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Consultation draft

Auckland Regional Land Transport Strategy 2010-2040

OUR REGION, OUR FUTURE

Auckland Regional Council
TE RAUHĪTANGA TAIAO

RTC membership

The draft Auckland Regional Land Transport Strategy reflects the work of the 2008-2009 Auckland Regional Transport Committee, which is a standing committee of the Auckland Regional Council. The 2009 Regional Transport Committee consists of the following representatives:

Cr Christine Rose (ARC Chair), Cr Michael Barnett (ARC -Deputy Chair), Cr Ken Baguley (Auckland CC), Dr Denise Barnfather (Public Health), Mayor Len Brown (MCC), Cr Joel Cayford (ARC), Cr Caroline Conroy (PDC), Cr Linda Cooper (WCC), Cr Chris Darby (NSCC), Mr Tony Garnier (Economic Development), Cr Dianne Glenn (ARC), Supt John Kelly (Safety & Personal), Ms Pauline Kingi (Cultural Interests), Mr Simon Lambourne (Access & Mobility), Cr Michael Lee (ARC), Mr Wayne McDonald (NZTA), Cr Jill Morris (FDC), Mr Chris Orr (Access and Mobility), Ms Kathleen Ryan (Environmental Sustainability), Mr Simon Tapper (Economic Development), Cr Paul Walbran (ARC), Mayor Penny Webster (RDC) and Mr Bevan Woodward (Access & Mobility).

Observers:

Mr Stephen Collett (OnTrack) and Mr Fergus Gammie (ARTA)

Alternates:

Cr Felicity Auva'a (PDC), Cr Derek Battersby (WCC), Cr Clive Carter (ARC), Cr David Collings (MCC), Cr John Kirikiri (RDC), Cr Ken McKay (NSCC), Cr Brent Morrissey (ARC), Cr John Lister (ACC), Cr Christine Rankin (ARC), Cr John Rennie (FDC) and Cr Jan Sinclair (ARC).

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Foreword

The opening of Britomart in 2003 marked a turning point in the revival of public transport in Auckland. It set a new standard in quality public transport infrastructure which was followed by the opening of the North Shore Busway in 2008 and rail station refurbishment across the network.

The 2005 Regional Land Transport Strategy supported this vision of a modernized public transport system, led by investment in trains, buses and ferries. Significant progress has been made in the past five years to deliver an integrated, safe, affordable, responsive and sustainable land transport system that supports Auckland's role in the national economy and aspiring to international best practice.

This 2010 strategy sets the direction for the region's transport system for the next 30 years. It builds on the momentum already generated and continues to support renewed investment in public transport. Massive patronage growth vindicates the region's investment in public transport, and leads to economic development, increased productivity, jobs created and urban form improvements. Constructing an underground rail link through the CBD will mean more than 200,000 people living and working within 30 minutes travel of the CBD. It will transform Britomart from a terminal into a through station, with benefits for the whole region, enabling a higher frequency of trains, faster journeys from the west, and a rail link to the airport.

There will inevitably be scepticism over perceptions that this is a 'green' transport strategy because it places increasing importance on developing public transport and anticipating and responding to sustainability challenges such as 'peak oil' and climate change, despite the Government's priority of developing national roads. Roads have their place in any transport system as do trains, ferries and buses particularly in urban areas. A balanced investment is needed to ensure Auckland and Aucklanders are able to achieve their full economic and social potential with minimised environmental costs.

A balanced investment includes effective integration of transport, with the development of a more compact and high quality urban form, supporting people to move away from dependence on cars and reducing the impact the transport network has on the environment. Transport produces 18 per cent of national carbon dioxide emissions, of which Auckland contributes 85 per cent.

By 2051, around 2.3 million people will be living in the region, almost double the present population. Given that transport issues already impact on the movement and health of Auckland's 1.3 million people it is imperative that this strategy not only identify what is needed to enable our land transport system to cope with this growth but also to endure, and support the changing economic environment for the greater good.

Road and public transport users benefit from bus, rail, ferry and walking and cycling improvements. The region's roads become less congested, particularly important for moving freight. With the urban motorway system almost complete we can now focus on improving the operation of arterial roads, literally the arteries of local and international trade.

I thank all those involved in creating this strategy. Dedication, vision and the willingness to respond to what Auckland needs are defining qualities. The Regional Transport Committee continues to welcome comments and feedback from the public and stakeholders on the direction and priorities contained in this strategy, before it is formally published in April 2010.

Cr Christine Rose

Chair: Regional Transport Committee

Auckland Regional Council

Executive Summary

This Auckland Regional Land Transport Strategy (RLTS) sets the direction for the region's transport system for the next 30 years. The strategy identifies the actions, policies and funding needed to achieve a land transport system that enhances the Auckland region as a great place to live, work and play.

By 2051, the region's population will almost double, to around 2.3 million people. Continuing our current travel habits would result in an extra 1.25 million trips being made by car and an extra 60,000 trips by public transport each day, by 2040.

We can't build twice the road capacity to meet double the demand for car travel. Just 4.5 km of new road required to complete the Western Ring Route at Waterview is costing $1.4 billion. There are a number of other reasons to reduce our reliance on cars including reducing greenhouse gas emissions.

Transport has a major influence on urban form. It is vitally important that our transport system is integrated into and supports the Regional Growth Strategy towards compact, contained, mixed land use focused on centres and corridors. There are benefits to containing urban sprawl, making sure there are sensible travel choices and providing information to reduce our reliance on a car-based society and economy. It makes more effective use of the public transport services and roads we already have, moves freight in and between regions more efficiently, reduces our environmental impact by making walking and cycling attractive for more trips, and allows us to spend our limited resources on infrastructure projects that have maximum benefit for the costs incurred.

Why we need a new strategy

The previous RLTS was published in 2005 and, in line with the law at the time, had a ten-year planning horizon. The strategy called for a substantial increase in spending on public transport, completion of key elements of the strategic road network and a new emphasis on energy efficient alternatives to car travel, such as cycling and walking.

The legislation has now changed, and this next-generation strategy has a 30-year planning horizon, building on the substantial successes of the past five years of action. It responds to changes in Government policy that bring a renewed emphasis on economic growth and productivity. The strategy also addresses changes at the national and regional level to guide transport and address growing global concerns about the contribution the transport sector makes to climate change and the unreliability of fossil fuel supplies.

Under the Land Transport Management Act 2003 the new RLTS is required no later than April 2010.

Strategic vision and objectives

Since first RLTS was created in 1993 the ARC and local councils have consulted regularly with the community to create a shared vision for a city we can all be proud of.

Collectively, we envisioned a transport system that:

- enables people and goods to move when necessary,
- supports vibrant town centres and streets as community places,
- provides integrated, safe and effective modes of travel,
- gives people choices that enable them to participate in society,
- protects and enhances human health and the environment, and
- uses resources efficiently.

From this vision, seven strategic objectives have been developed:

- assisting economic development,
- assisting safety and personal security,
- improving access and mobility,
- protecting and promoting public health,
- ensuring environmental sustainability,
- achieving economic efficiency
- supporting the Auckland Regional Growth Strategy.

The first five align directly with legislation used to prepare this strategy. The last two have been identified as being important to Auckland and are continued from the RLTS 2005.

The Strategy

The RLTS 2010 has six strategic priorities.

- continuing to improve public transport,
- integrating transport and land use to support a compact and contained urban form,
- changing travel behaviours,
- improving the operation of existing roads,
- building limited additional roads and
- reducing the impact of travel on the environment and communities.

There are a number of potential approaches to achieving these strategic priorities. Four 'Initial Strategic Options' have been prepared to compare and contrast various ways the transport system may develop and identify the optimum combination of approaches. These options were tested and evaluated against desired outcomes to arrive at a Preferred Strategic Option.

The Preferred Strategic Option

The Preferred Strategic Option is a public transport led approach, where public transport services and infrastructure are provided ahead of demand in order to encourage greater public transport use. The focus of investment shifts from state highway construction into public transport improvements, behaviour change, walking and cycling and local roads.

The Preferred Strategic Option supports the planned intensification of development in growth centres which will be well served by public transport. Developments in new growth areas can proceed on the basis that bus services will be in place as the development is taken up. The Auckland region would be better placed to cope with oil price volatility and support reductions in transport related carbon dioxide emissions.

Main components of the Preferred Strategic Option are:

- Improve the RTS and QTN networks by:
  - electrifying the rail network,
  - constructing the CBD rail link,
  - constructing a rail loop to Auckland Airport,
  - extending the Northern Busway to Orewa,
  - developing the Panmure-Botany-Manukau bus connection,
  - developing the Henderson-Westgate-Albany bus connection.
- Integrated transport ticketing and fares.
- Higher frequency of services on the RTN and QTN.
- Continuing growth in behaviour change initiatives.
- Improve the road network by:
  - completing the Western Ring Route,
  - constructing the Auckland Manukau Eastern Transport Initiative,
  - improve airport road access.
- Widespread arterial road improvements on public transport and the Regional Strategic Freight Network.

Other important elements include:

- walking and cycling infrastructure improvements including completion of the regional cycle network;
- improved linkages to Northland, Waikato and the Bay of Plenty; and
- road safety and rural transport improvements.

The Preferred Strategic Option includes providing limited user-pays parking in town centres across the region, including short-term parking for commercial purposes. Charging for road use was considered, and is potentially useful, but was rejected until more realistic, equitable transport options are available.

Choosing the right model

Chapter Four outlines the four initial strategic options that were tested to compare different approaches to delivering the strategy.

Strategic Option 1: Demand management – involves "pushing" people away from motor vehicle use, particularly through greater use of public transport, walking and cycling by the use of tools such as road pricing and parking management.

Strategic Option 2: Mixed investment – involves continuing the current strategy of improvement in all modes, with some shift away from road investment. It is the "business as usual" option.

Strategic Option 3: Public transport led change – involves "pulling" people away from cars with major additional public transport service and infrastructure improvements, supported by walking and cycling improvements.

Strategic Option 4: Quantum shift - involves a combination of the push factors from Option 1 and the pull factors from Option 3 (extensive public transport), together with a greater focus on intensifying land use around the Rapid Transport Network than was assumed in Options 1-3.

Although all four models met the New Zealand Transport Strategy's targets for walking and cycling, none could deliver on the targets for increasing use of public transport and reducing greenhouse gas emissions. Nor did any option improve speed of travel by general traffic across the region.

Funding the Preferred Strategic Option

The principal sources of funding for transport are the New Zealand Transport Agency, local government and KiwiRail. While the level of funding available beyond the next ten years cannot be confidently predicted, it is estimated that over the 30-year period of this strategy, a range of $33b to $47b will be available. The cost of implementing the Preferred Strategic Option is estimated at $46b.

The National Land Transport Programme (NLTP) allocates 53 per cent of the transport budget over the next three years to state highway infrastructure and only 19 per cent to public transport. If a similar allocation were to be made over the 30-year life of the strategy, a significant shortfall in the funds required for Auckland region's priority projects would result.

This draft RLTS strategy advocates to the Government for a change in funding arrangements to ensure funds are available to implement the Preferred Strategic Option. An analysis of high cost projects will be undertaken to ensure they offer value for money. Investigations will also be made into alternative sources of funding, including developer contributions and public/private partnerships.

Implementing the strategy

Chapter five of this draft RLTS proposes 13 policies that align with the policy documents listed below and refer to a number of other relevant documents. The first six policies focus on what needs to be done to the transport system to implement the Preferred Strategic Option. These are further broken down into three travel demand initiatives policies and three policies on supplying additional capacity to the network. The remaining seven policies describes how those things should happen.

This chapter also identifies organisations responsible for, and those that co-operate to give effect to the strategy.

How this strategy fits with government and regional policies

A number of regional and national policy documents were essential to the drafting of this strategy:

- Land Transport Management Act (2008)
- Auckland Regional Growth Strategy,
- Auckland Regional Policy Statement,
- Auckland Sustainability Framework (2007),
- Government Policy Statement on Land Transport Funding May 2009,
- New Zealand Transport Strategy 2008, and
- New Zealand Energy Efficiency and Conservation Strategy (2007).

Consultation

The consultation period for this draft RLTS is 2 November - 18 December for submissions, with public hearings early in 2010. The final 2010 RLTS will be published in April 2010.

Introduction

1.1 Purpose

The Auckland Regional Land Transport Strategy (RLTS) sets the direction for the region's transport system for the next 30 years. The RLTS identifies what is needed to achieve an affordable, integrated, safe, responsive, and sustainable land transport system that can cope with population growth and the changing economic environment. It does this by setting regional objectives and policies. The RLTS is a statutory document prepared under the Land Transport Management Act 2003 (LTMA).

1.2 External changes since the 2005 RLTS

The RLTS is a statutory document prepared by the Auckland Regional Council under the Land Transport Management Act 2003 (LTMA). Amendments to the LTMA introduced in August 2008 require the RLTS to cover a period of 30 years instead of 10 years and introduced a number of new requirements.

Other legislative and policy changes have occured in the past few years at national, regional and local levels and were considered in developing this RLTS 2010. These documents are thoroughly reviewed in Appendix A and summarised here:

This RLTS 2010 was developed by considering the following:

- The New Zealand Transport Strategy 2008 sets ambitious national transport targets to which the Auckland region is expected to contribute.
- The May 2009 Government Policy Statement (GPS) on transport funding signals a change in focus in the short to medium term on prioritising national economic growth and productivity. The GPS acknowledges the importance of land use/transport integration, supporting planning for future growth and safeguarding future transport corridors, supporting the need for transport choices in times of volatile oil prices and recognising the need for modal shift in Auckland and other major centres.
- The Auckland Sustainability Framework sets out eight goals and eight shifts to achieve an Auckland region that is an interconnected community, celebrating knowledge, diversity and opportunity. Working within the ecological limits of the region, the framework will nurture social and economic prosperity creating a region that will be enjoyed forever.
- Auckland is the nation's largest and fastest growing region. Between 2001 and 2006 the population increased by about 144,000. This made up half of all the population growth in New Zealand during that time. Current projections estimate that Auckland's population will increase from 1.3 million people to 2.3 million by 2051.
- That a transport system needs to be affordable for all users. A key component of affordability is the need for all investments in transport to be cost-effective and represent value for money.
- An important determinant of Auckland's future economic development is reduced dependence on oil based transport fuels and an increase in public transport, active mode infrastructure and services.

- Combustion of fossil fuels by the transport sector produces carbon dioxide, a major greenhouse gas contributor to global climate change. In the Auckland region, climate change will result in increases in temperature, changes in rainfall patterns, and increases in extreme events.

1.3 Document structure

The following outlines the structure of the 2010 Auckland Regional Land Transport Strategy:

Chapter 1 Introduction

This chapter gives an overview of what the RLTS is, what's in the document, why it is needed to be revised and who is involved in delivering the strategy.

Chapter 2 Vision

This chapter provides an overview of the vision, objectives, and outcomes, including inter-regional and intra-regional transport outcomes. The chapter also introduces targets to assess the transport network.

Chapter 3 Challenges

This chapter provides a summary of the issues and challenges that need to be addressed in the region and an expanded discussion of regional and New Zealand Transport Strategy targets.

Chapter 4 The Strategy

This chapter describes the strategic priorities, the process followed to develop the strategic transport options, how the options were evaluated, the resulting preferred strategic option (as a lead in to the next Chapter) and the funding implications of the preferred option.

Chapter 5: Policies

This chapter contains a hierarchy of policies to guide and identify the organisations in the region that are responsible for delivering activities in the strategy. The first six policies identify what needs to be done to the transport system to make the preferred strategic option a reality, both short and longer term. These are aimed at land use, economic measures, behaviour change, improving choice, network operations and new capacity. The last seven describe how those things should happen.

This chapter includes maps and descriptions of the priority transport projects for the region.

Chapter 6 Risks, Monitoring, and Review

This chapter sets out the risks of implementing the strategy, outlines how these risks will be monitored and describes how monitoring of the strategy implementation will inform future reviews of the RLTS.

1.4 RLTS related legislation

There are a number of national and regional policies or strategies under which this strategy has been prepared. The following section summarises the major legislative requirements.

Land Transport Management Act 2003 (LTMA)

In August 2008 a major amendment to the LTMA was passed providing new guidance for Auckland in the development of the RLTS.

This RLTS must contribute to the aim of achieving an affordable, integrated, safe, responsive and sustainable land transport system. Details of all the Auckland RLTS requirements are described in WP1 Legislative requirements.

The RLTS must be consistent with regional Resource Management Act plans and take into account a number of other documents. The RLTS has been assessed against these and a variety of other documents. It is considered that the RLTS meets these requirements. This assessment has been detailed in Working Paper 12[1], Working Paper 7[2] and summarised in Appendix B.[3]

The LTMA requires the RLTS to contain a statement by an independent process auditor. This is included in Appendix C.

Changes to Auckland Governance Structure

New legislation, the Local Government (Tamaki Makaurau Reorganisation) Act 2009 (LGTMR) has established a unitary authority for the Auckland region. The Auckland Council is to begin operating from 1 November 2010. All existing local authorities in the Auckland region will be dissolved at this date. The Auckland Transition Agency (ATA) has a mandate to proceed with the programme of creating the Auckland Council.

The new Auckland Council may wish to review this RLTS but until the new Auckland governance structure is established, this document fulfils the Auckland region's requirement under the LTMA to prepare and approve a regional land transport strategy by April 2010.

1.5 RLTS partners

The development of the RLTS has relied heavily on input from national, regional and local partners. The ARC has implemented a multi-phased approach for gathering feedback. Early drafts of the RLTS were prepared with assistance from local authorities. In late 2008 initial consultation, including workshops and meetings with over 300 individuals[4] or organisations occurred in late 2008.

Central Government

At a national level, the legal, institutional and policy framework for all modes of transport is under the jurisdiction of the Minister of Transport, supported by policy advice from the Ministry of Transport. Other organisations with transport responsibilities are:

- New Zealand Transport Agency – a Crown entity established on 1 August 2008, under the amended Land Transport Management Act 2003, bringing together the functions of Land Transport New Zealand and Transit New Zealand to provide an integrated approach to transport planning, funding and delivery. The Agency is responsible for:
  - land transport planning,
  - managing the state highway system,
  - regulating access to, and participation in, the land transport network,
  - promotion of land transport safety and sustainability,
  - allocation of government funding for land transport.
- Maritime Safety Authority (MSA) and Civil Aviation Authority (CAA) – establish standards and monitors adherence to those standards in the maritime and aviation sectors respectively.

1 Assessment of LTMA Clause 3 and 4 (RLTS 2010).
2 Assessment of compliance with clauses 3 and 4 of the LTMA (RLTS 2005).
3 The RTC has recorded compliance with clause 3 and 4 of the LTMA in the monthly RLTS progress report checklist during the development of the draft RLTS.
4 The RLTS stakeholder database has over 300 records of individuals and organisations who were given the opportunity to provide early feedback.

- KiwiRail/ONTRACK –owns and is responsible for operation, maintenance and development of the rail network.
- Transport Accident Investigation Commission (TAIC) – investigates and reports on rail, marine and aviation incidents.
- NZ Police – core business includes road safety and enforcement.

Regional Government

At the regional and local level a number of organisations have transport responsibilities including:

- Auckland Regional Council (ARC) – responsible for physical and environmental planning. The ARC group consists of the ARC and its subsidiary organisations Auckland Regional Holdings and the Auckland Regional Transport Authority.
- Auckland Regional Transport Authority (ARTA) – responsible for planning, funding and developing the Auckland regional land transport system. ARTA must give effect to the RLTS and prepare the Auckland Land Transport Programme and the Regional Public Transport Plan.
- Auckland Regional Holdings (ARH) – responsible for managing assets and investments on behalf of the ARC, primarily those transferred from Infrastructure Auckland (now disestablished).
- Territorial authorities (TA's) – local councils are responsible for planning transport investment and regular maintenance at a local level, and developing and implementing district plans that shape local development. TA's are also road controlling authorities responsible for implementing the RLTS at the local level.
- See Appendix D for a full Acknowledgement list.

The Regional Land Transport Strategy is a part of a suite of regional strategies and policy documents that have all been considered during the review of this strategy. These are described in Appendix A Strategies and Policies considered for ARLTS 2010.

In order to support the robust analysis of the issues and future needs of the Auckland transport network, a number of working papers were developed with the support of numerous working groups consisting of local, regional and national representatives. Please see Appendix E for a list of working papers developed in support of the this RLTS.

Park and Ride Albany

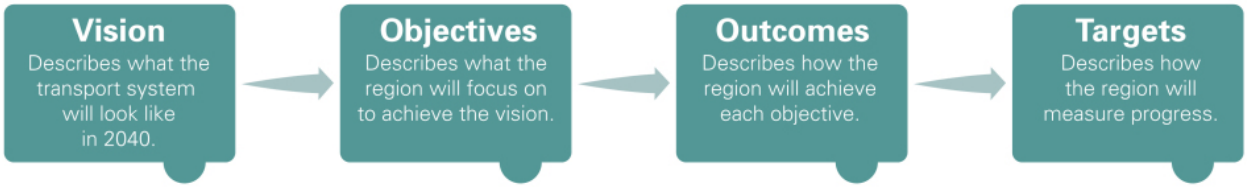
Vision

Introduction

The region's transport network vision, objectives, outcomes and targets are described in this chapter. They are informed by and align with the regional and national strategies and plans listed in Chapter 1 and address the challenges facing the region's transport network. These challenges are discussed in Chapter 3. A main target is identified for each objective, which is supported by a broader monitoring programme, described in Chapter 6.

The relationship between the vision, objectives, outcomes and targets is summarised below:

Figure 1 Vision, Objectives, Outcomes and Targets



2.1 Vision

The vision describes the transport system in 30 years (by 2040) and has been developed through extensive consultation with Aucklanders.

The vision for the Auckland region's transport system is a transport system that enhances the Auckland region where

- people and goods are able to move when and where necessary,
- transport supports vibrant well designed urban and rural centres, innovative business and economic activity,
- streets are places for people and the community,
- the transport system reflects the region's distinct identity as a volcanic, coastal and Polynesian region,
- getting around by all modes is integrated, safe and effective,
- people have choices which enable them to participate in society, especially those most disadvantaged,
- the natural environment and human health are protected and enhanced,
- transport resources are used efficiently, supported by sustainable, innovative design practises,
- the transport system is resilient in the event of shocks and is adaptable to change.

2.2 Objectives, outcomes and targets

Seven objectives have been defined that describe what the region will focus on to achieve the vision in a broad sense. The first five objectives align directly with legislation used to prepare this strategy. The last two have been identified as being important to Auckland and are continued from the RLTS 2005.

Many of the objectives relate to each other. For example, improving access and mobility will improve the ability of employees to move around which assists economic development. improving environmental sustainability by reducing air pollution also relates to protecting and promoting public health. However, in order to be able to measure progress clearly, and reduce overlap between the objectives, outcomes and indicators, each objective has been framed to focus on a specific aspect of the vision.

The objectives are further defined by a set of specific outcomes expected by 2040. The outcomes have been written in a way that allows them to be specifically measured as targets.

Targets for 2040 have been identified and track progress on the outcomes in much the same way that the gross domestic product is used as an indicator of economic activity. This is the first time targets have been introduced into the RLTS, as required under the LTMA. Targets are aspirational – their achievement depends on future funding being available and the RLTS being implemented.

Objective 1: Assisting Economic Development

An effective transport system will assist Auckland and New Zealand in achieving its economic potential by efficiently moving ~~of~~ people (residents and visitors), freight and services around and between regions. Businesses need to transport people and freight reliably between locations, often to meet 'just in time' requirements of their customers. A transport system that enhances quality of life will also help to attract and retain the skilled and talented people and innovative businesses that will assist in making Auckland an internationally competitive, inclusive and dynamic economy.

This objective focuses on achieving an efficient, effective and reliable transport system that supports business productivity and competitiveness. A transport network can also improve the health and productivity of employees. Additional economic development benefits, such as improved land values associated with good urban design, are discussed under Objective 6: Integrating Transport and Land Use. The increase in fuel price volatility and availability represents an economic risk to the Auckland region, which is addressed by this strategy as it reduces reliance on motorised vehicles. This is discussed in Chapter 6 Risk, monitoring and review.

While assisting economic development includes ensuring efficient and effective movement of both people and freight, the movement of people is covered under the objective "Improving Access and Mobility". Therefore the specific outcomes and targets for assisting economic development is focused on freight movement. The table below presents the outcomes defined to achieve this objective and the performance targets used to measure progress towards achieving the outcomes.

The main target for economic development is to keep the level of congestion for freight vehicles on the regional strategic road freight network at or below current levels.

Table 1: Assisting Economic Development - Outcomes and targets

Outcome	Description of outcome	2040 Performance Targets
Improved regional and interregional freight efficiency.	Reduced congestion and improved reliability on key freight routes, improved links to other regions.	• **Main Target - Keep the level of congestion for freight vehicles on the regional strategic road freight network[5] at or below the average of 2006-2009 levels.** • The variability of journey times on the regional strategic freight network reduces.
Improved ability of the transport system to recover from adverse events.	Improved resilience and security of the transport system to events that threaten to cause disruptions.	Currently under development by the Ministry of transport (reference MoT Monitoring Framework SS012 and SS013).
Improved contribution of the transport system to Auckland's competitiveness.	Improved rating of the transport system in international benchmarking.	Indicators are currently being developed by the NZTA.

The truck priority lane on Grafton on-ramp eases traffic flow onto the Southern motorway

5 See Map 2 in Chapter 5.

Objective 2: Assisting Safety and Personal Security

People need to be able to travel throughout the region with confidence. This means minimising crashes, injuries and fatalities. It also means protecting property and creating places where people feel safe walking, cycling and using public transport. Safety and personal security need to be considered at all stages of the design, construction, operation and maintenance of all parts of the transport system.

This objective focuses on achieving a safe and secure transport system that supports safer communities, thereby reducing the number of transport related casualties and fatalities.

The table below presents the outcomes defined to achieve this objective and the targets used to measure progress towards the outcomes and the objective.

The main target for assisting safety and personal security is deaths and road casualties are reduced to 40 and 288 per annum respectively.

Table 2: Assisting Safety and Personal Security - Outcomes and targets

Outcome	Description of outcome	2040 Performance targets
Improved transport system safety.	Reduced number of people who are hurt or killed in transport related incidents.	• **Main target - Reduce road deaths to 40 and serious injury from crashes to 288.** • Reduction in the number of road casualties for each mode. • Residents' perceptions of safety of different modes of transport improve.
Improved road safety culture.	Improved attitudes of transport users to others using the network and improved adherence to the rules of the road.	• The number of people exceeding the speed at defined survey points reduces to [target yet to be established] per annum. • Attitudes of transport users to others and to road rules improve.
Improved personal security.	Reduced number of people who are mugged or accosted etc. on the transport network, and increased number of people that feel safe to use the transport network.	Indicator is currently under development by the Ministry of Transport (reference MoT Monitoring Framework SS011).

Objective 3 Improving Access and Mobility

Transport networks exist so people can get around easily and travel safely to work, places of education, shops, recreation and other destinations to meet their social, economic and cultural needs. Provision needs to be made for a range of travel choices, including the car, with some choices (cycling, walking and other active modes) needing more active encouragement. To enable everyone to actively participate in society, special attention needs to be given to those whose travel choices are limited by disability, socioeconomic status, ethnicity or provision of choices.

This objective focuses on improving the ability of people to get around easily, affordably and reliably, with travel options.

Outcomes and indicators focused on increasing walking and cycling are covered under "Protecting and promoting public health". The table below presents the outcomes to achieve this objective and the targets used to measure progress towards achieving the outcomes and the objective.

The main target for improving access and mobility is to increase the proportion of households within 30 minutes travel to employment by passenger transport to 15 per cent from 11 per cent.

Table 3: Improving Access and Mobility - Outcome and targets

Outcome	Description of outcome	2040 Performance targets
Improved public transport (PT) accessibility for all.	Improved ability of people to get where they want using PT, including those individuals and groups that are transport disadvantaged.	• **Main target - PT mode share increases to 12 per cent of all trips.** • The proportion of PT vehicles with low floors and wheelchair provision increases. • The percentage of people who live in areas with a deprivation index of nine or ten that live within 400m of a QTN or RTN stop, increases. • Perceptions of affordability of PT compared to private vehicle use improves.
Improved community connectedness.	Improved ability of people to access the services they require via a choice of modes.	• **Main target - Walking and cycling and other active modes increase to 35 per cent of total trip legs in urban areas.** • Perceptions of access to work and study improve. • Modelled results of regional access improve.
Improved quality of PT services.	Improved level of service and coverage of the PT network in order to provide a choice of travel options (and reduce reliance on private vehicles).	• Journey times on selected QTN and RTN routes versus equivalent journeys by car improve. • The roll-out of QTN and RTN is delivered according to plan or faster.

Objective 4: Protecting and Promoting Public Health

Transport plays a vital role in building healthy communities. Reducing the levels of congestion, the amount of travel by motor vehicles, and improving fuel quality and engine technology can improve public health by reducing harmful pollutants. Encouraging active transport choices including walking and cycling can also improve individuals' fitness and health.

This objective looks to improve community health by promoting active modes of transport, and to protect public health by reducing exposure to health-impacting pollutants from the transport system.

Improved access to a variety of services increases community participation and improves public health. This area is dealt with under the Improving Access and Mobility objective.

The table below presents the outcomes defined to achieve this objective and the targets used to measure progress towards the outcomes and objective.

The main target for protecting and promoting public health is to reduce the number of excedences of health standards for the following air quality measures: NOx, PM_{10} and $PM_{2.5}$.

Table 4: Protecting and Promoting Public Health - Outcomes and targets

Outcome	Description of outcome	2040 Performance targets
Reduced negative impacts of transport on human health.	Reduced number of people exposed to health-impacting levels of pollution from the transport system.	• **Main target - The number of excedences per annum of health standards for the following air quality measures is no more than: NO_2 (9 excedences per annum), PM_{10} (1), $PM_{2.5}$ (0), CO (1).** • Include an environmental measure of noise-related exposure if this can be defined and cost effectively monitored, alternatively include measures of the number of complaints received by territorial authority call centres to transport-related noise.
Increased walking and cycling.	Increased number of people walking and cycling and the distance they travel, in order to improve public fitness and health.[6]	• The average distance travelled by walking per person over five years of age increases from 0.65km to 1.3km per day. • Perceptions of walking and cycling accessibility improve. • The proportion of people walking increases as a percentage of the population. • The number of cyclist movements at defined survey points increases.
Improved street design for people.	Improved street design to support pedestrians, in order to improve social interaction and social cohesion.	• Perceptions of walkability of local neighbourhood increases. Baseline data is not available for this new measure, however the ARC will add a related question to the ARC transport perception survey.

Objective 5: Ensuring Environmental Sustainability

The transport system and motor vehicles in particular are a major source of adverse environmental effects in the region. The transport system can have adverse effects on ecosystems (including communities), water quality, climate change, air quality, cultural and natural heritage sites, noise and amenity. The pressures imposed by the transport system on the natural and physical environment (including the built environment) are likely to increase as the region grows. A well-designed transport system reduces reliance on non-renewable resources, improves energy efficiency and fits into the natural and physical environment in ways which avoid, remedy or mitigate adverse effects on the environment.

This objective looks to reduce the negative impacts of the transport network on the environment, and promote sustainable approaches to transport to reduce reliance on non-renewable resources.

