> <li>SH18 Upper Harbour (Henderson – Westgate – Greenhithe – Constellation)</li> <li>Cross Isthmus (New Lynn – Onehunga – Otahuhu)</li> </ul> </li> <li>Continued roll out of park-and-ride programme</li> <li>Bus stop improvement programme</li> <li>Improvements in bus service frequency and capacity</li> </ul>

		FIRST DECADE 2016 - 2025	SECOND DECADE 2026 - 2035	THIRD DECADE 2036 - 2045
RAIL	BASIC TRANSPORT NETWORK	<ul style="list-style-type: none"> <li>City Rail Link</li> <li>Rollout of new electric trains, and provision of 10-minute peak frequencies</li> <li>Protection for airport rail corridor</li> <li>Rail Network Performance Improvements *</li> <li>Rail Resilience Improvements *</li> <li>Rail Network Capacity Improvements (including third main Otahuhu Wiri) *</li> </ul> <p>* Rail projects reliant on Central Government Funding</p>		
	AUCKLAND PLAN TRANSPORT NETWORK	<p><b>All Basic transport network improvements plus:</b></p> <ul style="list-style-type: none"> <li>Grade separation or road closure at high priority level crossings</li> <li>Additional electric trains</li> <li>Service increases</li> <li>New rail stations – Parnell, Paerata</li> <li>Electrification Papakura to Pukekohe *</li> </ul> <p>* Rail projects reliant on Central Government Funding</p>	<p><b>All Basic transport network improvements plus:</b></p> <ul style="list-style-type: none"> <li>Completion of level crossing programme</li> <li>Additional electric trains</li> <li>Airport rail across Manukau Harbour to Mangere Bridge</li> <li>Service increases</li> <li>Further rail network capacity improvements (Westfield junction, Papakura – Wiri third main) *</li> </ul> <p>* Rail projects reliant on Central Government Funding</p>	<p><b>All Basic transport network improvements plus:</b></p> <ul style="list-style-type: none"> <li>Mt Roskill rail spur</li> <li>Airport rail from Mangere Bridge to Airport</li> <li>Service increases</li> <li>Additional capacity on Eastern Line between Ports of Auckland and Westfield *</li> </ul> <p>* Rail projects reliant on Central Government Funding</p>

		FIRST DECADE 2016 - 2025	SECOND DECADE 2026 - 2035	THIRD DECADE 2036 - 2045
ARTERIAL AND LOCAL ROADS	BASIC TRANSPORT NETWORK	<ul style="list-style-type: none"> <li>• Mill Road stage 1</li> <li>• East West Connections</li> <li>• Te Atatu and Lincoln Road improvements</li> <li>• Albany Highway upgrade (North)</li> <li>• Long Bay Glenvar Ridge Road</li> </ul>	<ul style="list-style-type: none"> <li>• Continuation of Mill Road project</li> </ul>	<ul style="list-style-type: none"> <li>• Completion of Mill Road project</li> </ul>
	AUCKLAND PLAN TRANSPORT NETWORK	<p><b>All Basic Transport Network improvements plus:</b></p> <ul style="list-style-type: none"> <li>• Albany Highway (Sunset - SH18)</li> <li>• Long Bay southern corridor</li> <li>• Silverdale transport improvements</li> <li>• Arterial road improvements programme (\$65 million)</li> </ul>	<p><b>All Basic Transport Network improvements plus:</b></p> <ul style="list-style-type: none"> <li>• Penlink</li> <li>• Arterial road improvements programme (\$100 million)</li> </ul>	<p><b>All Basic Transport Network improvements plus:</b></p> <ul style="list-style-type: none"> <li>• Arterial road improvements programme (\$210 million)</li> </ul>
STATE HIGHWAYS	BASIC TRANSPORT NETWORK	<ul style="list-style-type: none"> <li>• East West Connections</li> <li>• SH1 Puhoi – Warkworth</li> <li>• SH1 Northern Corridor improvements</li> <li>• SH1 Southern Corridor improvements</li> <li>• SH20A airport access improvements</li> </ul>	<ul style="list-style-type: none"> <li>• Start of Additional Waitemata Harbour Crossing</li> <li>• SH1 Warkworth – Wellsford</li> <li>• SH16 widening Kumeu to Brighams Creek</li> <li>• SH16 port access improvements</li> <li>• SH18 eastbound widening</li> </ul>	<ul style="list-style-type: none"> <li>• Completion of Additional Waitemata Harbour Crossing</li> <li>• SH20B airport access improvements</li> <li>• SH20 widening Lambie Drive to SH20A</li> </ul>
	AUCKLAND PLAN TRANSPORT NETWORK	<p><b>All Basic Transport Network improvements:</b></p>	<p><b>All Basic Transport Network improvements:</b></p>	<p><b>All Basic Transport Network improvements plus:</b></p> <ul style="list-style-type: none"> <li>• Additional State Highway widening to reduce congestion</li> </ul>

		FIRST DECADE 2016 - 2025	SECOND DECADE 2026 - 2035	THIRD DECADE 2036 - 2045
SAFETY AND OTHER	BASIC TRANSPORT NETWORK	<ul style="list-style-type: none"> <li>• AT safety programmes (\$150 million) <ul style="list-style-type: none"> <li>- Crash reduction works</li> <li>- Safety around schools</li> <li>- Safety and minor improvements</li> </ul> </li> <li>• School and workplace travel planning</li> </ul>	<ul style="list-style-type: none"> <li>• AT safety programmes (\$150 million) <ul style="list-style-type: none"> <li>- Crash reduction works</li> <li>- Safety around schools</li> <li>- Safety and minor improvements</li> </ul> </li> <li>• School and workplace travel planning</li> </ul>	<ul style="list-style-type: none"> <li>• AT safety programmes (\$150 million) <ul style="list-style-type: none"> <li>- Crash reduction works</li> <li>- Safety around schools</li> <li>- Safety and minor improvements</li> </ul> </li> <li>• School and workplace travel planning</li> </ul>
	AUCKLAND PLAN TRANSPORT NETWORK	<p><b>All Basic Transport Network improvements plus:</b></p> <ul style="list-style-type: none"> <li>• Enhanced funding for safety programmes (additional \$110 million)</li> <li>• Minor intersection upgrades</li> <li>• Route optimisation</li> <li>• Operational improvements</li> <li>• Intelligent Transport System initiatives</li> <li>• Enhanced funding for workplace and community travel planning</li> </ul>	<p><b>All Basic Transport Network improvements plus:</b></p> <ul style="list-style-type: none"> <li>• Enhanced funding for safety programmes (additional \$35 million)</li> <li>• Minor intersection upgrades</li> <li>• Route optimisation</li> <li>• Operational improvements</li> <li>• Intelligent Transport System initiatives</li> <li>• Enhanced funding for workplace and community travel planning</li> </ul>	<p><b>All Basic Transport Network improvements plus:</b></p> <ul style="list-style-type: none"> <li>• Enhanced funding for safety programmes (additional \$40 million)</li> <li>• Minor intersection upgrades</li> <li>• Route optimisation</li> <li>• Operational improvements</li> <li>• Intelligent Transport System initiatives</li> <li>• Enhanced funding for workplace and community travel planning</li> </ul>
WALKING AND CYCLING	BASIC TRANSPORT NETWORK	<ul style="list-style-type: none"> <li>• Waterview shared path</li> <li>• Completion of 40% of the Auckland Cycle Network</li> </ul>	<ul style="list-style-type: none"> <li>• Continued roll out of the Auckland Cycle Network</li> </ul>	<ul style="list-style-type: none"> <li>• 70% of the Auckland Cycle Network completed by 2045</li> </ul>
	AUCKLAND PLAN TRANSPORT NETWORK	<p><b>All Basic Transport Network improvements plus:</b></p> <ul style="list-style-type: none"> <li>• Improved walking and cycling options to key destinations</li> <li>• Additional funding to allow faster rollout of the Auckland Cycle Network (55% completed by 2025)</li> </ul>	<p><b>All Basic Transport Network improvements plus:</b></p> <ul style="list-style-type: none"> <li>• Improved walking and cycling options to key destinations</li> <li>• Additional funding to allow faster rollout of the Auckland Cycle Network</li> </ul>	<p><b>All Basic Transport Network improvements plus:</b></p> <ul style="list-style-type: none"> <li>• Improved walking and cycling options to key destinations</li> <li>• Completion of the Auckland Cycle Network</li> </ul>

