TRANSIT NEW ZEALAND
ARARAU AOTEAROA

NATIONAL STATE HIGHWAY STRATEGY

JUNE 2007

New Zealand Government

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FOREWORD

Air, rail, sea and road all play a part in connecting New Zealand's people, communities and markets. In the New Zealand Transport Strategy, the Government outlined its vision for an affordable, integrated, safe, responsive and sustainable transport system. As the steward of New Zealand's state highways, this has had major implications for the way Transit does business. It requires us to balance economic, social and environmental costs and benefits in the planning, designing, building, operating and maintaining of state highways. Importantly, it also requires us to preserve the mobility that the state highway system provides and that is so valued by all New Zealanders.

In this National State Highway Strategy we have outlined how Transit plans to achieve these objectives, including setting out concepts for New Zealand's urban and rural state highways. We explain the role of state highways and the principles and aims that govern how Transit will develop and manage the network. We also reintroduce a system of categorisation that we plan to apply to recognise the different functions of different highways.

In line with our commitment to integrated planning, the aspirations of regional land transport strategies have helped shape this national Strategy, as have the views of a range of stakeholders. In turn the Strategy offers other planning organisations and individuals a clear picture of the development decisions Transit will support today and in future. The Strategy will influence Transit's policies and the plans and funding proposals contained in the State Highway Forecast. In this way it is a touchstone for all our work.

The Strategy updates and replaces the 1998 strategy and will be reviewed in 2008/09 in light of findings in the Government's "Next Steps" in the Land Transport Sector Review and thereafter every six years.

Bryan Jackson
Acting Chairperson

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1 INTRODUCTION

State highways are an essential part of New Zealand's transport network, connecting and binding our communities, facilitating economic development and contributing to the health and wellbeing of New Zealanders. With a $15 billion state highway network, we must plan, build and manage the 10,894 kilometres of state highways in a way that supports New Zealand's aspirations and values by prudently applying the Government's investment of more than $1 billion a year in improving, maintaining and operating the network.

1.1 ABOUT THE NATIONAL STATE HIGHWAY STRATEGY

1.1.1 Purpose of the National State Highway Strategy

The National State Highway Strategy 2007 responds to the New Zealand Transport Strategy (NZTS) as it relates to the development of the country's state highways. The Strategy sets out how Transit New Zealand (Transit) will move towards and manage the state highway network as an integral part of a multi-modal transport system. It sets out how the state highway network will support the Government's priority theme of economic transformation and the NZTS objectives of improving access and mobility for all New Zealanders; ensuring the safety, security and health of New Zealanders; and improving the environmental sustainability of transport in New Zealand. In this way this Strategy provides the link between the NZTS and relevant legislation, the government funding allocated to state highways, and the detailed programme of works plans and policies.

In giving effect to the Land Transport Management Act 2003 (LTMA) and the NZTS Transit will work closely with other government agencies to ensure we deliver an effective and efficient state highway network.

The Strategy sets out how Transit will move towards and manage the state highway network as an integral part of a multi-modal transportation network.

The Strategy identifies the likely long-term direction for New Zealand's state highway network. It includes a vision of the network in 30 years, taking account of the need for an affordable, integrated, safe, responsive and sustainable approach to transport. This view of the future network includes an appropriate allowance for areas of growth and state highway development, but also recognises the need to take a different approach to 'predict and provide' for traffic growth.

The Strategy outlines the strategic direction for state highways to help local government, businesses and communities when developing district and regional plans, transport plans and growth strategies. In planning for the future transport needs of New Zealanders, Transit is both provider and protector of the national asset of state highways. This requires both a national and a local perspective. The function that state highways play in facilitating the nation's economic growth needs to be acknowledged in this process.

This Strategy draws together and influences existing strategies and policies. To safeguard the best interests of New Zealand and ensure mobility for all New Zealanders, decisions that are consistent with the Strategy will be supported while any decisions that are not consistent with the Strategy will need to be carefully considered.

The National State Highway Strategy will be revised every six years.

This 2007 Strategy replaces the 1998 version. We plan to revise it in 2008/09 once the Next Steps in the Land Transport Sector Review has been completed and thereafter every 6 years or so.

1.1.2 Transit's role within transport

Transit New Zealand is a Crown entity established under the Transit New Zealand Act 1989 and continued under the LTMA, which reviewed and extended its functions and responsibilities. Giving effect to the NZTS, the LTMA changed Transit's LTMA statutory objective to that of operating 'the state highway system in a way that contributes to an integrated, safe, responsive and sustainable land transport system'.

What makes a road a state highway?

State highways form an integrated national network of inter-regional and inter-district routes, and major urban arterials. While they form part of a wider roading network, the distinguishing functions of state highways are to:

- Connect major centres of population
- Serve major urban corridors
- Provide access to:
  - Major ports and airports
  - Major industrial areas
  - Major primary production areas
  - Major tourist areas and places of interest

While we are road builders, we are not focused solely on roads. Both directly and indirectly we serve all modes of transport, providing walking and cycling facilities and support for public transport, such as Auckland's Northern Busway.

Vision and Goals

Transit has five goals for the state highway system to ensure that it contributes to the objectives of the NZTS:

- Ensure state highway corridors make the optimum contribution to an integrated multi-modal land transport system.
- Provide safe state highway corridors for all users and affected communities.
- Ensure state highways enable improved and more reliable access and mobility for people and freight.
- Improve the contribution of state highways to economic development.
- Improve the contribution of state highways to the environmental and social wellbeing of New Zealand, including energy efficiency and public health.

Underpinning these goals is the need to make the best possible use of government funding and to ensure value for money for all activities.

1.1.3 How the Strategy will be implemented

The Strategy and its concepts will be implemented through plans and policies developed to guide the development of regional plans, network plans, strategic studies and proposals for funding contained within the State Highway Forecast, Transit's long-term financial forecast of our improvement programme.

The Strategy will help to prioritise proposals for inclusion in the State Highway Forecast.

The Strategy also helps us to prioritise these proposals for funding. The prioritisation process, already based on the NZTS objectives, is further reinforced and formalised by this Strategy and is based on:

- How a particular scheme contributes to achieving the overall Strategy
- The degree of consistency with surrounding land use
- The status of the highway in terms of the categorisation approach established by this Strategy
- The calculated efficiency (i.e. benefits compared with investment required)
- Traffic volume and expected growth
- The safety record

Using the results of the prioritisation, Land Transport New Zealand (LTNZ) prepares the National Land Transport Programme, (NLTP) which specifies the Government's annual expenditure in land transport for the next 10 years. It is through this document that the Government's investment achieves an integrated and responsive approach to safe and sustainable land transport by maintaining, planning and developing all modes within the land transport system.

Regional land transport strategies, the views of local councils and the compatibility of schemes with an agreed growth strategy will also help determine the priority of projects and proposals within the State Highway Forecast. Meanwhile, the funding needs of state highways and other land transport activities need to be addressed to achieve integrated, safe, responsive and sustainable land transport.

The figure below shows the interrelationship between legislation, Government policy, regional policies and strategies, Transit's policies, plans and State Highway Forecast, and Land Transport New Zealand's NLTP.