Auckland transport network development must Take into account the effects it will have on the environment. This reflects greater global awareness of land transport environmental impacts and the need for sustainable development.

6 This outcome can be achieved by getting a mode shift away from private vehicle use to PT, walking or cycling, so measuring mode shift is also a useful indicator.

Some aspects of transport-related pollution (particularly air and noise pollution) have direct impacts on human health, and as a result, the outcomes and targets for air and noise pollution are covered under the objective "Protecting and Promoting Public Health". The table below presents the outcomes defined to achieve this objective and the targets used to measure progress towards the outcomes and the objective.

The main target for ensuring environmental sustainability relates to reductions in greenhouse gas emissions.

Table 5: Ensuring Environmental Sustainability - Outcome and targets

Outcome	Description of outcome	2040 Performance targets
Reduced greenhouse gas emissions from transport network.	Reduced greenhouse gas emissions from the transport network.	• **Main target - Halve per capita greenhouse gas emissions from domestic transport (relative to 2007).** • Reduce total tonnes of CO_2 equivalent emissions from domestic transport to below 1990 levels.[7]
Increased use of sustainable modes of transport for moving people.	Increased use of sustainable transport modes (active modes, PT) compared to private vehicles.	• PT mode share increases. • Walking and cycling and other active mode share increases,
Improved protection of valued sites.	Impacts of transport on sites of historic, environmental, and cultural value are avoided, mitigated or minimised.	• No accurate measures are available, however transport projects are expected to undertake environmental impact assessments as part of standard project planning and design.
Improved storm-water quality.	Reduced number of pollutants from the transport network entering the stormwater system.	• Measures of stormwater quality, specifically related to transport causes, are not available.
Increased use of sustainable modes of transport for freight movement.	Increased use of sustainable modes for transport of freight (rail and coastal shipping) compared to freight by road.	Indicators are currently under development by the Ministry of Transport for measuring the mode share for freight movement.[8]
Increased use of recycled and renewable material and reduced waste from transport projects.	Increased use of sustainable products (recycled or renewable) in transport projects and reduced amount of waste going to landfill from transport projects.	The Ministry for Transport is developing indicators for measuring the amount of recycled, renewable material used and volume of waste going to landfill.[9] ARC is also investigating the following options. • The volume of recycled material used in transport projects increases. • The volume of waste from transport projects going to land-fill decreases.

7 Ministry of Transport Monitoring Framework TMIFv2 Indicator ref E1001.
8 MoT Monitoring Framework TV023, TV024.
9 MoT Monitoring Framework LM014, LM015.

Objective 6: Integrate Transport and Land Use Supportive of the Regional Growth Strategy and Auckland Regional Policy Statement

A sustainable transport system is integrated with the land use pattern it serves and is served by. While Auckland continues to expand at the edges it is also becoming denser. The Regional Growth Strategy aims to manage the majority of future growth into well-designed urban growth centres and corridors as identified in the Auckland Regional Policy Statement (incorporating Change 6). The successful development of these centres and corridors will require transport infrastructure that is well designed and can assist with urban development.

This outcome involves ensuring that the transport system supports the Auckland Regional Growth Strategy by improving public transport links to and between high density growth centres, as well as supporting the development of corridors.

The main target to ensuring the integration of transport and land use supportive of the RGS and ARPS is that planned levels of public transport service to and between identified growth centres are achieved within defined time frames.

Many aspects of integrating land use and transport are covered under other objectives such as, "Protecting and promoting public health" and "Improving access and mobility". The table below presents the outcomes defined to achieve this objective and the targets used to measure progress towards the outcomes and the objective.

Table 6: Integrate Transport and Land use supportive of the ARGS and ARPS - Outcome and targets

Outcome	Description of outcome	2040 Performance targets
Improved public transport links to and between identified higher density growth centres.	The Quality Transit Network (QTN) and Rapid Transit Network (RTN) are delivered to and between identified growth centres.	• **Main target increase the number of identified growth centres with RTN services from 14 (36 per cent) to 25 (60 per cent) of the identified growth centres.** [10] • The average distance that people travel to work decreases. • Relative land values within 800m of RTN stations increase.

Objective 7 Achieving Economic Efficiency

Economic efficiency means that the region's limited financial resources invested in the transport system minimises costs and externalities and maximises the tangible and intangible benefits it generates (the benefits are described in the preceding six objectives). Transport initiatives that deliver better regional fuel efficiencies will also result in significant co-benefits in terms of reduced cost, improved security of energy supply, and reduced greenhouse gas emissions.

10 Currently there are 42 identified growth centres.

This outcome looks to ensure that better regional fuel efficiency and investments in the transport system deliver value for money, for both new investment and for maintaining and utilising the existing transport network infrastructure.

The table below presents the outcomes defined to achieve this objective and the targets used to measure progress towards achieving the outcomes.

The main target for achieving economic efficiency is to increase the average number of PT trips per person from 40 to 143 and to increase the average occupancy rate for vehicles.

Table 7: Achieving Economic Efficiency - Outcome and targets

Outcome	Description of outcome	2040 Performance targets
Improved use of the existing transport network.	Improved usage on the PT network, more efficient use of the roading network.	• **Main targets - The average number of PT trips per person increases from 40 to 143 per annum.** • **Main target - Increase the average occupancy rate of vehicles.**
Increased energy efficiency from the transport network.	Improved transport fuel efficiency in moving both people and freight in the region.	• Reduce energy use in petajoules (PJ) per person kilometres travelled (PKT) by domestic transport[11]. • Monitor petrol, diesel, liquefied petroleum gas (LPG), compressed natural gas (CNG), and electricity. Note: no target set, however it is recognised there is a need to monitor the use of all mechanised energy sources in the transport sector. • Transport fuel spend as a percentage of GDP reduces.
Improved value for money from transport investments.	Improved delivery of benefits over costs for transport projects, and maintain the transport network's assets in a cost effective manner.	• Projects deliver no less than the projected benefit/cost ratio.

The pedestrian bridge from Akoranga bus station over the Northern motorway, State Highway 1 provides access to AUT's Akoranga campus.

11 Ministry of Transoprt TMIFv2 Indicator ref E1017

2.3 Relationships between objectives and outcomes

As outlined in section 2.2 above, many of the objectives relate to each other and there are also overlaps in the outcomes expected. However, for the purposes of measurement, outcomes have been deliberately chosen to fit with only one objective, that which is perceived to have the closest relationship (defined as the "primary" relationship). Other relationships have been defined as secondary. The matrix outlined in the table below illustrates these relationships.

Table 8 Relationships between objectives and outcomes

Objectives / Outcomes	Economic Development	Safety & Security	Access & Mobility	Public Health	Environmental Sustainability	Integrate Transport & Land Use	Economic Efficiency
Improved regional and interregional freight efficiency.	**		*				*
Improved ability of the transport system to recover from adverse events.	**		*				
Improved contribution of the transport system to Auckland's competitiveness.	**	*	*	*	*	*	*
Improved transport system safety.		**		*			
Improved road safety culture.		**		*			
Improved personal security.		**		*			
Improved community connectedness.	*		**	*	*		
Improved public transport (PT) accessibility for all.	*		**	*	*		
Reduced PT travel time relative to travel by private car.	*		**	*	*		
Increased walking and cycling.		*	*	**	*	*	
Improved design of streets for people.		*	*	**	*	*	
Reduced negative impacts of transport on human health.				**	*		
Reduced greenhouse gas emissions.	*			*	**		
Improved storm-water quality.				*	**		
Increased use of sustainable modes of transport for moving people.			*	*	**	*	
Increased use of sustainable modes of transport for freight movement.	*				**		
Increased use of recycled and renewable material and reduced waste from transport projects.					**		
Improved Public Transport linkages to and between identified higher density growth centres.	*		*			**	
Improved value for money from transport investments.	*						**
Improved use of the existing transport network.	*				*		**
Increased transport fuel efficiency	*				*		**

Key: ** = primary relationship, * = secondary relationship

Challenges

Meeting the objectives identified in Chapter 2 poses short-term and longer challenges. The challenges are discussed in this chapter, under the headings of each objective. Current trends facing the region provide the background for the strategic priorities, options and policies presented in chapters 4 and 5.

The central challenge that has faced Auckland's transport system since the first RLTS was created in 1993 is traffic congestion caused by population growth and decades of underinvestment in public transport networks. Building a resilient transport network that keeps the region moving reliably and rapidly under all conditions is a key contributor to Auckland's standing as an international city, one that attracts migrants, businesses and tourists. Achieving this goal with limited funding is an added challenge.

Since the last RLTS in 2005, three additional challenges have been added to the region's transport network. They affect not only the destination itself but how we get to that destination. These challenges are: to support the development of a compact urban form; to support national economic growth and productivity; and to reduce the impact of transport on the environment, such as climate change and energy use.

3.1 Economic development

Current trends

Some relevant trends are highlighted as follows:

- Travel distances – Almost half of the morning peak period trips are less than five kilometres in length and almost 20 per cent of trips less than two kilometres. At present, the majority of these short local journeys are by car and often school related. The average length of work related trips is around 11km in the morning peak.
- Car ownership – There is approximately one car in the region for every two people. The total number of additional cars in the region is estimated to increase to 300,000 by 2021.[12]
- Access to public transport – The highest levels of public transport accessibility continue to be based around the main transport routes that converge on the Auckland CBD, with lower levels of accessibility in peripheral areas of the region (relative to the distance from the Auckland CBD).
- Congestion – Peak period congestion (measured in terms of delay per kilometre) has fluctuated over the last few years on the region's main road network. The number of cars on the strategic network during the peak period has in recent times also been suppressed by other external factors such as rising fuel prices and a shift to other modes.

12 RLTS Working Paper 08 Trends and Issues.

- Freight movements – Current freight movements by road transport are dominated by trips taken within the region (against inter regional trips). National estimates on the volume of future freight movements indicate significant increases over the next twenty to thirty years.

Table 9 Transport targets for ensuring economic development and current situation

Targets	Auckland current situation
NZTS Target- For identified critical routes: • Improve reliability of journey times. • Reduce average journey times.	Since 2006 average daily travel speed across the entire network has declined steadily from 44kph to 41kph in 2009. The am peak travel speed between 2006 and 2009 decreased from 36 to 33. For economic development purposes critical routes are defined as the Auckland Regional Strategic Freight Network (Map 2), see below box for additional analysis.
RLTS Main target[13]- Maintain the level of congestion for freight vehicles on the regional strategic road freight network[14]to at or below the average of 2006-2009 levels.	The regional strategic freight network average daily speed decreased slightly between 2006 and 2007 from 48 kph to 44 kph and has held steady at that speed through 2009.[15] The daily average congestion indicator on the same network increased between the years 2006 and 2007 from 0.48 minutes of delay per kilometreto 0.55 minutes of delay per kilometre and has held steady at that rate through 2009.

Challenges

Transport policy and investment needs to play its part in supporting economic recovery from the global downturn in the short term and to support economic growth in the longer term.

Economic activity and growth in the region is affected by the movement of people, goods and services both within the region and by trips that cross regional boundaries. Maintaining and increasing the level of regional economic productivity in the near and long term is affected by transport factors including travel distances, increasing numbers of cars on the road and limited access to reliable and affordable public transport.

These factors have contributed to increasing traffic congestion and delays along some of the region's main transport routes. Congestion and delays have a direct impact on the cost of doing business and contributes to loss of productivity from people sitting in congestion, this includes the ability to move freight around the region and the servicing of key infrastructure nodes, such as the port and airport.

In order to address increasing uncertainty in global economic conditions two main challenges for the region are:

- to minimise the transport related costs of doing business in a way that balances the region's objectives around energy use and managing environmental standards,
- to develop a regional transport network that demonstrates a high level of resilience to changing economic and network conditions.

For instance, the challenge to reduce local congestion with practical active modes for short distance (1-5km) vehicle trips during the peak period, seems simple but is limited by perceptions of safety and other factors that prevent people from taking advantage of other transport options, such as lack of investment in walking and cycling infrastructure.

15 ARC and NZTA survey as part of a national survey.
13 As set out in chapter 2.
14 see Map 2 in Chapter 5.

Furthermore, the high reliance in the region on road based freight movements means that there are also challenges to identify practical and cost effective alternatives, including consideration of coastal shipping and rail.

3.2 Safety and personal security

Current trends

Road safety in the Auckland region is a major issue. Although road deaths in the region have generally declined over the last decade (from 105 deaths in 1998 to 61 deaths in 2007) the number of overall road injuries has increased both in real terms and per capita in the last eight years. The number of injuries and fatalities is too high and needs to be reduced, especially as the region continues to grow.

Table 10 Transport targets for ensuring safety and personal security - current situation

Targets	Auckland current situation
NZTS - Reduce road deaths to no more than 200 per annum by 2040.	Between 1998 and 2007 road deaths in Auckland fell from 105 to 61.
NZTS -Reduce serious injuries on roads to no more than 1,500 per annum by 2040.	Between 1998 and 2007 serious injuries on roads fluctuated between 639 and 483 with no clear trend.
RLTS Main target[16] - Reduce road deaths to 40 and serious injury from crashes to 288.	In 2007 the Auckland region had 61 road deaths and 483 serious injuries from crashes.

Challenges

In addition to addressing serious road injuries and casualties, it is important that all transport users have a high degree of personal security, both real and perceived. The transport system should provide an environment in which personal security is assured, whether the individual chooses to travel by private vehicle, public transport, walking or cycling.

3.3 Access and mobility

Current trends

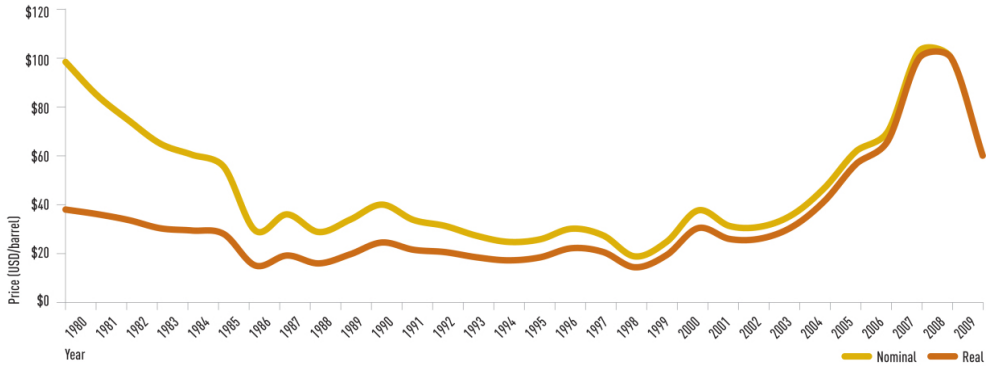
The primary goal of transport policy is accessibility. Accessibility refers to the ease of reaching goods, services, activities and destinations (together called opportunities). Mobility, or the ability to travel, is a means of achieving accessibility. A regional transport policy needs to ensure there are sufficient transport options for people and businesses to be able to access the opportunities they seek, when they want to.

Accessibility can be hindered by a number of factors. These include an urban form designed around the private car, the lack of modal choice, the time a trip takes, affordability, and disability.

A significant factor which will influence access and mobility in the foreseeable future will be rising and fluctuating fuel prices. The real price of oil has increased steadily over the last decade with a rapid acceleration in oil prices occurring from 2002 to 2007~~8~~8 dropping sharply thereafter. The volatility of oil prices have highlighted the need to reduce the high reliance of transportation on non renewable fossil fuels. Although the world economic downturn in 2008 has resulted in decreasing oil prices, the longer term outlook is for shortages and higher prices.

16 As set out in chapter 2.

Figure 2 Recent trends in oil prices (nominal and real price) 1980 to 2009



In the next ten years, oil prices are expected to be volatile, with petrol and diesel prices potentially stabilising at around $3 per litre. Beyond this period, oil prices are expected to plateau but remain unstable. The risks associated with higher fuel prices can be mitigated with an appropriate suite of mutually reinforcing transport and land use policies which would make the transport system more resilient in the face of volatile fuel prices and better enable an enduring improvement in accessibility and mobility. This will require a significant shift to a broad range of energy efficient travel options.

Improvements in the public transport network and services have increased growth in public transport trips into the Auckland CBD and total boardings over the last decade. Growth has also been assisted by higher fuel prices. Public transport patronage is currently growing at about four per cent per year and this growth is estimated to continue with at least 11 per cent of peak period trips to be taken by public transport by 2016.

Table 11 Transport targets for ensuring access and mobility - current situation

Targets	Auckland current situation
NZTS - Increase walking, cycling and other active modes to 30 per cent of total trips in urban areas by 2040.	Currently 14 per cent of trips in the region are walked and 0.7 per cent by cycle.[17]
NZTS - Increase use of public transport to seven per cent of all trips by 2040.	Current public transport daily mode share is five per cent in Auckland.
RLTS Main Target[18]- PT mode share increases to 12 per cent of all trips.	Current PT mode share is three per cent.
RLTS Main Target[19] **-** Walking and cycling and other active modes increase to 35 per cent of total trips legs in urban areas.	Walking and cycling and other active modes are 16 per cent.

Challenges

A key challenge for the region is to make public transport and active mode alternatives to the private vehicle attractive enough to compete favourably with the car in terms of travel time, costs and other benefits, such as health and community participation. Public transport is the main transport alternative for most peak period commute journeys. Despite recent positive trends, there are major challenges in the future to better match transport choices with peoples' origins and destinations.

Some of the specific challenges associated with transport choices include:

17 RLTS 2010 Working Paper 08 Trends and Issues.
18 As set out in chapter 2.
19 As set out in chapter 2.

- providing mobility options for the proportion of the population without access to a private vehicle (eg children and people who choose not to drive or the transport disadvantaged who are unable to drive),
- addressing the key findings of *The Accessible Journey: Report of the Inquiry into Accessible Public Land Transport,*
- allocation of resources to provide transport choices to / from peripheral settlements (eg rural areas),
- better alignment between where land use growth is occurring and where transport improvements are planned,
- availability of transport options such as public transport in response to car dominated travel,
- recognise and plan for mobility options that address a variety of trips and travel needs eg non CBD peak period trips and short local trips versus longer distance cross-region trips.

3.4 Public health

Current trends

The region's transport system provides the basic links and connections that support community and social interactions. Transport provides both opportunities and barriers to employment, education, shopping, healthcare and leisure.

The planning, design, development and operation of the transport system can influence the safety and health of communities in terms of:

- The region's population being exposed to air pollution, noise, vibration and road accidents / fatalities. Vehicle emissions contribute to mortality rates, increased cardiovascular and respiratory illnesses, medical costs and losses in productivity.
- Access to affordable transport options in areas with low social and economic resources.
- Levels of amenity and sense of personal security in and around transport facilities and town centres.
- Moving vulnerable road users including the elderly, the young and people with disabilities.
- Enabling opportunities for exercise that contribute to fitness and general health (eg walking and cycling).

Table 12 Transport targets for ensuring public health and current situation

Targets	Auckland current situation
NZTS- Reduce the number of people exposed to health endangering noise levels from transport.	No available data. However, the impacts and potential exposure to noise will result from increasing VKT, increasing speeds and denser urban areas. Indirect health effects include sleep disturbance, possible links to coronary artery disease and stress levels and performance of school children.[20] There is some subjectivity around the level of impact from transport related noise and the impacts are often experienced at the local level. It is difficult to quantify, at the regional level, the health consequences of noise levels.
NZTS - Reduce the number of people exposed to health endangering concentrations of air pollution in locations where the impact of transport emissions is significant.	Air pollution from motor vehicles in the region causes around 255 people (over the age of 30) to die prematurely.[21]
RLTS Main target[22] **-** The number of excedences per annum of health standards for the following air quality measures is no more than: NO_2 (nine excedences per annum), PM_{10} (1), $PM_{2.5}$(0), CO (1).	Overall the number of excedences of health standards has dropped from 53 in 1998 to 9 in 2007. However this overall drop is masked by a large decline in CO from 32 to 0. $PM_{2.5}$ and PM_{10} has remained relatively flat. NO_2 has fluctuated dramatically from year to year with a range between 38 to one.

Challenges

Health effects from air pollution – The Auckland region is not currently meeting National Environmental Standards for air quality. It is estimated that the region must halve its PM_{10} emissions by 2013 to meet the national standard. Air pollution from motor vehicles in the region causes around 255 people (over the age of 30) to die prematurely.

Access to transport options in areas with high deprivation – In recent years there has been an improvement in the percentage (estimated change from 16 per cent in 2001 to 25 per cent in 2006) of people living in areas of higher deprivation with access to high levels of public transport service.

The overall challenge is to improve transport opportunities while minimising adverse impacts on public health, and enhancing positive effects. Transport can protect and promote public health through encouraging walking, cycling and other active modes, increasing participation in society, and reducing air pollution and adverse noise and vibration.

3.5 Environmental sustainability

Current trends

The majority of current transport related activities are energy intensive and rely on consuming non-renewable resources in terms of fuel, materials and land use. These activities contribute to the larger issues such as greenhouse gases (eg CO_2 emissions) and climate change.

20 Intersection between transport and health: impacts of transport on health, background paper by the Public Health Advisory Committee, April 2003, page 22.

21 "Health effects due to motor vehicle air pollution in New Zealand", Report to the Ministry of Transport, G.W. Fisher, K. A. Rolfe, Prof. T. Kjellstrom, Prof. A. Woodward, Dr S. Hales, Prof. A. P. Sturman, Dr S. Kingham, J. Petersen, R. Shrestha, D. King, January 2002.

22 As set out in chapter 2.

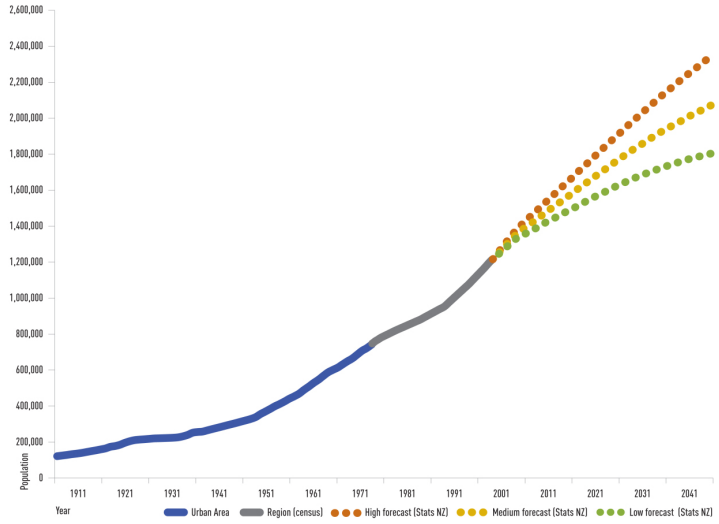
At the local level, the location, form, scale, construction and use of the transport system can impact on:

- the loss or degradation of waterways, freshwater harbours or marine habitats,
- sediment discharge into sensitive water systems such as harbours and estuaries,
- noise and vibration,
- the loss or reduction of native plants and wildlife,
- the loss or fragmentation of natural and cultural heritage, public open space and landscape,
- air quality.

High population growth

The projected population growth in Auckland will undoubtedly increase travel demand significantly. Current projections estimate that the region's population will increase from 1.3 million to 2.3 million people by 2051[23] as shown in Figure 4. The consequences of this growth in demand will depend on the development of effective and robust transport policy at national, regional and local levels.

Figure 3 Auckland Region Population Projection



The future population growth expected in the region will bring with it an additional 350,000 dwellings and 980,000 jobs. A major challenge will be to allocate transport resources that can meet the rising demands from the expected population growth.

Greenhouse gas emissions (GHG)

Currently, motor vehicles are almost exclusively fueled by fossil fuels, such as petrol and diesel, which result in in GHG emissions. The latest New Zealand energy greenhouse gas inventory shows that emissions from the domestic transport sector are tracking at 64 per cent higher than 1990 levels. The bulk of this increase comes from road transport emissions, which have grown by more than 68 per cent.

Current estimates indicate that CO_2 emissions, a subset of GHG, from the Auckland transport network will increase by 22 per cent by 2016, from 2006 levels. This works out to be a six per cent reduction in CO_2 on a per capita basis (based on forecasted population growth). While improvements have been made towards reducing emissions, there is still considerable work to be done to halve per capita GHG emissions from transport, and to reduce total GHG emissions to below 1990 levels.

23 Based on 2006 medium scenario population projection.

The current national Kyoto commitment requires New Zealand to reduce its greenhouse gas emissions to 1990 levels, by 2012. The government will be participating in the international negotiations in Copenhagen in December 2009 to set the emissions target for 2020, and early indications are that New Zealand will be opting for a 10-20 per cent reduction on 1990 levels. In the longer term, the government is seeking a 50 per cent reduction on 1990 levels by 2050.

Table 13 Transport targets for ensuring environmental sustainability and current situation

Targets	Auckland current situation
NZTS - Halve per capita greenhouse gas emissions from domestic transport by 2040 (relative to 2007 per capita emissions).	Estimated six per cent reduction in CO_2 per capita by 2016.
NZTS - Reduce kilometres travelled by single occupancy vehicles (SOV), in major urban areas on weekdays, by 10 per cent per capita by 2015.	No available data on SOV kilometres travelled. 2006 census average of 1.07 people per vehicle. 2006 private vehicle occupancy survey of 1.2 people per car and in 2009 1.28 per car.[24]
NZTS - Increase coastal shipping's share of inter-regional freight to 30 per cent of tonne-kilometres by 2040.	Coastal shipping is currently at 15 per cent.[25]
NZTS - Increase rail's share of freight to 25 per cent of tonne kilometres by 2040.	Rail freight shipping is currently at 20 per cent.[26]
RLTS Main Target[27] - Halve per capita gas emissions from domestic transport (relative to 2007).	Estimated six per cent reduction in CO_2 per capita by 2016.

Challenges

The NZTS records a range of policy contributions that will be necessary to meet the objectives. These include integrated planning, making the best use of existing networks and infrastructure, investing in critical infrastructure, increasing the availability and use of public transport, cycling, walking and other shared and active modes, considering options for generating revenue, using new technologies and fuels, and maintaining international freight links.

The changing make-up of the population will also present challenges in terms of how these transport demands are to be met. These include an aging population characterised by declining birth rates and increasing life expectancy.

3.6 Integrate transport and land use

Current trends

Transport and land use planning determine the efficiency, effectiveness, resilience, affordability and environmental sustainability of the transport system. By shaping the pattern of development and influencing the location, scale, density, urban design, and mix of land uses, planning can help to facilitate an efficient transport and land use system. It can do this by:

- reducing the need to travel,
- reducing the length of journeys,

24 See Target 7 for ensuring economic efficiency.
25 National Freight Demands Study, September 2008.
26 National Freight Demands Study, September 2008.
27 As set out in chapter 2.

- providing a choice of travel modes,
- making it safer and easier for people to access services,
- reducing the adverse impacts of transport on communities and the natural environment,
- improving freight access to key terminals and improving freight flows,
- enabling efficient distribution of goods and services to business and the community,
- making roads and streets more safe for economic and social purposes,
- ensuring flexibility to meet the demands of a changing economy and market conditions.

Integrating transport and land use planning lies at the heart of the Auckland Regional Growth Strategy and Auckland Regional Policy Statement. Their spatial vision focuses on accommodating growth primarily in a network of highly accessible centres, from the neighbourhood level up to the regional CBD. Concentrating growth, and high trip generating activities in particular, in centres and corridors, linked by high frequency public transport corridors and good walking and cycling connections where appropriate, allows people to access opportunities with less need for travel, and improves the feasibility of public transport.

Where we travel from and where we travel to in the region is largely determined by land use planning. Historical land use planning in the region has tended to reinforce patterns of transport demand that are heavily reliant on cars. Decisions on proposed land uses directly impact on transport and vice versa.

In rural areas with low populations and dispersed activities, it is more difficult to achieve the benefits of land use transport integration that exist for urban areas. Nevertheless, a contribution can be made through focusing growth in centres, and appropriate corridors where feasible.

The Growing Smarter report (2007) on the implementation of the Regional Growth Strategy (and the Auckland Regional Policy Statement) highlighted that a pattern of land use since their inception was consistent with the intended spatial outcomes to a certain extent, but that there was also a prevailing pattern of land use which was contrary to these and which accordingly threatens the effectiveness of the transport strategy unless addressed. These contrary land use outcomes include:

- population growth outside the Metropolitan Urban Limits (MULs) is faster than that within,
- little significant residential intensification in centres other than the CBD,
- low density development in centres doesn't support the provision of public transport,
- retail activity becoming more dispersed and less centres based, so is not supportive of growth in centres,
- community facilities (sports, health, education) not occurring in growth centres,
- very little comprehensive development taking place in centres,
- a looming shortage of industrial land in the region, not least due to commercial activity consuming suitable land.

Table 14 Transport targets for ensuring integration of transport and land use - current situation

Targets	Auckland current situation
RLTS Main target[28]- The planned levels of service to and between growth centres are achieved within defined timeframes.	36 per cent of growth centres receive RTN services and 100 per cent of growth centres receive QTN service.

Challenges for the region to achieve better integration between land use and transport include:

- improving public transport provision as a catalyst for intensive development,
- managing land use to more effectively support local access and public transport, by promoting and providing for appropriately located and designed land uses, and restricting inappropriate land uses,
- ensuring that the needs and links of rural areas, are sufficiently provided for, noting their low population densities, dispersed activities and contribution to the regional economy,
- ensuring the impacts of transport on sites of historic, environmental or cultural value are avoided, mitigated or minimised.

3.7 Economic efficiency

Current trends

There was a significant gap between the desired outcomes of the 2005 Regional Land Transport Strategy's and the money available to achieve it, particularly for public transport and travel demand management.

The availability and allocation of funds for regional transport priorities is an on going issue. Funding certainty is a fundamental consideration that involves central, regional and local government interests.

Achieving the modal targets, increasing occupancy and fuel efficiency, as desired by central government, will require a fundamental change in how people use the transport network and how it is funded.

Table 15 Transport targets for ensuring economic efficiency and current situation

Targets	Auckland current situation
RLTS Main target[29]- The average number of PT trips per person increases from 42 to 143 per annum.	Since 2000 the average number of PT trips per person has fluctuated slightly between 35 and 40, with no clear trend. The region had 35 average number of PT trips per person in the 2007/2008 years.
RLTS Main target - The occupancy rate of vehicles increases	According to the ARC cordon count taken in 2001, 2006 and 2009; occupancy rates have remained relatively constant since 2001 at 1.28, dipped slightly in 2006 to 1.21 and increased back up to 1.28 in 2009.