		FIRST DECADE 2016 - 2025	SECOND DECADE 2026 - 2035	THIRD DECADE 2036 - 2045
MAINTENANCE AND RENEWALS	BASIC TRANSPORT NETWORK	<ul style="list-style-type: none"> <li>Partial funding of renewals programme – resulting in deferred major renewals, deteriorating asset conditions and increased short-term maintenance</li> </ul>	<ul style="list-style-type: none"> <li>Partial funding of renewals programme – resulting in deferred major renewals, deteriorating asset conditions and increased short-term maintenance</li> </ul>	<ul style="list-style-type: none"> <li>Partial funding of renewals programme – resulting in deferred major renewals, deteriorating asset conditions and increased short-term maintenance</li> </ul>
	AUCKLAND PLAN TRANSPORT NETWORK	<ul style="list-style-type: none"> <li>Full funding of renewals programme</li> </ul>	<ul style="list-style-type: none"> <li>Full funding of renewals programme</li> </ul>	<ul style="list-style-type: none"> <li>Full funding of renewals programme</li> </ul>
GROWTH AREAS	BASIC TRANSPORT NETWORK	<ul style="list-style-type: none"> <li>Northwest transformation</li> <li>Partial implementation of Flat Bush improvements</li> <li>State Highway improvements</li> </ul>	<ul style="list-style-type: none"> <li>Funding for 40% of planned improvements in greenfields development areas</li> <li>State Highway improvements</li> </ul>	<ul style="list-style-type: none"> <li>Funding for 40% of planned improvements in greenfields development areas</li> <li>State Highway improvements</li> </ul>
	AUCKLAND PLAN TRANSPORT NETWORK	<p><b>All Basic transport network improvements plus:</b></p> <ul style="list-style-type: none"> <li>Full implementation of Flat Bush improvements</li> <li>Wynyard Quarter improvements</li> <li>Strategic Housing areas and priority greenfields Areas</li> </ul>	<p><b>All Basic transport network improvements plus:</b></p> <ul style="list-style-type: none"> <li>Full funding of planned improvements in greenfields development Areas</li> </ul>	<p><b>All Basic transport network improvements plus:</b></p> <ul style="list-style-type: none"> <li>Full funding of planned improvements in greenfields development Areas</li> </ul>



# Section 3

## THE FUNDING GAP

### THE \$12 BILLION FUNDING GAP

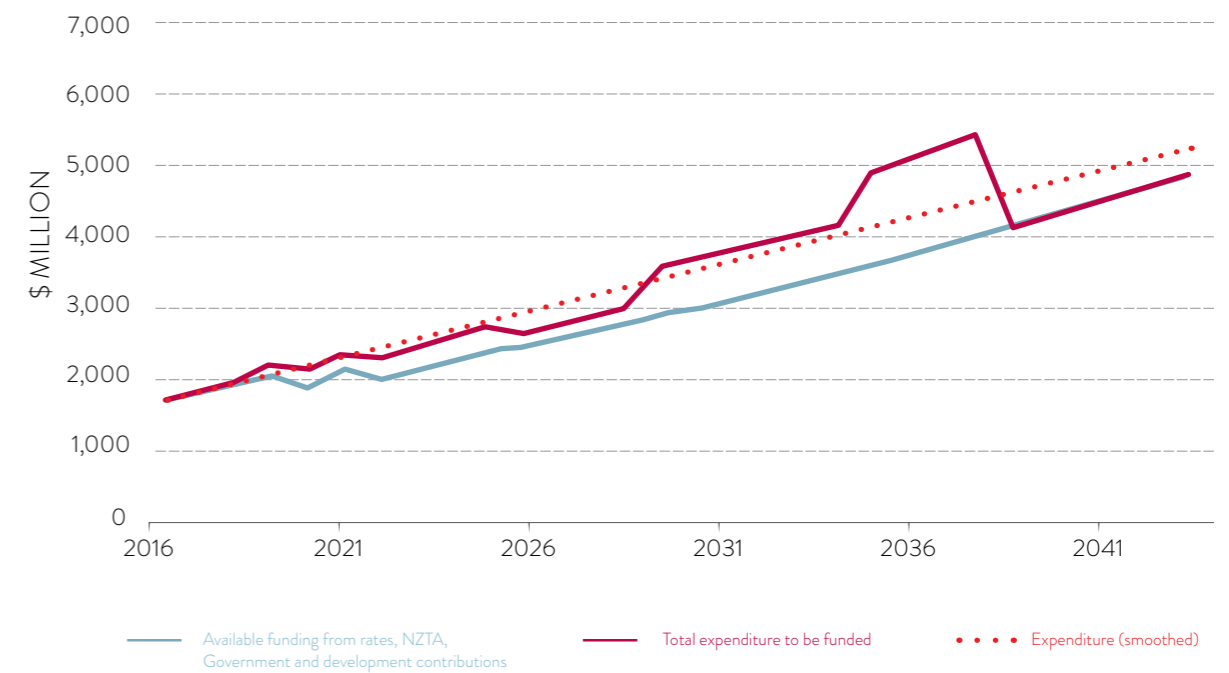
It is clear that the Auckland Plan Transport Network cannot be delivered without additional funding beyond currently available levels.

The funding gap is defined by a shortfall in the total funding requirement for Auckland's transport system. The funding gap is estimated at around \$12 billion over 30 years, shown in Figure 2. That's around \$300 million per annum in today's dollars.

Before seeking additional funding we expect that existing revenue will be used in the most effective way, and wherever possible, new transport expenditure will be accommodated from existing budgets. The Mayor has recently announced a reprioritisation of council budgets so that transport

receives an increasing share of rates revenue. However, it is clear that the scale of additional funding required is so large that reprioritisation alone cannot provide sufficient additional funds to cover the entire gap.

FIGURE 2 – AUCKLAND'S TRANSPORT FUNDING GAP



NB: A smoothed expenditure profile is also shown as expenditure is dependent on the timing of major projects, particularly an additional Waitemata Harbour Crossing, which is uncertain.

## AVAILABLE FUNDING AND TIMING

The funding gap reflects the shortfall Auckland expects to face from existing transport funding sources. Over 30 years it equates to a \$12 billion deficit.

The current forecast of the funding gap is lower than the \$400 million per annum (in today's dollars) previously estimated by the CBG. We have based our forecasts on Auckland Transport's optimised 30-year programme for Auckland, which delivers considerable savings and efficiencies compared to previous plans. Since our earlier estimates, the government has provided Auckland Council with an assurance of part funding for the City Rail Link. The Ministry of Transport has also signalled through the Draft Government Policy Statement on Land Transport Funding significantly higher revenue from national fuel taxes than was previously assumed. We have also accounted for the council's intent to constrain debt within prudent limits.

It is estimated that the total investment required in transport over the next 30 years is \$105 billion after accounting for public transport fares and tolls on new roads. Total funding is estimated at around \$93 billion from rates, NZTA subsidies, development contributions, and government funding.

The CBG recognised during its initial research into Alternative Transport Funding that Aucklanders understand the need for transport investment and have expressed a willingness to pay. Many of those who provided feedback expressed their frustration with Auckland's transport system and sent a strong message in favour of immediate action.

In response to the CBG's public discussion document, the majority of respondents supported managing demand through road charging so that those contributing to congestion bear some of the cost. Road charging also incentivises the use of public transport. A number of people also wanted other measures, such as ride sharing, walking school buses and working from home to be promoted. Concern was also expressed that any undue increase in public transport fares would be at odds with efforts to address Auckland's congestion.

Auckland needs a long-term funding solution that achieves a higher level of transport investment. This should be

balanced by providing viable and attractive transport alternatives and carefully managing demand through disincentives.

We are anticipating the implementation of one of the pathways we have proposed by 2019 at the latest. Achieving this will require alignment between the council and government.

## COST BREAKDOWN

Operating expenditure (Public transport subsidies, maintenance of local roads, footpaths and State Highways, offset by public transport fares, parking and enforcement revenue and tolls)	\$32.5 billion
Interest and funded depreciation	\$24.5 billion
<b>Total Operating Costs to be funded</b>	<b>\$57.0 billion</b>
Capital costs	\$65.0 billion
Offset by Auckland Council funding	(\$17 billion)
<b>Total Capital Costs to be funded</b>	<b>\$48.0 billion</b>
<b>TOTAL FUNDING REQUIREMENT</b>	<b>\$105 billion</b>
Rates revenue for transport	\$32.5 billion
Development contributions	\$4 billion
Fuel Taxes and SuperGold Card funding	\$55.5 billion
Government contribution to the CRL	\$1 billion
<b>TOTAL AVAILABLE FUNDING</b>	<b>\$93 billion</b>
<b>TOTAL FUNDING GAP</b>	<b>\$12 billion</b>



Section 4  
**PROPOSED  
 FUNDING  
 PATHWAYS**

**RATES AND FUEL TAX - AN INTRODUCTION**

The first of two potential funding pathways is referred to as Rates and Fuel Tax. This pathway uses only existing funding tools (rates, development contributions, petrol excise duty, road user charges, public transport fare revenue, tolls on new roads and general government revenue).