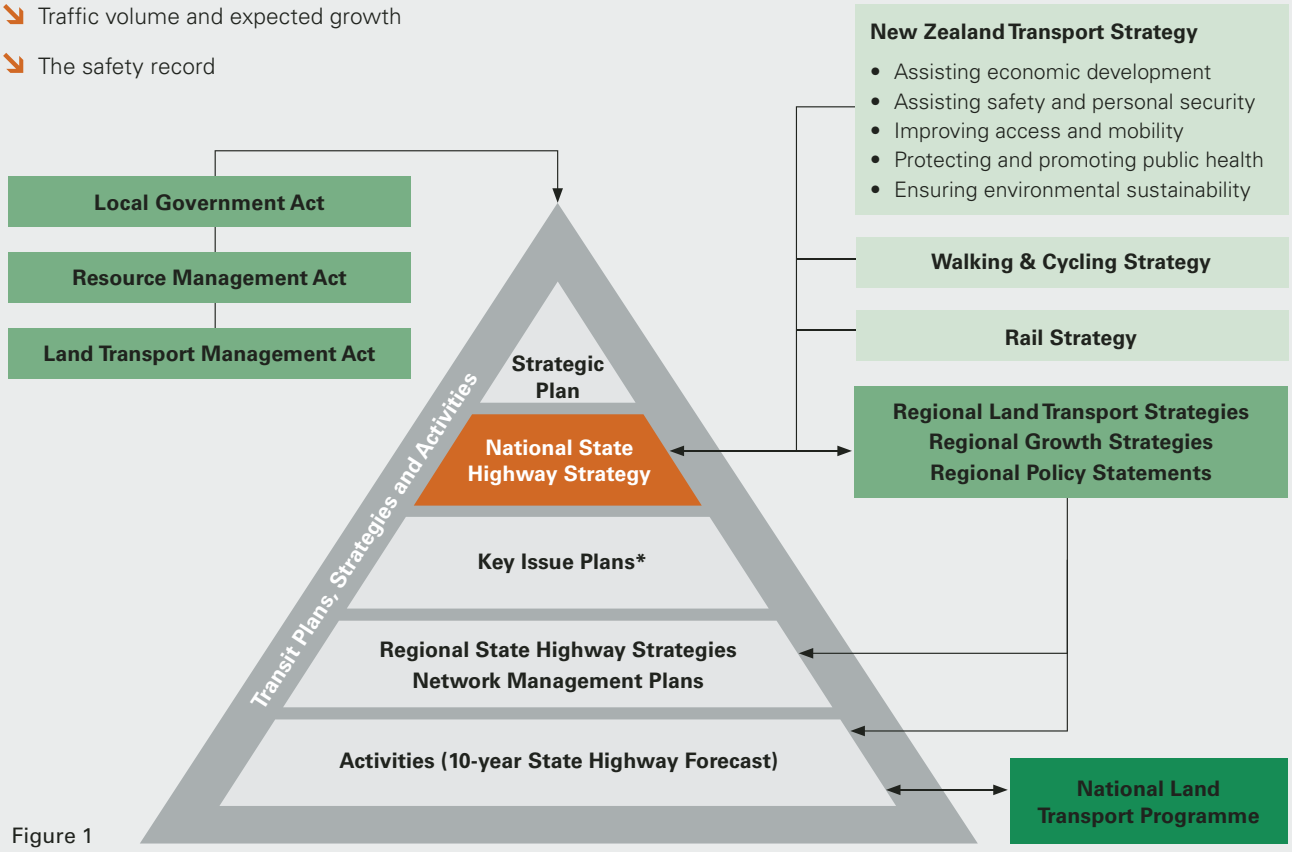


Figure 1

* These include the Safety Plan, the Travel Demand Management Policy and Guidelines, the Environmental Plan, the Planning Policy Manual, etc.

1.2 THE NATIONAL STATE HIGHWAY STRATEGY IN CONTEXT

A wide range of factors impact on the development of the state highway network. The following sections summarise the significant considerations informing this Strategy.

1.2.1 State highways in the national and international context

Many players are involved in ensuring the flow of people, goods and services within New Zealand and around the world. Spanning air, sea, road and rail, careful management, cooperation and good communication are required for all elements of the transport system to perform effectively, both individually and collectively.

The state highways' connections with other transport modes will continue to be developed to create a seamless transport network.

State highways have a key role in connecting the communities of New Zealand. While local roads provide communities with access to property and other local links, state highways offer the only link to every part of the country, to our main centres of population, industry and tourism. To provide a door-to-door service nationally and internationally, for both people and goods, the state highway system links, directly or indirectly, with local roads, rail, ports and airports. The state highways' connections with other transport modes will continue to be developed to create a seamless transport network.

To support New Zealand's economic transformation and encourage international connectedness and successful competition in the global marketplace, state highways must cater for change. Recent trends and possible issues include:

- The increasing use of hubbing (aggregating goods at strategic locations in the transport network for distribution to their destinations)
- The international trend of increasing truck axle weights
- The increasing volume of trucks on New Zealand's roads
- The possible future consolidation of New Zealand's ports

Providing a more sustainable transport system for New Zealand's complex, multi-faceted and changing transport needs will require a flexible approach.

To achieve a more sustainable transport system, monitoring must be undertaken in a collaborative way by the Ministry of Transport, Transit, Land Transport New Zealand, local government, the New Zealand Police, commercial road transport organisations and other transport and planning organisations.

Providing a more sustainable transport system for New Zealand's complex, multi-faceted and changing transport needs will require a flexible approach. The system needs to be responsive to changes in the economy and to accommodate shifts in the use of other transport modes. Therefore a 'tool box' of transport solutions is needed, including measures such as ramp signalling, high-occupancy vehicle lanes, cycling and walking facilities and bus lanes. Categorising state highways (see section 2.3) helps to provide a context to guide the selection of appropriate solutions, such as where capacity should be increased and where travel demand measures are best applied.

1.2.2 Partnership

The transport sector and communities need to work together to plan transport and land use.

All transport sector partners, including government agencies, local and regional councils, transport operators and providers, as well as the community, need to work together to plan how to meet transport needs and how land should be used for development. This cooperation is vital for the efficient and effective operation of the whole transport network: roads, rail, shipping, air, public transport and cycling and walking networks. One positive outcome already arising from this cooperation has been the development of 30-year-plus regional growth strategies in some areas. These are particularly critical for fast-growing and changing regions.

Transit will seek early engagement with planning authorities when they are developing regional and district plans, and with developers. This will enable us to address collaboratively the impacts of land use planning and development on state highways and reduce tensions between roads and other land uses, preferably by avoiding adverse impacts of development or roading proposals, or by mitigation.

In entering such discussions, Transit will seek to ensure that sensitive development is not permitted excessively close to state highways where future residents will be exposed to unavoidable effects of the road, such as traffic noise. While we can improve the aesthetics of road projects through urban design initiatives, and to a limited degree lessen other effects, completely avoiding impacts such as traffic noise and air pollution is neither possible nor affordable within the 30 year time frame.

We will seek to collaborate with local stakeholders at an early stage in network development to mitigate the environmental effects of managing and developing state highways.

So that we achieve a consistent approach across the country, we are developing principles to guide our engagement with the public on land transport programmes and other decisions. These include consultation policies and guidelines, and guidelines for managing stakeholder relationships and consultation with Maori.

1.2.3 A time of changing emphasis

The need for a more sustainable approach to transport, as set out in the NZTS and the LTMA, is gaining increasing recognition. Other factors are also changing the emphasis in planning – fuel price increases, the growing certainty of climate change, increasing freight movements, ongoing traffic congestion, and concerns over the disruption of community cohesion and the public health impacts of air and noise pollution. Sector partners must work together to build a collective approach to planning for transport while preserving the functionality that state highways provide. New Zealand's economy needs a strong and effective state highway system.

Threats to that functionality take many forms. Accidents and natural events such as floods and storms can disrupt the network and we have policies, practices and processes to manage these occurrences. But we must also manage the network to ensure the development of the built environment is well planned and provides for the efficient movement of people and goods. Such planning will discourage unsafe and inappropriate access, which, unchecked, could put at risk the safety of road users and the efficiency of state highways.

Increasing development is one of a number of features of modern New Zealand life placing a heavy transport burden on roads. In some areas central residential development has intensified. In other areas businesses and households are shifting outside town centres and established suburbs, which may increase reliance on private vehicles as the main transport choice. Changing expectations in leisure pursuits also have implications for transport. The lifestyle choices we are making as a community often mean distances travelled per trip are increasing.

While travel demand management will provide part of the solution by postponing or avoiding the long-term need for new state highways, in some areas the demand will continue to exceed the capacity of the network. It is recognised at a national level that we can't afford to build our way out of congestion, and state highways will not be able to meet peak demand in all instances. So, we must learn to act smarter to fulfil New Zealand's transportation needs. A combination of road building, smart land use planning and measures that manage travel demand is needed.

We need to manage carefully the capacity and levels of service on state highways in areas experiencing substantial population growth.

Indicators show that some areas of New Zealand will experience substantial population growth and economic development (the Appendix explains the basis for this analysis). We need to manage carefully the capacity and levels of service on state highways in these areas.

Conversely, other areas of the country will experience little growth and current highway capacity will be adequate to meet their transportation needs.

While travel demand management will provide part of the solution by postponing or avoiding the long-term need for new state highways, in some areas, the demand will continue to exceed the capacity of the network.

The cost of urban road schemes is often high, and is escalating – not just economically, but also socially and environmentally. For example, increased traffic volumes can mean increased levels of vehicle emissions. Road transport alone accounts for 40 percent of New Zealand's total CO_2 emissions. CO_2 is a major contributor to the 'greenhouse gas effect' that is influencing a change in global weather patterns. In order to meet our commitment to protect public health, the Ministry for the Environment, the Ministry of Transport and Transit, will work together to identify ways to reduce emissions and will support initiatives through state highway design and traffic flow efficiency. At the same time we need to prepare for the impact of potential effects on the network of climate change.