Challenges

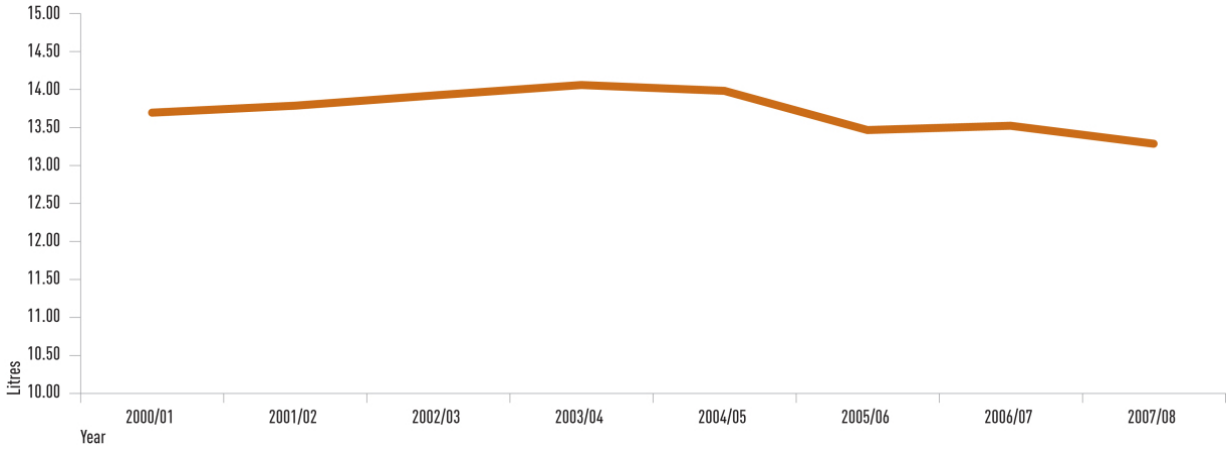
Fuel efficiency

28 As set out in chapter 2.
29 As set out in chapter 2.

In New Zealand our energy use is dominated by transport and we rely on imported oil for approximately half of our energy needs. In the case of fossil fuels, some commentators think we are fast approaching the depletion of oil. This makes us vulnerable to international supply or price disruption. The domestic transport sector in 2008 accounted for over 42 per cent of the national consumer energy usage.[30] As outlined in Section 3.3, oil prices are predicted to continue to be volatile and will increase significantly as the current global financial crisis begins to abate.

Transportation accounts for approximately 56 per cent of all energy use in the region, with more than half of this used in road transport.[31] In the past decade total sales of liquid transport fuels (petrol and diesel) have increased rapidly by 71 per cent above ~~the~~ 1990 levels but evening off in recent years. Whilst still high, both fuel use per capita and average fuel consumption in Auckland have also begun to improve since recording peaks in 2004 as seen in Figure 4 Average Fuel Consumption. Part of the reason for these improvements is the impact of more fuel efficient vehicles entering the fleet. Transport initiatives that deliver better regional fuel efficiency will also result in significant co-benefits in terms of reduced costs, improved security of energy supply, and reduced greenhouse gas emissions.

Figure 4 Average Fuel Consumption



Funding

Challenges influencing the availability and allocation of funding include:

- equitable financial assistance rates for different modes. For example, state highways are fully funded from the Land Transport Fund, while public transport services and infrastructure, local roading, walking, cycling, and travel demand management generally require a local body contribution of around 50 per cent.
- limitations on the level of revenue gathered and allocated to transport infrastructure, planning and services by local and central government.

The funding constraints around transport mean that there will be challenges to identify and assess new funding from alternative sources, such as:

- development levies as land values increase,
- private-public partnerships for transport or urban redevelopment projects,
- road pricing revenues.

30 New Zealand Energy Data File, Ministry of Economic Development, 2 July.
31 Regional Energy-use Database, Auckland Regional Council.

The Strategy

This chapter sets out in broad terms the transport strategy for the Auckland region for the next thirty years. It discusses the strategic priorities for the transport network along with a four initial options that were tested to identify the best of the possible approaches. A Preferred Strategic Option is identified, along with the strategic role each transport mode plays.

The RLTS 2010 builds on the work that went into developing five previous strategies between 1993 and 2005. Each of these strategies involved extensive consultation.

Since the completion of the RLTS 2005, concerns have strengthened, both internationally and within New Zealand, over the contribution of the transport sector to climate change (particularly through the emission of greenhouse gases), the unreliability of transport fuel supply and the volatility of fuel prices. These increasing concerns have emphasised the need to reduce reliance on a car based society and economy through the development of a more sustainable urban form, the provision of more transport choice by improving public transport, walking and cycling and encouraging people to use more sustainable and energy efficient modes of travel. More recently, the global economic crisis has led to a focus on economic growth and productivity. Making best use of existing transport infrastructure, particularly the regional arterial road network, will be an important means of achieving this aim.

The National Energy Efficiency and Conservation Strategy of 2007 and the New Zealand Transport Strategy of 2008 reach similar conclusions.

This strategy continues to be led by public transport improvements. It addresses growing concerns about environmental sustainability, network resilience and managing an increasing demand for travel, and includes a renewed emphasis on economic growth and productivity. The actions required to deliver the strategy are described in Chapter 5: Policies.

4.1 Strategic priorities

There are six strategic priorities for Auckland's land transport network that can best achieve the objectives, targets and outcomes identified in Chapter 2.

- **Support and contribute to a compact and contained urban form consisting of centres, corridors and rural settlements**

  Investment in transport infrastructure can support or frustrate the location of land uses. For example, high quality rail services can enable higher density mixed use development around stations while some new roads can encourage development on the fringes of the urban area. The way in which land uses are arranged is the main driver of transport demand. The location of households, businesses, recreational, educational, cultural and health facilities determines the trips necessary to link activities, and strongly influences the mode of transport used.

Regional land use policy (as articulated in the Auckland Regional Policy Statement and Regional Growth Strategy), supports concentrated residential and business growth in denser, well-designed, mixed-use centres and corridors. Primarily these are located on the Rapid Transit and Quality Transit Network. Managing growth in this way will lead to a reduction in the number and length of vehicle trips, and will reduce the need for car travel by enabling a greater proportion of trips to be made by public transport, walking and cycling. The increased accessibility provided by the Rapid Transit and Quality Transit network will allow these centres to achieve a critical mass of population, support a range of local enterprises and improve urban amenity.

- **Implementing behaviour change programmes**

  There are a significant number of trips currently made by car which could equally be made by other modes, such as public transport, walking, cycling, or ride sharing. Behaviour change programmes reduce car use by understanding local needs, investing in local improvements (eg through neighbourhood accessibility plans, cycle ways and footpaths) and educating people about transport alternatives. School, university, business and community travel plans are successfully changing travel behaviour.

- **Continue major investment in rail, bus and ferry infrastructure and service improvements**

  Investment in public transport, both services and infrastructure, has not kept pace with the growth in travel demand. This means that for many people there is little or no choice but to use private vehicles. Those with limited or no access to cars are severely disadvantaged. It also means Auckland has only very recently started to develop high capacity, reliable public transport on major routes where public transport has the ability to significantly contribute to reducing congestion and providing more environmentally sustainable transport.

  A major investment programme is now underway to improve public transport, by electrifying of the rail system and completing the Northern Busway and by improving services on these routes. The region has placed a great deal of emphasis on the development of Rapid Transit and Quality Transit Networks. The Rapid Transit Network comprises the Northern Busway and rail corridors, where public transport operates on its own right of way. The Quality Transit Network is where buses are increasingly accorded priority use of road space (with bus lanes and special signal phasing).

  Studies have also progressed supporting the need to expand the Rapid Transit Network through additional links such as the CBD Rail link to turn Britomart into a through station, rail to the Auckland International Airport and extending the Northern Busway to Orewa. As well as contributing to a more robust, resilient and sustainable transport system, this will provide the transport framework which will enable and support land use changes outlined above.

- **Improve the operation of existing roads, especially regional arterials**

  Over recent years major investment has been made in completing the urban motorway system. While some gaps remain, the construction programme is nearing completion. However, only limited investment has been made in the regional arterial road network.

  The focus of roading investment now needs to shift to make the most of the existing road network, both within the region and connecting to adjacent regions. This strategy recognises the need to maximise the throughput of priority users on all transport corridors both at present and in the future. This will include measures to improve corridor management such as improved incident management, better motorist information, education, improved traffic signal

co-ordination, better provision for walkers and cyclists, priority for buses and/or freight where appropriate, smoothing local bottlenecks and special treatment of arterial road corridors through town centres.

- **Construct limited additional road capacity**

  The above direction will change the nature of the Auckland transport system over time. However, the majority of trips are likely to continue to be made by motor vehicle for the period of this strategy, and there needs to be continued investment in roading capacity. That investment will be limited and focused on developing a resilient and integrated transport network, closing the remaining gaps in the network, improving economic productivity and supporting identified growth centres. Any additional roading capacity will need to clearly demonstrate a contribution towards achieving RLTS objectives and targets. From a practical point of view, there is limited space within the built up urban areas for additional roads.

- **Reduce the impacts of transport on the natural environment and communities**

  Transport impacts on the environment and communities through: taking land and impacting on local ecologies, emissions including greenhouse gases, disruption to local communities and town centres. All these impacts should be avoided, remedied or mitigated where realistic, generally through good processes, good design and the separation of sensitive land uses from major transport routes.

4.2 Initial strategic transport options

There are a number of potential approaches to achieving these strategic priorities. The RLTS 2005 was constrained by limited funding and a 10-year planning horizon, which meant that only the benefits of individual projects could be assessed. With a 30-year horizon, it becomes feasible to test packages of region-wide projects, adding approaches such as road pricing, parking and managing travel demand to the mix.

Four 'Initial Strategic Options" were prepared to compare and contrast various ways the transport system may develop and identify the optimum combination of approaches. These are listed below.

Strategic Option 1: Demand management

This option involves factors which "push" people away from motor vehicle use (such as road pricing and parking management) towards a reduction in vehicle trips, particularly through greater use of public transport, walking and cycling. The option includes additional public transport infrastructure and services, and walking and cycling facilities to meet diverted demand. No additional road improvements are proposed.

Strategic Option 2: Mixed investment

This option involves continuing of the current strategy of improvement in all modes, with some shift away from road investment. It is the "business as usual" option. The main components include completing the strategic road network (including the Waterview connection); widespread arterial roading capacity increases for general traffic, freight and public transport; completing the current rail program with the addition of the CBD tunnel and frequency increases; completing the remainder of the proposed Rapid Transit Network using buses; and higher frequencies on the Quality Transit Network.

Strategic Option 3: Public transport led change

Under this option, additional public transport service and infrastructure improvements, supported by walking and cycling improvements, would be used to work towards the NZTS mode share targets. In contrast to Option 1, this option focuses on very attractive public transport to "pull" people away from cars, rather than "push" factors. It includes completing the strategic road network (except the Waterview connection); a modest programme of arterial road improvements focused on public transport requirements; and extensive improvements to the public transport network.

Strategic Option 4: Quantum shift

This option involves a combination of the push factors from Option 1 (pricing measures) and the pull factors from Option 3 (extensive public transport), together with a greater focus on land use intensification around the RTN Network than was assumed in Options 1-3. This is known as the "what-if" land use scenario variants. Two variants were developed, one with a more centralised CBD development focus and another variant that focused development along the RTN.

It also assumes that a series of policy and regulatory changes will be introduced nationally to address issues such as vehicle standards, emission controls, and road pricing.

The following matters formed the context of each of the strategic options:

Regional economic considerations - Auckland'seconomy, its industries and firms are influenced by a number of economic drivers of change. These drivers are global, national and local. They are interconnected and do not operate in isolation but culminate in a complex manner, with responses at individual, business, industry and government levels. To understand this, the region has developed the Auckland Region's Economic Futures Model to measure the flows between sectors of the economy. This economic model produces forecast total employment (full time employment equivalents or FTE) for the region by industry type. All RLTS strategic options have been developed and tested using the "Business as Usual" economic forecast for the region, developed in September/October 2008.

Land use considerations -The agreed form of urban development in Auckland is described in the Auckland Regional Growth Strategy of 1999 and consists of concentrated residential and business growth in denser, well-designed, mixed-use centres and corridors, primarily located on the Rapid Transit and Quality Transit Networks. The Local Government (Auckland) Amendment Act of 2004 required changes to the Auckland Regional Policy Statement (ARPS) and the region's district plans to give effect to the growth concept contained within the growth strategy. For the APRS these changes are mainly contained in Plan Change 6. All RLTS options (unless otherwise identified) have been developed and tested using Plan Change 6 land use for the Auckland region.

Transport energy – work was undertaken to provide estimates of a "best guess" and "high estimate" price for transport energy in 2041(This work is detailed in Working Paper 05). A petrol price of $3.71 as the best estimate of energy price in 2041 for all the strategic options and a sensitivity test was undertaken on the "high estimate" price of $6.00.

Longer term planning horizon - The need for options to cover at least 30 years.

4.3 Evaluation of initial strategic transport options

Each strategic transport option was evaluated against the RLTS objectives and its contribution, where applicable, to the New Zealand Transport Strategy performance targets in Chapter 2. The evaluation of the initial strategic options showed that:

- All options would produce a significant increase in public transport (PT) usage, but would fall short of the NZTS targets. Vigorous application of both push (service improvements) and pull

(road pricing) factors, together with PT supportive land use changes, is likely to deliver a PT daily mode share of around nine per cent in 2041 (compared with 3.2 per cent in 2006), representing an absolute growth in daily PT person trips from approximately 140,000 to over 500,000 by 2041.

- All options meet NZTS targets for walking and cycling. The best performing option has a daily walk/cycle mode share of around 18 per cent (compared with 9.6 per cent in 2006), representing an absolute growth in daily walk and cycle trips from 430,000 to 1.1 million by 2041.
- Under the best performing option, vehicle use declines from around 87 per cent in 2006 to around 74 per cent in 2041. Given the assumed growth of Auckland however, the expected increase in vehicle travel (except for options with congestion pricing) is in the order of 45 per cent. The largest roading component tested added seven per cent lane kms to the 2006 roading network. Consequently congestion is expected to increase, except for options which include congestion pricing.
- All options show improvements in greenhouse gas emissions, but fall short of NZTS targets.

The conclusion of this evaluation is that none of the four approaches on their own achieve the NZTS targets, although significant improvements in transport performance are achievable.

Each strategic option comprises a mix of network and policy changes so that it is difficult from the strategic option evaluation alone to identify the contribution of each of the separate components. In order to understand the contribution of the components better a further set of analysis was undertaken, substituting one component at a time. The outcome of the testing of components is described below.

Land use

For the APRS these changes are contained in Plan Change 6. For the purpose of the initial strategic options, the ARPS Plan Change 6 was used as the base land use scenario and was tested against the two "what if" land use scenarios developed for the Quantum Shift strategic option and described above. Both these "what if" land uses represent major changes to past and current practice and would be unlikely to eventuate without strong intervention from central and local government.

The high level of land use intensification in the 'what-if' scenarios resulted in an increase in walking and cycling and a small improvement in congestion. The increase in walking and cycling appears to be to some extent at the expense of public transport trips, which showed a slight decrease. It is considered that this relatively small change does not justify moving away, for the purpose of developing the transport strategy, from the currently adopted future land use represented by Plan Change 6. The small change in PT usage means that PT infrastructure designed to support Plan Change 6 is likely to also support any modifications or refinements to Plan Change 6 that might eventuate as the result of further investigations or changes to the ARPS, including the "what if" variants developed for this exercise.

Congestion pricing

Pricing was found to have a significant impact.

A single congestion pricing scheme was evaluated. This was based on the area charging scheme developed in a study undertaken by the Ministry of Transport in 2007 which considered 2016 levels of travel demand. It is probable that the effectiveness of congestion pricing in 2041 could be improved with further refinement of the scheme, given the likelihood that technology improvements will enable a more sophisticated scheme to be developed by then.

Congestion pricing reduced vehicle trips (eight per cent), increased public transport trips (six per cent), and reduced congestion (15 per cent).

Congestion pricing has the potential to make a significant contribution to achieving the NZTS targets. However, congestion pricing is not feasible without realistic travel options, particularly in terms of PT services and would require legislative changes. Careful consideration would need to be given to addressing equity issues.

Parking measures

Parking costs were used in the evaluation as a proxy for a range of measures to manage parking more effectively, including setting limits on parking, reducing parking requirements, parking charges, park and ride facilities, cycle parking etc. An increase in parking costs at major centres was associated with an increase of between 14 and 19 per cent in public transport trips and a three to four per cent reduction in vehicle trips. All other base measurements related to parking were relatively similar.

Parking control can lead to a worthwhile increase in PT but a small role in reducing trips. It should be noted, however, that while the recently completed Regional Parking Strategy has highlighted the importance of good parking policy, this is an area which has received little attention previously at the regional level. Further investigation is necessary to ensure the modelled results are robust.

Behaviour change

TDM inputs relating to behaviour change initiatives such as travel planning had a large impact on the base measurements; delivering a reduction of between 11 and 13 per cent in vehicle trips, an increase of between four and 16 per cent in public transport trips, and an increase of between 43 and 58 per cent in active mode trips.

Behaviour change initiatives are expected to have a significantly positive impact on all NZTS targets.

Public transport improvements

The evaluation confirmed that improved infrastructure and services lead to increased public transport usage, and that there are decreasing returns as the network improves.

Options for improving public transport were tested via the extensive public transport improvements in Strategic Option 3, including possible new metro style rail lines, predominantly underground, via Herne Bay to connect to the western rail line at Pt Chevalier and via Remuera, Panmure and Botany to connect to the southern rail line at Manukau City Centre. This resulted in a five per cent increase in public transport trips, six per cent increase in vehicle speed and a six per cent decrease in time. These results are somewhat disappointing considering the high cost that is likely to be associated with the development of this option.

The PT tested in options 1 and 2 are significant improvement over what is contained within the 2006 network. For example, options 1 and 2 include a 135 per cent increase in public transport services, for rail this is 400 per cent. The relatively small patronage increases delivered by the Strategic Option 3 network improvements must be seen in the context of the high level of service (compared with 2006) on the comparison network.

Road improvements

The "Mixed Investment" Strategic Option 2 contained the greatest amount of road improvements. Not surprisingly, this option had the highest vehicle use (approximately two per cent higher) and lowest levels of public transport use (approximately nine per cent lower). Congestion is expected to increase over 2006 levels by about 20 per cent.

Demand for travel is expected to grow faster than the shifts to PT, walking and cycling, resulting in increased private vehicle use. The road improvements tested in the initial strategic options are insufficient to prevent increasing congestion.

Transport energy price

The sensitivity test considered a high transport energy price of $6.00 which resulted in shifting trips away from car to passenger transport and walking and cycling. At a petrol price of $6.00 it is expected that car trips would decline by nine per cent and PT trips would increase by 33 per cent, relative to the forecasts using a price of $3.71 per litre used in all the option testing.

4.4 Preferred strategic transport option

The preferred strategic option is a public transport led approach, where public transport services and infrastructure are provided ahead of demand in order to encourage greater public transport use. Public transport initiatives include expansion of the Rapid Transit Network by construction of the CBD Rail link, provision of passenger rail to the airport and extending the Northern Busway to Orewa; and higher frequencies on the Quality Transit Network. The focus of investment shifts from state highway construction into public transport improvements, behaviour change, walking and cycling and local roads.

The preferred strategic option supports the planned intensification of development in growth centres which will be well served by public transport. Developments in new growth areas can proceed on the basis that bus services will be in place as the development occurs. Implementation of the Preferred Strategic Option will result in the Auckland region better placed to cope with oil price volatility and the need to reduce transport related carbon dioxide emissions.

The main components are:

Improved public transport

Improve the RTN and QTN networks by:

- electrifying the rail network,
  - constructing the CBD rail link,
  - constructing a rail loop to Auckland Airport,
  - extending the Northern Busway to Orewa,
  - developing the Panmure-Botany-Manukau bus connection,
  - developing the Henderson-Westgate-Albany bus connection,
- integrated transport ticketing and fares, and
- higher frequency of services on the RTN and QTN.

Strategic Option 3 contains a very extensive public transport network. This network has been reviewed to identify any new high cost elements which would deliver only small increases in patronage. Infrastructure and services would be provided in advance of the road network reaching high levels of congestion in order to provide an attractive alternative to car use as demand grows. Public transport initiatives include expansion of the Rapid Transit Network by construction of the CBD Rail link, provision of passenger rail to the airport and on the Avondale Southdown line, extending the Northern Busway to Orewa and connecting Panmure and Botany Town Centre with bus rapid transit.

To serve a population increase of 53 per cent and an increase in employment of 60 per cent by 2041 compared with 2006, the public transport network in the preferred strategic option has a rail service increase of 580 per cent, a bus service increase of 180 per cent and a ferry service increase of 170 per cent compared with 2006. These increases are a combination of additional services and increased frequency.

(The public transport network included in the Preferred Strategic Option for evaluation purposes is described in detail in RLTS 2010 Working Paper 19.)

Continuing growth in behaviour change initiatives

The behaviour change measures included in the Preferred Strategic Option for evaluation purposes is described in detail in RLTS 2010 Working Paper 14 Travel Demand Management, Behaviour Change Initiatives and Supporting Infrastructure. These measures include the continued implementation of school, work and community travel plans alongside walking and cycling infrastructure improvements.

Improvements to roads

Improve the road network by:

- completing the Western Ring Route,
- constructing the Auckland Manukau Eastern Transport Initiative,
- improve airport road access, and
- widespread arterial road improvements focused on public transport and the Regional Strategic Freight Network.

To serve a population increase of 53 per cent and an increase in employment of 60 per cent by 2041 compared with 2006, the resulting road network has an increase in roading lane kms of nine per cent. This includes an increase of motorway kms of 52 per cent and an increase in regional arterial road lane kms of six per cent. Note that five per cent of the nine per cent increase in lane kilometres of planned road infrastructure is expected to occur in 2016.

The road network included in the Preferred Strategic Option for evaluation purpose is described in detail in RLTS 2010 Working Paper 19.

Parking measures

The preferred strategic option includes parking measures in centres across the region, which are planned for growth and good public transport. These measures include setting limits on parking, parking charges, park and ride facilities providing cycle parking, etc in accordance with the Regional Parking Strategy 2009. This strategy recognises that in these centres there will generally be travel choices available so providing more parking than is needed has an economic cost and works against the direction of this strategy. It is recognised that there will be an ongoing need for parking in all centres, particularly short-term parking to accommodate commercial and operational needs.

Common elements from options 1 to 4 and the Preferred Strategic Option

Common elements of all strategic options include:

- maintenance and renewals,
- improvement of external linkages to Northland, Waikato and the Bay of Plenty,
- traffic management improvements,
- integrated PT ticketing and fares,
- walking and cycling infrastructure improvements,

- high levels of town centre amenity,
- road safety improvements,
- engine technology improvements, and
- rural transport improvements.

Congestion pricing

While congestion pricing has the potential to make a significant contribution to achieving the NZTS targets and demand management objectives, it is not feasible without realistic travel options, particularly public transport services. Even then, careful consideration would need to be given to addressing equity issues. Therefore congestion pricing has not been included in the preferred option.

Land use

ARPS Plan Change 6 forms the basis of the land use underlying the preferred transport option.

Evaluation of preferred strategic option

As for the initial strategic options, the Preferred Strategic Option has been evaluated against the RLTS objectives. The NZTS 2008 contains targets that are directly related to most of the objectives and where applicable the evaluation was based on contribution to achieving these targets. Specifically, the targets used (based on ART3 Model outputs) are:

Ensuring Environmental Sustainability

- Halve per capita greenhouse gas emissions from domestic transport by 2040 (based on the 2006 level of 2.6kg/day/capita).
- Reduce vehicle kilometres travelled (VKT) per capita by Single Occupancy Vehicles (SOV) by 10 per cent based on the 2006 level of 22.3 VKT - target 20.0.

Economic Development

- Improve reliability of journey times based on the percentage of Regional Strategic Freight Network congested (against level of service (LOS) E and F).
- Reduce the average journey times based on 2006 levels.

Assisting Safety and Personal Security

- Reduce road deaths and serious injuries to half that of 2006 levels.

Access and Mobility

- Increase use of PT to seven per cent of all trips based on 2006 levels (target - 144 million trips).
- Increase active mode share to 17 per cent of total trips.

Public Health

- Reduce the number of people exposed to health endangering pollutants.

Economic Efficiency

- Reduce daily fuel consumption (million litres) for the region based on the 2006 level of 2.96million litres (this is not an NZTS target - included for information).
- Reduce daily fuel consumption per capita (litres) - based on the 2006 level of 2.20litres per capita.

The table below evaluates the preferred strategic option compared with the initial strategic options, the situation in 2006, and a "Do Nothing" option. All figures are derived from ART3 model outputs.

Table 16 Evaluation of Preferred Option

RLTS Objectives and NZTS Targets	2006 Base	2040 Do nothing	Option 1	Option 2	Option 3	Option 4	Preferred option	Notes *(as above)*
Environmental Sustainability								
Halve greenhouse gas emissions (CO2 kg/day/capita)	No	No	No	No	No	No	No	Requires a reduction to 2.6kg/day/capita[32]
	5.2	6.0	6.1	6.3	6.1	5.7	6.1	
VKT per capita by SOV (<20.0)	No	No	Yes	No	No	Yes	No	VKT per person per day
	22.3	22.0	20.0	20.8	20.3	18.4	21.0	Target - 20.0
Economic Development								
Improve reliability by 17 per cent	No	No	Yes	No	No	Yes	Yes	
	17%	25%	15%	20%	18%	12%	16%	
Journey times		No	Partly	No	No	Partly	Partly	Some trips improved
Safety and Security								
Deaths and serious injuries	No	Yes	Yes	Yes	Yes	Yes	Yes	Forecast crash rates per VKT are reduced
Access and Mobility								
Improve PT trips (>7%)	No	No	No	No	No	No	No	
	43	74	101	85	93	116	109	Target = 144m
Increase active mode share (ART3 model >17%)	No	No	No	No	No	Yes	No	Mainly due to the effects of TDM
	10%	10%	16%	15%	15%	18%	15%	
Public Health								
Exposure to pollutants	No	Yes	Yes	Yes	Yes	Yes	Yes	Forecast emission rates reduce
Economic Efficiency								
Daily fuel consumption (Million litres)	2.96	5.26	4.98	5.13	5.02	4.58	5.05	Not an NZTS target
Daily fuel consumption per capita (litres)	2.20	2.55	2.41	2.48	2.43	2.22	2.45	

32 This is the NZTS GHG reduction relative to 2007 per capita emissions. The Kyoto targets relate to 1990 total emissions.

4.5 Summary discussion

As discussed earlier, the four initial strategic options were designed to highlight the strengths and weaknesses of different approaches and are not necessarily realistic. The Preferred Strategic Option on the other hand has been developed, learning from the evaluation of the initial strategic options, as an option that can be implemented. It is notable that in the areas of economic development and active mode share, the Preferred Strategic Option meets the NZTS 2008 targets. The only initial options which outperform the Preferred Strategic Option are those which include road pricing (Strategic Options 1 and 4). While the Preferred Strategic Option does not meet the NZTS 2008 target for public transport boardings, it does move substantially towards the target. It performs almost as well as Strategic Option 3, which has a much higher investment in public transport infrastructure. Again, the options which include road pricing perform better.

All options, including the Preferred Strategic Option, meet the NZTS 2008 targets for road safety and exposure to pollutants. This is primarily due to assumptions about road safety initiatives and improved engine technology, rather than changes to transport networks and transport policy.

None of the options meet the NZTS 2008 targets for greenhouse gas emissions. The implication is that more extreme changes to fuel type and engine technology than currently assumed will be needed to achieve these targets.

None of the options meet the NZTS target for vehicle kms of travel in single occupancy vehicles. It is not clear how this target could be achieved.

Implementing the Strategy

The Preferred Strategic Option identifies the funding required and transport infrastructure that will support the region's economic and land use future, as discussed in section 4.2.

A variety of regional and central government transport providers and other inter-regional organisations are required to work together towards its delivery. They are specifically identified in the policies (Chapter 5) of this strategy.

4.6 Funding the strategy

This strategy will only be effective if it can be implemented within the funding resources available, and if funding rules and the strategy are aligned.

Funding available

The principal sources of land transport funding are:

- central government through the New Zealand Transport Agency (NZTA).
- local funds (principally territorial authorities and the Auckland Regional Council).
- KiwiRail (through the Treasury).

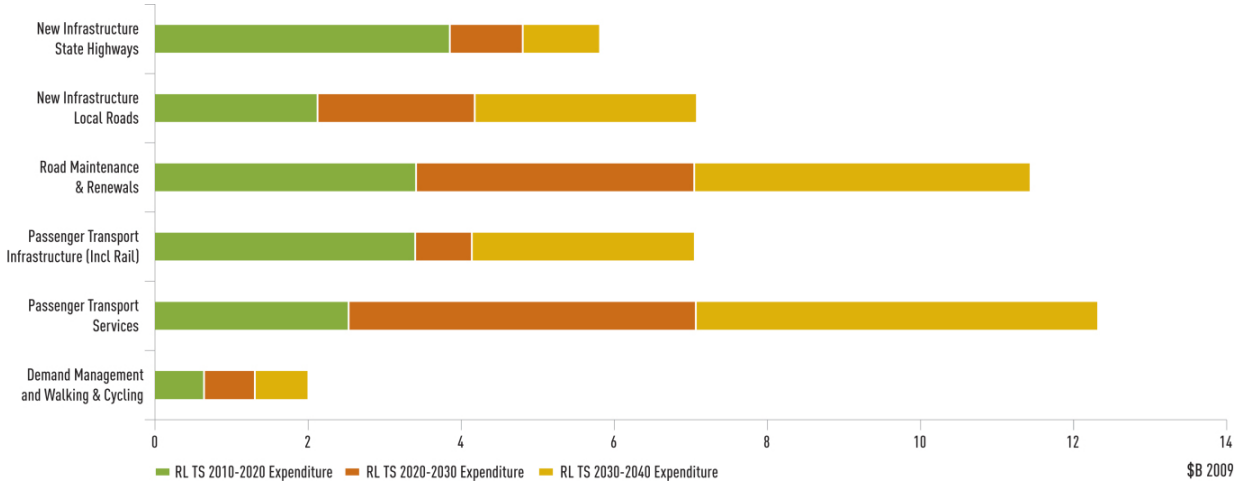
The LTMA requires the RTC to "take account of the land transport funding likely to be available within the region for implementing the strategy during the period covered by the strategy". It is difficult to estimate with any confidence what that amount will be over the next 30 years from each of these sources. There is no funding information available beyond the next ten years and many factors influence funding, which could push it either higher or lower. A best guess is in the range of $33b to $47b.

Funding required for preferred strategic option

A best guess estimate of $46b has been developed as the cost of implementing the preferred strategic option. There is a wide range for this cost.

The estimated level of expenditure by activity class for each of the ten-year periods of the 30-year strategy is shown below.

Figure 5 Estimated Expenditure



Affordability - The funding gap and its implications

This assessment suggests the level of funding likely to be available over the next 30 years is likely to be insufficient to implement the strategy. New funding sources, such as developer contributions and tolling, will be necessary to make up the shortfall. New financial mechanisms such, as loan funding and public private partnerships, will also be investigated to support timely delivery of the strategy.

Funding arrangements will also need to change to match the strategy – both at local and national levels. An assessment of funding allocations suggests there will be a significant funding and expenditure misalignment at an activity class level if it is allocated over the 30-year period in the same way as it is in the 2009-12 National Land Transport Programme (NLTP).

The RLTS 2010 strategy is to move from a heavy emphasis on state highway construction to a much stronger emphasis on investing in public transport improvements to both infrastructure and services and on improvements to local roads, particularly improved operation of regional arterials. State highway expenditure is 100 per cent funded by NZTA, but public transport infrastructure and services and local roads are funded only approximately 50 per cent by NZTA.