Rates are the primary source of funding for local government activities in New Zealand and are levied annually on the capital value of land within Auckland. Revenue from fuel taxes is also used to subsidise local government transport activities. Fuel taxes include the Petroleum Excise Duty (PED) and Road User Charges (RUC). PED is a wholesale levy on all petrol sales charged on a cents per litre basis. It is a component of the retail price of petrol paid at the pump

by motorists. Those road users whose vehicles are not charged at the source (such as diesel vehicles) contribute through RUC.

Under this pathway, the funding gap would be filled primarily by increases to rates and fuel taxes over and above those already proposed by the Mayor and the government. This is supplemented by other government contributions and increased fare revenue from public transport.

If tolled, additional revenue from new projects such as the additional Waitemata Harbour Crossing and Penlink could also be included.

To set an appropriate balance between rates and fuel taxes we have based our calculations on the current funding ratios (approximately half from each source). Table 1 shows the level of additional increases required each year for nine years from 2016/17.

TABLE 1 - TOTAL ANNUAL RATES AND FUEL TAX INCREASES 2016-2025

	AVERAGE ANNUAL RATES INCREASES	AVERAGE ANNUAL FUEL TAX INCREASES (GST INCL)
Annual increases already signalled	2.5% to 3.5% p.a. (Mayoral proposal)	1.6 cents per litre per annum (Draft Government Policy Statement)
	+	+
Annual increase proposed by the IAB for Pathway 1 (dedicated to transport)	0.9% p.a.	1.2 cents per litre p.a.
	=	=
Total combined annual increases	3.4% to 4.4% p.a.	2.8 cents per litre p.a.
Total annual increase in dollar terms in 2026 (per household)	\$348 (after any changes to travel behaviour)	

NB: These increases are proposed for nine years from 2016/17 and reflect increases already signalled by the Mayor and Government. This pathway requires increases to both rates and fuel taxes.

## SCHEME DESIGN FOR RATES

Councils have the ability to levy a rate on a specific activity or group of activities. Rates may be based on property value, or may be a fixed charge. They may also be differentiated by geographic area or property type to reflect the degree of benefit. Auckland Council does not have a targeted rate for transport, although the former Auckland Regional Council used a targeted rate to help fund public transport, which raised about \$60 million per annum.

**Our preferred approach for this pathway would be to raise a region-wide dedicated Transport Rate based on a property's capital value.**

A Transport Rate based on capital value is preferred over a fixed charge per property or a geographically targeted rate. A region-wide transport rate would need to be dedicated to transport purposes and could not be used by the council to fund other activities. A fixed charge per property would have a greater impact on residential property rates - 9.5 per cent higher by 2025, versus around

three per cent higher for business properties. A fixed charge would also increase the impact on lower-value properties making it more regressive than rates charged on capital value. The benefits of the transport investments are spread widely across the region therefore we see no benefit in targeting a transport rate geographically.

Rates increases per property would total up to 8.1 per cent over the next nine years. This is on top of the existing annual increases signalled by Auckland Council of 2.5 to 3.5 per cent resulting in a total average increase of 3.4 to 4.4 per cent per annum to 2025. The annual rates profile per property is shown in Table 2.

TABLE 2 - AVERAGE RATES PER RATEABLE PROPERTY

	2015/16	2016/17	2024/25
<b>Residential and non-business</b>			
Average rates signalled by the council	\$ 2,481	\$ 2,575	\$ 3,665
Average increase proposed by IAB	\$ -	\$ 28	\$ 296
Total	\$ 2,481	\$ 2,603	\$ 3,961
Total additional increase to rates	\$ 0.0%	1.1%	8.1%
Average annual additional increase to rates			0.9%
<b>Business</b>			
Average rates signalled by the council	\$ 13,200	\$ 13,174	\$ 14,253
Average increase proposed by IAB	\$ -	\$ 143	\$ 1,153
Total	\$ 13,200	\$ 13,317	\$ 15,406
Total additional increase to rates	0.0%	1.1%	8.1%
Average annual additional increase to rates			0.9%

NB: Under this pathway there would be an additional rates increase each year from 2016/17. The figures for 2024/25 show the cumulative effect of these annual increases and are GST inclusive. We have used existing rating policies for our calculations. The impact of the recent revaluations has not been considered. Changes in capital values affect the share of rates between properties but do not increase the total revenue collected by Auckland Council. The annual increase in the table reflect average rates per rateable property, not by households as expressed elsewhere in this report.

## SCHEME DESIGN FOR FUEL TAXES

**A national fuel tax increase that delivers to Auckland a fair share of the revenue raised is preferable. However, there are other ways that increases to fuel taxes could raise the required level of funding, including a regional funding mechanism.**

A nationwide increase to fuel taxes is simple and capable of generating substantial revenue for the National Land Transport Fund NLTF, provided this was allocated proportionally and the rest of New Zealand was not being asked to pay for Auckland's transport system. Alternatively, a regional fuel tax, set at the same level as a national increase but applied only to fuel sold in Auckland, would create a funding source specific to Auckland's requirements.

A regional fuel tax would require the introduction of enabling legislation and does not align

with current government policy. Table 3 shows annual increases in PED at current levels set by the government and the increased fuel tax rate we are proposing.

It is our view that an increase to national fuel taxes is the preferred approach. With either option, a regional or national increase, there is a range of considerations that apply, such as:

- whether a regional fuel tax would be more appropriate for solving a regional funding shortage.

- whether increases to fuel tax nationally (with Auckland receiving only a proportion) would generate too much revenue nationally
- the extent to which a regional fuel tax creates price differentials at the border sufficiently large to create avoidance behaviours
- the difficulty of applying a regional fuel tax to diesel fuel or regional road user charges.

TABLE 3 - FUEL TAX

	2015/16	2016/17	2024/25
Fuel tax signalled by government (PED)	59.5 cpl	61.1 cpl	71.8 cpl
Increased fuel tax proposed by IAB	-	0.9 cpl	9.2 cpl
Total	59.5 cpl	62.0 cpl	81.0 cpl
Average annual increase in fuel tax incl GST			1.2 cpl



## ROAD CHARGING - AN INTRODUCTION

We considered a variety of cordon and motorway charging schemes. These can also be thought of as 'congestion charging' schemes (like those operating in London and Singapore) or 'road tolls' (like Sydney and Melbourne). The schemes we explored were:

- a cordon around the isthmus (Isthmus Cordon Charge) shown in Figure 3.
- a cordon bound by Greenlane Road, Balmoral Road, St Lukes Road and the Waitemata Harbour (Inner Cordon Charge) shown in Figure 3.

- charging for use of the motorway network (Motorway User Charge) shown in Figure 4.
- charging for the distance travelled on the motorway (Motorway Distance Charge).