Currently, economic growth and transport growth are closely linked. One of the challenges in providing a more sustainable approach to transport is to weaken or break this link so that the negative effects of transport growth, such as air pollution and congestion, can be minimised without reducing economic growth. Research into weakening the link will continue, to allow transport providers to help facilitate rather than respond to economic growth.

1.2.4 Funding and affordability

While transport infrastructure and services are very important, there is a limit to the amount of funding that can come from road users. Transit, the Ministry of Transport, Land Transport New Zealand and other transport partners will collaborate to ensure all appropriate sources of funding are considered, including development contributions. Development contributions are contributions sought from developers to mitigate the adverse impact that development proposals have on state highways. They offer an appropriate mechanism for funding highway improvements required because of new developments. Such contributions are obtained through separate agreements with developers or indirectly via territorial local authorities.

As part of achieving the NZTS, we must ensure we deliver an affordable and financially sustainable state highway network. This requires prudent and intelligent implementation. Affordability is a key consideration in all processes, including planning, maintaining and developing state highways. This impacts on a wide range of activities, from ensuring that the existing network provides good value for money to costing maintenance on a whole-of-life basis, to the selection of practical and cost-effective options for road improvements and mitigation measures.

Affordability is not just about what we do; it is also about how we work and how we develop the best solutions for the transport network as a whole. It is also a matter of timing and planning for the longer term, which is why we have developed a 30-year view of how the state highway network should develop.

Transit, the Ministry of Transport, Land Transport New Zealand and other transport partners will collaborate to ensure all appropriate sources of funding are considered.

2 IMPLEMENTATION OF THE NATIONAL STATE HIGHWAY STRATEGY

2.1 INTRODUCTION

The planning, building, maintaining and operating of the state highway network can be described by the following process:

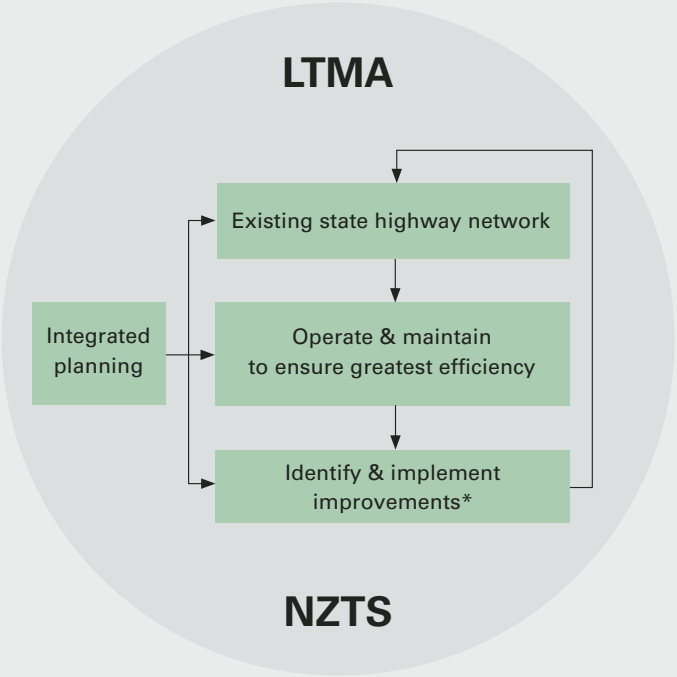


Figure 2

* Improvements can include travel demand management measures, safety improvements, and extending or building new state highways for all road users.

As shown in figure 2, integrated planning is key to ensuring state highways make their contribution to the objectives of the NZTS and the LTMA. Integrated planning requires effective collaboration between all planning organisations and transport providers, a good understanding of the surrounding environment, be it urban or rural, and a responsiveness to changes that affect current transportation needs and trends.

Many facets of life in New Zealand are changing and will continue to change, such as the size and composition of the population, where and how we work, and the emerging knowledge-based economy. To cater for such changes requires continual research and monitoring of relevant trends and a flexible approach to providing transport solutions.

Trends will be monitored and state highways planned, built, maintained and operated in an integrated way to preserve their function, ensure good connections with the rest of the transport system, manage adverse environmental and social effects, and promote the overall wellbeing and prosperity of New Zealand.

To guide implementation the priorities are:

- To ensure the safe, efficient and effective performance of the existing state highway network
- To further improve network performance by implementing travel demand management measures
- To improve infrastructure to accommodate planned growth and development

It should be noted that a prioritisation process is also applied within each of the three steps above to ensure the programme of works contributes evenly and cost effectively to the objectives of the NZTS and the LTMA and delivers against Land Transport New Zealand's requirements.

2.2 UNDERLYING PRINCIPLES

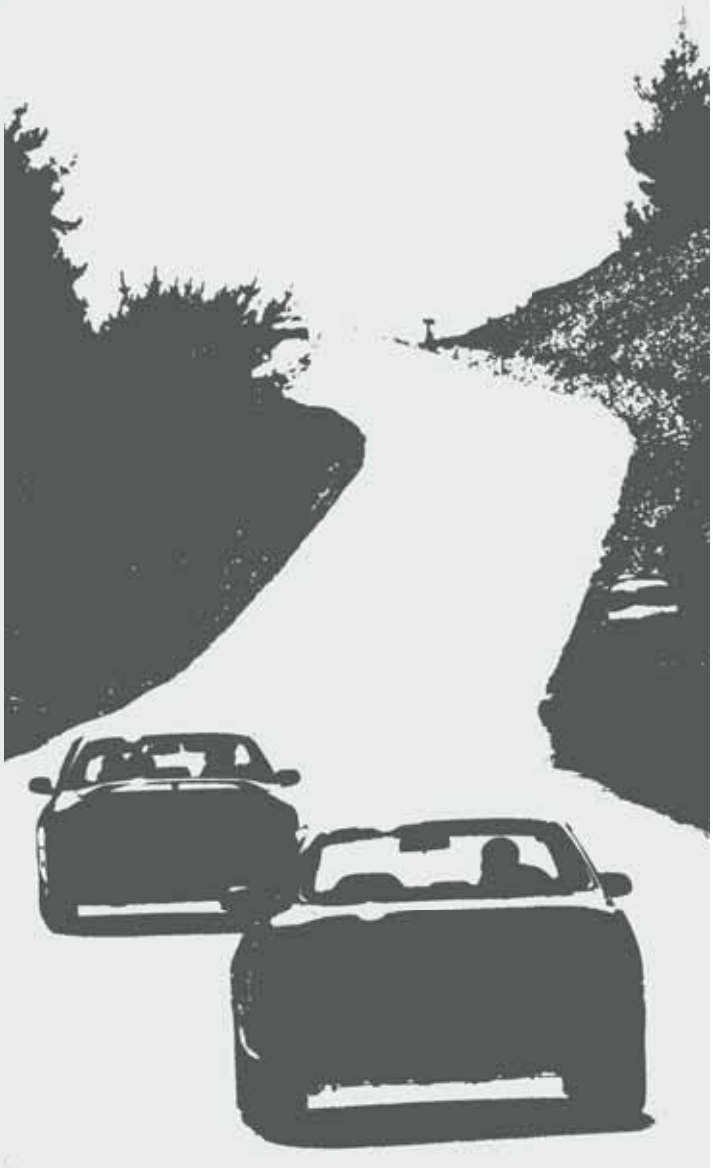
State highways are planned, built, operated and maintained as part of an integrated transport system using eight key principles:

- Safety
- Operating the network
- Asset management
- Managing demand
- Environment and communities
- Integrated planning
- Education
- Continual improvement

The principles explain the long-term aims for the state highway network and the approach to achieving those aims. They cover how responsibilities under the NZTS, the LTMA and other legislation will be met, and inform the development of the State Highway Forecast.

The detail from which these principles are derived is contained in strategic documents such as Transit's State Highway Safety Plan, Planning Policy Manual, State Highway Geometric Design Manual, Environmental Plan and State Highway Management System Manual.

The following pages provide a high-level overview of the principles.