Under current financial assistance rates (FARs), the shift in this RLTS strategy means a shift of the funding burden from nationally collected transport funds to locally collected funds, which are largely rates collected by local government. There are limits on how much local funding can be increased to match this change in emphasis and there is a strong equity argument that a large part of the funds raised from transport users in the Auckland region should be used to improve transport in the Auckland region. It will therefore be necessary to develop new mechanisms that ensure funding rules support the strategy.

Policies to address these funding implications and ensure the strategy can be implemented are outlined in Chapter 5.8. The assumptions underlying the estimates for funds available and required, and the main areas of uncertainty, are described in Working Paper 9 - Strategy Affordability Assessment.

4.7 Role of transport modes

The LTMA requires the RLTS to contain "an assessment of the appropriate role for each land transport mode in the region". This section satisfies this requirement by describing the appropriate role for each land transport mode within the Auckland region. These modes include walking, cycling, public transport, private vehicles and freight. An estimate of the percentage of a mode's contribution towards the preferred strategic option is given based on modelled results.

In addition to the role of modes, education and enforcement play a role in contributing to the land transport outcomes sought and are described in this section.

4.7.1 Role of walking

Walking is an appropriate mode for short local trips (under 2km), for connections between modes, and at the start and end of longer journeys. Walking is an essential and widely used mode of transport that is often the quickest and cheapest way to make short trips. Walking contributes to improvements in public health and social interaction with minimal negative environmental effects. The most common short journeys are to school, to and from public transport, within the CBD, to and around town centres, and to local shops for convenience goods. Over time, as land use becomes more concentrated in denser, mixed use centres and corridors, trip lengths will decrease and walking will become progressively more important, and can be expected to contribute strongly to the vibrancy and economic success of the centres.

An important part of this strategy is to increase the proportion of travel in Auckland that is made by walking. The main mechanisms for achieving this will be through improved walking facilities, speed management, and behaviour change programmes.

Active mode trips, including walking trips in the Auckland Region in 2006 accounted for 9.5 per cent of the region's trips and is anticipated to increase to 15.3 per cent by 2040 through the implementation of the RLTS 2010.

4.7.2 Role of cycling

The appropriate role for cycling is the safe and efficient movement of people over short to medium distances as an alternative to cars and as a form of recreation. Cycling contributes positively towards a sustainable transport system as it is energy efficient, has minimal environmental impacts, is affordable and has associated health and fitness benefits. Cycling contributes to reduced congestion as cycles require less road space and parking than cars. Cycling as a part of a longer journey combined with passenger transport needs to be adequately provided for within our region.

An important part of this strategy is to increase the proportion of travel in Auckland that is made by cycling. The main mechanisms for achieving this will be through improved cycling infrastructure, including the completion of the regional cycle network, and behaviour change programmes. Active mode trips, including walking and cycling trips in the Auckland Region in 2006 accounted for 9.5 per cent of the region's trips and is anticipated to increase to 15.3 per cent by 2040 through the implementation of the RLTS 2010.

4.7.3 Role of public transportation

Public transport, including trains, buses, ferries and taxis have a number of distinct but related roles in the Auckland region. These roles are to support urban development by *shaping the region*, to improve the efficiency and effectiveness of the overall transportation system by moving Aucklanders to their chosen destinations, provide mobility and access to enable citizens to fully participate *building their community* (especially for those who do not have access to a car), and to provide an *environmentally sustainable* transport choice as an alternative to the car.

Public transport trips in the Auckland region in 2006 accounted for 3.2 per cent of the region's trips and is anticipated to increase by 8.2 per cent by 2040.

Shaping the region

The rapid transit network will make a major contribution towards shaping the region. The RTN is a fast, high frequency service in its own right of way where it is unaffected by traffic congestion. The rapid transit network will connect the major growth centres to the Auckland CBD and contribute towards improving economic development outcomes near the RTN stations.

Public transport investment will support the Regional Growth Strategy, and provide added value and confidence for development and a sense of permanence. As well as moving large numbers of people, the network will encourage more intensive urban development along the corridors and in the key growth centres it serves. This provides people with the opportunity to be less dependent upon the car.

Moving Aucklanders

Passenger transport along the Quality Transit Network will move Aucklanders by providing capacity and service that offers a convenient travel option to key destinations. The quality transit network is a network of fast, high frequency, and high-quality transit services operating between key centres and over major corridors including extensive bus priority measures and some ferry services. It will consist of integrated radial and cross-town services designed to efficiently connect the region's key centres. Together with the rapid transit network described above, the QTN will connect at key hub stations to ensure seamless transitions between the two networks and will be supported by accurate and timely information.

Building communities

The local public transport network will build communities by providing basic accessibility necessary for people to participate fully in their communities. The local connector network will involve local bus and ferry services providing access to local centres – including where appropriate rural communities and supporting connections with the RTN and/or QTN. Targeted services will provide mobility for groups for whom the regular public transport network is not adequate. This includes the Total Mobility service for people with disabilities, fare concession schemes, and school bus services.

Environmental sustainability

Public transport services and infrastructure will contribute to environmental sustainability by enhancing the energy efficiency of the transport sector and by reducing emissions.

Public transport has an inherent environmental advantage over car travel in that it can move more people more efficiently from point to point. However, it is important that public transport is efficiently designed to ensure good use and that public transport vehicles have low polluting engines and vehicle components.

4.7.4 Role of private vehicles (light motor vehicles and motorcycles)

The appropriate role for private vehicles is the safe and efficient movement of people between many origins and many destinations at diverse times. Private vehicle use is appropriate over distances that cannot be easily walked or cycled, and/or where the trip cannot be conveniently provided for by passenger transport services. Private vehicle trips in the Auckland Region in 2006 accounted for 87.3 per cent of the region's trips and is anticipated to decrease to 76.4 per cent by 2040 through the implementation of the RLTS 2010. The main thrust of this strategy is to increase the travel choice available to Aucklanders and reduce the reliance of travel by private vehicles.

Travel by private vehicle in our region is contributing to adverse effects on environmental quality, public health and economic efficiency. Current trends of increasing petrol and diesel consumption are having an adverse impact on CO_2 levels and regional air quality. Peak period congestion is dominated by journeys to and from school and work, particularly on the strategic network in the vicinity of the Auckland CBD.

Individuals rely on private vehicles for trips due to the flexibility and convenience a car provides in terms of trip origin and destination, time of travel, and trip distance, making these the most attractive mode choice. For many businesses the roading system is crucial to their success. Retaining flexibility while ensuring that businesses locate where they are best supported by the transport system, will be an important part of the region's continued economic growth.

4.7.5 Role of freight

The appropriate role for freight traffic is the safe and efficient movement of goods within, to and through the region. Freight includes anything transported as part of the commercial arrangement from a small couriered document to the movement of logs, containers and heavy machinery. The Auckland region is New Zealand's major centre for transport, communications, wholesale trade, and has the country's principal seaport and airport for international shipping, passengers and airfreight. Auckland's ports and airport move a high volume of New Zealand's imports (75 per cent) and exports (40 per cent) and acts as a service and distribution centre for all of New Zealand. Freight traffic (excluding courier services) generally represents 4-6 per cent of traffic on the Auckland road network.

The Regional Land Transport Strategy confirms the key policy outcomes and priority actions of the Regional Freight Strategy. It aims to improve the efficient distribution of freight within the region while providing for safe freight operations that are environmentally sustainable and minimise adverse impacts on other community activities. The Regional Freight Strategy supported the development of the Regional Strategic Freight Network (2009) which sets out a rational for the strategic freight network that is detailed in Map 2 Strategic Freight Network.

The majority of freight movements are by road but there are important roles for both rail freight and coastal shipping, particularly for interregional movements. Pipelines also have an important interregional role. This strategy advocates for the advantages of rail freight and coastal shipping to be fully utilised. Targets for freight are detailed in the RLTS working paper Freight Movements and the GPS, which includes coastal shipping.

4.8 Role of education and enforcement

Education plays a key role in supporting RLTS outcomes related to modal shift targets. The ease with which people are able to transfer within and between these modes is very important. Travel planning initiatives are aimed at educating the public on alternative modes of travel and assisting users with changing from one mode to the next. Travel planning is also about finding bottlenecks or hot spots where minor improvements can deliver considerable improvements for neighbourhood

accessibility and safety. Travel planners can also assist with personalised travel planning to reduce or modify household trips. For some families this may mean the difference between having one or two cars per household, resulting in significant household savings and thereby contributing to affordability outcomes.

Enforcement plays a principal role in contributing towards the outcomes identified in Chapter 2 such as improved personal security or improving public transport accessibility. Speed management is also central to reducing injuries on local and rural roads, and visible enforcement is often the key. This includes greater acceptance by motorists to be aware of other road users, especially in town centres and other areas where pedestrians and cyclists travel. Further efforts are required to improve safety and encourage people to use these modes in a safe manner, particularly motorcycles. The police require new or enhanced tools to address serious traffic offenders such as red light runners. Motorists require improved roads and programmes that reinforce safe driving habits such as observing the give-way rule, driving to the conditions and encouraging drivers to pass cyclists safely. Enforcement also plays an important role in traffic management, particularly in ensuring that priority lanes for buses, high occupancy vehicles, freight vehicles, as well as cycle lanes, are used for their intended purposes.

The majority of road crashes are due to driver error, however there is little evidence that education on its own contributes to safer road user behaviour except in some very specific and targeted ways eg repeat offender drink driver treatment programmes. Education is of the greatest benefit when linked to supporting specific legislation, enforcement or engineering interventions. It has been shown that drivers do value safety and respond positively to campaigns to encourage safety belt use and sober driving if they also encounter enforcement activities in their everyday travels. The perception of being caught is often a greater motivator for safer driving than the perceived likelihood of being involved in a crash. The benefits of regular enforcement therefore increase markedly when linked with education and advertising campaigns. However, many drivers are also willing to pay a premium for vehicle safety features and child restraints, and there is merit in promoting these to drivers.

Enforcement is highly mobile, and can be targeted to emerging road safety risks at short notice. However enforcement often reaches a threshold after a period of time when new legislative measures or interventions must be introduced to continue providing a deterrent effect eg new penalties, demerit points, technology or tougher sanctions.

This dynamic link between enforcement and education can be improved in the region to create safer road users, particularly in relation to the growing speed and alcohol-related crash risk where a stronger deterrent effect is needed.

Policies

This chapter sets out the policies that have been developed to give effect to the preferred strategic option described in Chapter 4. The policies are intended to guide and identify public organisations (both intra and inter-regional) with responsibility for delivering these activities and to ensure that their decisions give effect to the overall strategic direction.

The policies in this chapter are presented in two parts. Policies 1-6 are generally focused on **what** needs to be done to the transport system to implement the strategic option. The second part (policies 7-13) includes policies that describe **how** those things should happen. They are particularly important for public authorities to ensure that their decision making processes and procedures are consistent with the overall strategic direction of the RLTS, and meet the requirements of the LTMA.

In line with the emphasis on demand management that has been described in chapter 4, the policies in the first part of this Chapter have been organised along a continuum, starting with longer term demand-side initiatives, and working through to shorter term supply side initiatives. This continuum is illustrated in the following diagram. The policy hierarchy is closely linked to and builds on the strategy described in chapter 4.

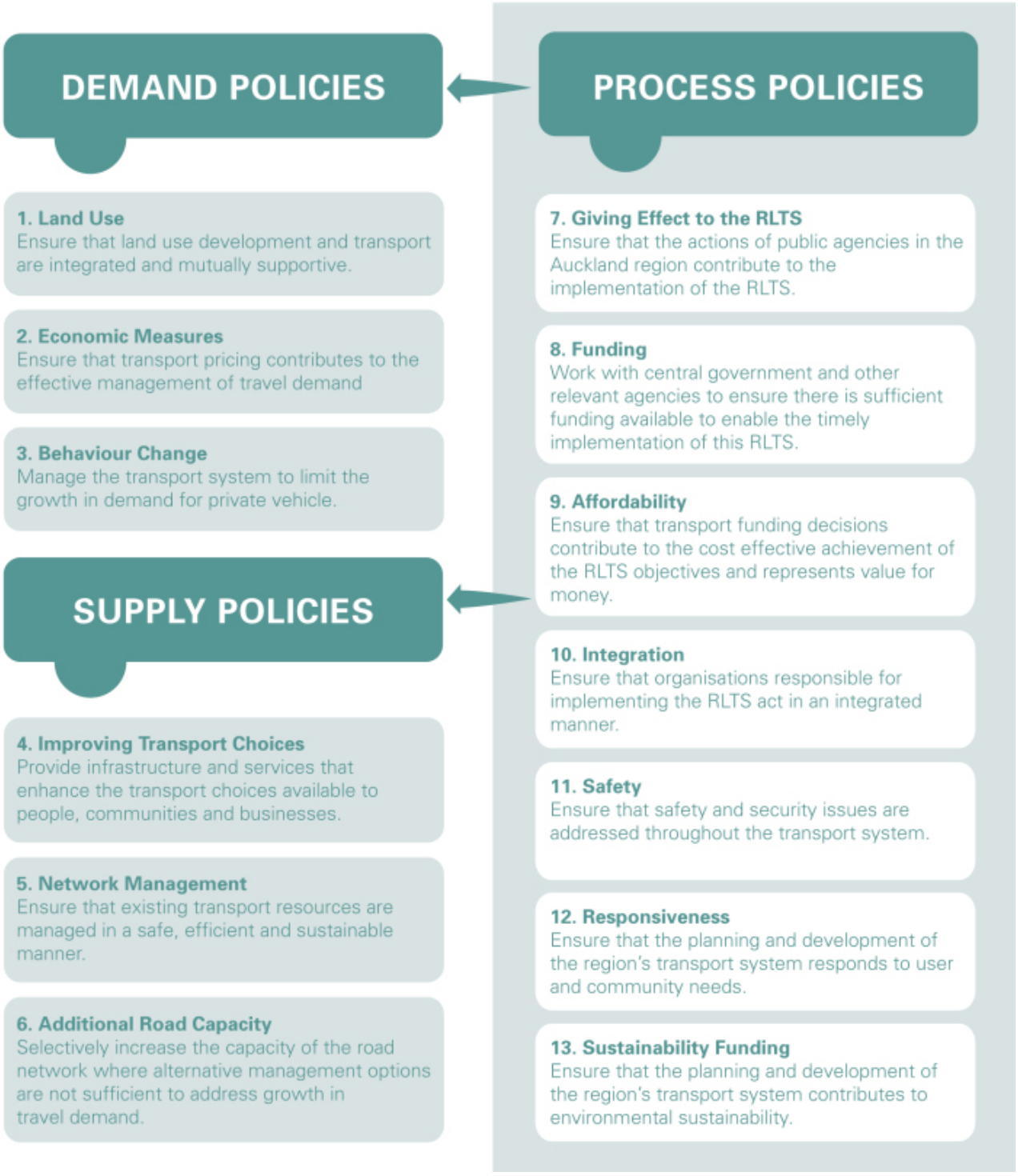
Taken together, the first three policy categories constitute the demand management strategy, as required under the Schedule 7 Clause 5 (1)(e). The policies in these three demand-side categories contain a series of initiatives aimed at changing travel demand away from the current heavy reliance on private vehicles.

In general, the strategy adopts a hierarchical approach to the implementation of policies 1 to 6. This involves considering demand side policies before considering supply side policies that provide additional capacity to the transport system, especially for roads. Note, however, that there are important links between the demand and supply policies, to be fully effective, the demand side initiatives will often require supporting supply side improvements. This is especially true for the provision of additional public transport and walk and cycle facilities.

The second part of the chapter (policies 7-13) presents policies that are intended to guide the processes followed in implementing this RLTS. These policies are divided into seven categories. The first, "giving effect to the RLTS" (policy 7) deals with the actions public agencies in the region must take to enable the Strategy to be implemented, including preparation of more detailed plans and strategies and funding (policy 8).

The remaining five categories (policies 9-13) deal with policies that give effect to the five NZTS principles; affordability, integration, safety, responsiveness and sustainability. These categories recognise the LTMA requirement that the RLTS contributes to the aim of achieving an affordable, integrated, safe, responsive, and sustainable land transport system, and describes the steps that will be taken to ensure that these LTMA principles are adhered to.

Figure 6 Policy Hierarchy



The remainder of this chapter presents the policies in the order outlined above. For each category, a brief explanation of the policy content is included, followed by an overall policy statement for that category (numbered with a single digit) This is followed by more detailed polices (denoted with 2-digits) and supporting methods (bullets).

The agencies identified in this version are those that currently have responsibility and will need to be updated once the current review of governance arrangements in the region has resolved the allocation of transport functions. The policies also identify other organisations that aren't responsible for delivery but whom co-operation will be required to give effect to the strategy.

There is growing recognition that the costs of transport fuels and unreliability of fuel supply are increasing, as is transport fuel price volatility. The current Auckland transport system relies on the availability of a cheap and reliable supply of energy and there is a need to move towards using transport energy more efficiently. While energy efficiency is not an explicit objective of this document, the strategy and the following policies are to develop a transport system which is less reliant on the use of motor vehicles. The outcome will be a system which is more resilient to energy supply and price shocks, consistent with an approach based on energy.

5.1 Land use planning

Land use and transport outcomes are mutually dependent for their success, so it is important that policies are aligned. The growth concept in the ARPS envisages a quality, compact urban form containing high density mixed use centres and corridors supported by the provision of a multi-modal transport system. Cycling, walking and public transport are an important part of enabling this development pattern while reducing reliance on using private vehicles for transportation. It is envisaged that this will provide communities with improved access to a range of services and activities and opportunities to work locally. The ARPS identifies the centres and corridors for intensification, and the policies in this section of the Strategy are designed to ensure that the transport system is developed to support those centres and corridors.

The policies also emphasise that future development is designed so that the transport network supports land uses, while at the same time ensuring that the network is not compromised by inappropriate land uses. For instance the relationship between mixed use town centres and the density needed in order to support a sustainable public transport system.

The form of development in the rural areas is also important in achieving land use and transportation outcomes, for instance in considering the form and location of rural residential development, the impact on transport infrastructure should be considered.

To achieve quality outcomes the principles in the Urban Design Protocol and other related publications should be followed. Concepts such as connectivity, access and context are central to achieving good transport and land use design solutions.

For development throughout the region, both rural and urban, minimising any reverse sensitivity effects should be considered as part of any project. To address these issues, design solutions might include location suitability, location of sensitive uses within a building, or building and performance standards.

Policy 1: Land use planning

Ensure that land use development and transport are integrated and mutually supportive.

1.1. Develop the region's transport system to give effect to the growth concept in the Auckland Regional Policy Statement.

1.1.1 Programme transport investment and service improvements, particularly the rapid transit network, to fit with the growth sequencing identified in the Auckland Regional Policy Statement (ARTA, city and district councils, KiwiRail, NZTA).

1.1.2 Give priority to new and enhanced transport infrastructure and services in identified mixed use centres or corridors (City and district councils, NZTA, KiwiRail, ARC).

1.2. Encourage land use activities to develop in locations that reduce the need for motorised trips.

1.2.1 Encourage high trip-generating activities to locate in town centres that have good public transport accessibility (City and district councils, ARTA, ARC).

1.2.2 Support district plan changes to promote intensification in locations where significant public transport investment is proposed (City and district councils, ARTA, ARC).

1.2.3 Encourage, through district plans and long term plans, transit orientated developments (TOD) and pedestrian oriented design, that include a mixture of land uses which decrease the need for vehicle travel (City and district councils, ARTA, ARC, NZTA).

1.2.4 Encourage intensification in locations which have good public transport access via the RTN and QTN (City and district councils, ARTA, ARC, NZTA).

1.3. Locate economic activity to maximise the efficient movement of goods and services.

1.3.1 Encourage provision for freight-intensive activities to locate in areas with good access to the regional strategic freight network (See Map 2)(City and district councils, ARTA, ARC, NZTA).

1.3.2 Investigate the development of freight hubs, logistics centres and inland port facilities in locations with good access to the regional strategic freight network (City and district councils, ARC).

1.4. Ensure that the design of streets and transport infrastructure contributes to quality liveable environments and takes account of the different roles and character of particular locations.

1.4.1 Incorporate good design principles and context sensitive design from an early stage in planning projects, including consideration of connections, legibility, safety, accessibility and mobility, character, heritage and amenity, environmental standards, the role of public space and the interface with development sites (City and district councils, ARTA, ARC).

1.4.2 Consider the pedestrian-permeability of transport infrastructure and associated developments, and mitigate the potential severance of communities and their activity patterns that can result from road or rail infrastructure (City and district councils, ARTA, ARC).

1.4.3 Plan to enhance community/neighbourhood cohesion and connectivity when delivering significant transport interchanges and associated developments (City and district councils, ARTA, ARC, NZTA, KiwiRail).

1.4.4 Design transport corridors as integral parts of the life of centres along those corridors, which contribute to the image, identity and character of those centres (City and district councils, KiwiRail).

1.4.5 Consider the safety, comfort and convenience of road users and people who live, work and visit the area in the planning and design of streets (City and district councils).

1.4.6 Implement special measures on residential streets to enhance social connectedness and promote safer walking and cycling environments (See Map 1) (City and district councils).

1.4.7 Preferentially deploy clean, quiet transport solutions in identified town centres and high density corridors (ARTA, KiwiRail, NZTA).

1.5. Encourage land use activities and urban design that reduce the exposure to adverse effects from transport activities.

1.5.1 Require high traffic-generating activities to adopt "good sustainability practice" into land use developments (City and district councils).

1.5.2 Ensure that new developments are subject to an integrated transport assessment (ITA) (City and district councils).

1.5.3 Ensure a high level of pedestrian connectivity is provided between public transport, stops, stations and interchanges,shops, businesses, community facilities and residential areas in all new developments and redevelopments (city and district councils, ARTA).

1.5.4 In preparing district plans and in considering development and redevelopment proposals, consider the documents People, Places and Spaces: a design guide for urban New Zealand (Ministry for the Environment March 2002); the New Zealand Urban Design Protocol (Ministry for the Environment 2004); the Urban Area Intensification and Structure Planning Regional Practice Guides, (both 2000); Crime Prevention Through Environmental Design; and relevant local authority urban design guides and provisions that ensure land use and transport systems are mutually supportive (city and district councils).

1.5.5 Make provision for the amenity and security needs of pedestrians, cyclists and public transport users in the design and assessment of town centre developments, new subdivision and major redevelopment proposals (city and district councils, ARTA, NZTA).

1.5.6 Consider the potential for an Urban Development Authority or other mechanisms to facilitate land assembly when planning for transport infrastructure, to make transit orientated developments more viable and/or stimulate economic development (city and district councils, ARTA, ARC, Central Government).

1.5.6 Encourage District Plans to consider reverse sensitivity effects relating to transportation activities (City and district councils, ARTA, ARC, NZTA, KiwiRail).

1.6. Recognise and provide for the multi-functional role of transport corridors, in addition to their transport function.

1.6.1 Recognise transport corridors as an important component of public space, which perform a variety of functions beyond movement and contribute to wider social and economic outcomes (City and district councils, NZTA, KiwiRail).

1.6.2 Recognise the importance of transport corridors as biodiversity corridors, providing open space, and use of the corridor for amenity and indigenous planting (City and district councils, ARTA, NZTA, KiwiRail).

1.6.3 Work with utility providers to co ordinate the use of transport corridors for utilities in an efficient and effective manner (City and district councils, ARTA, NZTA, KiwiRail).

1.7. Discourage high trip-generating activities from developing in locations where transport options are limited, or where there are adverse effects on the safety and efficiency of the transport network.

1.7.1 Discourage activities that generate high numbers of person-trips from developing in locations without good access to the rapid transit network or quality transit network (Map 3) (City and district councils, ARTA, ARC).

1.7.2 Discourage high freight-generating activities from locating in areas without good access to the regional strategic freight network (Map 2) (City and district councils, ARTA, ARC, NZTA).

1.7.3 Where possible, avoid locating sensitive land uses such as hospitals, schools, childcare facilities, aged care facilities, marae and playgrounds closes to roads on the regional freight network (City and district councils, Central Government, District Health Boards).

1.7.4 Develop access management plans to manage property access on the arterial road network (City and district councils).

5.2 Economic measures

The policies in this section aim to ensure that the prices faced by individual transport users are as fair as possible, so that users face transport prices that reflect the full costs and benefits of their transport decisions. At present, a number of the costs that users impose on the system (including externalities such as environmental, health and social costs, and the costs of delay for other users) are not reflected in the prices that they pay.

Considerable resource has been devoted in various cities around the world, including Auckland, to researching the introduction of road pricing schemes. These schemes are generally aimed at reducing congestion by charging for the use of roads according to how congested those roads are, with charges depending on where and at what time people travel. Road pricing schemes have been introduced in a limited number of locations, notably Singapore, London and Stockholm. In a number of other instances, as in Edinborough, schemes have been developed but not proceeded with. The main lessons learned from the various schemes are that:

- There needs to be an acceptance by the public that the problem to be addressed is severe enough to warrant the introduction of road pricing, and a clear articulation of the expected results of the proposed road pricing scheme.
- Road pricing will not be acceptable to the public unless other options that are likely to be effective in addressing congestion have been put in place and found wanting. These includes public transport improvements, travel demand management measures, parking policies, more sustainable land use, and additional roads where appropriate.
- Realistic alternatives must be in place for people faced with additional charges as a result of the road pricing scheme.
- It must be shown that the financial impacts of the scheme will not materially disadvantage low income groups relative to other groups in the community.

While there are benefits in a shift towards a full road pricing regime in the long term, the introduction of road pricing in Auckland cannot be considered until the more conventional options described above have been implemented and fully tested, and the Auckland transport system has been developed to a point where there are realistic alternatives for people affected by the road pricing charges. An important element of this would be a much improved public transport system providing good accessibility at affordable fares. Measures would also need to be introduced to ensure equity issues caused by road pricing are resolved before road pricing is introduced.

In the meantime, the economic and pricing policies in this strategy are aimed at encouraging a shift in travel behaviour towards public transport and active modes as an alternative to single occupant vehicles use. This includes the use of financial incentives to encourage the use of more sustainable modes. Policies on the supply and pricing of car parks are also included in this section, in recognition

of the important effect that this can have on travel demand. The Regional Parking Strategy 2009 provides additional guidance on implementing changes in parking rules and to reduce the complexity of district plan controls.

The policies also recognise the need to take equity issues into account in setting transport prices. This reflects the fact that the accessibility and mobility of some people in the community will be adversely affected by pricing policies which are solely focused on efficiency. For this reason, policies have been included to ensure that the needs of the transport disadvantaged are taken into account in setting public transport fares, and that travel alternatives are available where road pricing or tolling schemes are implemented.

Note that the policies in this section are focused on economic signals to individual users, in contrast to transport affordability and funding policies relating to the community as a whole. These are addressed in policies on affordability (5.9) and funding (5.8).

Policy 2: Economic measures

Ensure that transport pricing contributes to the effective management of travel demand.

2.1. Provide financial incentives to encourage the use of sustainable transport modes.

2.1.1 Provide financial assistance for the provision of public transport services where this provides alternatives to private vehicle travel(ARTA, ARC, NZTA).

2.1.2 Consider financial assistance to promote alternatives to road freight in congested conditions(city and district councils, ARC, NZTA).

2.1.3 Consider the provision of incentives to encourage the adoption of low emission, fuel efficient and high occupancy vehicles(Central Government, ARC, NZTA).

2.1.4 Advocate to central government for economic incentives to reward sustainable vehicle purchasing behaviour (and discourage unsustainable purchasing behaviour)(Regional Transport Committee).

2.2. Set public transport fares at a level that encourages mode shift, recognises the needs of the transport disadvantaged, and provides for a financially viable public transport system.

2.2.1 Set public transport fares at levels that are competitive relative to private travel costs (ARTA).

2.2.2 Structure fares and ticketing to attract and retain public transport customers, while covering a reasonable proportion of operating costs (ARTA).

2.2.3 Ensure that the fare system is easy for public transport customers and operators to understand and use(ARTA).

2.2.4 Ensure that fares and ticketing policies are consistently applied across the region(ARTA).

2.2.5 Provide concessionary fares for the transport disadvantaged and other target groups(ARTA).

2.3. Manage the location, pricing and availability of parking so that it is consistent with road capacity and growth centre objectives.

2.3.1 Achieve a balance between the provision of car parking and managing peak period traffic demands in areas of high parking demand such as the Auckland CBD and other regional centres(City and district councils).

2.3.2 Ensure that the pricing and availability of parking complements travel demand management initiatives and improvements to the passenger transport network(City and district councils).

2.3.3 Introduce maximum parking standards for non-residential developments in town centres(City and district councils).

2.3.4 Revise parking standards for high density residential developments in high density mixed use town centres(City and district councils, ARC).

2.3.5 Prepare comprehensive parking management plans for town centres(City and district councils).

2.3.6 Ensure that the supply and pricing of parking in town centres gives priority to short-stay parking over commuter parking, including the provision of mobility parking spaces in accordance with current standards(City and district councils).

5.3 Behaviour change

Whereas the policies in the previous two sections have included land use and economic interventions to manage travel demand, the policies in this section are focused on non-pricing interventions that will influence travel behaviour and encourage the use of more sustainable transport modes.

These policies aim to change travel behaviour by providing information about, and encouraging the use of more sustainable transport modes, and working with schools, businesses and communities to encourage safe and sustainable transport choices. They also aim to reduce the need to travel wherever possible, through options such as travel planning, and the wider use of information technology.

RLTS Working Paper 14 Travel Demand Management Initiatives provides more detailed information on the type of travel demand management activities that can be expected to contribute towards the outcomes and targets set out in Chapter 2.

It is important that the policies in this section are considered alongside other demand management and supply-side policies which are intended to act in a complementary manner to improve transport choices. This includes, for example, the provision of additional infrastructure and services for public transport and active modes (see section 4 below), priority for public transport and active modes in the allocation of road space (section 5), and pricing policies to encourage the use of sustainable modes (section 2).

Policy 3: Behaviour change

Manage the transport system to limit the growth in demand for private vehicle travel.

3.1. Provide information and education to enable a better understanding of transport choices, promote more sustainable and healthier transport options, and develop a stronger culture of active transport.

3.1.1 Develop and implement education programmes to increase the awareness of transport impacts and choices(City and district councils, ARTA).

3.1.2 Ensure that there is good access to quality information about transport choices, public transport services, walking and cycling options, and their relative environmental and health impacts(City and district councils, ARTA, Auckland Regional Public Health Services).

3.1.3 Develop realistic, achievable and accessible public transport timetables that can be reliably delivered and depended on for all services(City and district councils, ARTA).

3.1.4 Proactively market public transport in order to increase use by existing passengers and attract new users(City and district councils, ARTA).

3.1.5 Run publicity campaigns to target poor environmental and health practices and raise public awareness of good practices(City and district councils, ARTA, ARC).

3.1.6 Support and publicise trials of more efficient and sustainable transport options(City and district councils, ARTA, ARC).

3.1.7 Promote, recognise and reward the use of eco efficient and safe transport options in a highly visible way(City and district councils, ARTA, ARC, NZTA).

3.2. Use education and enforcement to develop a safety culture amongst all transport users.

3.2.1 Ensure that travel behaviour change programmes incorporate safety and personal security initiatives and awareness raising campaigns(City and district councils, ARTA).