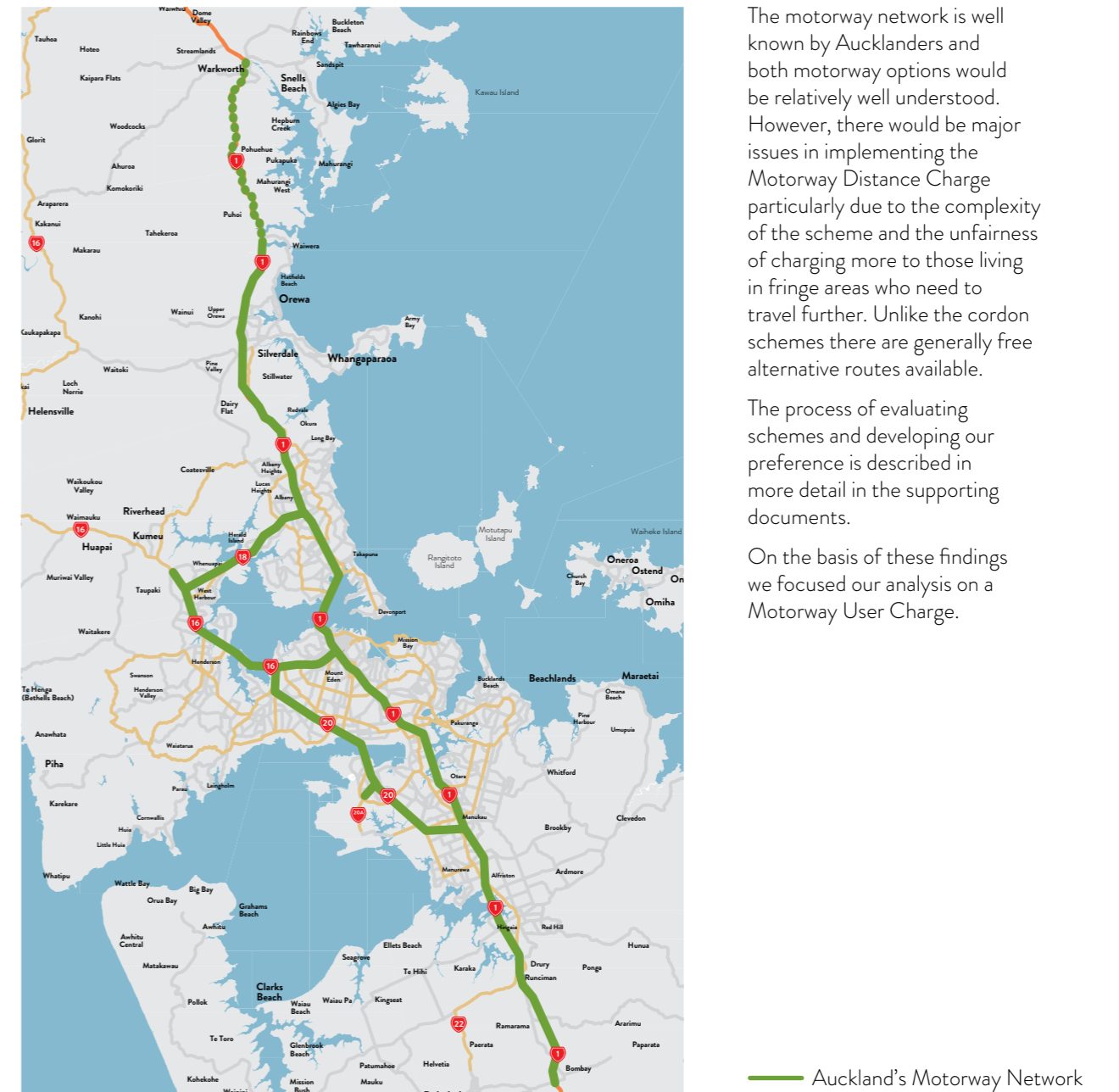
During our analysis we concluded that the proposed Inner Cordon Charge had some major drawbacks, particularly community impacts, complexity and fairness. The Isthmus Cordon Charge had similar drawbacks but with less community impact due to the location of the charge points, but the position of the

cordon meant the burden of payment fell unfairly on low income groups, which have few travel alternatives and less ability to pay. The community and visual impact of the numerous charging points (and associated infrastructure) was a significant drawback. Cordon schemes require all traffic crossing the cordon to pay a toll. There are no free alternative routes with these schemes.

FIGURE 3 – INNER AND ISTHMUS CORDON BOUNDARIES CONSIDERED



FIGURE 4 – PROPOSED COVERAGE OF THE MOTORWAY USER CHARGE



The motorway network is well known by Aucklanders and both motorway options would be relatively well understood. However, there would be major issues in implementing the Motorway Distance Charge particularly due to the complexity of the scheme and the unfairness of charging more to those living in fringe areas who need to travel further. Unlike the cordon schemes there are generally free alternative routes available.

The process of evaluating schemes and developing our preference is described in more detail in the supporting documents.

On the basis of these findings we focused our analysis on a Motorway User Charge.

Auckland's Motorway Network

## DESIGN OF A MOTORWAY USER CHARGE

Commencing in 2019, the proposed Motorway User Charge covers the motorway network and involves charging motorists each time they use the motorway, irrespective of the distance travelled.

The scheme would cover:

- State Highway 1 (SH1) from south of the Ramarama Interchange to Puhoi (extending to Warkworth once constructed). It would replace the existing Northern Gateway toll
- SH16 from the start of the Motorway in Grafton Gully to just south of the roundabout at Brighams Creek Road
- SH18 from SH16 to SH1
- SH20 from SH16 to SH1
- SH20A from SH20 to just north of Kirkbride Road.

We also saw the need to define the parameters of the scheme. In particular:

- time of day (and whether the charge varies during the day)
- days of the week
- types of vehicles (whether different vehicles types are charged different rates)
- any exemptions, rebates, caps or discounts
- level of charge.

Within these parameters we identified various options that could generate sufficient revenue and deliver a level of charge that may be publicly acceptable. We concluded that two charging scenarios with varied pricing options have their own merits and were both worthy of further consideration.

Both options provide some demand management benefits by encouraging motorists to avoid times of heavy congestion. The primary purpose of our work was to identify a scheme that can raise revenue, not manage congestion. A scheme that achieves both clearly has merit.

TABLE 4 - MOTORWAY USER CHARGES PROPOSED FOR ACCOUNT HOLDERS

	WEEKDAYS			WEEKENDS/PUBLIC HOLIDAYS	
	6AM - 7PM	NIGHTS	6AM - 7PM	NIGHTS	
FLAT RATE (per use in 2015\$)	\$2.00	FREE	\$1	FREE	

OR

	WEEKDAYS							WEEKENDS/PUBLIC HOLIDAYS		
	Shoulder 6 - 7 AM	AM peak 7 - 9 AM	Shoulder 9 - 10AM	Inter-peak 10AM - 3 PM	Off peak 3 - 4 PM	PM peak 4 - 6 PM	Shoulder 6 - 8 PM	NIGHTS	6AM - 7PM	NIGHTS
PEAK DEMAND RATE (per use in 2015\$)	\$2.00	\$2.80	\$2.00	\$1.30	\$2.00	\$2.80	\$2.00	FREE	\$1.30	FREE

NB: Compared with cars and motorcycles, heavy commercial vehicles are charged double. The prices shown are the discounted prices charged to account holders, it is proposed that people are encouraged to get accounts which will attract a 15 per cent discount from the casual user charge.

## THE IMPACTS

**Both options, the Flat Rate and Peak Demand Rate, add additional costs to vehicle trips on the motorway except nights. Our analysis shows this has the effect of reducing the amount of car travel, increasing the use of public transport and moving vehicle trips off the motorways and onto other roads.**

One of the impacts of a Motorway User Charge is to shift some vehicle trips from the motorway to the arterial road network. The impact is largest where motorists have realistic options for making trips without using the motorway.

A review of traffic volume changes on arterial roads has been undertaken in order to identify areas that may need upgrading. It is likely that additional capacity will be needed on Triangle Road in Massey, particularly between Waimumu Road and Lincoln Road; on Great South Road in Otahuhu, particularly between Mangere Road and Bairds Road; on Bairds Road Otara between Great South Road and Hellabys Road; and on Great South Road between Takanini and Papakura. Further investigation is needed in some other locations to determine whether traffic can be managed or improvements are needed.

In addition, some planned improvement works are likely to need to be brought forward,

particularly widening State Highway 20B (the Airport Eastern Access) and upgrading Mill Road (linking Papakura and Otara). The reduction in motorway flows might also mean some planned motorway improvements are no longer required. Further work is necessary to fully assess any additional public transport capacity or service improvements needed for the commencement of this pathway.

For some people use of the motorway is their only realistic choice. We considered how we could devise exemptions, rebates or caps, particularly for the most vulnerable low-income households. However, linking an individual or household income to a vehicle number plate would require the introduction of a complex system capable of verifying and maintaining an accurate connection between the two. Such a system would be simple to take advantage of, expensive to implement and operate, and raise privacy concerns. Revenue forgone by

any exemptions, rebates or caps would need to be made up by increasing the charge, potentially causing even greater impact on vulnerable households.

We concluded that no exemptions should be offered so that the impact of the scheme is spread widely and the charge is set as low as possible. Alternatives should be available through improvements to public transport and arterial roads made possible by the revenue raised by the scheme.

We have recommended free use of the motorway at night so that some people may be able to avoid the charge by changing their time of travel. We also recognise that this would encourage use of the motorway at night when the safety benefits of the motorway are needed most and when traffic is least welcome on local roads. For the small number of vulnerable households for which the alternatives are not realistic, consideration should be given to assistance through social welfare policies.

## OPERATING A MOTORWAY USER CHARGE

We have based our evaluation and costing on Automatic Number Plate Recognition (ANPR). Implementation of ANPR requires the placement of cameras at locations that capture every vehicle using the motorway network. The technology is the same as that used on the Northern Gateway and in similar schemes around the world. The cameras will need to be located so they can photograph each vehicle number plate without interference from other vehicles. Provision is also needed for communications equipment so the image of each vehicle can be transmitted for processing, and space is needed for periodic maintenance of the equipment.