2.2.1 Safety

Our aims:

- Demonstrate a continual reduction in trauma, comprising fatalities and hospitalisations, on highways over time, taking factors such as traffic volumes into account, by working to develop and implement cross-agency coordinated safety packages
- Actively support Road Safety 2010 and future national road safety targets
- Provide a safe working environment for maintenance and construction activities and reduce the need for maintenance interventions

Where crashes occur, crash data is analysed to identify measures to help prevent future crashes. Agencies such as Transit, the Police, the Ministry of Transport and Land Transport New Zealand work in partnership to ensure that particularly troublesome lengths of highway are addressed by engineering, enforcement and education. They also work with their communities to improve car and heavy commercial vehicle standards and driver skills, and to identify and address personal safety and community issues. In future, a targeted education programme will be undertaken to ensure the state highway network is used more safely.

Achieving our aims:

Safety is managed through a hierarchy of plans and strategies that are driven by Transit's Safety Plan and implemented through its Safety Management Strategy and safety management plans for each region. There are four key safety management aspects: network operation, safety retrofitting, new construction and partnerships.

In operating the network, best practice is used to protect road users and workers. Skid-resistant surfaces are applied and maintained along with adequate road width and marking. Road user information is provided, such as road signs and variable message signs; access to state highways is managed; and appropriate speed limits are maintained to promote safety on an increasingly busy transport network.

The state highway network has evolved over time, and safety features are continually retrofitted onto existing roads to improve the safety of the current network. Retrofitting involves activities such as hazard management (also known as clear zoning, which includes moving structures such as power poles away from the roadside), seal widening, installing median barriers, constructing passing lanes, adding cycling and pedestrian facilities, and upgrading tunnels to more closely match current construction standards for safety.

Where these measures prove insufficient, new works will be prioritised and implemented to address safety issues. These will include realignments, grade separations, intersection upgrades, multi-laning of highways, and separation of cycle and pedestrian facilities from the state highway network.

2.2.2 Operating the network

Our aims:

- Ensure the state highway network is operated to maximise the capacity of the existing asset, improve trip reliability and reduce journey times and vehicle operating costs
- Deliver a consistent level of service on the network, appropriate to the location, traffic type and volume, conditions and category of the highway
- Ensure infrastructure and road maintenance meet heavy commercial vehicle demands

Access to state highways is carefully managed to ensure the network remains safe and efficient. Access by utility operators and the placement and maintenance of utilities in state highway corridors will similarly be managed to maximise the safety and efficiency of the state highway network. We will continue to try to accommodate temporary local community activities on sub-regional highways with lower traffic flows where alternative routes can be provided for traffic flow. For strategic links and highways with higher traffic flows, we will work with communities to propose alternatives.

Both operational and demand management tools are used to insure the most efficient operation of the state highway network. We are continuing to retrofit the existing network

Achieving our aims:

We want to ensure that all road users are able to travel as efficiently and safely as possible. In operating the network in urban areas, best use will be made of 'SCATS', a software package that manages traffic signals in real time, and other measures such as camera surveillance and manual control rooms.

The management of incidents and adverse weather conditions is being continually refined to reduce disruption and closure times on both rural and urban highways. Information about road conditions is available through telephone, text, web and radio, through Transit's systems and those of partners such as the AA. Transit's Business Continuation Policy will help ensure national and regional state highway functions continue should a larger-scale emergency arise.

Rest areas with appropriate facilities are provided for tourists and the travelling public, and rest stops for tired drivers.

with features to smooth traffic entry onto highways and improve traffic flow. Features include the latest traffic signal upgrades and ramp signalling. The use of technologies such as camera surveillance, variable message signs, automated traffic management systems and roadside user information will be extended to ensure incidents on the highway, including congestion, have minimal impact on road users. Heavy traffic growth will be monitored to address heavy commercial vehicle demands. We will consider permitting heavy commercial vehicles in high-occupancy vehicle and bus priority lanes as well as other means to improve freight travel times, such as allowing such vehicles to bypass ramp signalling.

To improve overall network operation, transport partners will work together to manage traffic on an area-wide basis, rather than focusing only on state highways. A current example is the Traffic Management Unit in Auckland, set up in 2003. The Unit manages traffic and congestion to improve travel times, information and safety on Auckland City's streets and motorways.

2.2.3 Asset management

Our aims:

- To preserve the value of the state highway network and ensure it meets current and future user needs
- To ensure the network is managed and developed in a sustainable and cost effective manner

Assessing future maintenance requirements requires a thorough knowledge of the asset, its condition and its projected future use. Annually, the network is surveyed to measure the condition and to compare this with the agreed levels of service. Using a range of systems, including deterioration prediction models we are able to determine the future funding required to meet agreed levels of service. A comprehensive traffic-monitoring programme also ensures a good understanding of the current use of the network and changes in traffic mix.

Aged structures, such as bridges, retaining walls and tunnels, are restored and replaced when and where necessary. To achieve the best possible levels of network safety and efficiency, we require maintenance or upgrade work to be of a standard that will minimise whole-of-life costs. This may increase the initial cost of work, but we expect the approach to reduce future costs.

Achieving our aims:

The existing network infrastructure needs to be adequately maintained and improved to meet ongoing needs. Levels of service are an integral part of both asset management and operation of the network and Transit's performance in delivering these levels is regularly measured and reported on.

Finally, procedures are in place to ensure Transit achieves the best possible value in all work carried out. We use competitive tendering based on both cost and quality to appoint suppliers for all asset management work. This is supported with on-going monitoring and auditing programmes to ensure all activity is both effective and cost efficient.

2.2.4 Managing demand

Our aims:

- Ensure the most efficient use of the state highway network
- Contribute to improved travel choice and manage the network to reduce the rate of traffic growth and the associated adverse impacts of road traffic

Achieving our aims:

Effective management of travel demand has many benefits for state highways, including reducing congestion, improving access and mobility, and reducing environmental impacts, such as greenhouse gas emissions.

Transit supports the application of travel demand management measures to help strengthen the economy by allowing the timely and efficient movement of goods, services and people. A wider travel choice available over more trips also benefits social and health objectives and the resulting reductions in traffic related emissions provides environmental benefits.

In practice, managing demand is about implementing a wide variety of initiatives that fall into two broad categories: operating the network, and informing and providing travel choice. Operating the network is discussed in section 2.2.2.

Informing and providing travel choice is concerned with influencing how, when and where people choose to travel. The objective is to increase mobility and access while minimising congestion, resulting in the reduced need for new highways. Projects allowing people to change their mode of travel include providing public transport, cycle and pedestrian facilities and developing travel plans. Pricing mechanisms, such as tolling, can also encourage people to consider alternative modes of transport.

Road tolling and pricing projects can fulfil two functions. Firstly, by financially contributing to network improvements, they allow those improvements to be made sooner than might otherwise be the case. Secondly, such projects can help manage travel demand by encouraging people to consider the necessity of any given journey by car, as well as the timing and route of the journey. We are looking to develop this area in future. Greater transport choice is becoming increasingly important to ensure the sustainability and efficient use of the state highway and wider transport network.

Active engagement with partner agencies is needed to manage travel demand. We will work with territorial local authorities to ensure better connections between the state highway network, local networks and the community, and to promote and achieve travel demand principles across the highway network. Effective management of travel demand requires land use and transport planning to be integrated. Integrated planning should ensure future travel demand is catered for in a way that provides transport choice while balancing the Government's wider economic, environmental and accessibility objectives.

2.2.5 The Environment and Communities

Our aims:

- Improve the contribution of state highways to the environmental and social well being of New Zealand
- Prioritise and address environmental and social issues

We will develop mechanisms to value environmental and social effects in decision-making processes, and develop criteria related to the sensitivity of different environments. Mitigation of the environmental effects of existing state highways will be addressed according to need and feasibility. The sensitivity of the surrounding area will determine the priority of projects.

Transit will operate in an energy efficient manner and plan, design, operate and maintain state highways to conserve energy and reduce greenhouse gas emissions. Risks to the state highway network arising from climate change also need to be managed to mitigate long-term effects.

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Achieving our aims:

Transit's Environmental Plan clearly states that environmental and social responsibilities are key parts of how it operates and makes balanced decisions. It also states that this influence will increase over time.

Environmental and social considerations will be used to determine what Transit does, rather than be treated as effects to be mitigated. The design and management of all state highways will be sensitive to the areas they pass through. At the same time local authorities and developers will be encouraged to ensure land use development near state highways is compatible with state highway use.

We will promote good urban design and assess the impacts of projects on communities by using the urban design protocol. In doing so social issues will be considered early in the planning and design process. Best practice and policies will be used to balance social needs with all other competing needs and focus on avoiding or reducing negative impacts on communities.

Transit also has a responsibility to provide, or make provision for, convenient facilities and services that cater for the needs and expectations of road users. These include stopping areas and opportunities for vehicle servicing and refreshments.