3.2.2 Support attitudinal change education to increase respect for other road users (City and district councils, ARTA,Road Safe Auckland).

3.2.3 Ensure that road safety education and engineering initiatives are supported through targeted enforcement(City and district councils, ARTA, Road Safe Auckland, Central Government, NZ Police).

3.2.3 Advocate to central government for changes to the driver licensing system to improve requirements around awareness and safety of cyclists and pedestrians (Regional Transport Committee).

3.3. Work with schools, businesses and communities to develop and promote more sustainable transport options.

3.3.1 Develop and implement a travel planning programme which ensures that individuals are aware of and encouraged to use alternatives to private vehicles(City and district councils, ARTA).

3.3.2 Work with schools, tertiary institutions, hospitals, public authorities, businesses and communities to develop travel plans which identify existing travel choices and opportunities for reducing the level of vehicle travel needed (City and district councils, ARTA).

3.3.3 Ensure that travel planning initiatives are supported by complementary improvements to public transport services, walking and cycling facilities, and road safety infrastructure(City and district councils, ARTA).

3.3.4 Work with institutions and businesses to develop facilities and infrastructure that support the use of public transport, ride share schemes and active modes by employees and clients(City and district councils, ARTA, ARC).

3.3.5 Consider providing financial support for communities to implement low-cost alternatives to single occupant vehicle use(City and district councils, ARTA, ARC, NZTA).

3.3.6 Support and encourage community led initiatives to change travel behaviour and improve safety (City and district councils, ARTA).

3.4. Promote options that reduce the need to travel.

3.4.1 Support the development of broadband technology where this can reduce the need to travel(City and district councils, ARC).

3.4.2 Encourage households and businesses to take advantage of improvements to communications technology that reduce the need for travel, including (but not limited to) removing barriers to working from home, and supporting teleworking initiatives and telecentres(City and district councils, ARTA, ARC).

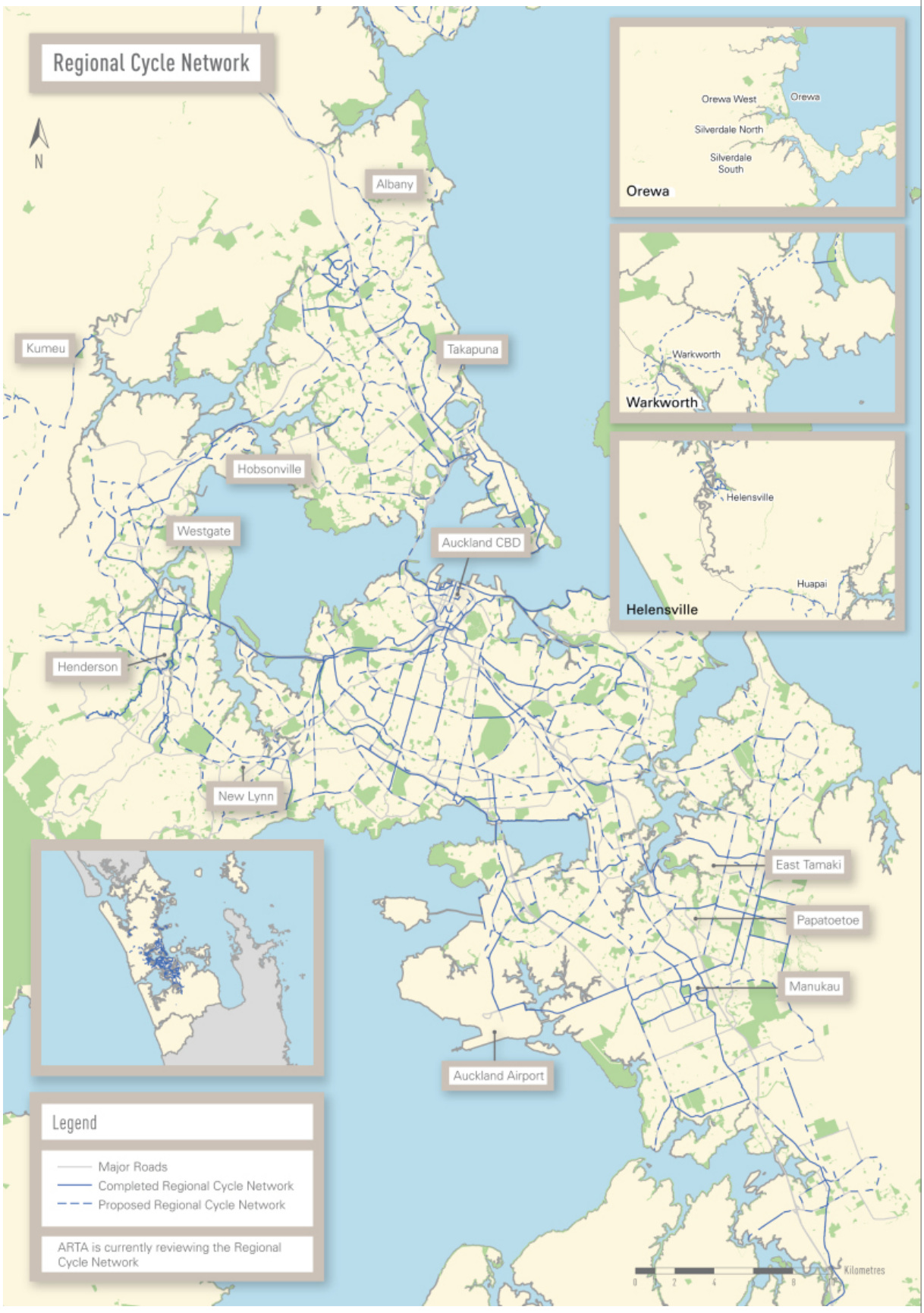
3.5. Promote options that make more efficient use of private vehicles.

3.5.1 Develop and implement a strategy to encourage greater use of high occupancy vehicles (HOV) (City and district councils, ARTA, ARC, District Health Boards).

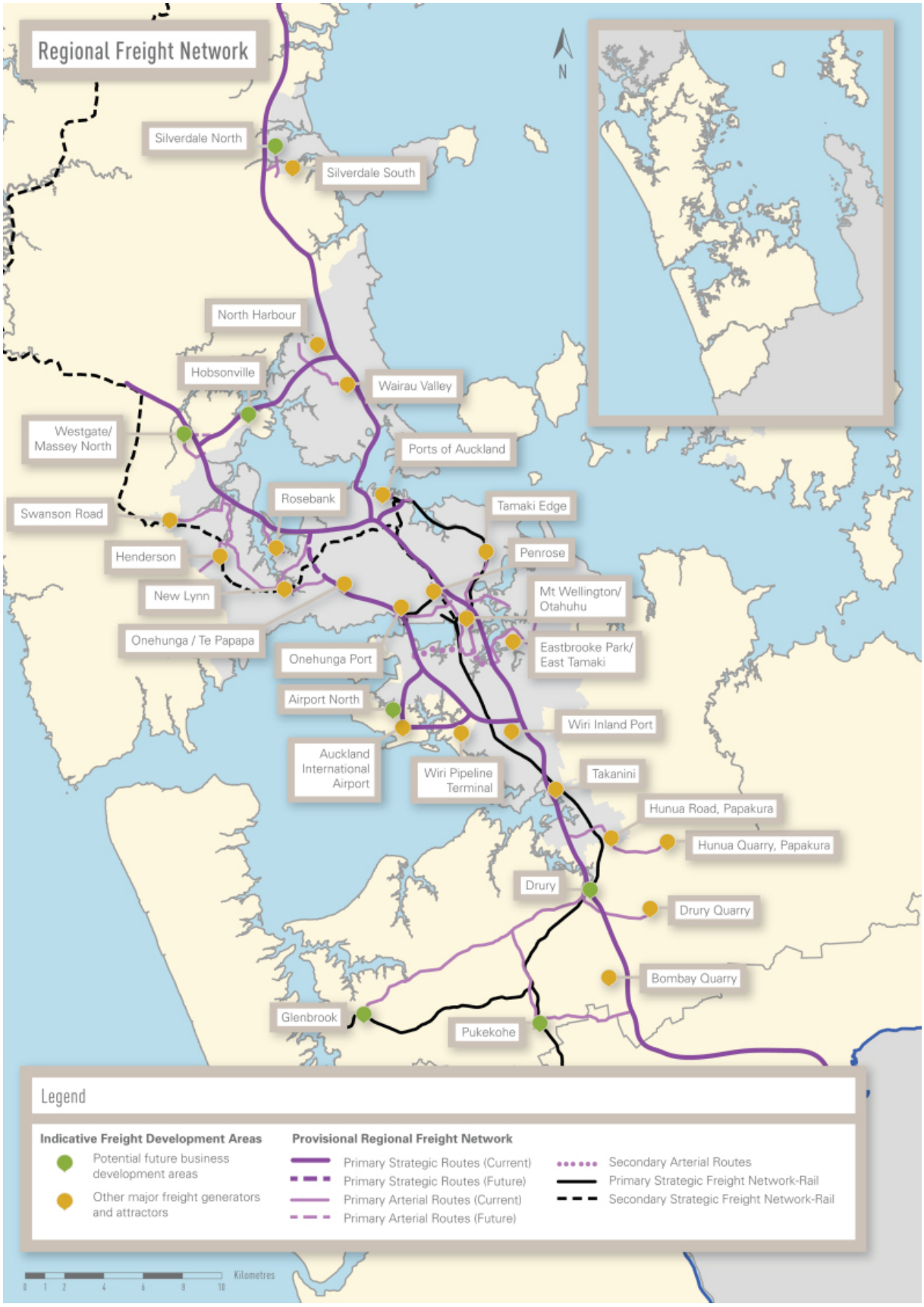
3.5.2 Investigate and support innovative options to make more efficient use of vehicles, including (but not limited to) ride sharing services, van pools, car clubs, and community transport schemes(City and district councils, ARTA, ARC, District Health Boards).

SH18 Cycleway

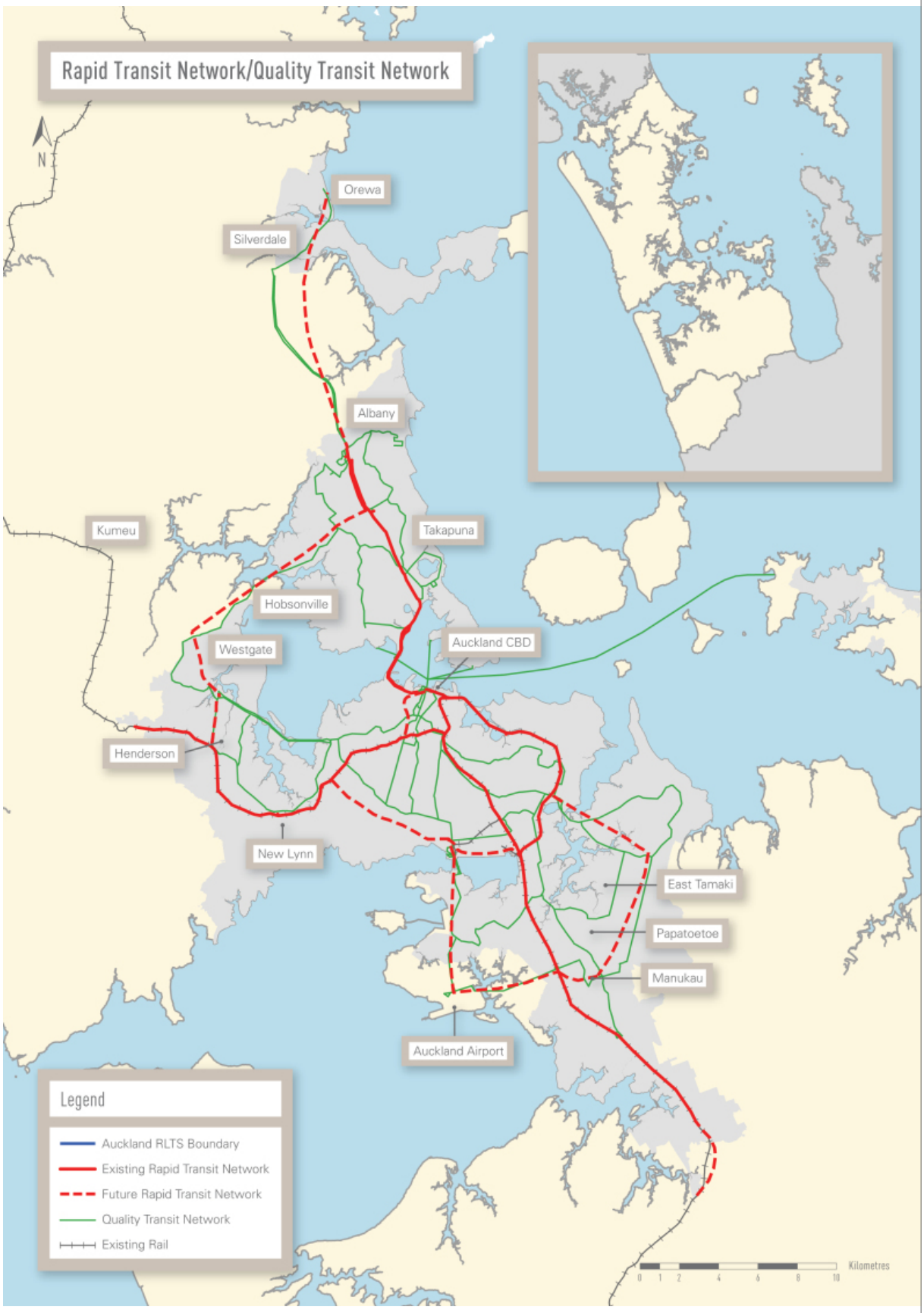
Map 1 Regional Cycle Network



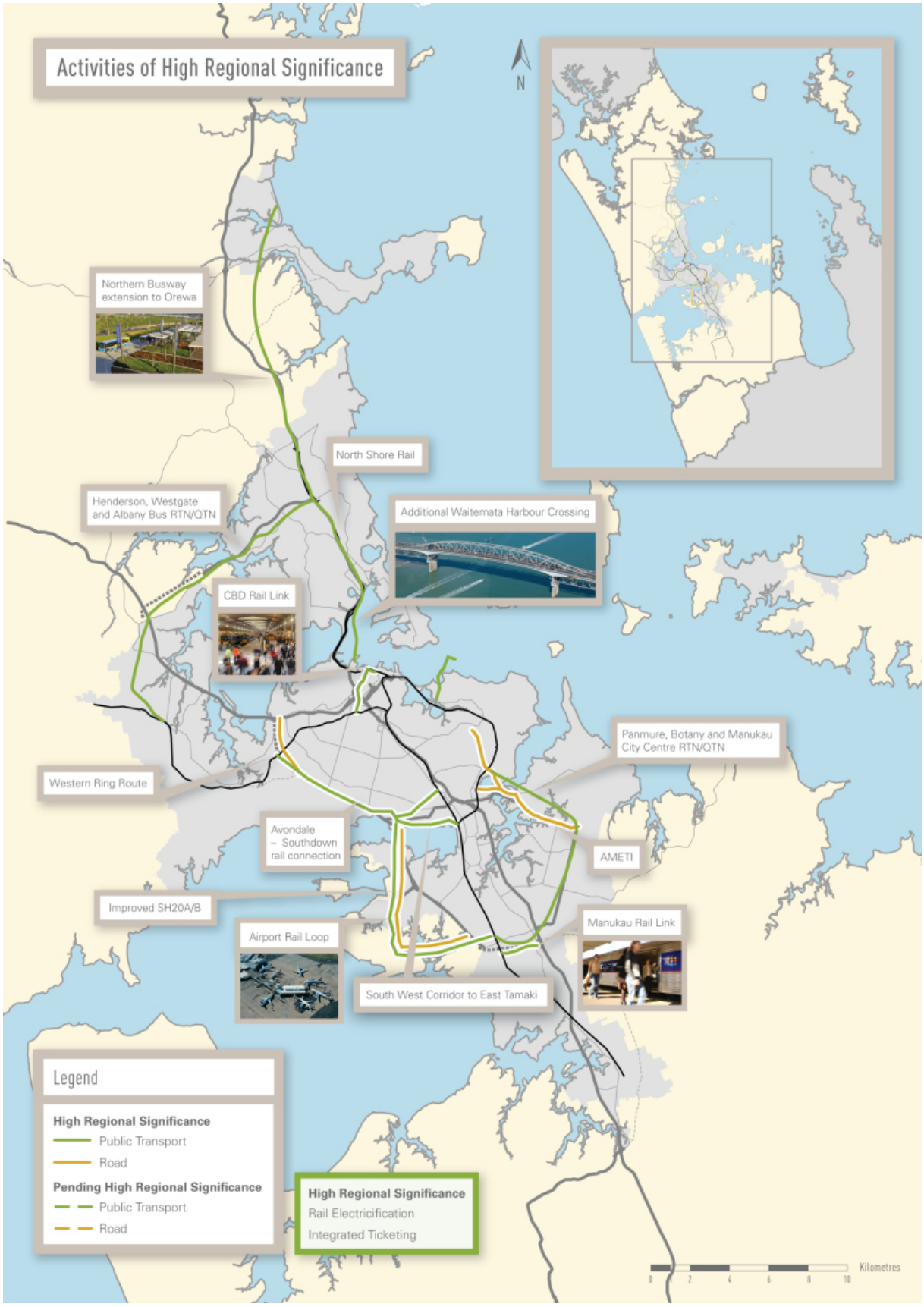
Map 2 Strategic Freight Network



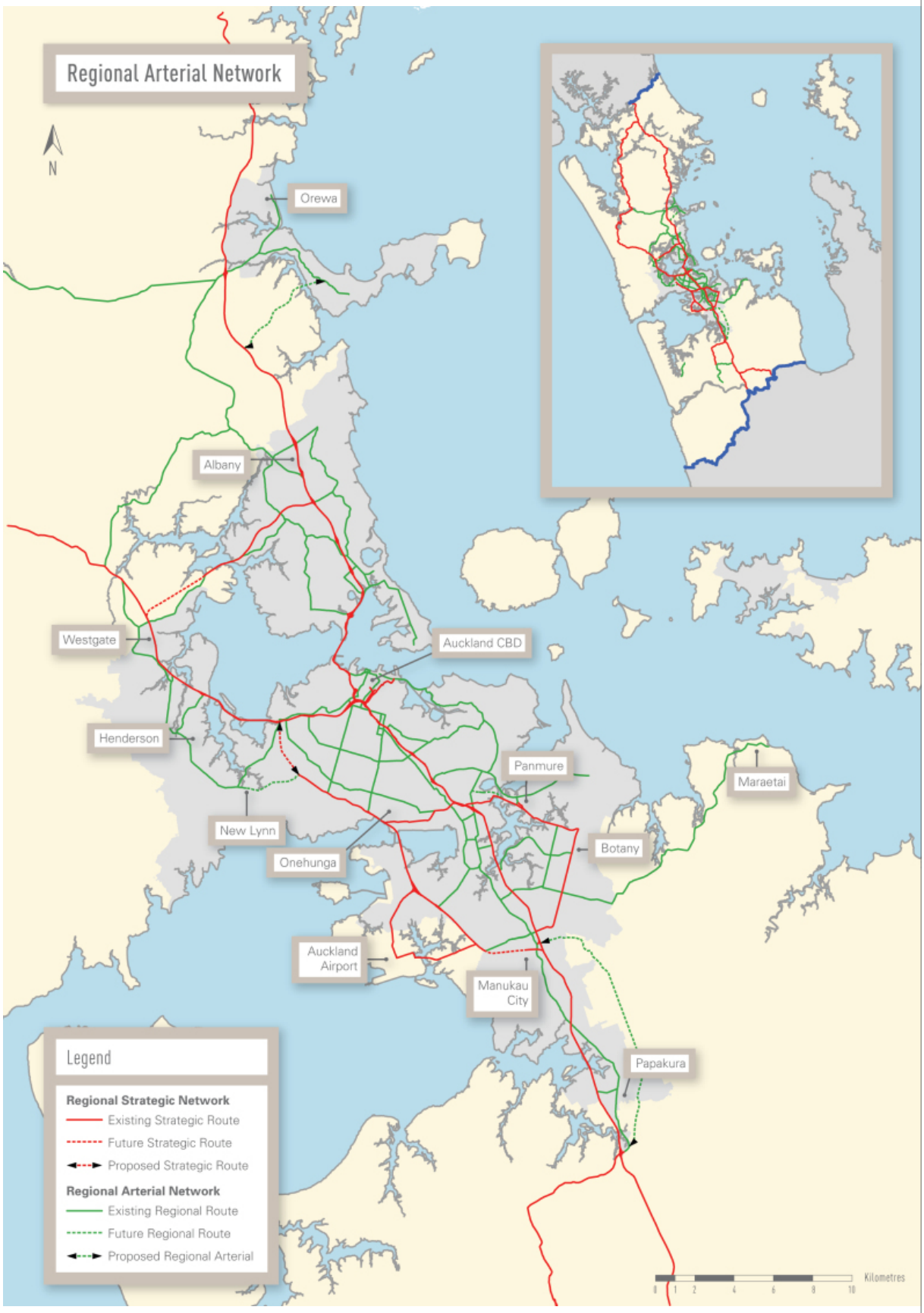
Map 3 RTN and QTN Network



Map 4 Activities of High Regional Significance



Map 5 Regional Arterial Network



5.4 Improving transport choices

These policies recognise the need for investment in infrastructure and services to improve the transport options available to Aucklanders and connections to neighboring regions. In the past, the range of transport options available has often been limited through economic signals and investment policies that have been heavily focused on providing for private vehicle mobility. In order for individuals and businesses to make efficient and sustainable transport decisions in future, they need to be provided with a wider range of viable options that meet their transport needs.

In some cases, individuals' transport options are severely limited through circumstances beyond their control. This includes, for example, the "transport disadvantaged",[33] people who are least able to get to basic community services and activities. Policies in this section include actions to ensure that the "transport disadvantaged" have a reasonable level of accessibility to opportunities, through the provision of a public transport network which offers an acceptable base level of service throughout the metropolitan area.

In order to promote choice and improve the future resilience of the region's transport system however, it is necessary for the public transport system to be developed well beyond this basic network. For this reason, a major component of this Strategy is the further development of the region's public transport network, with a "layered" approach to network design. This includes, at the highest level, a Rapid Transit Network (RTN) which operates at high frequency on its own right of way; the Quality Transit Network (QTN), a mainly bus-based network of high frequency services with priorities where appropriate; and a local connector network (LCN) which provides for a base level of service to local communities.

To support this network, the Strategy provides for significant investment in public transport infrastructure (particularly the Rapid Transit Network), and services. The Strategy also calls for improved integration of services, fares and tickets, and better quality of services, to ensure that public transport is an attractive and convenient choice.

The strategy includes improvements to facilities for walking and cycling, particularly in and around growth centres and areas of new development. This recognises the potential for short trips in particular to be undertaken by "active modes" rather than private vehicles. The public health and environmental benefits of transferring trips to these modes are significant. Providing facilities for walking and cycling will help to reinforce the demand management policies outlined above.

While a strong focus of the Strategy has been on improving choices for passenger transport, it also recognises the need to provide options for the movement of goods within and through the region, to ease congestion, minimise the costs of road maintenance, and improve road safety and environmental outcomes. Policies are also included to support the use of rail freight and coastal shipping, especially where this can reduce pressure on the region's road network.

33 This RLTS has adopted the definition in the Public Transport Management Act 2008: *transport disadvantaged means people whom the regional council has reasonable grounds to believe are the least able to get to basic community activities and services (for example, work, education, health care, welfare, and food shopping)*

Policy 4: Improving transport choices

Provide infrastructure and services that enhance the transport choices available to people, communities and businesses.

4.1. Improve, upgrade and expand the region's public transport infrastructure and services to provide a simple, easy to understand network of public transport services that meet people's travel needs.

4.1.1 Ensure the provision of a high quality, fast, frequent service on the Rapid Transit Network, as shown in Map 3, with its own dedicated right of way connecting the major growth centres to the CBD (Rail and the Northern Busway) (ARTA, KiwiRail).

4.1.2 Ensure the provision of fast, frequent, high frequency services and infrastructure along key corridors thatmaximises the throughput of public transport as a priority use on the Quality Transit Network (see Map 3) (City and district councils, ARTA).

4.1.3 Ensure the provision of services on the Local Connector Network within the urban area to enable access to basic community activities and services (City and district councils, ARTA).

4.1.4 Give effect to the public transport service guidelines in Appendix F (ARTA).

4.1.5 Ensure that public transport services are planned and provided for, to new and (re) developing areas, at an early stage of development (City and district councils, ARTA).

4.1.6 Investigate and implement solutions to the issue of bus capacity in the Auckland Central Business District (CBD) (Auckland City Council, ARTA).

4.1.7 Encourage cost-effective public transport connections to other regions (ARTA, ARC, Environment Waikato, Northland Regional Council).

4.2. Increase the use of public transport through the provision of a high quality, safe and integrated network of services, fares and ticketing.

4.2.1 Implement an integrated fares and ticketing system that allows interchange between services, modes and operators without financial penalty to the user(ARTA).

4.2.2 Make provision for modal interchange throughout the public transport system, including providing well designed transport interchanges that ensures efficient transfer between active modes and all public transport modes; ie bus, rail and ferry(City and district councils, ARTA).

4.2.3 Provide park and ride facilities at appropriate locations based on the criteria in Appendix G(City and district councils).

4.2.4 Upgrade the public transport fleet to provide modern, accessible, low emission vehicles across the entire network(Public Transport Providers, ARTA).

4.2.5 Ensure that the design, construction and operation of public transport infrastructure and services takes into account the safety and security of passengers (City and district councils, ARTA, KiwiRail).

4.3. Ensure that public transport infrastructure activities of high regional significance are implemented (See Map 3 and 4).

4.3.1 Implement the following RTN and QTN improvements of high regional significance:

- Central Business District rail link,
- Rail electrification,
- Integrated ticketing and fares (City and district councils, ARTA).

The CBD rail linkwill play a critical role in providing capacity for the rail system to continue to grow beyond the 10 minute services currently planned, will produce faster journeys from the west of Auckland to the CBD, and will provide greater coverage of the CBD. The capacity of the rail system is currently limited by the constraints on the tunnel leading to the Britomart terminal. Construction of the CBD rail tunnel will allow Britomart to operate as a through station rather than as a terminal. The consequent increase in system capacity will enable trains to be operated at higher frequencies and will provide the ability to operate new services to the CBD, including rail services connecting with the airport and using the Avondale-Southdown Line. The CBD rail link will also provide improved rail coverage to the CBD. Without the accessibility provided by the CBD rail link the growth of the CBD will be constrained as roads become increasingly congested and the number of buses in the CBD becomes harder to manage. The wider economic benefits need to be fully recognised in developing and planning for,theconstruction of the CBD rail link. This needs to be progressed with urgency and the link needs to be operational by 2021.

Rail electrification with 10 minute services and connection of the rail system to Manukau City Centre and Onehunga are projects which have been agreed for some time and are in the process of being delivered. The Onehunga Line and Manukau Link are expected to open in mid 2010, and the first electric trains are targeted to commence service in 2013. These improvements are critical to continuing the growth of rail patronage in Auckland and allowing passenger rail to fulfill its role (along with the Northern Busway) as the Rapid Transit Network which forms the backbone of the public transport system. These activities need to be implemented as soon as possible.

Integrated ticketing and fares are critical in making public transport easier to use and more convenient for users. As the Rapid Transit Network develops, integrated ticketing and fares will become increasingly important to enable passengers to transfer with minimal inconvenience between feeder services and the RTN. It is expected that integrated ticketing and fares will be implemented as soon as possible, certainly within the first 10 years of this strategy.

4.3.2 Investigate and where necessary steps to plan, protect and identify funding for improvements to the RTN and QTN, including the following activities of high regional significance:

- Northern Busway Extension to Orewa,
- Airport rail loop,
- Avondale-Southdown rail connection,
- Panmure-Botany-Manukau City Centre RTN/QTN,

- Henderson-Westgate-Albany bus RTN/QTN, and the
- North Shore Rail (City and district councils, ARTA).

The **Northern Busway** currently operates as a full RTN on its own right of way only as far as the Constellation Drive Station, although it operates with shoulder bus lanes to Albany Station. Extension of the Northern Busway in its own right of way to Albany Station, and continuing from there north to Orewa, will reduce bus travel times and increase reliability from locations north of Constellation Drive by providing more direct routing and by removing the bus operation from congestion on the Motorway. This will enable the full benefits of the Busway to be realised and make bus travel more attractive to people from Browns Bay, Albany, Orewa, Silverdale and the Whangaparaoa Peninsula. Further investigations are required to confirm the nature and alignment of the northern extension of the Busway, its northern termination point and the nature of Park and Ride facilities required. Extension of the Busway is planned in two phases – the first phase connects the existing Busway at Constellation Station with Albany Station and continues to the Northern Motorway at Redvale, and is expected to be constructed in the period 2021 – 2031. The second phase extends the Busway from Redvale to the Orewa and is expected to be constructed in the period 2031 -2040.

The Airport rail loop consists of connections to the Airport from the north via Onehunga and from the east via Puhinui Station. As well as serving air passengers, the line will provide accessibility to the fast growing employment area around the Airport and will increase services to the growing centre of Onehunga. Only limited investigations have been carried out to date on the detailed route of the rail connections, how the introduction of rail would be staged, and what bus services should be established in the interim. Priority needs to be given to planning and route protection. It is expected that the Airport rail loop will be constructed in the period 2031 – 2040.

The Avondale – Southdown rail connection enables the introduction of passenger rail services connecting West Auckland with South Auckland, including provision of services to the Airport. It would provide a more direct route for rail freight from West Auckland and from north of Auckland to the North Island Main Trunk and therefore to both the Port of Auckland and locations to the south. It is expected that the Avondale – Southdown rail connection will be constructed in the period 2031 – 2040.

Investigations intopublic transport connections between **Panmure-Botany-Manukau City Centre** show that bus operations in the corridor should be upgraded to operate as a QTN as soon as possible, and that planning should proceed to enable upgrading to an RTN, probably during the period 2021 – 2031. The route should be future proofed for conversion to light rail at a later date.

Investigations into the **Henderson – Westgate – Albany public transport connections** indicate these connections would operate as bus QTN over the period of this strategy. It would be wise however to future proof the route for conversion to bus RTN at a future time.

North Shore Rail - It is expected that the Northern Busway will operate effectively during the period of this strategy. It will provide an attractive public transport connection between the North Shore, the CBD and the rest of the RTN and QTN system, and will provide a strong public transport core for movement around the North Shore. Towards the end of the period of this strategy however the Busway is likely to approach its operational capacity and this may constrain further growth of public transport patronage. It is therefore necessary to continue investigation of rail and to protect the ability for the future

introduction of a North Shore rail. The route to be protected across the Harbour is the route identified in study undertaken in 2008, which involved tunnelling from the CBD to a station under Gaunt Street in the Wynyard Quarter, then continuing in tunnel under the Harbour to emerge in the vicinity of the Esmonde Road interchange. This particular option is known as Option 2C (which also includes the road component described in Policy .6.2.2 below). On the North Shore there may be advantages in following a different route from the Northern Busway, in order to access centres not on the Busway and to maximise the benefits of rail in supporting the development of more concentrated mixed use centres in accordance with the Regional Growth Strategy.