The privacy of the personal information gathered must also be protected. We support the retention of information for only as long as is absolutely necessary to receive payment, then the data will be destroyed.

Global Navigation Satellite System/Global Positioning System (GNSS/GPS) technology may well develop over time into the preferred technology but is not considered sufficiently robust, cost effective or practical to be a realistic option in the short term. This technology still requires ANPR for enforcement.

The report we commissioned from Deloitte (see supporting documents) identifies two options for locating cameras – either poles located on each on-ramp or on gantries placed across the motorway. The former requires an estimated 119 sites, for the latter we estimate between 56 and 68 gantries. For the purpose of this project the roadside equipment costs are based on on-ramp installation only. Total roadside equipment is estimated to be approximately \$25.9 million with back-office and other setup costs estimated to be around \$82.8 million.

Total operating costs have been estimated at approximately 24 cents per transaction (2015\$) or 10-12 per cent of revenue once take up of accounts has stabilised. These costs include: maintenance, image processing, customer contact centre, bank fees, marketing, account management, billing and collection.

## HOW WOULD YOU PAY?

We expect that the main customer payment channel will be 'on account', and that web payments and retail payment channels will all also need to be available, at least initially. Once the scheme has been in operation for some time and customers become familiar with its operation, the number of channels could feasibly be reduced.

Customer channels operate in a similar way to the NZTA Northern Gateway operation:

- Post-pay accounts for commercial vehicles, through a monthly billing process.
- Pre-pay for personal users, requiring a positive balance with minimum top-up – possibly aligned with the AT HOP Card (\$5) or Northern Gateway Toll Road (\$10).

Account top-ups would be made as follows:

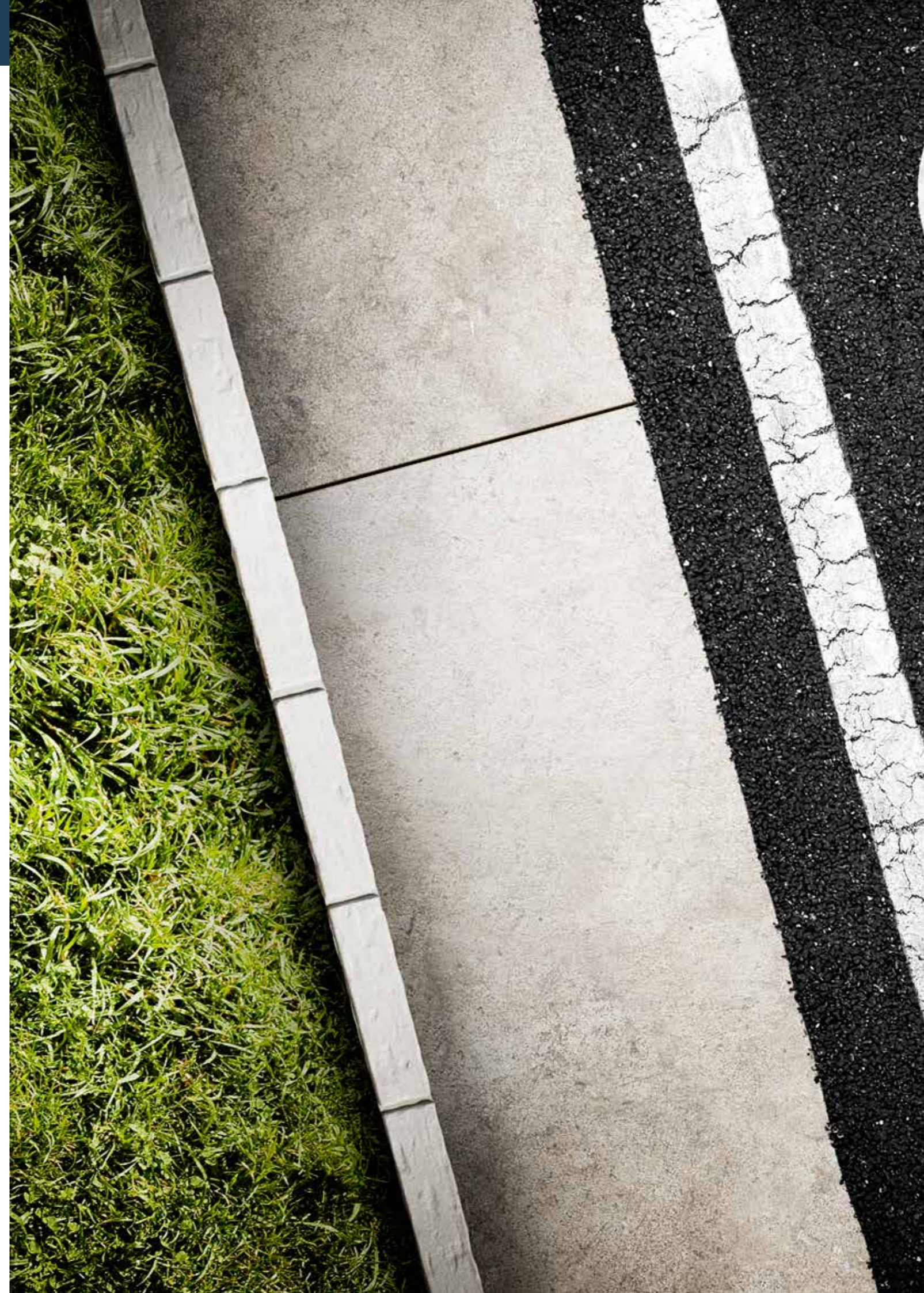
- Over the web, potentially including a smart-phone app.
- Linked to a credit card or bank account through an auto-top up mechanism when the balance falls below a threshold.
- At retail outlets – potentially those also serving the AT HOP card.

- Through the call centre – but subject to an administration fee (proposed to reflect the additional costs of call handling).

Customer accounts cost much less per transaction than other channels. We have worked on Deloitte's assumption that when a scheme becomes operational approximately 20 per cent of users would open accounts, and this would increase to 80 per cent within three years, remaining at that level thereafter. If account use falls below these percentages, the costs of operating the scheme will be higher than we have assumed and revenue will be less. The proposed pricing structure recommended in this report quotes the discounted price.

It is proposed that enforcement follow commercial processes rather than be treated as a traffic or criminal offence. NZTA currently allow Northern Gateway

customers up to five days to pay a toll before outstanding payments are escalated and enforced. It is proposed that enforcement of Motorway User Charge would follow a similar procedure. Alternatively, a procedure modelled on the parking enforcement process could be followed.



# Section 5

## COMPARING THE TWO PATHWAYS

### ABILITY TO RAISE REVENUE

We assessed each pathway for its ability to raise revenue, and for any risks to revenue that might undermine its acceptability. Both pathways generate the required amount of revenue, however they differ in terms of risk. The revenue they raise should be dedicated solely for transport in Auckland.

RATES AND FUEL TAX	MOTORWAY USER CHARGE
Rates provide a predictable form of revenue. Fuel tax revenue is also predictable in the medium term, although less than expected has been received in recent years despite the government increasing the level of PED. In the longer term, the government may need to diversify its revenue sources to contend with vehicle fuel efficiency improvements, hybrids and alternative fuels.	Revenue from a Motorway User Charge will be less certain in the short term. A motorway charging scheme would be new and untested on Auckland roads, and accurately setting the level of charge creates risks. A charge that is too high could suppress demand and revenue, and if too low, any decongestion benefits may not be achieved. Making predictions about how people's travel behaviour will change in response to a charge is difficult as road users can take alternative routes, drive at different times of the day, walk, cycle, ride-share or take public transport, or can choose not to travel. Once people have adjusted to a Motorway User Charge revenue will be reliable.
Presents no technology issues.	The scheme relies on technology essentially the same as that operating successfully on the Northern Gateway and around the world. This technology is well-proven, however, the size of the system does present some IT project risks.
A transport rate could be dedicated for use solely on transport in Auckland, as could a regional fuel tax. However, under the current funding arrangements, an increase in fuel taxes is tagged for transport, but not specifically for the Auckland region. As is presently the case, Auckland Transport, along with all other regional transport agencies, would need to submit funding proposals that met government-set criteria.	Revenue raised through a Motorway User Charge should be applied solely to Auckland's transport. This will give Aucklanders an assurance that the money they are contributing is used for its intended purpose, so they can reap the benefits.