Transit's Environmental Plan, which is regularly reviewed, contains the actions it will undertake to manage the environmental and social effects of state highway planning, construction and operation.

2.2.6 Integrated Planning

Our aims:

- Provide safe, efficient and pleasant links between cities, towns, airports, ports and transport hubs and places of interest
- Balance the needs of national productivity and through-traffic with the needs and aspirations of surrounding communities and local economies
- Support well planned local transport networks that in turn service sustainable land use patterns
- Support the provision of travel choices and accessibility while encouraging low impact travel behaviours

Any access to a state highway from new development must not unacceptably reduce safety or operating efficiency, and must be appropriate to the category of state highway. Mitigating the adverse effects of new accesses should be funded equitably between government agencies, local authorities and developers.

We will also participate in planning processes to ensure that the cost-effective operation of the state highway network is not compromised through the effects of reverse sensitivity. These are the circumstances where new development near an existing state highway leads to pressure to reduce noise or other impacts of state highway traffic.

Achieving our aims:

Close co-operation with local authorities is needed to ensure integration between land use, built development, the state highway network and local transport networks. The design of new state highways, including bypasses, will be guided by urban design principles to maintain sustainable communities and minimise private vehicle demand.

The impacts of development and growth on the state highway network will be managed by proactively influencing planning processes, including the preparation of growth strategies, regional policy statements and regional and district plans. We will also engage in the Resource Management Act process associated with individual developments where necessary.

High traffic generators, such as shopping centres and business parks, can have both a direct and indirect impact on state highway traffic. Transit's early involvement with the planning of such development, particularly where direct access to the state highway is sought, is critical in order to manage the effects on the state highway network.

Where the need for a bypass is raised, a range of factors will be taken into account to prioritise and determine the most appropriate solution, such as:

- The volume and proportion of through-traffic
- The scale and frequency of delays experienced by highway traffic
- The extent and nature of environmental and social effects
- The availability of cost-efficient and environmentally and socially acceptable alternative routes

Where overtaking and passing improvement opportunities are identified, the exact location and extent will be determined by land use, capacity, operational efficiency, terrain, safety and value for money.

Details of Transit's approach to integrated transport planning is outlined in its Planning Policy Manual.

2.2.7 Education

Our aim:

- To support and use education to raise awareness of transport issues and appropriate state highway use

2.2.8 Continual Improvement

Our aim:

- Continually improve our ability to manage the state highway network and thereby make a more valuable contribution to New Zealand's transport system

Achieving our aim:

A greater emphasis on educating road users to use the state highway network more safely is important to achieving improved network safety. Education needs to cover all aspects of road use, which requires an integrated approach across all transport agencies including Transit, the Police, the Ministry of Transport and Land Transport New Zealand.

Communities also need to better understand the ways they can contribute to managing congestion on state highways. Transit supports and is part of the Travel Behaviour Change Working Group, which works with communities and focuses particularly on developing travel plans for schools and workplaces, including hospitals.

Transit's implementation of urban design and travel demand management principles that encourage walking and cycling will support the Ministry of Health's promotion of the health benefits of more active modes of transport.

Achieving our aim:

Transit will continue monitoring trends that may affect transport, including through specific research projects that will enhance the further development of the National State Highway Strategy and Transit's ability to deliver on its goals.

Research projects will include investigation into how the state highway network can best contribute to economic transformation, how transport and state highways in particular can facilitate sustainable growth, and how to capture new thinking in longer-term planning. Other examples of research include the development of technology to help better manage traffic on state highways, and developing criteria to assess the sensitivity of different environments. All future research will complement our existing research programmes or that of our transport partners.

2.3 A PLANNING AND MANAGEMENT TOOL

Not all state highways are the same; they need to be managed and treated differently.

Underlying each principle is the recognition that not all state highways are the same; they need to be managed and treated differently. Some exclusively provide a nationally strategic function. Others provide more for local access. A system is needed that conveys the purpose of different sections of state highways, helps determine levels of service and also influences land use planning (including access management) and the interaction between transport modes. In the past the different functions were acknowledged by categorising state highways as national or provincial. This was eventually withdrawn. However, the use of categorisation offers benefits for the delivery of planning that recognises context and provides a basis for the flexible management of state highways. The National State Highway Strategy reintroduces the state highway categorisation to gain from these benefits. The category-based system will complement the existing roading hierarchies contained in Transit's Geometric Design Manual and State Highway Control Manual.

State highway categories

- **National State Highways:** Connects places of national significance: major cities of over 30,000 people, international ports handling more than 500,000 tonnes and airports with passenger numbers of over 500,000 per year or regular international flights. They facilitate the long-distance inter-regional movement of people, goods and services throughout the country and generally carry at least 400 Heavy Commercial or 10,000 vehicles per day for more than two thirds of their length; or are designated motorways within major urban cities.

- **Regional State Highways:** Connects territorial regions and places of regional significance, key tourist destinations and regional ports, and serve inter-regional trips. They link more than two regions with traffic flows of 100 to 400 Heavy Commercial Vehicles or traffic of between 1000 to 10,000 vehicles per day; or are state highways that have a particular strategic function within a region.

- **Sub-regional State Highways:** Connects territorial districts and places of district significance such as communities, tourist attractions and key primary production areas, and serve as feeder routes to the wider state highway network.

Balancing factors in the Categorisation

Determining the category mechanically – solely by traffic volumes or populations – may result in a state highway alternating between one category and another. Additionally, strategically important state highways or changes to the state highway system could be overlooked. To counter this, we will apply an overall balancing process to ensure the categorisation is consistent. The decision on the category of individual state highways is based on how they currently operate and how they may function in future. A level of judgment is used and a number of factors balanced in determining the final category a section of state highway is given.

The following diagrams show the categories applied to state highways in the North Island and South Island separately.