4.4 Provide services to meet the specific needs of the transport disadvantaged.

4.4.1 Ensure that the public transport network provides a good level of service to areas of high social deprivation that ensures equitable access to services (ARTA).

4.4.2 Make the public transport network safer and more accessible for everyone including; children, women, senior citizens and people with disabilities(ARTA).

4.4.3 Provide targeted services to assist towards meeting the access needs of people in the region who are the least able to get to basic community activities and services (for example, work, education, health care, welfare, and food shopping)(ARTA).

4.4.4 Provide public transport fare concessions to selected transport disadvantaged groups (including senior citizens, children, students and people with disabilities) to make it more affordable for them to access basic community activities and services(ARTA).

4.4.5 Foster a "whole of journey" approach to public transport accessibility by providing infrastructure that enables all people, and especially the transport disadvantaged, to access public transport services(City and district councils, ARTA).

4.5 Provide services to meet the specific needs of rural communities.

4.5.1 Work with rural communities to develop transport services and infrastructure that are tailored to meet the specific needs of particular rural communities in a cost effective manner(City and district councils, ARTA).

4.6 Provide facilities that encourage greater use of walking and cycling.

4.6.1 Incorporate national guidelines and standards for walking and cycling into transport planning, design and management activities, such as the NZTA Pedestrian Planning and Design Guide.

4.6.2 Develop and implement local walking and cycling strategies to maximise the throughput of pedestrian and cyclists as priority users for local trips, including travel between public transport, shops, education, recreational, businesses, other facilities and residential areas.

4.6.3 Complete the regional cycle network (See Map 1) by 2026 to a consistent standard.

4.6.4 Ensure that adequate provision for walking and cycling facilities is included in all transport projects, especially those involving public transport facilities and growth centres.

4.6.5 Ensure at-risk road users and communities get priority strategies to promote walking and cycling (City and district councils,NZTA).

4.6.6 Review local council transport infrastructure design standards and policies to ensure that improvements to pedestrian and cyclist safety is not discriminated against (City and district councils, NZTA).

4.7. Support rail freight, coastal shipping and pipelines as alternatives to road transport.

4.7.1 Ensure that the region's rail freight network continues to provide efficient connections to the ports of Auckland and Onehunga, inland port facilities, and other regions (KiwiRail, ARC, Enviroment Waikato, Northland Regional Council, ARC).

4.7.2 Encourage the effective and efficient intra and inter-regional movement of freight by rail and by sea (KiwiRail, ARC, ARH, Environment Waikato, Ports of Auckland).

4.7.3 Support and encourage the development and increased use of inland port terminals as inter modal interchanges where these improve the efficiency of the roading network (ARC, Ports of Auckland, NZTA, city and district councils).

4.7.4 Identify key projects to improve the competitiveness of rail and coastal shipping (including projects that may be located outside the region which will reduce pressure on Auckland's road network) (KiwiRail, ARC, city and district councils, NZTA, Ports of Auckland).

4.7.5 Identify the steps necessary to optimise the utilisation of rail capacity, and resolve any conflicts that may develop between freight and passenger rail demands (KiwiRail, ARTA).

4.7.6 Enhance and encourage the use of pipelines as an alternative to road based freight (ARC, Central Government, Northland Regional Council, Environment Waikato, Wiri Oil Services Ltd).

5.5 Network management

The existing transport network in the region represents a significant investment, and the efficient and effective operation and maintenance of the network is essential to achieving the region's economic, social and environmental outcomes. These policies are aimed at making best use of the existing transport assets and resources, through careful management that recognises the multiple functions and pressures that the transport system must respond to.

The policies highlight the fact that the capacity of the region's transport system is under pressure, and that it is not always possible or desirable for that capacity to be increased. As a result, there is an increasing need to seek innovative approaches to the management of existing capacity, to ensure that it is able to support the movement of people and goods. The use of new and emerging technologies is expected to have a significant part to play in the future.

This section also includes policies that allocate available road space to ensure that priority modes in each part of the transport network are adequately catered for. This recognises the different functional role that different parts of the network perform, and reinforces the thrust of the demand-side policies in sections 1-3 above towards greater use of sustainable transport modes. It also recognises the wider role that roads play in communities, and the need to strike a balance between the movement function of the road with the other functions that it performs.

Policy 5: Network management

Ensure that existing transport resources are managed in a safe, efficient and sustainable manner.

5.1. Ensure that the region's transport assets are well maintained.

5.1.1 Ensure that asset management plans are in place for the transport system, and that land transport assets in the region are maintained to an acceptable standard, as determined in those plans (City and district councils, NZTA, KiwiRail, ARTA).

5.1.2. Develop an integrated approach to asset management and maintenance standards between different agencies (City and district councils, NZTA, KiwiRail, ARTA).

5.1.3 Provide for the co-ordinated management of non-transport uses in road and rail corridors, including, urban design, amenities, utilities and community activities, to minimise disruption while taking the road's wider community into consideration(City and district councils, NZTA, KiwiRail, ARTA).

5.1.4 Ensure that walking and cycling facilities are maintained to a level that will encourage their increased use(City and district councils, NZTA, KiwiRail, ARTA).

5.2. Manage the transport network to facilitate the safe and efficient movement of people and goods.

5.2.1 Manage the region's road network to give effect to the strategic and regional arterial road hierarchy in Map 5(NZTA, city and district councils).

5.2.2 Develop traffic management systems that reflect and reinforce the roading hierarchy and identified in Map 5 and implement management policies for each level of the hierarchy consistent with the principles in Appendix H(NZTA, city and district councils).

5.2.3 Develop and apply standards and/or guidelines for the management of the strategic and regional arterial networks including geometric standards, provision for heavy vehicles, goods loading of commercial vehicles, public transport, walking, cycling, property access, drop off and pick up facilities, parking, and integration with centres. Standards and guidelines should be consistent with the principles in Appendix H(NZTA, city and district councils).

5.2.4 Develop, prepare and implement corridor management plans for developing the strategic, regional, and district arterial networks and corridors (taking into account the principles and priorities in Appendix H, and the need to contribute to quality liveable environments as outlined in Policy 1.4)(NZTA, city and district councils).

5.2.5 Direct heavy vehicles onto the regional strategic freight network (Map 2) as far as practicable by ensuring the network is developed and operated in a way that enables the efficient movement of freight vehicles(NZTA, city and district councils).

5.2.6 The secondary freight network (identified Map 2) for heavy vehicles should be developed and operated, as far as practicable, in a way to provide for heavy vehicles but with the emphasis on protection of the community(city and district councils).

5.2.7 Progressively remove at-grade rail crossings as rapid transit frequencies increase(city and district councils).

5.2.8 Improve the signaling of the rail network to provide for greater capacity and reliability for both passenger and freight transport(KiwiRail).

5.2.9 Manage the provision and development of the region's ferry based public transport infrastructure as part of the QTN (ARTA).

5.3. Manage road space to prioritise the movement of people, goods and services using sustainable transport modes.

5.3.1 Design transport connections within high density centres and corridors to give priority to supporting pedestrians, cyclists and public transport and to enable improved urban amenity and land use integration (City and district councils, ARTA).

5.3.2 Undertake improvements to the Quality Transit Network to reduce travel times and improve travel time reliability for buses(City and district councils, ARTA).

5.3.3 Design traffic management systems by giving priority to public transport and high occupancy vehicles over general traffic, where appropriate (City and district councils, ARTA, NZTA).

5.3.4 Investigate the feasibility and cost effectiveness of traffic management systems to give priority to commercial traffic(City and district councils, NZTA).

5.3.5 Manage the provision of on-street parking to enable the efficient operation of strategic and arterial routes(City and district councils, NZTA).

5.4. Use traffic management and intelligent transport systems to optimise the operational efficiency of the network.

5.4.1 Investigate and apply improvements in traffic flow management and road network characteristics to maximise the throughput of priority users across the network, (City and district councils, NZTA, ARTA).

5.4.2 As appropriate, investigate and implement technologies for improving traffic management such as ramp metering, incident detection and traveller information, where these are feasible and where they can improve system capacity without compromising the efficiency of the local road network or RLTS outcomes(City and district councils, NZTA, ARTA).

5.4.3 Identify bottlenecks and areas of significant speed disruption in the network and consider improvements to improve traffic flow(City and district councils, NZTA).

5.4.4 Investigate and promote the use of an intelligent transport system (ITS), real-time transport information systems and emerging information technologies(City and district councils, NZTA, ARTA, KiwiRail).

5.4.5 Ensure that traffic management and priority systems are adequately enforced (City and district councils, NZ Police, NZTA).

5.5. Take steps to improve the environmental performance and fuel efficiency of the region's transport system and vehicle fleet.

5.5.1 Advocate for changes to vehicle fleet composition and fuel composition to reduce the consumption of non-renewable transport fuels, improved air quality, and reduce greenhouse gas emissions (ARC, city and district councils, NZTA).

5.5.2 Identify any new infrastructure that may be required to facilitate changes in fleet composition (ARC, city and district councils, NZTA).

5.5.3 Advocate for regular emissions and noise testing as part of warrant of fitness (WOF) and certificate of fitness (COF) (ARC, city and district councils, NZTA).

5.5.4 Incorporate emissions standards for public transport contracts (ARTA.)

5.5.5 Encourage more energy efficient vehicle procurement and fleet management practices in the region (ARC, city and district councils, ARTA, Central Government, NZTA).

5.5.6 Investigate and implement funding measures to mitigate the adverse effects caused by existing transport networks, where they are environmentally and economically justified, including retrofitting exiting sites, innovative pavement design and source control solutions (City and district councils, KiwiRail, NZTA)

5.5.7 Advocate for improvements in transportation infrastructure design that incorporates the embodied energy of the structure (ARC, city and district councils, NZTA).

5.6 Additional road capacity

While the emphasis of the policies in the preceding sections has been on managing the demand for travel, providing for alternatives to private vehicle travel and making better use of the existing transport system, the strategy acknowledges that there will be a need to provide additional roading capacity in some situations, where those alternative management options are not sufficient to cope with the growth in demand for travel.

The policies in this Strategy are arranged into a hierarchy which requires demand management, alternative modes and network management initiatives to be exhausted before additional road capacity should be considered. This reflects the preferred strategic direction of the Strategy, which acknowledges the need to shift travel demand away from private vehicles and encourage modes such as public transport, walking and cycling that are more consistent with a compact urban form. In some cases, additional road capacity will also be needed to support the implementation of improved public transport services, as identified in section 4.

In general, the provision of additional road capacity will be focused on improving access to economic activity and supporting intensification and connectivity in re-developing areas. This means, for example, that new roading capacity for private vehicles will generally not be a priority for the CBD, where good options exist, whereas it will be considered in areas of high freight activity, where good road transport connections are essential for economic development.

The policies in this section provide for the completion of the region's strategic road network, and identify a number of roading projects of high regional significance which will contribute to the RLTS objectives, with a particular focus on economic development, network resilience and safety. The policies also identify the situations where additional road infrastructure should be considered in future, including the need to connect to neighbouring regions, and the need to contribute to growth centre development and economic development.

The policies also outline the steps that should be followed to ensure that new road infrastructure meets environmental, public health and safety standards.

Policy 6: Additional road capacity

Selectively increase the capacity of the road network where alternative management options are not sufficient to address growth in travel demand.

6.1. Ensure that the provision of new road infrastructure supports economic development and growth centre development objectives.

6.1.1 Ensure that priorities for the development of roading infrastructure reflect the need to maintain and enhance access to business areas, including strategic facilities such as the port and airport (City and district councils, NZTA).

6.1.2 Improve road infrastructure where necessary to support the development of identified growth centres (City and district councils, NZTA).

6.2. Undertake a programme to develop the roading network to give effect to the preferred strategic option, including completion of the strategic road network as defined in Map 4.

6.2.1 Implement the following road network improvements of high regional significance:

- Western Ring Route.
- Auckland Manukau Eastern Transport Initiative, and
- Improved Airport road access on SH20A and SH20B (City and district councils, NZTA).

The Western Ring Route is made up of SH 20, part of SH 16, and SH 18. It provides a strong connection between the North Shore, West Auckland and South Auckland and also provides an alternative north – south route through the region from a little south of Albany to Manukau City Centre. The Hobsonville Deviation, Manukau Harbour Crossing duplication and SH 20 to SH 1 at Manukau City Centre projects are currently under construction. The remaining section of the Western Ring Route yet to be completed is the connection between SH 20 and SH 16. The May 2009 Government Policy Statement on Land Transport Funding 2009/10 – 2018/19 names the Western Ring Route as a Road of National Significance, and gives priority to this project. Completion of the Western Ring Route is scheduled for completion within the first 10 years of this strategy.

The Auckland Manukau Eastern Transport Initiative (AMETI) is a package of transport improvements in the Glen Innes – Panmure – Pakuranga – Botany corridor and includes land use zoning changes, provision of bus lanes and bus priority measures, road network improvements, improved walking and cycling facilities, travel demand management measures and an urban design approach. There is a strong emphasis on improving public transport and removing traffic from town centres in order to promote land use changes in line with the Regional Growth Strategy. The first stage of AMETI involves a package of improvements around Panmure, future proofing for improvements (including the introduction of RTN services) between Pakuranga and Botany, and implementation of bus priorities between Panmure and Botany, and is expected to be implemented within the first 10 years of this strategy. Major improvements around Pakuranga and connecting Pakuranga with Botany are expected in the period 2021 – 2031.

Improved Airport road access on SH20A and SH20B - Investigations have shown that without improvements to the transport system, the strong growth expected in both air travel and employment around the Airport will result in severe congestion in the vicinity of the Airport in the later part of the period of this strategy. While construction of rail to the Airport will help, congestion would still be significant and would be likely to constrain the expected growth. It is expected that improved Airport road access on SH 20A and SH 20B will be needed between 2021 and 2031.

6.2.2 Investigate and take the necessary steps to plan, protect and identify funding for improvements to the strategic road network, including the following activities of high regional significance:

- South West Corridor to East Tamaki and the
- Additional Waitemata Harbour Crossing (NZTA, Manukau City Council, Auckland City Council).

The **South West Corridor to East Tamaki** road link connecting SH20 to SH1 and East Tamaki has been identified to improve safety, accessability and reliability of journey time. This link is particularly important because it connects employment and freight generating areas of East Tamaki and Penrose – Onehunga with the strategic road network, port and airport. Initial investigations have been carried out that have identified routes both north and south of the Manukau Harbour. The investigations have not reached the point where a route has been agreed which delivers the desired transport benefits, is affordable and cost effective, and has acceptable environmental and community impacts. Investigations into an appropriate route should be concluded at an early date.

Additional Waitemata Harbour Crossing - The Auckland Harbour Bridge has long been recognised as a critical link in the transport system of the region for which there is no realistic alternative in the event of disruption to the bridge (although the Western Ring Route will provide an option for some trips), and a link which is a bottleneck in both the road and public transport networks. A study undertaken in 2008 identified the most appropriate route for an additional crossing of the Waitemata Harbour. The study concluded that the preferred option for an additional road and rail crossing consists of a driven tunnel from Esmonde Road to SH1 / SH16 at Central Motorway Junction for general traffic. This particular option is known as Option 2C (which also includes the rail component described in Policy .4.3.2 above). The purpose of the 2008 study was to identify a preferred route rather than to justify an additional crossing. Further investigations are under way to clearly identify the benefits of an additional crossing. The future replacement of the clip on structures on the existing Harbour Bridge, and the potential co-ordination with the provision of an additional crossing is also under consideration. Those investigations have not yet been completed. The ability to construct an additional road crossing of the Waitemata Harbour Crossing needs to be protected in the short term while investigations continue into the justification and likely timing of an additional crossing.

6.2.3 Undertake a programme to develop the local road network, to give effect to the preferred strategic option in this strategy(City and district councils).

6.2.4 Co-ordinate the planning and programming of state highway and local road improvements to ensure that the development of the region's road network reflects the preferred strategic option(NZTA, city and district councils).

6.3. Ensure that additional road links are provided to enable access to and within new urban growth areas and subdivisions.

6.3.1 Make provision for additional road links in district plans and long term plans(City and district councils, NZTA).

6.4. Ensure that strategic roading connections to other regions are developed and improved where necessary to contribute to economic development, network resilience and safety outcomes.

6.4.1 Determine the actions needed and timing of improvements to major inter-regional connections between Auckland and Northland, Waikato and the Bay of Plenty, including:

- SH1 North [34]
- SH16
- SH1 Waikato Expressway
- SH2 (NZTA, ARC, Environment Waikato, Environment Bay of Plenty, Northland Regional Council).

5.7 Giving effect to the RLTS

This section sets out policies and methods that are intended to guide the actions of public agencies in the region to enable the implementation of the preferred strategic option. It also includes policies relating to the monitoring of progress towards the RLTS implementation, and the preparation of more detailed plans and strategies that will assist in the implementation of this RLTS. These policies recognise the need to ensure that there is a close alignment between the RLTS and organisations responsible for implementing it, so that the right actions are taken at the right time.

Policy 7: Giving effect to the RLTS

Ensure that the actions of public agencies in the Auckland region contribute to the implementation of the RLTS.

7.1. Develop the specific projects and activities which are required to give effect to the policies of this RLTS in a timely manner.

7.1.1 Encourage approved organisations to bring forward the projects and activities that contribute to the RLTS for inclusion in the Regional Land Transport Programme (ARTA).

7.1.2 Ensure that forward work programmes include the projects and activities required to give effect to the RLTS (ARTA, city and district councils, ARC, NZTA, KiwiRail).

7.2. Ensure that the Regional Land Transport Programme gives effect to the preferred strategic option described in Chapter 4.

34 This includes the Puhoi - Wellsford State Highway 1 Road of National Significance identified in the May 2009 Government Policy Statement on Land Transport Funding 2009/20 - 2018/19.

7.2.1 Prepare the Regional Land Transport Programme to give effect to the preferred strategic option in this RLTS, taking into account the funding policies identified in section 5.8 below (ARTA).

7.2.2 Ensure that the funding and prioritisation procedures used in the Regional Land Transport Programme are consistent with, and give effect to, this RLTS (ARTA).

7.3. Regularly monitor progress in implementing the RLTS.

7.3.1 Provide regular reports to the RTC about progress in implementing the RLTS, including the status of proposed activities, and how these activities contribute to the objectives of this strategy (ARC, NZTA, city and district councils, ARTA).

7.4. Identify and prepare supporting strategies and implementation plans to give effect to this RLTS.

7.4.1 Prepare a regional public transport plan to give effect to the public transport service components of this RLTS (ARTA).

7.4.2 Undertake multi-modal sub-regional and/or corridor studies and develop corridor management plans in the corridors identified in Appendix H. (city and district councils)

7.4.3 Review and or develop the following documents, and update them where necessary to give effect to this RLTS (ARTA):

- Regional Public Transport Network Plan[35]
- Regional Road Safety Plan
- Regional Arterial Road Plan
- Rail Safety Plan
- Regional Freight Network
- Sustainable Transport Plan
- Regional Parking Strategy
- Regional Speed Management Strategy.

7.4.4 Encourage updates to District Plans to support the outcomes of the RLTS by facilitating better integration of transport and land use (ARC, city and district councils, ARTA, NZTA).

5.8 Funding

This section sets out policies and methods that are intended to ensure that sufficient funding is available for timely implementation of the strategy and that the available transport funding is applied in a manner that best contributes to the achievement of the strategy.

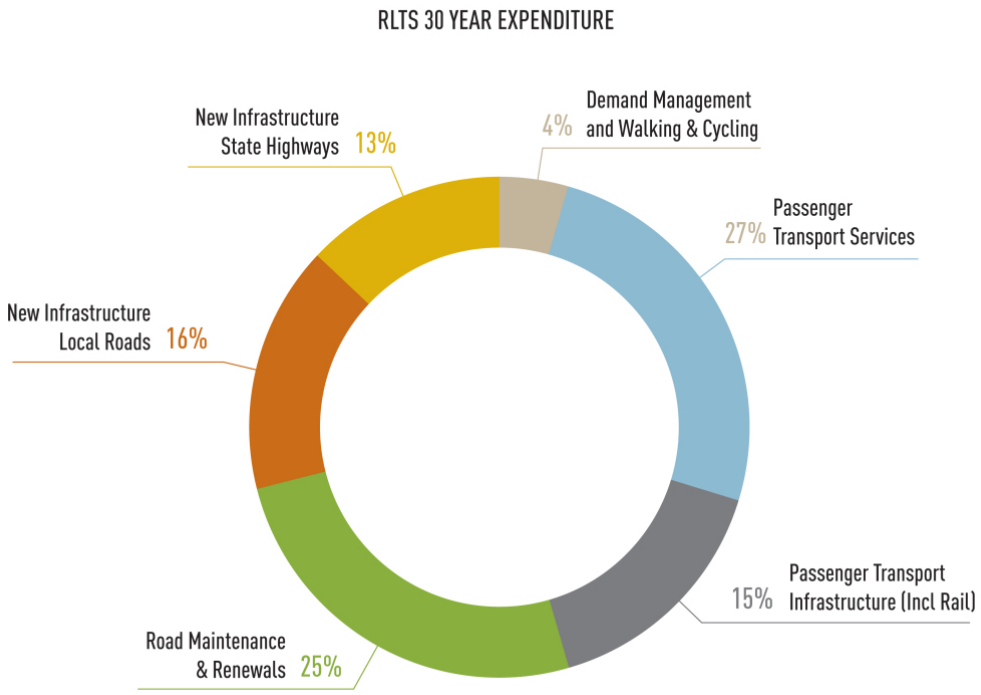
35 Ferry related matters are a part of the Regional Public Transport Network Plan.

Policy 8: Funding

Work with central government and other relevant agencies to ensure there is sufficient funding available to enable the timely implementation of this RLTS.

8.1. Allocate land transport funding to reflect the preferred strategic option.

RLTS 30 Year Expenditure



8.1.1 Over the three 10 year periods of the strategy this allocation should reflect the following allocation.

Table 18 Activity Class Funding

Activity Class	RLTS 1-10yr*	RLTS 10-20yr	RLTS 20-30yr	RLTS 30yr
Demand Management and Walking & Cycling	4%	5%	4%	4%
Passenger Transport Services	17%	34%	31%	27%
Passenger Transport Infrastructure (Incl Rail)	21%	7%	17%	15%
Road Maintenance & Renewals	21%	30%	25%	25%
New Infrastructure Local Roads	13%	17%	17%	16%
New Infrastructure State Highways*	24%	7%	6%	13%

*Does not include allowance for Puhoi to Wellsford Road of National Significance.

8.2. Advocate to Government that funding arrangements, particularly related to financial assistance rates (and associated local/regional shares), are changed to enable the implementation of the preferred strategic option.

8.3 Investigate the use of alternative funding mechanisms, including developer contributions (levied to fund transport improvements required to support developments and redevelopments), loan funding, tolling and public private partnerships.

8.4. Investigate high cost projects to ensure that their long-term benefits and costs justify investment in terms of offering high value for money and delivering on the desired strategic outcomes.

5.9 Affordability

The NZTS states that the transport system needs to be affordable for individuals, households, businesses, regions, local government and central government. A key component of affordability is the need for all investments in transport to be cost-effective and represent value for money.

This section includes policies related to cost effective allocation of funds and matters to be taken into account in the funding approval process. The overall aim of these policies is to ensure that the available transport funding is applied in a manner that represents value for money.

The policies also aim to ensure that transport remains affordable to users and businesses. Within this chapter Policy 2 also includes policies related to affordability for transport users, especially in relation to public transport fares and road pricing).

Policy 9: Affordability

Ensure that transport funding decisions contribute to the cost-effective achievement of the RLTS objectives, and represent value for money.

9.1. Ensure that all transport investments and services are cost effective.

9.1.1 Ensure that benefits of all new transport investments and services exceed their costs (NZTA, city and district councils, ARC, ARTA, KiwiRail).

9.1.2 In developing the Regional Land Transport Programme, apply prioritisation procedures that ensure the cost effective allocation of the region's transport funds (ARTA).

9.1.3 Advocate for NZTA project evaluation procedures that take full account of all costs and benefits, by improving measurement and accounting for externalities to health and the environment (RTC).

9.2. Take account of the affordability of transport proposals to users and businesses.

9.2.1 When developing local transport plans, projects or services, ensure that the affordability of proposed actions to users and businesses is taken into account (NZTA, city and district councils, ARTA, ARC).

5.10 Integration

The NZTS identifies the need for integration between different forms of transport, so that travel from one end of a journey to the other is straightforward and seamless for people and freight, with effective links within and between modes. Transport and land-use planning must also be integrated so that demand for travel is managed and public investment is used efficiently. Transport decisions must complement and not compromise decisions or interests in other sectors, and there is also a need to ensure that transport interests are incorporated into, and contribute to, broader planning initiatives.

The policies in this section set out the obligations on organisations responsible for implementing the RLTS to ensure they act in an integrated manner, including the need to take account of the RLTS objectives in making decisions, the need to co-ordinate their actions with other organisations, and the need to take account of the wider implications of their decisions.

Policies 1 and 4 includes more specific policies on transport and land use integration and modal integration.

Policy 10: Integration

Ensure that organisations responsible for implementing the RLTS act in an integrated manner.

10.1. Co-ordinate and integrate the actions of all organisations responsible for land transport implementation in Auckland and ensure they act in a manner which is supportive of the RLTS, and the effective integration of land use and transport.

10.1.1 Provide support to regional groups, including the RTC and the Regional Transport Executives Group, to co-ordinate and integrate land transport actions in the region (ARC).

10.1.2 Develop and maintain a forum for discussion of inter-regional transport issues with neighbouring regions (ARC).

10.2. Ensure that organisations with responsibility for transport and land use decisions act in an integrated and coordinated manner and fully consider the wider impacts of their decisions.

10.2.1 Ensure that processes are in place to enable consideration of the transport implications of land use decisions, and the land use implications of transport decisions (City and district councils, ARC).

5.11 Safety

The NZTS highlights the need for the transport system to be based on design, operating and maintenance standards that protect people and property.

The policies in this section refer to the steps that will be taken to co-ordinate transport safety activities within the region, and to ensure that the design and implementation of transport projects and activities reflect best safety practice. Policy 5 also deals with specific aspects of safety and security.

Policy 11: Safety

Ensure that safety and security issues are addressed throughout the transport system

11.1. Take a co-ordinated approach to transport safety.

11.1.1 Co-ordinate road safety initiatives through ongoing monitoring and review of the Regional Road Safety Plan (ARTA).

11.1.2 Provide leadership and co-ordination for groups working cooperatively in transport safety (ARTA).

11.2. Ensure that resources are directed towards improved road safety outcomes.

11.2.1 In developing the Regional Land Transport Programme, prioritise engineering, enforcement and education initiatives that address identified road and rail safety issues that contribute to deaths and serious injuries in the region (ARTA).

11.2.2 Ensure that safety and security are fully considered when developing transport projects, and that the design and implementation of projects reflects best safety practice that utilise guidelines, such as the Integrated Transport Assessment and or the Health Impact Assessment, where appropriate (NZTA, city and district councils, ARC, ARTA).

5.12 Responsiveness

The NZTS requires the transport system to be responsive to users by recognising that people wish to travel and move freight at different times and by different modes. This includes the need to recognise the diverse characteristics of communities, and the flexibility to react to economic, social, environmental and technological changes. The ability to respond to the needs of the transport disadvantaged, who have difficulty in accessing basic activities and facilities, is particularly important.

The policies in this section address these issues. They identify the matters to be taken into account in project planning to ensure that the resulting actions are responsive to the needs of users and the community, and that the impacts are understood and addressed in the planning phase. Particular emphasis is placed on the identification of affected communities, including the transport disadvantaged and the need to take early steps to take their views into account.

Policy 12: Responsiveness

Ensure that the planning and development of the region's transport system responds to user and community needs.

12.1. Involve communities in decisions about transport that affect them.

12.1.1 Identify persons and communities likely to be affected by transport decisions, and provide early and full opportunities for them to contribute to the planning and decision-making process (NZTA, city and district councils, ARTA, ARC).

12.1.2 Take steps to provide for improved Māori participation in transport planning decision-making (NZTA, city and district councils, ARTA, ARC).

12.2. Ensure that transport decisions respond to diverse user needs.

12.2.1 Take account of the diverse needs of all users, including the transport disadvantaged, users of commercial transport, public transport, pedestrians, cyclists, and emergency services. (NZTA, city and district councils, ARTA, ARC)

12.2.2 Consider the equity implications of transport decisions and the distribution of costs and benefits, paying particular attention to the impacts on and improving access for the transport disadvantaged (NZTA, city and district councils, ARTA, ARC).

12.2.3 Identify communities impacted by transport projects and take steps to mitigate impacts or improve outcomes for these communities (NZTA, city and district councils, ARTA, ARC).

5.13 Sustainability

The NZTS identifies the need for the transport system to contribute to achieving New Zealand's economic, social, environmental and cultural goals for the benefit of current and future generations. It highlights the multi-faceted nature of sustainability, which includes the need to ensure that the system is affordable, safe and equitable over the longer term, as well as the need to for the transport system to meet environmental sustainability objectives, including carbon neutrality, energy efficiency, and ecosystem protection.

A sustainable transport system must also be prepared for, and able to recover well from unforeseen events (such as floods and earthquakes), and be sufficiently flexible to respond to different future situations. Avoiding adverse impacts can contribute to more resilient infrastructure.

Policies relating to affordability, safety and equity are included in previous sections. The policies in this section outline the processes to be followed in the planning, design and development phases of transport projects, to ensure that they meet sustainability objectives. These include the assessment of environmental effects and health impacts. Policies relating to the ability of the transport system to respond to unforeseen events are also included.

Policy 13: Sustainability

Ensure that the planning and development of the region's transport system contributes to environmental sustainability.

13.1. Ensure that new transport projects meet environmental and public health standards.

13.1.1 Ensure that Integrated Transport Assessments (ITA) are undertaken for all significant trip generating activities and an assessment of effects for transport projects. The assessment of effects should include consideration of environmental and public health impacts in accordance with those matters identified in Appendix I Health Impact Assessment (City and district councils, NZTA, ARTA, ARC).

13.1.2 Ensure the proposed options for new transport projects or redevelopment of transport infrastructure specifically consider the construction, operation and maintenance effects of the project on; air quality, resource use and efficiency (including energy), climate change, water quality, stormwater runoff, sediment discharges, soil degradation, coastal environment, matters of significance to iwi, natural heritage, cultural heritage sites, waahi tapu sites, landscape values, ecological and habitat values, social costs, economic costs, noise and amenity (City and district councils, NZTA, ARTA).

13.1.3 Ensure that the development of roads, footpaths and driveways incorporate low impact design principles from planning through to construction, operation and maintenance (City and district councils, NZTA).

13.1.4 Ensure that new transport projects and the management of the existing network meet environmental and public health standards (ARC, city and district councils, ARTA, KiwiRail, NZTA).

13.1.5 Reduce stormwater contaminants through transport infrastructure and vehicle design (ARC, city and district councils, ARTA, KiwiRail, NZTA).

13.1.6 Ensure that new transport projects take into account the likely GHG emissions to be generated while in operation. Where practical, embodied energy and associated GHG emissions should be investigated when comparing different transport solutions (ARC, city and district councils, ARTA, KiwiRail, NZTA).

13.2. Increase the flexibility and resilience of the transport system, and improve its ability to respond climate change and unforeseen events.