### CONCLUSION

The Rates and Fuel Tax pathway provides a more secure source of revenue, particularly in the short to medium term. Revenue from the Motorway User Charge will be uncertain on introduction but predictable once people's travel behaviour is established. Dedicating the revenue to Auckland transport is easier for the motorway scheme than for fuel taxes.

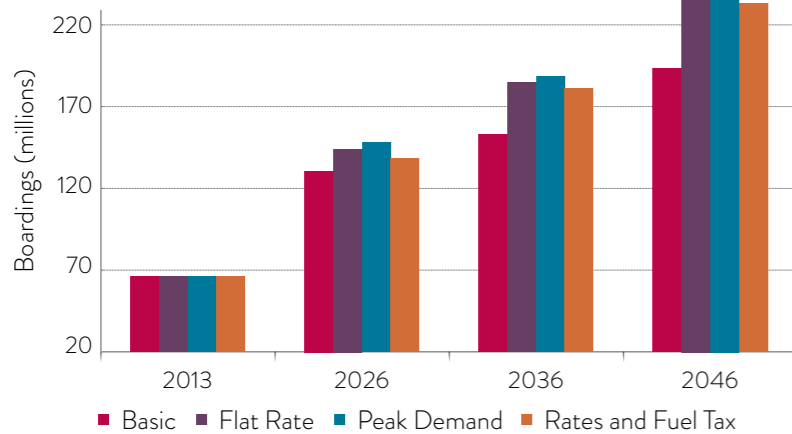
## CONTRIBUTION TO TRANSPORT PRIORITIES

We considered the contribution of the two pathways to the Auckland Plan transport and urban form priorities, and to the Government's strategic transport outcomes. Key indicators in these areas include reducing congestion, shorter travel times

(including for freight), improved access to employment, travel choices including greater use of public transport, improved safety and reduced impacts on the environment. These objectives would be achieved mostly by investment in the transport

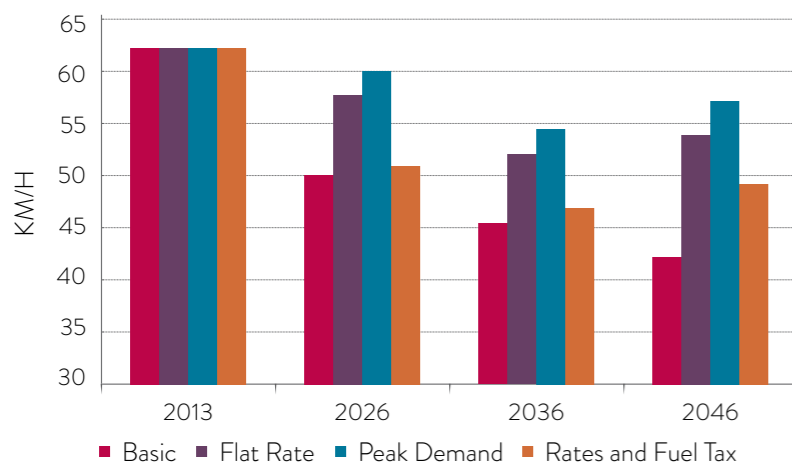
network, but the revenue pathways we considered also have an impact on these indicators. The following graphs show the transport system performance over a selection of indicators.

FIGURE 5 - ANNUAL PASSENGER TRANSPORT BOARDINGS



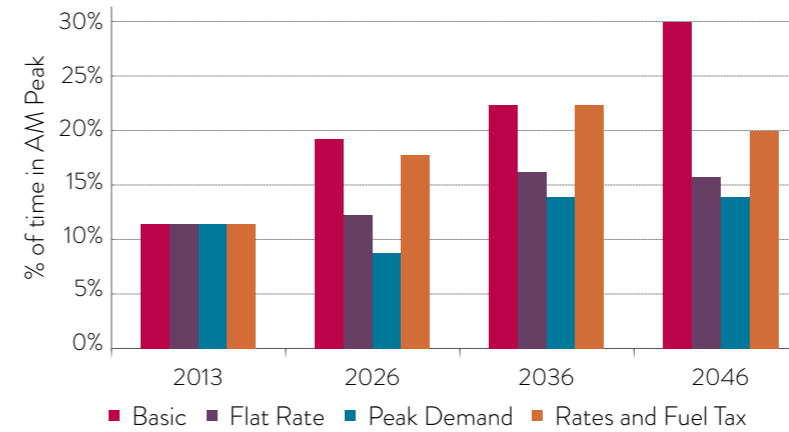
With the Basic Transport Network, annual passenger transport boardings increase from current levels to over 190 million by 2046. The other funding pathways generate over 230 million boardings in the same year. The relative performance of the funding pathways is similar.

FIGURE 6 - AVERAGE AM PEAK SPEED ON THE STRATEGIC FREIGHT NETWORK



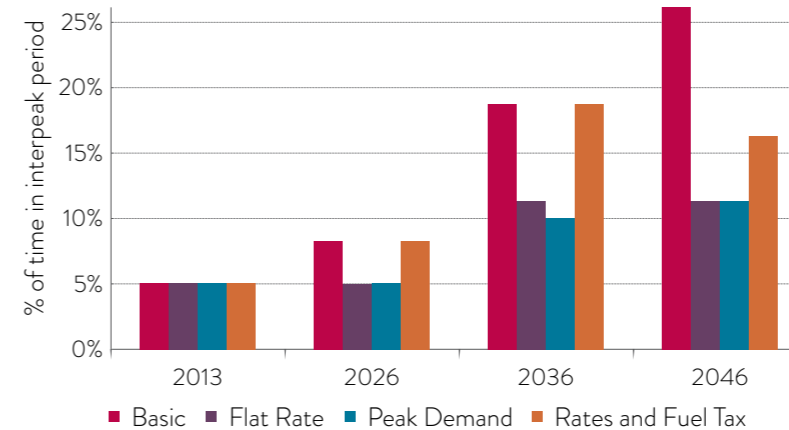
Over the 30-year period average AM peak speeds on the Strategic Freight Network decline from over 60km/h to less than 42km/h with the Basic Transport Network. Average speeds also decline under both funding pathways but are substantially better than the Basic Transport Network. Motorway User Charges maintain average motorway speeds closest to current levels.

FIGURE 7 - PERCENTAGE OF TIME SPENT IN SEVERE CONGESTION ON THE STRATEGIC FREIGHT NETWORK DURING THE AM PEAK



With the Basic Transport Network, over the 30-year period the percentage of time spent in severe congestion on the strategic Freight Network during the am peak increases from 11 per cent to 30 per cent. The Rates and Fuel Tax pathway delivers better performance than the Basic Transport Network but falls well short of performance with a Motorway User Charge. In the short term a Motorway User Charge could improve performance.

FIGURE 8 - PERCENTAGE OF TIME SPENT IN SEVERE CONGESTION ON THE FREIGHT NETWORK DURING THE INTERPEAK PERIOD



With the Basic Transport Network, over the 30-year period congestion during the interpeak period significantly worsens. The Rates and Fuel Tax pathway makes little difference until 2046, this reflects additional motorway widening in the Auckland Plan Transport Network. Motorway

User Charges deliver better performance throughout the period but by 2036 congestion will exceed current levels.

Implementing a Motorway User Charge would divert some traffic off the motorway and on to arterial roads. In most instances

the arterial roads will be able to cope with this additional traffic but improvements to increase capacity on arterial roads will be needed in a limited number of locations. Equally some planned motorway improvements may not be required beyond 2036.

## CONCLUSION

Both pathways deliver a better performance from the transport system than can be achieved with the Basic Transport Network. Most of the benefits arise from the delivery of the Auckland Plan Transport Network, but each pathway also contributes to improved performance. The Motorway User Charge has greater influence on travel behaviour and, as a result, the performance is better under this pathway.

## FAIRNESS

We recognise that introducing either pathway would have wide social and economic impacts in Auckland. The Auckland Plan Transport Network will provide transport and congestion benefits for Auckland, but the costs must be accommodated into business and household budgets.

Households would be required to accommodate new costs within their existing budgets or minimise the charges they incur. Many households would be able to reduce their discretionary spending or their contributions to savings. Our research indicated

some low-income households could accommodate additional costs of approximately \$20 per week, but not much more.

Research showed that for businesses, the benefits of the Auckland Plan Transport Network outweigh the costs that would be imposed on them under either pathway. For transport and transport-dependent businesses, travel time is a significant overhead - time lost in congestion is non-productive and comes at a high cost. As with households, businesses are likely to adjust their behaviour to minimise the

costs and exploit the economic opportunities that may arise. Cost savings through reduced travel time for businesses and their employees outweigh the costs imposed.

The two pathways differ in the way the funding burden is spread, and in the ability of households and businesses to adapt their travel behaviour in response to the increased charges.