State Highway Categories 2007

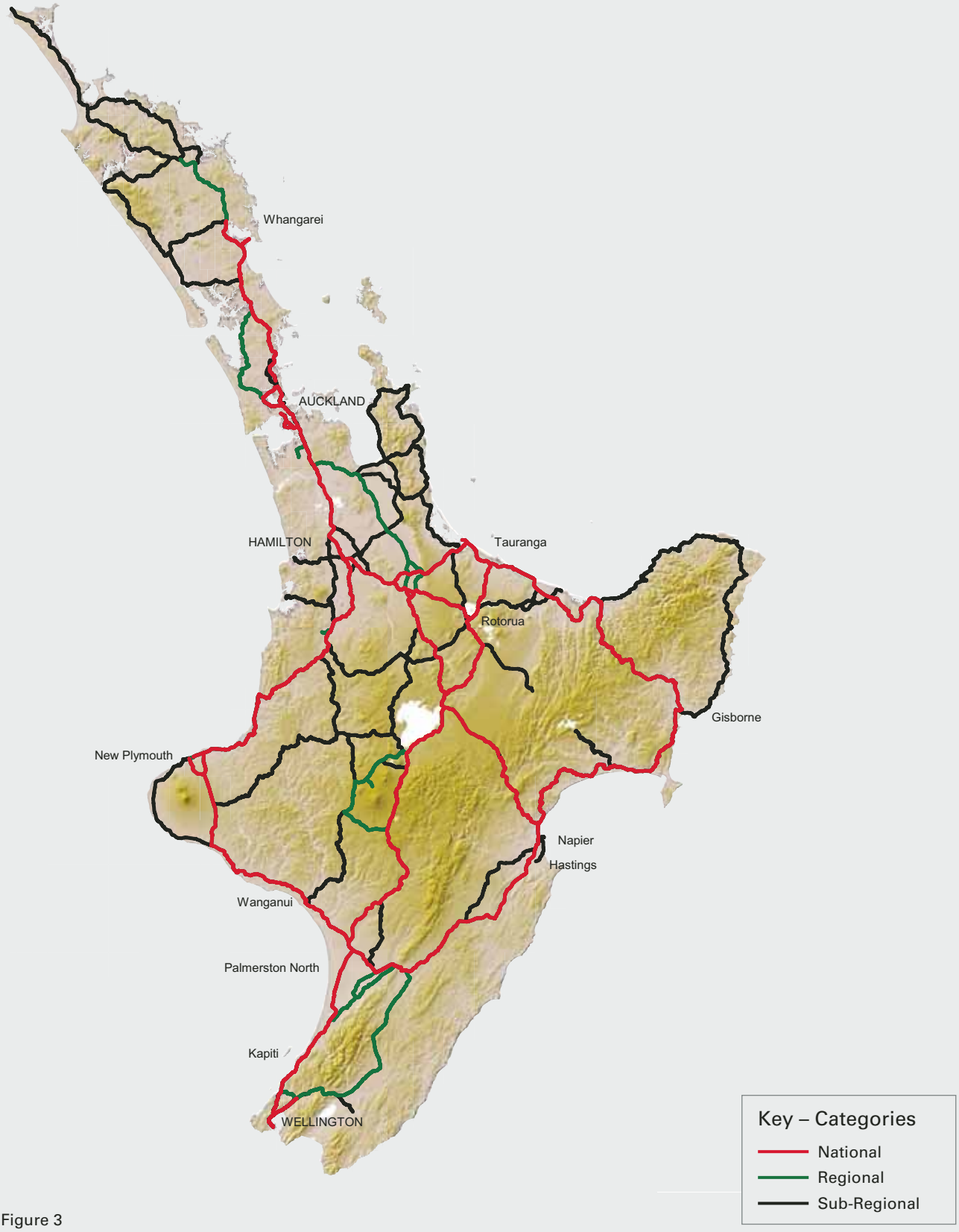


Figure 3

State Highway Categories 2007

Figure 4

The categorisation of state highways is not the full picture. How we plan and manage each category will also reflect the different environments state highways pass through. These are grouped into three broad categories: rural, peri-urban (semi-rural) and urban environments.

The following illustrations show typical environments:

Rural

The majority of state highways are located in a rural environment, illustrated by figure 5 and 6. This can vary significantly from mountainous to agricultural; all have limited adjoining dwellings or settlements. In some instances they may be the only roadway in an area and perform a wide range of functions. In other areas they may form part of an extensive road network. The emphasis placed on access and on mobility will vary depending on the category of the road. The speed limit is generally 100 kph.

Figure 5

Figure 6

Peri-urban (Semi-rural)

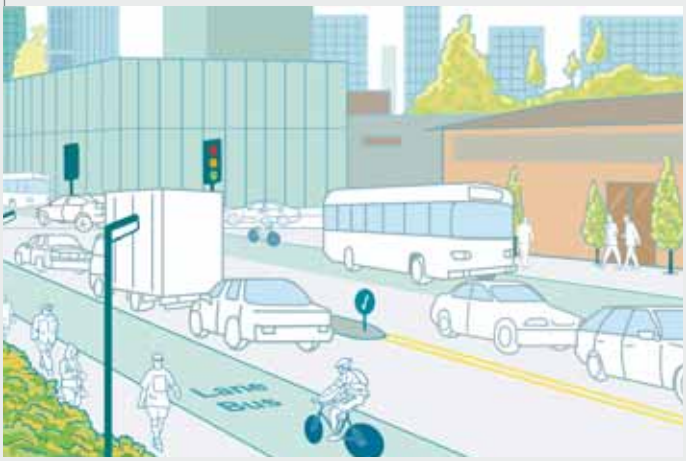
Peri-urban environments, illustrated by figure 7, form the hinterland surrounding major towns and cities where there is a mix of land uses, including commercial, industrial, residential and agricultural. The peri-urban environment generally extends to the edge of the commuter belt and is often under greatest pressure from urban growth. Speed limits are generally between 70 and 100 kph. These areas present greatest risk to the functional operation of the state highway, but also present greatest opportunity for integrating land use and transport infrastructure.

Figure 7

Urban

The urban environment, illustrated by figure 8, covers a wide spectrum of different areas ranging from small-to medium-sized settlements to major cities. It includes all urban communities where the speed limit is 50-70 kph. An exception is urban motorways, which have a speed limit of 100 kph

Figure 8



2.3.1 Using categorisation as a planning and management tool

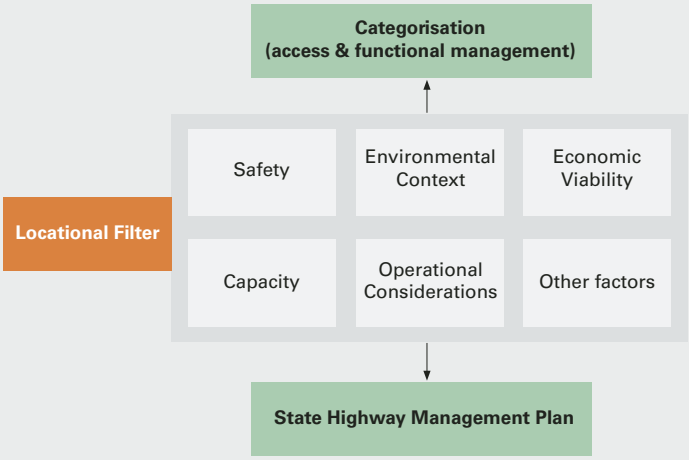
Matching the function of state highways with the environments they pass through provides a mechanism for the efficient and effective planning and management of the state highway network. The table below shows the results of such matching.

Function	Environment		
	Urban	Peri-urban	Rural
National	1	2	3
Regional	4	5	6
Sub-Regional	7	8	9

Highways in each of the nine outcomes shown above may be subject to different planning objectives and management regimes. For example, the relative weight given to the needs of through-traffic and local communities will differ depending on the category. However, some objectives, such as improving the safety of the network, remain a priority for all categories and environments. This will not change.

The details of how we will manage individual sections of state highway will be determined within individual network and corridor plans. The need for a bypass or the level of access management required will be addressed within strategic studies for the area or corridor. In developing network plans we will take into account a range of key factors, such as safety, environmental and social context and economic viability. These factors have influenced the categorisation, which in turn influences the more detailed consideration.

The following diagram shows how this may work:



2.3.2 Integration between state highway planning and local land use and transport planning

The state highway categorisation will shape the way we manage the state highway network. However, surrounding land use, particularly the impacts from new development, strongly influence the network. Governed by territorial and regional authorities together with developers, Transit only influences this activity. A collaborative approach is needed to ensure that state highways continue to function effectively and provide the community service they are designed for. Integration is needed between the way state highways are planned and managed, between the parallel planning and management of local roads, and wider land use planning. The state highway categorisation will also strongly influence how we manage where land use and transport planning connect.

Integration is needed between the way state highways are planned and managed, between the parallel planning and management of local roads, and wider land use planning.

Transit's approach to integrated planning is outlined in it's Planning Policy Manual, which contains an Integrated Planning Policy. The approach recognises that delivering a transport system that supports a growing economy, vibrant communities and a healthy environment, now and in the future, requires action from a number of organisations. It sets out our commitment to working proactively with others to ensure robust, integrated land use and transport planning helps deliver this aim.

2.3.3 Categorisation and design of state highways

Categorisation will also influence the design of both maintenance and capital improvement of sections of state highway. The details of how we will achieve this will be outlined in Transit design manuals. Set out below in broad terms is the general guidance on design for each category of state highway:

- **National State Highways:** We expect strict adherence to design standards outside urban areas to manage capacity and operational efficiency and ensure safety. Within urban areas, we expect design to reflect a greater level of access control, with recognition of the dual function of state highways in terms of mobility and access.
- **Regional State Highways:** We may accept alternative design standards where safety is not compromised. A lower design speed may be acceptable depending on terrain, volume of traffic and the density of urban land use.
- **Sub-Regional State Highways:** We may accept alternative design standards where safety is not compromised. A lower design speed may be acceptable depending on terrain, volume of traffic and the density of urban land use.

3 CONCEPTS FOR NEW ZEALAND'S STATE HIGHWAYS

3.1 OVERVIEW

Transit will maintain and develop urban and rural state highways so that they carry intra-urban, strategic inter-urban and freight traffic safely and efficiently. We will manage state highways to support sustainable growth and actively seek to manage traffic volumes.

Details of the way we will maintain state highways will be set out in our asset management plan. A summary of how we see the network develop over the next 30 years is contained in this chapter. In developing these concepts we have taken account of Government policies and strategies as well as regional strategies and priorities.

Levels of service will be matched to the environment through which the highways travel and the levels of local and through-traffic on them. As a result, state highways that pass through townships will be managed differently from state highways passing through unpopulated areas. At the same time we will actively seek to manage traffic volumes. We will also take account of the potential for other transport modes to move traffic more sustainably and cost-effectively. Capacity and design standards will relate to the position of the state highway in the hierarchy and to current levels of traffic, including growth projections. (See the Appendix for detail on how we derived the estimates of growth).

A number of different techniques will be used to improve and maintain the level of service on the state highway network.