13.2.1 Support the Auckland Lifelines project and develop emergency management initiatives aimed at ensuring the ongoing operation of the transport network in emergencies (ARC, Environment Waikato, Northland Regional Council, city and district councils).

13.3 Develop, maintain and manage the transport network in a way that avoids, remedies or mitigates adverse effects on the environment (ARC, city and district councils, ARTA, KiwiRail, NZTA).

13.4 Work with central government to develop Kyoto Protocol targets for reducing greenhouse gas emissions from transport in the Auckland region and support initiatives to achieve the targets within the life of this RLTS (ARC).

13.5 Work with central government to develop National Energy Efficiency and Conservation Strategy targets for energy efficiency improvements from transport in the Auckland region and support initiatives to achieve the targets by 2020 and 2040 (ARC).

13.6 Take steps to minimise the amount of land consumed for transport purposes through the efficient use of all transport infrastructure including corridors, car parking and park and ride facilities, while having regard for the need for safe and environmentally friendly transport infrastructure (City and district councils, ARTA, KiwiRail, NZTA).

Storm water swales near Highbrook.

Risks, monitoring and review

This chapter describes the risks, monitoring and review of the RLTS. It identifies how risks will be mitigated, along with how the targets set out in Chapter 2 will be monitored and evaluated, and how monitoring will inform future reviews of the RLTS.

6.1 Risks

In developing the RLTS 2010, risks to achieving the vision and objectives set out in Chapter 2 were investigated and detailed in the RLTS 2010 Working Paper. Two categories of risks were identified; those that can be mitigated and those that cannot. Risks that can be mitigated have been incorporated into the policies in Chapter 5. Risks that cannot be mitigated are included in the RLTS monitoring programme to ensure that they are identified early on and appropriate responses can be identified and implemented.

Six main types of risk have been identified and mitigation actions are described below:

1. Transport Risks - This category of risks relates primarily to the effectiveness of the policies in this strategy to achieve the desired outcomes and targets. This strategy, despite the heavy focus on managing travel demand and providing sustainable transport choices, is expected to fall short of the NZTS GHG emissions target. This raises considerable concern for those involved in the development of the strategy. Therefore there needs to be a good level of public consultation and a resulting high degree of alignment between various stakeholders to determine the overall regional and national commitment towards achieving the desired outcomes and targets set out in this strategy.

- **Mitigation Policies** - These risks are mitigated via demand management policies (Land Use, Economic and Behaviour Change); Policy 9 Affordability; and Policy 12 Responsiveness.
- **Mitigating changes in travel demand** - It is important to consider how the proposed projects and policies identified in the RLTS might be adapted to changing travel demand patterns. Actual travel demands may differ from what was expected when projects and policies were developed. Ongoing monitoring and research is expected to contribute toward identifying changes in travel behaviour and identifying adaptive strategies in response. This reflects an ongoing need to monitor and modify travel demand assumptions used in the analysis of proposed transport projects. The upcoming opening of the upgraded train stations at Newmarket and New Lynn may provide an opportunity to test the accuracy of transport models at predicting the effects of rail investment and changes in travel demand.

2. Technical Risks - This category of risks relates to the protection of transport routes, the effectiveness of performance monitoring, accuracy of cost estimates and the need for further research on transport system complexities.

- **Mitigation Policies** - These risks are mitigated via Policy 4 Improve transport choices, introduction of performance targets in Chapter 2, Policy 4 Funding, and the need for additional investigations that are identified across multiple policies.

3. Political Risks - This category of risks relates to the uncertainty that may result arising from local government reform, alignment between government agencies, and public support for regional transport and land use strategies. For instance, central and regional government transport priorities are currently in a state of flux. This change has been driven by fluctuations in economic growth; establishment of the NZTA; changes to the Government Policy Statement on Transport Funding; and proposed reform to local government. In some instances changes in Government policy may trigger a review of the strategy. For example, targets for reductions in greenhouse gases are currently unclear and subject to change, pending international negotiations in Copenhagen later in 2009. If these negotiations result in New Zealand accepting challenging targets, and if the Government decides Auckland transport must make a significant contribution to meeting those targets, then this strategy may need to be reviewed.

- **Mitigation Policies -** Mitigating these risks lies somewhat beyond the scope of the RLTS and instead relates more broadly to how the ARC engages and collaborates with different government agencies and the wider public. Policy 10 Integration sets out policies for co-ordination and integration.

4. Funding Risks - These risks relate to both the quantum of funding available and the rules around how that funding can be used. There is great uncertainty over the availability of funding, particularly beyond the 10 years covered by the Government Policy Statement on Land Transport Funding. If funding is less than anticipated, then the planned investments will not be made and the strategy will need to be reviewed. Similarly, funding rules make it easier to fund some types of investment than others, and misalignment of funding rules with transport strategy will mean the strategy can not be delivered

- **Mitigation policies** – Policy 8 Funding and Policy 9 Affordability.

5. Land Use Risks - This category of risks relates to the lack of suitable enabling mechanisms, the need to ensure that public institutions support effective land use outcomes and the need to focus on connecting land use outcomes with social values.

- **Mitigation Policies** - Policy 1 Land Use.

6. External Risks - This category of risks relates to the potential impacts of factors over which central, regional and local government have limited control, and for which there are fewer opportunities to affect the likelihood of the risk occurring. Risks identified include changes in socio-economic factors, such as economic growth, energy prices for oil and electricity, and energy availability

- Mitigating future energy availability and price volatility - The future availability of energy (including electricity and oil) is a major risk to the transport system (particularly until such time as there are widespread improvements in the energy efficiency of the vehicle fleet). At the regional level, policies relating to land use, economic measures, public transport and behaviour change are aimed at reducing the region's reliance on motor vehicles and therefore transport energy. This strategy assumes that energy prices will rise 240 per cent over time, to around $3.71 per litre in 2040 (in $2006 dollars). More difficult to predict are potential fluctuating constraints in energy supply, and volatility in energy prices. Sensitivity testing for the development of the preferred strategic transport option, detailed in Chapter 4, considered a high transport energy price of $6.00 per litre. At that price, by 2040, it is expected that car trips would decline by nine per cent and PT trips would increase by 33 per cent compared with the assumed price of $3.71 per litre.[36] This strategy aims to develop a transport network that is focused on managing demand and providing access to public transport, thereby providing a transport network that is resilient to shortages or price volatility in transport energy.

36 Trip reduction savings arising from fuel price increases are modelled and therefore uncertain.

A related risk is the impact of rising fuel prices on the economy. Recent international research indicates that national economies tend to suffer when households exceed four per cent of their household expenditure on transport fuel. Currently Aucklanders spend 4.12 per cent of household expenditure on transport fuels, whereas the rest of New Zealand averages 3.98 per cent.[37] Increases in fuel prices, as shown in the recent oil price spike, depress travel demand by private vehicle. However, in the event of high oil prices or limited availability, there is a risk that by adding more roads for current high traffic volumes may lead to roads becoming "stranded" or under utilised long term public investments. This strategy aims to reduce the impact of rising or volatile fuel prices on the economy by providing transport choices suitable to the needs of Aucklanders.

- Mitigating catastrophic events - Policy 13.2. is aimed at increasing the flexibility and resilience of the transport system, and improve its ability to respond to unforeseen events, such as weather events, energy availability or volatile energy prices.

6.2 Monitoring

Schedule 7 also requires that the Auckland Regional Transport Committee must prepare a progress report on the implementation of the Auckland Regional Land Transport Strategy in place during the previous three financial years.

The purpose for monitoring is two-fold:

1. Review the impact of the policies defined in the strategy, to enable improvements in the effectiveness of the strategy and its implementation over time. As many of the policies take a number of years to have an impact, the review needs to take into account the timing of implementation programmes and the lag between implementation and observable changes in the indicators.
2. Identify any changes in risks and trends that might have an impact on policy direction, to review whether policies require amendment / additions.

Embedded in the RLTS are the principal evaluation tools of measurable outcomes, indicators and targets (Chapter 2). Targets are used to provide a benchmark to measure whether policy and project interventions are acting effectively.

Fundamentally, the monitoring programme looks to answer two questions - how well is the RLTS being implemented, and are the RLTS objectives and outcomes being achieved?

- **How well is the RLTS being implemented?** This will be assessed via an annual Progress on RLTS Implementation Report , focusing on agencies' progress towards implementing the RLTS. Agencies will report on the progress of the delivery of the projects, activities and actions set out in their supporting implementation plans, and provide a description of how they deliver against the RLTS. The data for this report will be made available by each of the agencies responsible for managing components of the region's transport network - those agencies and the programmes they run, are detailed in Chapter 6. Where relevant and available, monitoring indicators and contextual measures could be included in this report. This report will be reported to the RTC on an annual basis.
- **Are the RLTS objectives and outcomes being achieved?** This will be monitored via a three-yearly Progress on RLTS Outcomes Report, which will present the results of progress towards achieving the objectives, outcomes and related targets sought by the strategy, as described in Chapter 2. The first progress report must be prepared by 30th June 2011 in accordance with the transitional provisions of the amended LTMA. Thereafter this report will

37 Based on on 2004 Household Economic Survey published in 2007.

be completed by 30 September every three years, reported to the RTC and prepared as a publication for public release. In this third year, the content of the annual Progress on RLTS Implementation Report could be included as a subsection of the progress on RLTS Outcomes Report.

These two reports will provide a picture of how well the strategy is being implemented and how well the policies defined in the RLTS are achieving the objectives and outcomes sought. Insights from the monitoring programme will be used to help identify pressures and issues, thereby informing reviews of the strategy and its components, and helping to inform the next review of the RLTS. While the ARC will take a lead role in the monitoring, the co-operation of all the agencies responsible for the transport system is essential.

Variations or a review of the RLTS can be triggered for a number of reasons, as outlined in the Significance policy for this RLTS (see Appendix J). The results of the monitoring process may identify the need for a variation or review, and the steps to be followed are described in that appendix.

6.3 Monitoring indicators

As is shown within Chapter 2, each objective has a number of expected outcomes. For each outcome, one or more indicators are used to assess progress against that outcome, and progress is assessed by reporting against 30-year targets. Some indicators are still being developed.

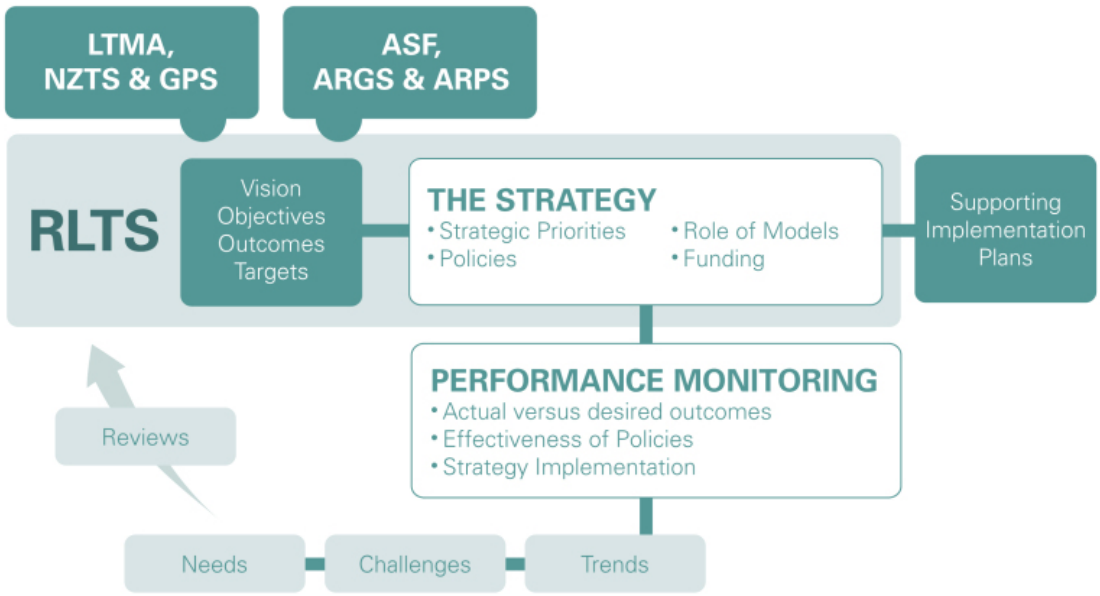
In addition to indicators (that have targets), there is also a set of contextual measures gathered and reported as part of the monitoring programme. Contextual measures have no targets associated with them, primarily because it is not the intent of the RLTS to change these. However, they provide a view of the environment that the transport system supports. They help to identify the demands on the transport system and can be used to identify trends that might be relevant to the strategy. Contextual measures include population and economic measures, vehicle fleet numbers and composition, total investment in the region's transport system, road traffic and PT volumes and general measures of congestion. These contextual measures are described in WP 06 Monitoring Regional Targets.

6.4 Review

Schedule 7 clause 1[1] of the LTMA states that the Auckland Regional Land Transport Strategy must be renewed at least once every six financial years, and cover a period of at least 30 years.

The following figure illustrates how the evaluation and monitoring process assists in identifying the risks, and changing user needs in relation to the region's transport network and how these feed into the review of the strategy and follow through to the various implementation plans.

Figure 7 RLTS Review Process



Under the LTMA the RLTS 2010 will need to be replaced by 2016. However provision is made that variations, or a review of the whole strategy can be undertaken prior to this time. For a review, matters to be considered and the process to follow are detailed with the the LTMA 2003 Schedule 7, for the Auckland RTLS.

For a variation, the RTC will need to determine how significant the variation is, with reference to the significance policy contained within Appendix J of this strategy. If a variation is significant, then the special consultative procedure contained within the Local Government Act 2002 must be followed. For variations that are not significant, the committee is provided discretion on the process to be adopted. A variation forms part of the RLTS that is varies.

A train ready to depart platform 3 from Britomart Transport Centre.

Glossary and Abbreviations

Accessibility -The degree to which people, goods and services have opportunities to conveniently travel within an area or region. In order to facilitate access to the full range of activities available within the region, it is important to provide travel opportunities equitably. Accessibility can be measured by indicators such as travel times, travel costs, availability of travel opportunities and the convenience (perceived and actual) of using different transport modes.

Active Transport- Non-motorised travel modes such as walking, cycling, and manual-powered wheelchair.

Auckland One Plan - A strategic framework and plan of action for the Auckland region evolved out of a need to improve the management of the regions strategies. This has been developed through a collaborative political forum dedicated to the long-term sustainable development of the region.

Auckland Regional Holdings (ARH) - Responsible for managing assets and investments on behalf of the Auckland Regional Council, primarily those transferred form Infrastructure Auckland (now disestablished).

Auckland Regional Growth Strategy (ARGS) - The Regional Growth Strategy has been prepared by the Regional Growth Forum and has been driven by the need to plan for how the Auckland region might accommodate a population of 2 million people, expected by 2050.

Auckland Regional Parking Strategy - This strategy sets out a new direction for the supply and management of parking in the region, to bring it into line with the region's land use, transport and sustainability strategies and outcomes. In supporting the general objectives of sustainable growth and development of the region it includes greater provision and use of public transport, more walking and cycling, and facilitating and encouraging high density mixed use development in selected centres and transport corridors.

Auckland Regional Policy Statement (ARPS) - This document provides the framework for the sustainable and integrated management of the region's natural and physical resources. It sets out the major direction of transport policy along with broad resource management issues, objectives and policies for the region. The land transport strategy may not be inconsistent with any policy statement.

Auckland Regional Transport Authority (ARTA)- Responsible for planning, funding and developing the Auckland regional land transport system. ARTA must give effect to the RLTS as a whole and prepare the Auckland Land Transport Programme.

Auckland Sustainability Framework (AFS) -Ratified by the Auckland Regional Growth Forum in 2007 the AFS aims to help our region secure a better quality of life and create a sustainable future socially, culturally, economically and environmentally. It takes a 100+ year view and provides direction so that our local authorities and central government agencies can work together with a common purpose.

Civil Aviation Authority (CAA) - Establishes standards and monitors adherence to these standards in the aviation sector.

Conventional Heavy Rail- Conventional heavy rail comprises passenger rail vehicles built to standards that allow it to share tracks with rail freight operators. Unlike light rail, conventional heavy rail cannot operate off the exclusive rail corridor. Conventional heavy rail can be powered by diesel or electric propulsion and comprise multiple self-powered units or locomotive hauled carriages.

Emodied Energy - The quantity of energy required by all of the activities associated with a production process, including the relative proportions consumed in all activities upstream to the acquisition of natural resources and the share of energy used in making equipment and in other supporting functions i.e. direct energy plus indirect energy (Treloar, Graham J. 1994 Energy Analysis of the Construction of Office Buildings. Deakin University. School of Architecture and Building).

Greenhouse Gas (GHG) - GHGs are made up of a variety of gases - including carbon dioxide, methane, nitrous oxide, water vapour, ozone, and fluorinated gases - which trap infrared heat in the upper atmosphere and contribute to global warming. In this report, all of these gases are referred to collectively as greenhouse gases. Another term that is sometime used is carbon equivalents - CO_2 - which recognises that greenhouse gases have different global warming potentials (eg one tonne of methane warms the atmosphere over 100 years to the same extent as 25 tonnes of carbon dioxide). The primary greenhouse gas emitted by land transport is carbon dioxide.

Government Policy Statements (GPS) on land transport funding - In accordance with the LTMA the Minister is required to issue a GPS every three financial years. The GPS enables the Minister to guide the NZTA and the land transport sector on the outcomes and objectives, and the short - to medium-term impacts, that the Crown wishes to achieve through the national land transport programme; and from the allocation of the national land transport fund. The GPS also enables the Minister to link the amount of revenue raised from road users with the planned levels of expenditure from the national land transport fund.

Health Impact Assessment (HIA) - A combination of procedures, methods and tools by which a policy may be assessed and judged for its potential effects on the health of the population, and the distribution of those effects within the population.

High Occupancy Vehicles (HOV) - Vehicles carrying more than one person.

Integrated Transport Assessments (ITA) - An ITA is a comprehensive review of all the potential transport impacts from a Structure Plan, proposed Plan Change, a Metropolitan Urban Limits (MUL) shift or a major trip generating activity. It is expected the ITA would be undertaken at the beginning of the planning process and the findings of the assessment would be taken into consideration to identify and inform any actions required to avoid, remedy or mitigate adverse effects of the development proposal on the transport system.

Integrated Transport Planning (ITP) - A planning process for the future of transport in an area. It aims to balance the need for public transport, freight, general motor traffic, non-motorised transport (such as walking and cycling), and reduce the demand for private motor vehicle travel in one process. The term "integrated" also means that the transport system is considered alongside broader land use development needs.

Intensification - An increase in density (of dwellings, activity units, population and so on) over the current density of a given area. In the Regional Land Transport Strategy and Regional Growth Strategy, intensification refers to residential densities <500m2/dwelling, in selected areas (centres or corridors), as well as incremental infill and redevelopment.

Land Transport -Transport on land by any means and the infrastructure facilitating such transport. It includes rail, surface-effect vehicles, and harbour ferries.

Land Transport Management Act 2005 (LTMA) - The legislation that governs the preparation of the Regional Land Transport Strategy.

Local Connector Network (LCN) -Provides access to local centres and connections with Rapid Transit and Quality Transit networks via low to medium frequency local bus, ferry and train services.

Local Government (Tamaki Makaurau Reorganisation) Act 2009 (LGTMRA) - provides the legislative mechanisms for transition to the new Auckland governance arrangements - the establishment of the Auckland Council on and from 1 November 2010; the establishment of the Auckland Transition Agency to manage and facilitate the transition to the new local governance arrangements; and requirements for the existing local authorities and certain other entities to participate in the reorganisation.

Local Road -Local road includes all those roads administered by the territorial authorities, or those roads that are not State Highways.

Maritime Safety Authority (MSA) - Establishes standards and monitors adherence to those standards in the maritime sector.

Mixed Use Development- A mixture of activities such as residential, business, retail, or hospitality that occupy space within the same building or within the same block or area. Examples are an apartment building with shops, cafes and offices on the lower floors, or a town centre with these activities.

Metropolitan Urban Limits (MUL's) - The urban boundaries surrounding the Auckland region. A MUL is a planning technique used to define urban limits and limit sprawl on rural areas. It is a line drawn on regional planning documents to define the extent of urban zoning that is permitted. In Auckland the MUL is a key implementation tool of the Auckland Regional Growth Strategy.

National Land Transport Programme (NLTP) - the mechanism through which the NZ Transport Agency (NZTA) allocates funds to approved organisations for land transport infrastructure and services. The NLTP allocates funding to approved organisations across a number of national and regional activity classes. Priority is initially given to projects of national importance.

New Zealand Energy Strategy (NZES) - this document sets out the Goverment's vision for a sustainable, low emissions energy system and the actions that will be taken to make this vision a reality.

New Zealand Energy Efficiency and Conservation Strategy - (NZEECS) was written in 2007, and was a key part of the government's response to meeting its energy, climate change, sustainability and economic transformation goals. It has been written as a companion document to, and will give effect to a number of the objectives set out in, the New Zealand Energy Strategy (NZES). The NZEECS is currently under review.

New Zealand Transport Strategy 2008 (NZTS)- Sets the strategic direction for the transport sector in New Zealand to 2040, covering all parts of the sector – land, sea and air. It is concerned with both the movement of freight and people, and considers not just transport within New Zealand, but the nation's vital international links as well. The government's vision for transport in 2040 is that "people and freight in New Zealand have access to an affordable, integrated, safe, responsive and sustainable transport system".

Priority User - an efficient transportation management system that gives priority to modes that require less space per passenger-kilometre, or which serve particularly high-value trips (such as emergency and freight vehicles). Depending on the type of corridor, a priority user could be freight on the strategic freight network, public transportation on the Rapid Transit Network or pedestrians in a local town centre. Transportation prioritisation is intended to change the way public resources are used, including how public roads are allocated between different transport users, how parking facilities are designed and managed and traffic speed regulation (adapted from the Victoria Transport Planning Institute).

The types of user which have priority will differ in various parts of the network – pedestrians and cyclists will be priority users for local trips and around town centres, bus passengers will be priority users on the Quality Transit Network and heavy vehicles will generally be priority users on the regional strategic freight network. Some links in the network will have more than one type of priority user, or will pass through communities that are sensitive to traffic impacts. In those cases, any conflicts will need to be resolved through corridor management plans.

Quality Transit Network (QTN) - Provides a network of high-frequency, high-quality transit services. The majority of these are bus services operating bus priority measures between key centres and over major corridors. The QTN complements the Rapid Transport Network by connecting at key hub locations.

Rapid Transit Network (RTN) - A Rapid Transit Network has been identified as an extension of the projects in the Regional Passenger Transport Plan. It aims to provide longer-term support for the more intensive growth proposed by the Regional Growth Strategy and to improve the region's transport system. The Rapid Transit Network is shown in Map 3.

Regional Arterial Network (RAN) -Identified within the Regional Arterial Road Plan prepared by the Auckland Regional Transport Authority (ARTA). Regional arterials link the districts and urban areas within the region and connect these to strategic roads and regionally-significant facilities.

Regional Cycle Network (RCN) - Identified within the Auckland Sustainable Transport Plan prepared by ARTA. It includes existing or proposed routes that carry, or could carry, significant numbers of cyclists. They may be off-road or on-road, and should be designed for cyclists.

Regional Growth Forum- A co-operative partnership of the ARC and region's local councils, which is responsible for the Regional Growth Strategy. It is a standing committee of the ARC, with delegated powers, and funded through the regional rate.

Regional Transport Committee (RTC)-The Regional Transport Committee (RTC) is a standing committee of the Auckland Regional Council that is required to produce the Regional Land Transport Strategy. RTC comprises representatives of the ARC and all the region's local councils and key transport stakeholder groups including the NZTA. Other members are representatives of various interest areas. They are named on page 2.

Regional Passenger Transport Plan (RPTP)-The Regional Passenger Transport Plan is a statutory document prepared by the ARTA. The plan defines the region wide public transport network policies and describes three layers of service (ie comprehensive base network, major bus routes and rapid transit network) in terms of the quality and quantity of public transport services over the next decade. The plan provides an overview of the way in which the Auckland passenger transport system will be developed as an integrated regional network and specifies the passenger transport services for the region.

Road Hierarchy –A transport classification system, in which roads are classed according to the function they perform for through traffic. The highest classified roads are arterial routes with a focus on the movement of traffic and the lowest classified roads are local roads with a focus on environmental protection and community amenity, rather than the movement of traffic.

Road Pricing - as used in the RLTS, refers to charging road users directly for their use of a particular piece of road. Charges for use of the road may vary according to what road is used and when. Road pricing can have two main functions; to change motorists' behaviour and thus improve traffic conditions, and to raise funds. Road pricing can be implemented in a variety of forms ranging from network-wide electronic pricing using satellite communications, to tolls collected at a limited number of points by conventional means.

Strategic Roads - Identified within the Regional Arterial Road Plan prepared by ARTA. Strategic arterials link the region to other regions or connect strategic facilities such as the port and airport. These are generally the region's State Highways.

Transport Accident and Investigation Commission (TAIC) - TAIC is similar to a standing Commission of enquiry and investigates all aviation, rail or marine accidents and incidents within New Zealand the circumstances of which are likely to have significant implications for transport safety.

Travel Demand Management (TDM) - The term used to describe initiatives aimed at modifying travel behaviour in order to maximise the efficient use of transport systems. Examples of TDM measures include tele-working, ride sharing, more flexible work and educational hours, road pricing, parking constraints, cycling, walking and land use policies that support intensive mixed-use development. Such measures can avoid more costly expansion of the transport system by relieving the need to construct roads or provide more passenger transport services.

Transport Network- The national strategic and regional arterial roads and the passenger transport networks are shown on Maps 4. The network comprises the parts of the current and future transport network that are essential for moving people, goods and services around the region, and in and out of the region.

Transit Orientated Development (TOD) - Transit orientated development is compact, mixed use development near new or existing public transportation infrastructure that serves housing, transportation and neighbourhood goals. Its pedestrian and cycle oriented design encourages residents and workers to drive their cars less, ride mass transit more and includes appropriate treatment of car parking.

Abbreviations

ACC	Auckland City Council
ASF	Auckland Sustainability Framework
ARC	Auckland Regional Council
ARH	Auckland Regional Holdings
ARGS	Auckland Regional Growth Strategy
ARPS	Auckland Regional Policy Statement
ART	Auckland Regional Transport Model
ARTA	Auckland Regional Transport Authority

ASP	Auckland Strategic Planning Model
CAA	Civil Aviation Authority
CBD	Central Business District
CMP	Corridor Management Plan
EECA	Energy & Efficiency Conservation Authority
FDC	Franklin District Council
GHG	Greenhouse Gas Emission
GPS	Government Policy Statement on transport funding
HIA	Health Impact Assessment
HOV	High Occupancy Vehicle
ITA	Integrated Transport Assessments
LCN	Local Connector Network
LGA	Local Government Act
LGAAA	Local Government (Auckland Amendment) Act
LGTMR	Local Government (Tamaki Makaurau Reorganisation) Act 2009
LTMA	Land Transport Management Act
MCC	Manukau City Council
MUL's	Metropolitan Urban Limits
MSA	Maritime Safety Authority
NSCC	North Shore City Council
NZTA	New Zealand Transport Authority
NZTS	New Zealand Transport Strategy
PDC	Papakura District Council
PT	Public Transport
RDC	Rodney District Council
RTEG	Regional Transport Executive Group
RLTS	Regional Land Transport Strategy
RPTP	Regional Passenger Transport Plan
RTC	Regional Transport Committee

RTN	Rapid Transit Network
QTN	Quality Transit Network
SH	State Highway
SOV	Single Occupancy Vehicles
TAs	Territorial Authorities
TAC	Technical Advisory Committee
TAIC	Transport Accident Investigation Commission
TDM	Travel Demand Management
TOD	Transit Orientated Development
VKT	Vehicle Kilometers Travelled
WCC	WaitakereCity Council

Strategies and policies considered

The list below identifies the policies, documents, and strategies considered in the preparation of the RLTS 2010. Further detail on how they were used in the formation of the ~~A~~RLTS is documented in the RLTS Working Paper 07 Assessment of Compliance with Clauses 3 and 4 of the Land Transport Management Act, as amended in 2008.

Table 19 Essential documents and reference documents

Essential documents[38]	
LTMA aim and objectives	Proposed Regional Plan: Air, Land and Water.
New Zealand Transport Strategy 2008 (identified as National Land Transport Strategy).	Auckland Regional Growth Strategy.
Government Policy Statement (on transport).	Regional Coastal Plan.
Auckland Regional Policy Statement.	New Zealand Energy Efficiency and Conservation Strategy.
All Territorial Authorities' District Plans.	Auckland Sustainability Framework.
Reference documents[39]	
New Zealand Health Strategy.	Improving health and wellbeing: A public health perspective for local authorities in the Auckland region.
Metro Project Action Plan.	New Zealand Disability Strategy.
New Zealand Tourism Strategy.	Getting there – on foot, by cycle.
PT Management Act.	Road Safety to 2010.
Auckland Regional Open Space Strategy.	Sea Change: Transforming Coastal Shipping in New Zealand.
Auckland Regional Economic Development Strategy.	Auckland Regional Physical Activity and Sport Strategy.
Public Health Bill.	LGAAA.
Māori Urban Design (Draft).	NZ Urban Design Protocol.
Māori Health Strategy (He Korowai Oranga).	National Rail Strategy to 2016.
ARTAs Regional Plans (Auckland Passenger Transport Network Plan 2006-16, Draft Regional Arterial Road Plan 2008, Auckland Transport Plan 2007, Rail Network Development Plan, Park and Ride Strategy, Ferry Development Plan, Regional Road Safety Plan).	Sustainable Development for New Zealand Programme of Action.
Whanua Ora Health Impact Assessment	Auckland One Plan.
Regional Freight Strategy and Regional Parking Strategy.	National Code of Practice for utilities access to road and rail corridors.
Te Puni Kokiri's Māori Potential Framework and 2007-2010 SOI.	

38 Key statutory documents.
39 Largely non-statutory and/or provide background information on transportation related material.