In the following analysis costs and benefits are from 2026 but are expressed in today's dollars.

RATES AND FUEL TAX	MOTORWAY USER CHARGE
<p>The burden of Rates and Fuel Tax would be spread across a larger number of households. Therefore, the average cost per household would be lower and the number of severely affected households would be reduced. On the other hand, rates increases do not directly reflect a household's use of the transport system.</p> <p>The average household would pay increased costs of \$348 per year in 2026. Households that change their travel behaviour to avoid paying more in fuel tax may also see changes in the amount of fuel they use, parking fees they incur, or vehicle maintenance. A small proportion of households (0.3 per cent) would face costs that equate to more than 2.5 per cent of their after-tax income. The vast majority of these would be low-income households.</p> <p>Auckland's most vulnerable households would pay 15 per cent of the additional charges. Overall, 1.5 per cent of low-income households would experience a high financial impact. The average low-income household would pay \$251 extra per year in 2026 under this pathway.</p> <p>Superannuitants who have a low annual income, but live in relatively high-value properties, would be affected by this pathway more than a Motorway User Charge, particularly if their travel was minimal.</p>	<p>A Motorway User Charge aligns the burden of costs with use. Motorway users would pay more but would also be the main beneficiaries from travel-time savings. Frequent motorway users account for around 6-8 per cent of Auckland's households, but would contribute around 26-30 per cent of the required additional revenue from a Motorway User Charge.</p> <p>Most households would alter their travel behaviour to minimise the charges they incur. After doing this, the average household would pay motorway charges of approximately \$345-371 per year depending on the type of motorway scheme. Households that change their travel behaviour may make savings on fuel use, parking fees, or vehicle maintenance requirements which will partially offset the cost of motorway charges.</p> <p>Some households will pay significantly more than the average, while others will pay significantly less. Around 2.2-2.5 per cent of households would experience a disproportionate financial impact, but the majority would experience a low financial impact.</p> <p>Auckland's most vulnerable households would pay 11 per cent of the additional charges. Around 3.4-3.9 per cent of low-income households would experience a high financial impact under this pathway, possibly because they do not have a choice about when they travel, how they travel or the route they take.</p> <p>The average low-income household would pay \$140-160 per year under this pathway.</p>
<p>The business sector would contribute 34 per cent of additional charges, facing additional transport costs of \$106 million - or 2.2 per cent of their overall transport costs. New transport costs will be offset by the travel-time savings on the transport network. Under this pathway, businesses will benefit from savings of \$256 million, although these savings are not distributed evenly across all business sectors. The commercial transport sector would save approximately \$9 million.</p>	<p>The business sector would pay 41-46 per cent of additional charges, facing extra transport costs of between \$125 and \$145 million. These account for 2.5-3.0 per cent of their overall transport costs. New costs will be offset by travel-time savings that result from transport improvements and the effect of motorway charges on congestion. Under this pathway, businesses will benefit from savings of \$303 - \$314 million, although these savings are not distributed evenly across all business sectors. The commercial transport sector would save approximately \$11 million.</p>
<p>Under this pathway, households have limited ability to minimise the amount they pay. Even renters are likely to feel the impact if landlords pass new costs on. A small number of people would reduce their car travel in order to reduce their fuel bill.</p>	<p>If a Motorway User Charge was introduced, some households could change their travel patterns to avoid the charge. Many could: make fewer car trips; travel on other roads; use public transport, cycle, walk or ride-share; travel at night time for 'free'; or 'live, work and play' locally. Some households would do this, but at a cost to their convenience or social life. For a variety of reasons, some households will not be able to significantly alter their travel behaviour. Those who pay the Motorway User Charge will benefit from travel-time savings. Frequent motorway users (8 per cent of households) would pay 26 per cent of the additional charges.</p>

## FAIRNESS CONT.

RATES AND FUEL TAX	MOTORWAY USER CHARGE
Additional use of public transport services provides some alternative to paying fuel taxes.	Additional use of public transport services and increased use of arterial roads would provide alternatives to paying a Motorway User Charge.
The impacts of this pathway are spread evenly across households in different parts of Auckland.	<p>The impacts of motorway charging are likely to be more concentrated in areas that are close to the motorway or where the motorway is the dominant option for accessing other parts of Auckland.</p> <p>Firms located in Auckland's industrial areas may experience a larger effect - they tend to have good motorway access (a key consideration affecting business location decisions) and may be more frequently exposed to motorway charges. These firms will be better off from a Motorway User Charge, with benefits exceeding their additional direct costs.</p>
The only workable exemption available for Rates and Fuel Tax is through social welfare policies.	<p>One option to reduce the impact would be to introduce exemptions. However, introducing exemptions raises many issues, not the least of which is administrative costs. Implementing daily charges without exemptions would make motorway charges more affordable for the greatest number of households. It also reduces the total number of low-income households severely affected.</p> <p>Discounts for account holders could provide financial relief for a large number of users. We have included a 15 per cent discount for account holders, the cost of which would be met by the operational savings associated with paying on account.</p>
<p>Some tolls on new roads could be included under the Rates and Fuel Tax pathway. Implementing tolls on only some new roads treats some road users unfairly. For example, those that use a new Waitemata Harbour Crossing would pay higher rates and fuel taxes and a toll for using that piece of road. Other users would have the roads they use fully funded from what they pay in rates and fuel tax.</p> <p>The concept of a 'free alternative' does not apply to Rates and Fuel Tax as you cannot avoid the charge.</p>	Under a Motorway User Charge there would be a free alternative to avoid paying the charge, although an alternative to the Harbour Bridge is not practical.

## CONCLUSION

The most effective way to mitigate against the severity of either pathway is to keep new charges low and affordable. Keeping implementation and operating costs down, spreading the cost to all motorway users, and providing households and businesses with convenient and high-quality transport alternatives will assist those affected.

The Rates and Fuel Tax pathway spreads the cost broadly across households and businesses, which helps to minimise the cost per household and the overall number of households (including low-income households) severely affected. The Motorway User Charge better matches those who pay with those who benefit.

We have chosen not to include exemptions for low-income households in either pathway. Exemptions for severely affected households would be costly to implement and administer. It would also increase the impact of new charges on everyone else. Most importantly, we struggled to identify a simple means of targeting relief at Auckland's most vulnerable households. Every exemption scheme we explored provided significant benefits to untargeted households and required higher average charges.

There are some broad measures that could increase the ability of low-income, vulnerable households to pay, such as: an increase to the minimum wage; supplements to 'Working for Families' or the New Zealand Superannuation Scheme. They would require a full assessment of the wider national policy implications. The higher the government contributions the less overall revenue required from either one of the two pathways.



## COST AND COMPLEXITY

We considered the cost and complexity of both pathways to determine their suitability. Rates and Fuel Tax is an extension of existing legislation, organisational responsibilities and revenue collection methods. It has low cost and complexity. By contrast a Motorway User Charge would require implementation costs with associated levels of risk.

### CONCLUSION

The Rates and Fuel Tax pathway has few implementation costs. By contrast, the Motorway User Charge has high capital and ongoing operating costs (and places an added administrative burden on road users), for which there are compensating benefits.

RATES AND FUEL TAX	MOTORWAY USER CHARGE
New legislation not required unless moving to a regional fuel tax. The existing tools could also be managed by those agencies with existing responsibilities (Auckland Council and NZTA).	New legislation is required which could lead to delays in implementation. The Land Transport Management Act 2003 provides for tolling on new roads, but only allows tolling on existing roads where they are physically or operationally integral to the new road. New legislation can take time to pass through Parliament and places a limit on how early a Motorway User Charge could be introduced. There is also a provision within the Local Government Act 1974 under which the Minister may “authorise a council to establish, by using the special consultative procedure, toll gates and collect tolls at any bridge, tunnel, or ferry within the district or under control of the council.”
Additional administration costs would be low. An increase in rates would not materially affect collection costs. Any increase in fuel tax, or even the introduction of a new regional fuel tax, would not create significant additional costs. However a regional road user charge scheme would be complex.	Capital and set-up costs are estimated at around \$110 million. Ongoing operating costs are estimated at around 10-12 per cent of revenue by 2022.
Increases to rates and fuel taxes would be relatively simple to implement.	A Motorway User Charge would be complex to introduce. Accurately predicting the traffic impact (both on the motorway and any diversion to local roads), administering technology and operations, and communicating the scheme to Aucklanders are all significant issues.

## ECONOMIC IMPACTS

We undertook a high level economic evaluation based on the NZTA Economic Evaluation Manual methodology. We compared the economic performance of the Basic Transport Network with the performance of the Auckland Plan Transport Network funded by either pathway.