3.1.1 Concepts for the state highway network

Figures 9 and 10 show Transit's 30-year concept of the state highway network, taking into account the effects of likely population and economic growth as noted in Appendix A. It also takes account of critical transport nodes such as ports and airports and other important traffic generators like major cities and tourist attractions, as there are some key scenic and tourist routes that require appropriate road standards. In some places more detailed analysis will be needed to test how well different approaches reduce the load on the state highway or to ensure that providing capacity on state highways is compatible with surrounding land-uses.

The following maps show the proposed carriageway standards for New Zealand highways over the next 30 years. Other measures that will be applied to state highways include travel demand management and safety retrofitting.

Proposed State Highway 30-year Concept

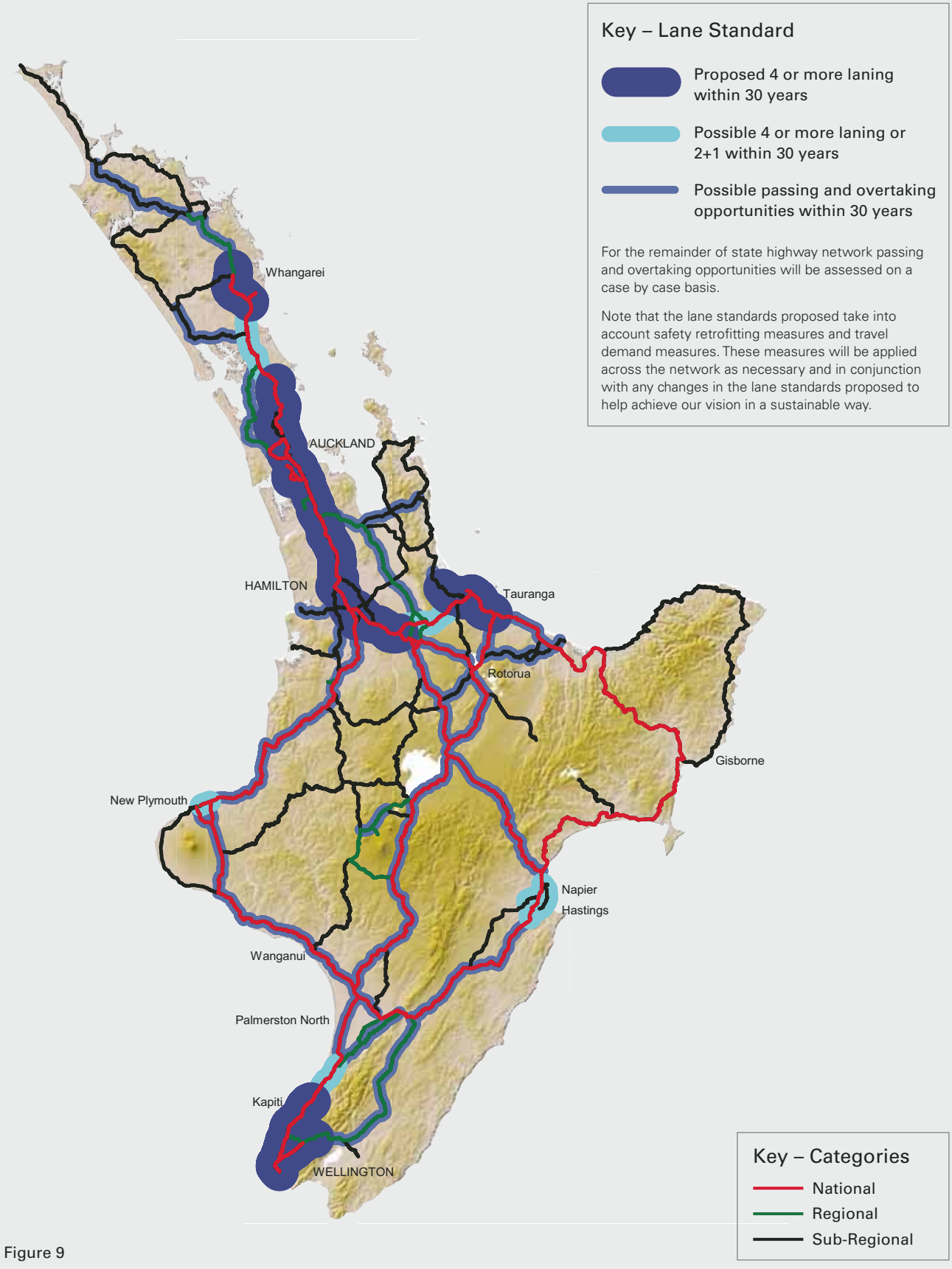


Figure 9

Proposed State Highway 30-year Concept

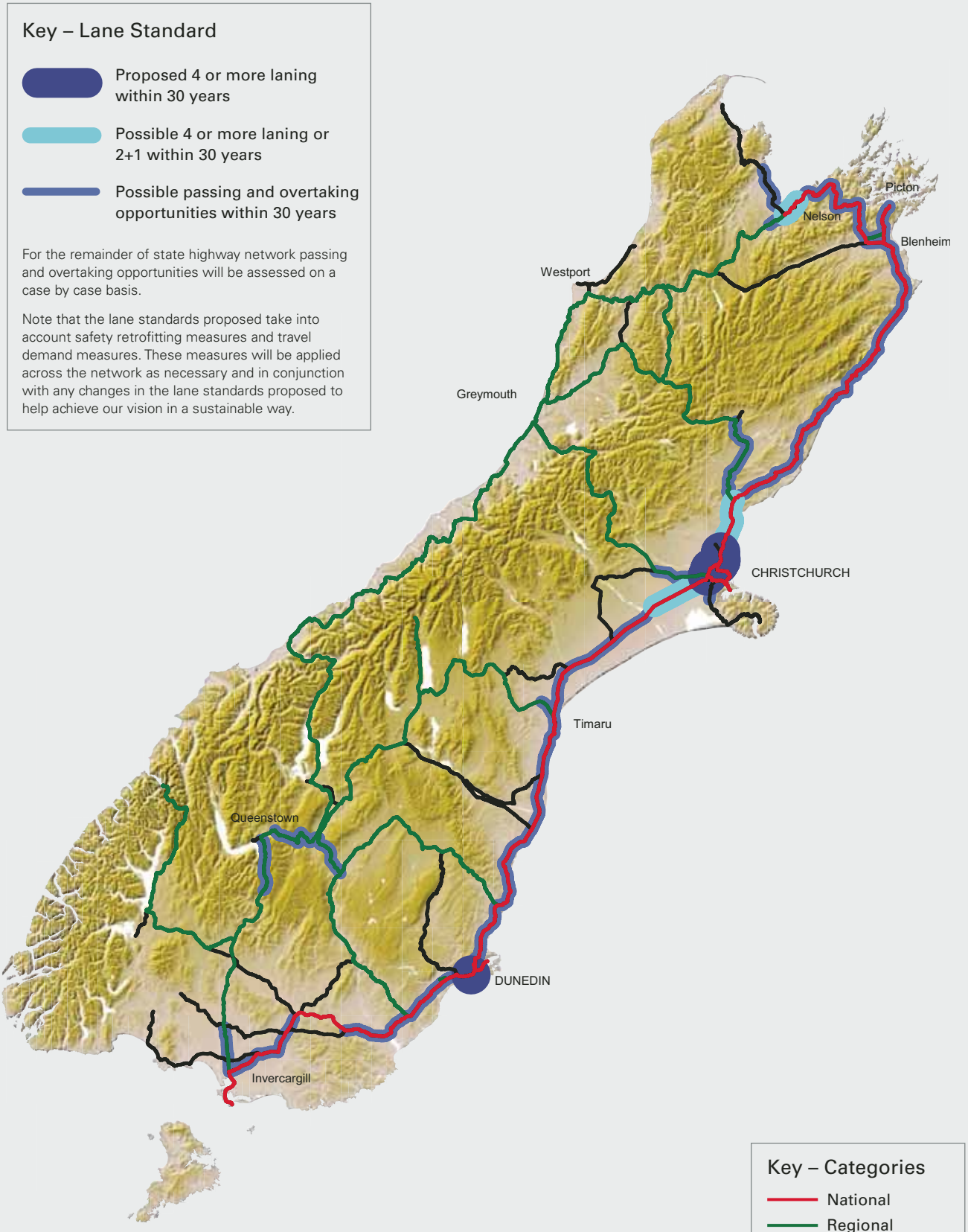


Figure 10

3.2.1 Concepts for selected regions

Four-lane standards are expected to apply to highways north and south of Auckland and Hamilton, north and east of Tauranga, north of Wellington, and in the immediate vicinity of Christchurch. The precise design standards and whether or not these state highways should be expressways or motorways will be determined on a case-by-case basis.