Assessment of LTMA Clause 3, 4 and 5

Land Transport Management Act 2003: Schedule 7 – Clause 3, 4 and 5 Assessment

Clause 3: Core requirements for the Auckland Regional Land Transport Strategy		
3(a)(i)	The RTC must be satisfied that the RLTS contributes to the aim of achieving an affordable, integrated, safe, responsive, and sustainable land transport system	Chapter 2 Vision Chapter 5 Policies contains policies to support the aims.
3(a)(ii)	The RTC must be satisfied that the RLTS contributes to each of the following: (A) assisting economic development: (B) assisting safety and personal security: (C) improving access and mobility: (D) protecting and promoting public health: (E) ensuring environmental sustainability	Chapter 2 Vision describes the outcomes desired for the region for each objective and sets targets for each objective.
3(a)(iii)(A)	The RTC must be satisfied that the RLTS is consistent with any national land transport strategy (NLTS)	There is currently no National Land Transport Strategy. However the NZTS 2008 features heavily in the RLTS.
3(a)(iii)(B)	The RTC must be satisfied that the RLTS is consistent with any relevant national policy statement or any relevant regional policy statement or regional plan that is for the time being in force under the Resource Management Act 1991	WP12 Assessment of LTMA Clause 3 and 4 (RLTS 2010) contains an assessment of the August draft RLTS 2010with relevant policy recommendations contained within this document. The recommendations from this assessment have been incorporated into the draft RLTS. WP7 includes consideration of a wider range of policy documents as compared to the RLTS 2005.
3(a)(iv)	The RTC must be satisfied that the RLTS avoids, to the extent reasonable in the circumstances, adverse effects on the environment	Chapter 4 Strategic Options
3(b)(i)	The RLTS must take into account the relevant GPS	Chapter 1 Introduction Funding available contained within the RLTS is directly influenced by the GPS (Chapter 4.6).
3(b)(ii)	The RLTS must take into account any national energy efficiency and conservation strategy	WP12 Assessment of LTMA Clause 3 and 4 (RLTS 2010) and WP7 LTMA Policy context RLTS 2005Assessment of Policy Context. See Chapter 4 Introduction.
3(b)(iii)	The RLTS must take into account any relevant district plans.	District Plans of the Auckland region were reviewed via WP12 Assessment of LTMA Clause 3 and 4 (RLTS 2010) and WP7 LTMA Policy context RLTS 2005. These where incorporated into Chapter 5.
Clause 4: Other matters that must be taken into account		
4(a)	When preparing the RLTS, the RTC must take into account any guidelines issued by the Minister for regional land transport strategies	No guidelines have been issued by the Minister for RLTSs.
4(b)	The RTC must take into account the land transport funding likely to be available within the region during the period covered by the strategy	Chapter 4.6 Funding the strategy takes into account the likely transport funding available.

4(c)	The RTC must take into account the views of affected communities	Early consultation on the draft RLTS was undertaken within 2007 and late 2008. This feedback has been taken into account in developing the draft RLTS 2010.
4(d)	The RTC must take into account the views of land transport network providers	Land transport network providers were directly contacted in both 2007 and 2008 to provide feedback and input into the development of the draft RLTS. Feedback received has been considered in the development of the draft RLTS 2010.
4(e)	The RTC must take into account the need to give early and full consideration to land transport options and alternatives in a way that contributes to the avoidance of adverse environmental effects, and the views of affected communities.	Early consultation on the draft RLTS was undertaken within 2007 and late 2008. This feedback has been taken into account in developing the draft RLTS 2010. Feedback on the options will be undertaken with consultation on the draft RLTS as part of the Special Consultative procedure.
4(f)	The RTC must take into account the need to provide early and full opportunities for persons and organisations listed in clause 6(1) to contribute to the development of the RLTS	Those persons and organisations listed in clause 6(1) were directly contacted in the early consultation undertake in 2007 and 2008 to provide feedback and input into the development of the draft RLTS. Feedback received has been considered in the development of the draft RLTS 2010. Officers from many of the of the organisations identified have been directly involved supporting the RTC in the development and preparation of the draft RLTS. These organisations will be contacted as part of the consultation on the draft RLTS - Special Consultative procedure.
Clause 5- Mandatory statements		
5 (1)(d)	The RLTS must contain a statement of any relevant regional economic or land-use considerations, and the likely funding of any land transport infrastructure associated with those considerations;	Chapter 4.2 contains statements on economic and land use considerations. Chapter 4.6 estimates the likely funding availability and an estimate of the funding needed to support the preferred option.
5 (1)(h)	The RLTS must contain a statement that identifies any strategic option for which co-operation is required with other regions;	A common element in all strategic options are improved linkages to Northland, Waikato and Bay of Plenty (Chapter 4.4). Chapter 5 identifies the organisations and other regions responsible for implementing the strategy (see Chapter 5 Introduction and policies; 4.1.7, 4.7.1, 4.7.2, 4.7.6, 6.4.1 and 13.2.1).
5 (1)(i)	The RLTS must contain a statement that identifies persons or organisations who should be involved in the further development of strategic options;	Chapter 5 Policies sets out the policies that have been developed to give effect to the preferred strategic option and who should be involved in the further development of the strategic option.
5 (1)(k)	The RLTS must contain a statement provided by an independent auditor of how the process followed by the RTC complied with the requirements of the LTMA;	See Appendix C.

Statement from Process Auditor

Report to the readers of the Auckland Regional Council's Draft Regional Land Transport Strategy 2010-2040

The Regional Transport Committee of the Auckland Regional Council is required by clause 2 of schedule 7 to the Land Transport Management Act 2003 (the Act) to prepare, on behalf of the Auckland Regional Council, a regional land transport strategy (RLTS).

Further, clause 5(1) (k) of schedule 7 of the Act requires that the RLTS contains a statement from an independent auditor of how the process followed by the Committee complied with the requirements of the Act.

In June 2008 the Auckland Regional Council engaged Participate Limited (Peter Winefield) to provide ongoing, independent review of procedural matters with a view to providing a statement of compliance in accordance with the Act.

Readers should note that it is not the responsibility of Participate Limited to provide legal advice on the Strategy or to express opinion on the quality of the Strategy or its contents.

Opinion

In our opinion, the process followed by the Auckland Regional Transport Committee in preparing the Draft Auckland Regional Land Transport Strategy dated November 2009 complies with the requirements of the Act.

Basis of Opinion

In particular, the Regional Transport Committee has complied with the procedural requirements of the Act by:

- Being appropriately constituted and conducting its business in accordance with the Act and relevant council protocol;
- Appointing an independent process auditor and having regular engagement with the auditor regarding the relevant requirements of the Act;
- Meeting regularly and receiving reports from council staff and key advisors on the development of the strategy;
- Considering policy options and issues with an open mind, in a structured and integrated way;
- Engaging with key stakeholders in the development of the strategy; and
- Satisfying itself that the RLTS addresses, contains and complies with all matters required by the Act.

Independence

Other than this engagement as process auditor for the purpose of clause 5(1) (k) of schedule 7 to the Act, Participate Limited has no relationship with or interest in the Auckland Regional Council or the Regional Transport Committee.

Peter Winefield, Participate Limited,

Auckland, New Zealand, October 2009

Acknowledgements

Table 20 Parties involved in preparing the RLTS

Regional Transport Executive Group	
Archer Davis	North Shore City Council
Bill Horne	Rodney District Council
Chris Freke	Manukau City Council
Dawn Inglis	Franklin District Council
Don Houghton	Auckland Regional Council
Jim Fraser	Auckland Regional Council
John Smith (Convenor)	Auckland Regional Council
Kevin Wright	Waitakere City Council
Melanie Alexander	Auckland City Council
Nicola Mochrie	Papakura District Council
Peter Clark	Auckland Regional Transport Authority
Wayne McDonald	New Zealand Transport Agency
Technical Advisory Committee	
Alexandra Macmillan	Auckland University
Andrew Roche	Auckland District Health Board
Anna Wolterbeek	New Zealand Transport Agency
Bill Horne	Rodney District Council
Casandra Smith	Auckland Regional Council
Christina Robertson	Auckland City Council
Coralie O'Brien	New Zealand Transport Agency
Dirk Osborne	Auckland Regional Transport Authority
Don Houghton (Convenor)	Auckland Regional Council
Graeme Read	North Shore City Council
Hamish Bunn	Minstry of Transport
Jim Fraser	Auckland Regional Council
Kai Chan	New Zealand Transport Agency
Kevin Wright	Waitakere City Council
Lorraine Stone	North Shore City Council
Maree McNeilly	Auckland Regional Transport Authority
Melanie Alexander	Auckland City Council
Murray Cameron	Franklin District Council
Robert McSpadden	Papakura District Council
Roberta Robles	Auckland Regional Council
Steve Wrenn	Manukau City Council

Supporting working papers

Working Papers listed in numerical order.[40]

RLTS2010/WP01 Legislative Requirements for the Preparation of the Auckland RLTS - The Land Transport Management Act (2008) introduced new requirements for regional transport strategies, including specific provisions for Auckland.

RLTS2010/WP02 Consultation Stock-Take - Traffic congestion and related air pollution are often residents' top concerns about living in Auckland. This paper looks at what people have said in a diverse range of submissions and public opinion surveys.

RLTS2010/WP03 Risk Assessment - The assessment has grouped risks into the following categories: (1) Transport, (2) Technical, (3) Political, (4) Land use, and (5) External. Individual risks were then evaluated in terms of their likelihood, impact and exposure.

RLTS2010/WP04 Applying the ASF to the 2005 ARLTS - This paper looks at how the RLTS 2005 contributes to the region's long-term sustainability, including the need for resilient infrastructure, to be a fair and connected society, and to think in generations rather than years.

RLTS2010/WP05 Price Forecasts for Transport Fuels and other Energy Forms - Price Forecasts for Transport Fuels and other Delivered Energy Forms: What might happen to fuel prices over the next 40 years? This research states that petrol and diesel prices could be $6 per litre in 2060.

RLTS2010/WP06 Monitoring Regional Targets - This report overviews the proposed approach to be undertake for the monitoring of the various targets contained within the RLTS.

RLTS2010/WP07 LTMA Policy Context RLTS 2005 - Closing the policy gaps: Auckland's regional land transport strategy must, by law, meet a raft of requirements. This paper identifies the 2005 RLTS policy gaps which the region's next transport strategy must fill as the early starting point for the updated RLTS 2010.

RLTS2010/WP08 Trends and Issues (Transport Challenges) - This paper provides a wide range of statistics and data related to the main transport issues, trends and challenges the Auckland transport strategy needs to address. It updates information prepared for the 2005 RLTS.

RLTS2010/WP09 Strategy Affordability Assessment - This paper outlines the likely sources and level of transport funding, the estimated costs of implementing the preferred strategy and the affordability of the strategy.

RLTS2010/WP10 Auckland Rural Transport Issues - People living in rural areas rely heavily on cars. Road maintenance is expensive, public transport rare; there's often tension between new development and countryside living. This paper looks at transport in Auckland's rural areas, including the Hauraki Gulf islands.

40 Please note, there is no working paper 16.

RLTS2010/WP11 Freight movements - Current and future freight movements: The amount of freight shifted in Auckland is forecast to grow by 68 per cent by 2031, mostly because of a growing demand for aggregates and other building materials that need to be brought in from outside the region. This paper looks at current freight movements, forecasts, and national targets on moving freight by road, rail and sea.

RLTS2010/WP12 Assessment of LTMA Clause 3 and 4 - This paper expands upon WP07 and identifies additional policy gaps in the first draft of RLTS 2010 policies, and fully documents how the draft RLTS 2010 fully complies with Clause 3 and 4 of the LTMA.

RLTS2010/WP13 Health Impact Assessment - Includes the various reports that explore the issues raised through the course of the HIA. These involve stakeholder consultation, literature analysis and impact modelling, and provides recommendations for the development and implementation of the ARLTS from a perspective of health and wellbeing.

RLTS2010/WP14 Travel Demand Management Initiatives - Travel plans, walking and cycling: Travel demand management measures could remove almost 700,000 cars trips from roads and help reduce vehicle emissions. This report looks at what education and travel planning might achieve, especially if supporting walking and cycling infrastructure are in place.

RLTS2010/WP15 Non Network Policy Options - What could be achieved without adding to the road network or public transport system? This paper looks at how different policies could be applied in the short, medium and long term.

RLTS2010/WP17 Transport Safety - One person dies every five days on the region's roads and one in 10 people in hospital has been injured on our roads. The social costs of road crashes in the region add up to an estimated $945 million a year. Rail crashes are rare but risks are growing as Auckland gets more and faster trains, carrying more people.

RLTS2010/WP18 Land Use and Urban Design Policies - Land use and urban design policies: Changes in land use prompt changes in transport demand, and infrastructure and travel behaviour can change land use patterns. Integrating transport and land use policies is a critical issue for Auckland. This paper revises the policies of 2005.

RLTS2010/WP19 Strategic Options Evaluation - A detailed analysis of developing the strategic options, and the identification of the preferred option. These matters have been considered by the RTC in separate workshops, presentations and agenda items.

RLTS 2010/WP20 Environmental Sustainability and Public Health Policies – Environment and public health: This paper looks at major developments in environmental sustainability and public health policies that have occurred since the 2005 Regional Land Transport Strategy.

RLTS2010/WP21 Strategic Option 3 Public Transport Network - Investment in public transport infrastructure: On average, Aucklanders each use public transport about 40 times a year. This would need to increase to over 100 to meet the NZTS targets. The consulting company Parsons Brinkerhoff was commissioned to investigate a potential future public transport network that would carry that many passengers, so that the effectiveness its various elements could be tested through transport models.

RLTS2010/WP22 Regionalisation of National Transport Targets - Public transport use in Auckland needs to be about five times higher by 2040, according to national transport targets set in 2008. This paper looks at Auckland's expected contribution to a variety of national targets, including for freight, the number of single occupancy vehicles on our roads, and walking and cycling.

Public transport service guidelines

ARTA has developed the following guidelines to assist in determining the minimum service levels that will apply to the different network layers. The guidelines were originally included in the 2006 Passenger Transport Network Plan (PTNP) following consultation on that document. ARTA is currently undertaking a review of the 2006 PTNP and these guidelines may change as a result.

Minimum Service Level Guidelines

Table 21 Minimum Service Level Guidelines

PT Network	Timing or mode	Rapid Transit Network (RTN)	Quality Transit Network (QTN)	Local Connector Network (LCN)
Service Strategy	Peak.	Express + Limited Stop + All Stop.	Express + Limited Stop + All Stop.	All Stop.
	Off peak	All Stop.	All Stop.	All stop.
Connections		Non-timed connections.	Services should be scheduled to arrive within 10 minutes of drop-off.	Services should be scheduled so drop off is within 10 minutes of RTN and /or QTN departure.
Frequency	Peak	5 – 15 min.	10 min (15 min new services/ferry).	20-30 min.
	Interpeak	20 - 30 min.	20 min (30 min for new services/ferry).	40-60 min.
	Evening	30 min.	30 min (60 min for new services/ferry).	60 min.
	Saturday	30 min.	30 min (60 min for new services/ferry).	60 min.
	Sunday	30 min.	30 min (60 min for new services/ferry).	60 min.
Service Period	Monday - Friday	5.30am – 12.00am.	5.30am – 12.30am.	5.30am – 12.30am for services feeding the RTN and QTN. 6.30am – 11.00pm for other services.
	Saturday	7.00am – 12.00am.	7.00am – 12.00am.	7.30am – 11.00pm.
	Sunday	8.00am – 10.00pm.	8.00am – 10.00pm.	8.30am – 10.00pm.
Maximum Loading Trigger Levels for service review to increase frequencies or expand capacity[41].	Peak	15 minutes: 85 per cent of total capacity per route. 30 minutes: 70 per cent of total capacity per route.	15 minutes: 85 per cent of total capacity per route. 30 minutes: 70 per cent of total capacity per route.	15 minutes: 85 per cent of total capacity per route. 30 minutes: 70 per cent of total capacity per route.
	Interpeak (evenings / weekends)	60 minutes: 60 per cent of total capacity per route.	60 minutes: 60 per cent of total capacity per route.	60 minutes: 60 per cent of total capacity per route.

41 These trigger levels are for the highest passenger loads, averaged for all trips on a route averaged over a three month period, within the busiest 15 minutes and 30 minutes in the AM and PM peak periods and over 60 minutes in the interpeak, evenings and weekends.

PT Network	Timing or mode	Rapid Transit Network (RTN)	Quality Transit Network (QTN)	Local Connector Network (LCN)
		Passenger loads on some individual trips may exceed these trigger levels.	Passenger loads on some individual trips may exceed these trigger levels.	Passenger loads on some individual trips may exceed these trigger levels.
Minimum patronage trigger levels for service review to decrease frequencies or lower capacity.	Peak	Demand analysis (from patronage surveys or the ticketing system).	Patronage is less than 50 per cent of seated capacity (averaged by the number of trips operated during any 20 minute period) at maximum load point.	Patronage is less than 50 per cent of seated capacity (averaged by the number of trips operated during any 20 minute period) at maximum load point.
	Other periods	Demand analysis (from patronage surveys or the ticketing system).	Patronage is less than 30 per cent of seated capacity (averaged by the number of trips operated during any 20 minute period) at maximum load point.	Patronage is less than 30 per cent of seated capacity (averaged by the number of trips operated during any 20 minute period) at maximum load point.
Reliability and punctuality.	For train	No services to leave early. 99.5 per cent operated as scheduled. 90 per cent within five minutes of schedule.		
	For bus	No services to leave early. 99.9 per cent of all service trips operated. 95 per cent within 5 minutes of schedule.		
	For bus and ferry		No services to leave early. 99.9 per cent of all service trips operated. 95 per cent within five minutes of schedule.	No services to leave early. 99.9 per cent of all service trips operated. 95 per cent within five minutes of schedule.
Accessibility.	For bus, train and ferry	Vehicle and station accessible consistent with NZ Disability Strategy.	Vehicle, stop and station accessible consistent with NZ Disability Strategy.	Vehicles accessible consistent with NZ Disability Strategy.
Vehicle / Vessel / Rolling Stock.		Modern and comfortable vehicles.	Modern and comfortable vehicles/vessels.	Meet Vehicle Quality Standards.
Vehicle Emission Standards.	For bus, train and ferry	Euro IV or equivalent.	Euro III or equivalent.	Euro III or equivalent.

Regional park and ride criteria

At the time of writing, the Park and Ride Strategy (ARTA) is still in a draft form (27/10/09). Therefore this appendix should be considered an early description of the main criteria for which Park and Rides[42] will be identified in the Auckland region.

Short term versus long term

- Short term generally means one to three years. The short term assessment criteria looks at how well each site fits with existing demand, services and facilities.
- Long term means five years or more and the time frame may differ from one project to another. Long term assessment criteria look at how well each site fits with long term land use plans such as the Auckland Growth Strategy and long term assumptions about infrastructure services.

Short term criteria

- **Land availability -** Land appears to be available that could potentially be acquired and developed as a Park and Ride in the short term.
- **Park and ride market -** There is an extensive area of medium to low-density residential development for which this is a logical place to park for travel to the Auckland CBD.
- **Appropriate road network -** The road network makes it easy to get from the catchment area to the Park and Ride without encountering sever morning peak congestion. The road network naturally funnels a large market to the Park and Ride.
- **Passenger transport network** - Availability of frequent, fast and direct passenger transport service should either exist or easy to develop in response to the new Park and Ride facility.

Long term criteria

- **Low land value and development potential -** A Park and Ride is a relatively inefficient use of land, and therefore presumes a low land value. A Park and Ride is therefore viable in the long term only if there is not a compelling higher-value use for the land. This is not just a matter of development economics, but also of transport system efficiency. While Park and Ride facilities are helpful in attracting patronage to passenger transport, dense development is far more effective to this end. For this reason, a long-term Park and Ride should be on land that is not planned to be a town centre or some other high land value use.
- **Park and ride market -** The RGS indicates that there will be an extensive area of medium - to low-density residential development for which this is a logical place to park for travel to the Auckland CBD.
- **Appropriate road network.** The long-term road network, including any planned improvements, makes it easy to get from the market area to the Park and Ride without encountering severe morning peak congestion. The road network naturally funnels a large market area to the Park and Ride.
- **Passenger transport network -** Must be on the Quality Transit Network.

42 Park and Rides with 200 car-parks may be expected to generate in the order of 50,000 additional passenger transport trips per year, assuming 95 per cent utilisation during a normal working week.

Assessment Categories

- **Discarded -** Sites that score poorly against both short-term and long-term criteria should be discarded from further consideration.
- **Permanent (ie both short-term and long-term).** Sites that score well on both criteria should be developed soon and with the expectation of permanence. Relatively expensive fixed infrastructure can be considered in these cases.
- **Interim** -Sites that score well in the short term but not the long term are considered interim. A classic example would be a location that is envisioned as a town centre in the RGS, but where there is currently no development or development pressure. Interim facilities can be appropriate for relatively inexpensive Park and Ride infrastructure.

Corridor management plans: principles and priorities

An important tool in the planning and implementation of improvements to regional arterial roads is the development of a series of corridor management plans (CMPs). Road controlling authorities are encouraged to prepare CMPs for all regional arterial routes, giving priority to the high priority routes identified below, and to subsequently put forward schemes for inclusion in the Auckland Regional Land Transport Programme.

ARTA has prepared a set of guidelines to assist with the preparation of CMPs, which are included in the Regional Arterial Road Plan 2009. The guidelines are aimed at assisting decision making on the allocation of scarce regional arterial road space among different and competing demands to improve safety, efficiency and effectiveness. They include measures that give priority to buses, high occupancy vehicles, freight traffic, and bicycles. Also included are guidelines relating to the control of parking on arterials, to pedestrian facilities and to the identification and treatment of urban design elements.

The Regional Arterial Road Plan also describes various techniques that can be applied to improve the performance of the regional arterial network, plus associated actions that can be taken to improve the effectiveness of each measure.

Defining Corridors

Corridors are transportation pathways that provide for the movement of people and goods between and within activity centres. A corridor encompasses single or multiple transportation routes or facilities – such as a motorway, arterial road(s), public transport (bus or rail), cycleway and pedestrian facilities, the adjacent land uses and the connecting network of streets (and rail lines).Corridor management plans should therefore incorporate the full extent of these related corridor activities.

The physical width of a corridor can vary depending on the adjacent land uses, road network layout and topography. As a general guide, a 400-metre-wide corridor enables most nearby land uses to be included, while an 800-metre-wide corridor allows all locations within a five minute walking distance of the corridor to be included. In some instances it may be appropriate to develop a management plan for an area that includes two or three corridors that are strongly inter-related.

The road transport network in the vicinity of the arterial area, plays an important role and the corridor should extend sufficiently far to enable the supporting network to be incorporated in the corridor access and management plans. Measures to improve the effectiveness of an arterial can affect intersecting and adjacent streets (and rail lines). Improving the connectivity and walkability of the local network can reduce the number of short-distance local trips using the arterial, enabling it to better meet the needs of longer-distance through traffic.

Principles for Corridor Management Plans

A corridor management plan seeks to establish the existing and future operation of an entire corridor, through an integrated assessment of transport routes and land uses within the corridor.

A corridor management plan needs to take the Regional Arterial Road Plan and other documents into account in order to fully understand the intended transport and land use roles. In particular, corridor management plans need a regional perspective on the intended future roles of each route, as described in the Regional Arterial Road Plan.

To better manage arterial roads for the movement of people, goods and services, it is essential that a range of low-cost options be considered to improve travel times, reliability and capacity (where capacity is measured in terms of people and goods rather than vehicles).

The actions required should be agreed as part of a corridor management plan (or an access management plan), and need to address:

- traffic signal operations and optimisation,
- carriageway use, markings and signage. Optimising the road space use includes appropriate median treatment (width, flush/raised/landscaped), and peak-time lane management including dynamic management, access control, intersection treatments etc. Route signage should be comprehensive, covering all key intersections and regional arterial routes,
- integration with adjacent land uses,
- integration with adjacent rail (as it relates to freight and the RTN),
- recognise the need to contribute to quality urban design outcomes,
- integration with the strategic objectives of the region and the city or district concerned,
- parking enforcement of clearways and bus/transit lanes is an essential element in traffic management on arterials,
- Travel Demand Management (TDM) measures, including walking and cycling infrastructure, forming part of school and workplace travel plans and neighbourhood accessibility plans,
- recognise the place function of the centres and communities along corridors, and
- safety engineering assessment and intervention.

Priorities for corridor management plans

Corridor management plans should be prepared for the entire regional arterial network. However, this will take some time to achieve. Accordingly, it is necessary to prioritise resources to those corridors with the greatest need. The Regional Arterial Road Plan has identified the following routes as the highest priority for the development of corridor management plans:

- Albany Highway: Upper Harbour Highway to Wairau Road
- Wairau Road: Target Road to Tristram Avenue
- Lincoln Road: Te Pai Place to SH16 Interchange
- Te Atatu Road: Edmonton Road to SH16
- Great North Road: Blockhouse Bay Road to SH16
- Wolverton Street
- Broadway: Khyber Pass Road to Manukau Road
- Khyber Pass Road: Symonds Street to Broadway
- Ellerslie Panmure Highway: Panmure Roundabout to Great South Road
- Great South Road: Church Street to Portage Road
- Pakuranga Road: Panmure Bridge to Ti Rakau Drive
- South-eastern Highway: Waipuna Road to Ti Rakau Drive
- Church Street: Neilson Street to Great South Road
- Neilson Street: SH20 Interchange to Onehunga Mall
- Ti Rakau Drive: Harris Road to Pakuranga Road
- Great South Road: Redoubt Road to Te Irirangi Drive.

Health Impact Assessment (HIA)

A Health Impact Assessment (HIA) is a tool to support analysis of policies for their potential effects on wellbeing and equity. It can be used to support policy-making based on evidence, to improve health outcomes, and foster greater collaboration between sectors and stakeholders (Public Health Advisory Committee 2004).

HIAs are intended to draw on expert/published knowledge about health impacts and interventions, as well as community knowledge to make recommendations that would minimise potentially negative well-being outcomes and maximise potentially positive outcomes of a proposed policy or project.

The four key stages of Health Impact Assessment are:

(a) screening – the initial selection process to assess an initiative's suitability for HIA,

(b) scoping – highlighting the key issues needing to be considered to define and shape the HIA,

(c) appraisal and reporting – identifying potential health impacts and making recommendations,

(d) evaluation – assessing the HIA process and outcomes.

HIA can be applied at the project level (such as particular roading developments), or on the policy level (such as regional or national transport policy). HIAs are gaining recognition in New Zealand, and are well-established internationally. The National Health Committee has championed the use of HIAs since publishing their Guide to HIA in 2004, and in 2007 issued a follow-up report on new opportunities for HIA in New Zealand (Public Health Advisory Committee 2004[43]; 2007[44]). More recently, the New Zealand Transport Agency has commissioned a review of applying health impact assessments to land transport planning in New Zealand.[45] Alongside conventional HIA, Whanau Ora Health Impact Assessment has emerged as an indigenous tool for undertaking HIA where there are significant Māori interests.[46]

When should a health impact assessment be used in transport planning?

International reviews and evaluations indicate that HIA can assist transport planning by encouraging a longer term focus, bringing attention to unintended impacts, fostering inter-organisational relationships and collaboration, and facilitating a more inclusive process that brings communities and different sectors together in problem identification and response to influence policy and planning decisions. HIAs tend to be a relatively formal and intensive process. They tend to be most effectively applied at an early stage of strategy or planning processes, when a range of options are being

43 Public Health Advisory Committee. 2004. *A Guide to Health Impact Assessment: A Policy Tool for New Zealand* Wellington: National Health Committee.

44 Public Health Advisory Committee. 2007 *An Idea Whose Time Has Come: Opportunities for Health Impact Assessments in New Zealand*. Wellington: National Health Committee.

45 New Zealand Transport Agency. 2009. *Applying Health Impact Assessment to Land Transport Planning*. Wellington: New Zealand Transport Agency.

46 Ministry of Health. 2007. *Whanau Ora Health Impact Assessment*. Wellington: Ministry of Health.

considered, rather than near the conclusion of a strategy or project plan. They generally require a draft document or set of options to be in place, for the HIA to review for health and wellbeing implications.

HIAs can be most influential in helping shape "upstream" processes of transport strategies and planning; for projects where there is a significant regional or community interest (such as a major transport corridor); where broad stakeholder involvement is required; and/or when a project is potentially precedent-setting (such as involving application of new policy settings, technology or scale of development). They are less useful for smaller-scale "downstream" transport projects, such as road re-surfacing or traffic lights installation, where best practice in areas such as urban design and safety is already well-established.

Potential opportunities for using HIA in New Zealand include:Regional transport strategies (as occurred with the Auckland Regional Land Transport Strategy):

- corridor studies and developments,
- major transport interchanges,
- assessment of environmental effects (AEE) in the resource consent phase,
- mode or implementation studies for public transport,
- integrated transport assessments,
- area plans,
- accessibility planning.

Are there other ways that health and wellbeing can be considered in transport planning?

As noted above, HIAs are formal processes for community and stakeholder engagement on health and well-being issues. They should be seen as a tool, albeit a potentially powerful tool, and are not in themselves a "default option" for incorporating health and well-being in policy and planning. A limitation of established HIA methods is that they are intended to start with a proposed policy or planning solution, which is then reviewed through an HIA. Where the issue being explored is at an earlier stage of conceptualisation, more participatory approaches to policy and planning may be appropriate, which involve diverse stakeholders in agenda setting and problem identification, and work towards a collaborative solution.

Whether or not a formal HIA is adopted, there are underlying principles for understanding health and wellbeing impacts that should be considered with any transport policy or plan:

- Health and wellbeing should be interpreted broadly, and include cultural, social and environmental wellbeing as well as physical health aspects. In relation to transport these include influences on service and amenity access, air and noise pollution, community severance, safety, physical activity, loss of land and social use of outdoor spaces.
- Multi-disciplinary input should be obtained from a range of perspectives, including public health professionals, transport planners, urban planners/designers, community representatives, as well as people representing different 'communities of interest' such as people with disabilities.
- Stakeholder perspectives should be brought together not only to identify problems but to have a role in forging solutions.
- Proactive efforts must be made to identify and engage disadvantaged communities and Māori early in the policy and planning process.
- Equity issues should be considered, in particular the distribution of impacts and the communities most adversely affected.
- Assessment of potential impacts, and identification of solutions should be transparent and based on evidence.

RLTS significance policy on variations

This policy is provided in accordance with Clause 11[6] of the Land Transport Management Act 2005. This clause requires that the Auckland Regional Transport Committee (RTC) must adopt a policy that determines significance in respect of variations made to regional land transport strategies.

If a variation is significant, the Auckland RTC must follow a more rigorous consultation and decision making process as detailed in Clause 6, including the consultation principles and Special Consultative Procedure as detailed in the LGA 2002.

For the purpose of this policy:

- Significance is a continuum, from variations of high significance to variations of low significance.
- The policy sets a significant threshold relating to a high degree of significance.
- If a variation is not significant it does not mean that it is unimportant and that no consultation will be undertaken. The implication of not meeting the significance threshold is that consultation as required by Schedule 7 of the LTMA will not need to be followed.

A significant variation for the RLTS will be one that is likely to have an impact that is more than minor on any of the following; contributing to the objectives, achieving the targets , reallocation of the funding available in the region, preference for the strategic option, and the ability of the region to achieve the vision.

The RTC will assess the significance of the variation having regard to:

- the implication for the present and future economic development, safety and personal security, access and mobility, environmental sustainability, public health, growth strategy and economic efficiency of the region,
- the magnitude of the decision in terms of financial costs to the region,
- the effect on the Regional Land Transport Programme or the local authority Long Term Council Community Plans, and consistency with national or regional policies and strategic documents.

When making a decision as to the significance of a matter, the committee will consider information on the reasons for the variation, the options, relative costs and benefits and those affected by, or having an interest in, the decision, commensurate with the significance of that decision. Criteria that will be considered when making a decision are:

- The extent to which the decision flows logically from the decisions already made in the RLTS.
- The extent to which external factors (such as the price of fuel, climate change, etc) which were unforeseen by the RTC at the time of completing the strategy, will impact on the strategic direction envisaged by the RLTS.
- The extent to which a proposed alternative strategic option varies from the preferred strategic option contained within the RLTS.
- The reversibility of the outcomes as a result of the variation.
- The benefit of the precautionary approach, where there is a level of uncertainty of the outcomes.

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