The Auckland Plan Transport Network (funded by either pathway) provides strong economic benefits compared to the Basic Transport Network. With benefit cost ratios of 1.2 there is a sound economic justification for the higher level of investment. Both pathways provide broad productivity benefits to Auckland and New Zealand.


There are significant benefits from the Auckland Plan Transport Network improvements. There are also benefits that arise from introducing either of the funding pathways. We have explored both types of benefits.

RATES AND FUEL TAX	MOTORWAY USER CHARGE
The Rates and Fuel Tax pathway is a low-cost option and generates modest additional benefits. This is because higher fuel prices encourage some travellers to change their travel choices. The Rates and Fuel Tax pathway is a very cost-effective way of collecting additional revenue because of its low implementation cost. However, the Rates and Fuel Tax pathway delivers less than one-third of the total benefits that can be achieved with a Motorway User Charge (net present value of benefits of \$510 million compared to \$1.6 billion).	Motorway User Charges are more expensive to implement than the Rates and Fuel Tax pathway. The Motorway User Charge generates significantly higher economic benefits, reflecting the effect of direct charging on people’s travel choices. It generates benefits valued at around \$1.6 billion – more than three times the total benefits achieved from the Rates and Fuel Tax pathway. With a benefit cost ratio of 1.9, implementing Motorway User Charge is a worthwhile investment and would provide net welfare benefits (additional costs less additional benefits) of almost \$750 million compared to \$490 million for the Rates and Fuel Tax pathway.

### CONCLUSION

Both funding pathways provide benefits because they impact on people’s travel choices. The economic evaluation is consistent with the transport assessment that a Motorway User Charge will deliver significantly higher benefits than the Rates and Fuel Tax pathway because it has a greater impact on travel choices.

Motorway User Charges are more expensive to implement and operate than Rates and Fuel Tax, but the extra costs are more than offset by extra benefits. Motorway User Charges deliver more than three times the total economic benefits that can be achieved with the Rates and Fuel Tax pathway.



# Section 6

## KEY FINDINGS

The Auckland Plan Transport Network provides strong economic benefits compared to the Basic Transport Network. With benefits exceeding costs there is a sound economic justification for the higher level of investment. A higher level of investment is required to address current issues and respond to future growth. Our analysis indicates that even with increased funding maintaining the current performance of the transport system is unlikely.

**If Aucklanders commit to a higher level of transport investment, and we believe they should, this document presents two achievable pathways. Each is capable of providing the \$300 million per annum required to deliver measurable improvements to our transport system.**

The Rates and Fuel Tax pathway is simpler to introduce, it can be achieved at low cost with little or no legislative change required and it spreads the financial burden broadly across Aucklanders. The revenue it raises is predictable, at least in the short term, and it provides small but useful benefits to the transport system.

A Motorway User Charge is more complex to introduce, expensive to implement and requires legislative change. However, it delivers a comparatively better transport system and aligns the costs with those who use it, and delivers them the benefits in return.

Under either pathway, a small number of Auckland's most vulnerable households would face greater financial hardship. The most effective ways to mitigate against the severity of either pathway are to keep new charges low and affordable and to ensure provision of reliable, safe and cost-effective alternatives.

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**It is our collective view that Rates and Fuel Tax is the more regressive approach, albeit simpler. On the other hand, a Motorway User Charge provides a long-term funding solution and has secondary benefits as a demand management tool, although it is significantly more complex and costly to implement. The primary purpose of our work was to identify two schemes that can raise sufficient revenue, not manage demand. A scheme that achieves both clearly has merit.**

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Appendix

# GLOSSARY AND SUPPORTING DOCUMENTS

<b>Active modes</b>	Cycling and walking.
<b>Arterial road network</b>	Roads which are not motorways or expressways, but link districts or urban areas, connect key facilities, and play a critical role in the movement of people and goods within the region.
<b>Auckland Plan Transport Network</b>	A 30-year proposal for improvements to Auckland's transport system only achievable if the \$12 billion funding gap is filled.
<b>Automatic Number Plate Recognition (ANPR)</b>	A camera-based technology used to record vehicle registration plates as vehicles pass a charging point on a road.
<b>Basic Transport Network</b>	A 30-year proposal for improvements to Auckland's transport system if no alternative transport funding is found.
<b>Cents per Litre (CPL)</b>	A unit of measurement showing the unit cost of fuel tax for every litre of petrol purchased.
<b>City Rail Link (CRL)</b>	An underground rail line linking Britomart and the city centre with the existing Western Line near Mount Eden.
<b>Consensus Building Group (CBG)</b>	An independent group of stakeholders asked by Auckland Council in July 2012 to build a broad consensus on the funding sources needed to improve Auckland's transport system.
<b>Development contributions</b>	Fees charged by the council on development projects, then used to fund the public infrastructure required to meet additional demand created.
<b>Fuel tax (includes PED and RUC)</b>	A tax (calculated as 'cents per litre') on the price of petrol and diesel.
<b>Draft Government Policy Statement (GPS)</b>	The engagement draft of the GPS on Land Transport 2015/16-2024/25
<b>Independent Advisory Body (IAB)</b>	An independent group of stakeholders brought together by Auckland Council in April 2014 to consider the impacts of two alternative transport funding pathways for Auckland, and to provide robust, evidence-based advice on which funding pathways to consult on in the Auckland Council draft Long-term Plan 2015-2025.
<b>Motorway User Charge</b>	A type of road charging scheme. During the hours that the scheme is in operation, motorway users would be charged each time they use the motorway, this could vary by time of day and day of the week.
<b>National Land Transport Fund (NLTF)</b>	The dedicated national fund for transport administered by the New Zealand Transport Agency.
<b>New Zealand Transport Agency (NZTA)</b>	The crown entity responsible for the operation of the State Highway network and the allocation of the NLTF.
<b>Passenger Transport (PT)</b>	Public transport, including rail, bus and ferry infrastructure and services.
<b>Petrol excise duty (PED)</b>	A wholesale levy on all petrol sales that forms a component of the retail price for petrol paid at the pump by motorists.
<b>Rates</b>	A type of property tax levied on property owners and used to fund local government.
<b>Road Charging (also 'congestion charging' and 'road pricing')</b>	The practice of charging motorists for using congested roads that can vary by day, time or location.
<b>Road User Charges (RUC)</b>	A charge paid by owners of vehicles that are not powered by petrol (for example diesel and electric vehicles), or that exceed 3.5 tonnes. RUC is paid instead of PED.
<b>Strategic Freight Network</b>	The motorway and a small number of key regional arterial roads (such as Neilson Street, the South Eastern Arterial and Highbrook Drive) that together accommodate the majority of freight traffic, and are important for the productivity of the economy.
<b>Targeted rates</b>	A rate levy on some (but not all) property owners to fund a specific activity or group of activities provided by a council. A targeted rate may or may not be geographically targeted.
<b>Transport Rate</b>	A property rate dedicated for transport purposes.
<b>Tolls</b>	A charge on motorists who cross a fixed point along a roadway, and which is used to help fund that particular road or stretch of road.
<b>Uniform Annual General Charge (UAGC)</b>	A fixed council charge applied to each separately used or inhabited part of a property, such as a shop that has a flat above, or a granny flat.

The following supporting documents are available online.  
Visit [www.shapeauckland.co.nz/longtermplan](http://www.shapeauckland.co.nz/longtermplan) for more information.

Analysis of the impacts of alternative funding mechanisms on Auckland businesses  
**MARKET ECONOMICS LTD**

Analysis of the affordability and social impacts of alternative funding mechanisms on Auckland households  
**MARKET ECONOMICS LTD**

Road Charging Options Study: Scheme Design and Costing

- Review of the Operational and Business Requirements of a Road Charging Scheme
- Vehicle Detection and Identification Technology
- Revenue Collection, Enforcement and Customer Channels

**DELOITTE**

Road Charging Options Study: Cost and Revenue Report  
**DELOITTE**

Economic Impact of Funding Pathways  
**ASCARI PARTNERS**

Evaluation of Three Funding Pathways  
**PROJECT TEAM**

Detailed assessment of Motorway User Charge Scheme  
**PROJECT TEAM**

Detailed assessment of the Rates and Fuel Tax scheme  
**PROJECT TEAM**

Estimating the funding gap  
**PROJECT TEAM**



# **THE ALTERNATIVE TRANSPORT FUNDING PROJECT**

For more information visit:  
[shapeauckland.co.nz/longtermplan](http://shapeauckland.co.nz/longtermplan)

**29 OCTOBER 2014**