The balance of the national state highway network, and the regional state highway network, is expected to remain as two-lane with passing lanes. Transit will introduce slow vehicle lanes in line with the passing and overtaking policy. We expect that capacity improvements will not generally be required on rural sub-regional state highways.

Where a national state highway is on a sub-standard alignment for a significant length and/or passes through a number of closely spaced urban areas, we will consider building a bypass.

Areas where Transit may establish a bypass are:

- State Highway 1 Waikato Expressway
- State Highway 1 Linden to north of Paekakariki (Transmission Gully, Wellington Region)

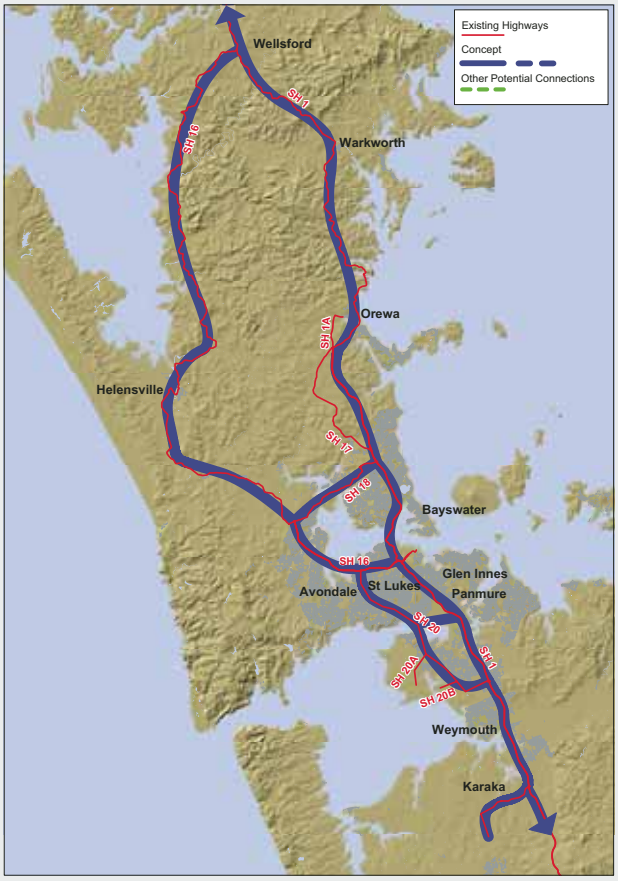


Figure 11 Auckland Region

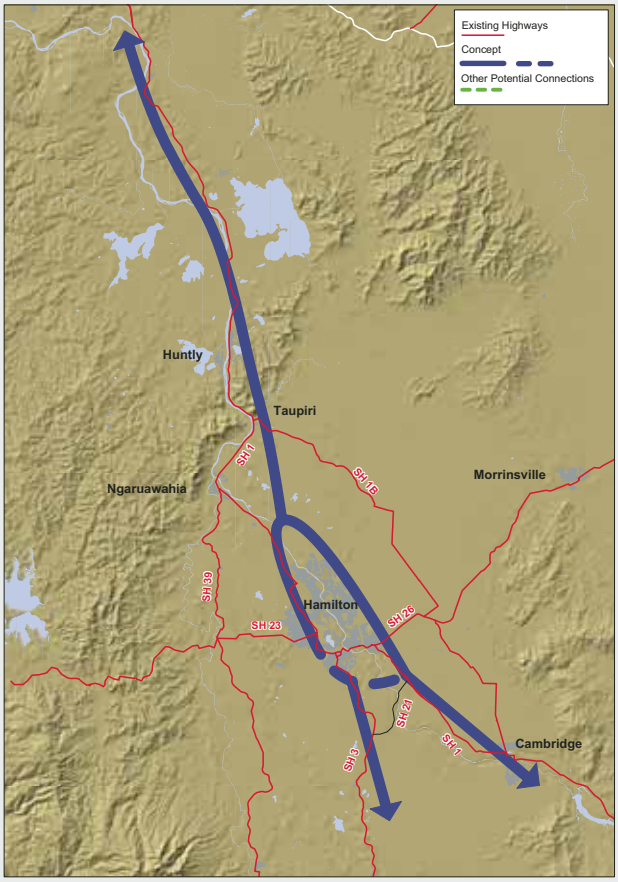


Figure 12 Waikato Expressway

Figures 11 through 27 depict concepts for some of the main rural and urban areas in New Zealand. It is important to note that not all concepts are at the same stage of development. Blue lines representing the concept for a city or area should not be taken as the exact location of any future highway network; they are merely conceptual representations of access and state highway flow through the area. In figures where there is a blue dotted line as well as a continuous blue line, the dotted line indicates the concept is less well defined in relation to the continuous line within that concept.

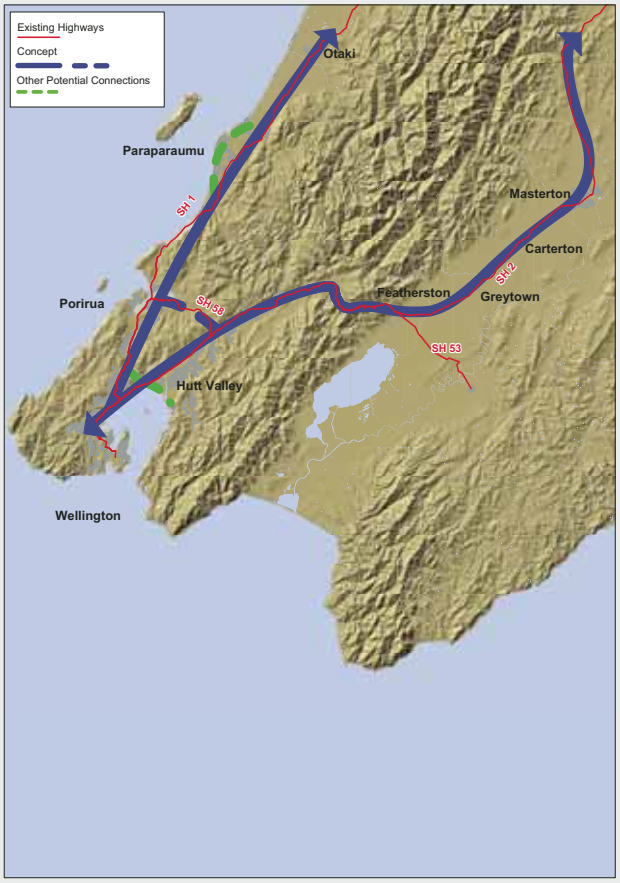


Figure 13 Wellington Region

3.2.2 Concepts for selected urban areas

Our aim for urban state highways is to provide sufficient capacity to effectively and reliably carry the essential through-traffic. They also need to function as effective urban arterials, including providing efficient access to major urban areas, major urban seaports and international airports.

We will place a heavy emphasis on working cooperatively with local, regional and territorial authorities (and in Auckland with the Auckland Regional Transport Authority). We will actively seek this cooperation in order to integrate local networks with the state highway network and to manage travel demand on the road network and state highways in particular. This includes providing for public transport and active mode alternatives such as walking and cycling. We will relate the design of capacity for any state highway to the anticipated inter-peak needs after allowing for the effect of any travel demand measures. Each urban area will have a specific strategy for its state highways, determined in consultation with the local councils. Such strategies will necessarily include the impact of other land-uses.

The interim highway strategies for the major urban areas experiencing significant development pressures are shown diagrammatically below.

Whangarei

The aim of the state highway concept for Whangarei is to make the best use of existing resources by collaboratively strengthening the relationship between the state highway and the arterial networks, and by recognising the role of Port Whangarei and Marsden point.

Transit's recently completed SH1/14 Strategy Study and Whangarei District Council's recently completed Transport Plan include proposals for SH1 through Whangarei from which an agreed approach can be developed.

Auckland

The completion of the network (shaped like a ladder) is the key element for the state highway network in Auckland and will improve the connectivity of state highways in the area as well as between the state highway and the local strategic network.

After the ladder is completed, the next area for investigation will be the links from the south into Franklin and Papakura, as well as the links to the north of the ladder between Wellsford and Auckland. These are primarily rural areas experiencing significant growth pressures and that contain a number of growth nodes.

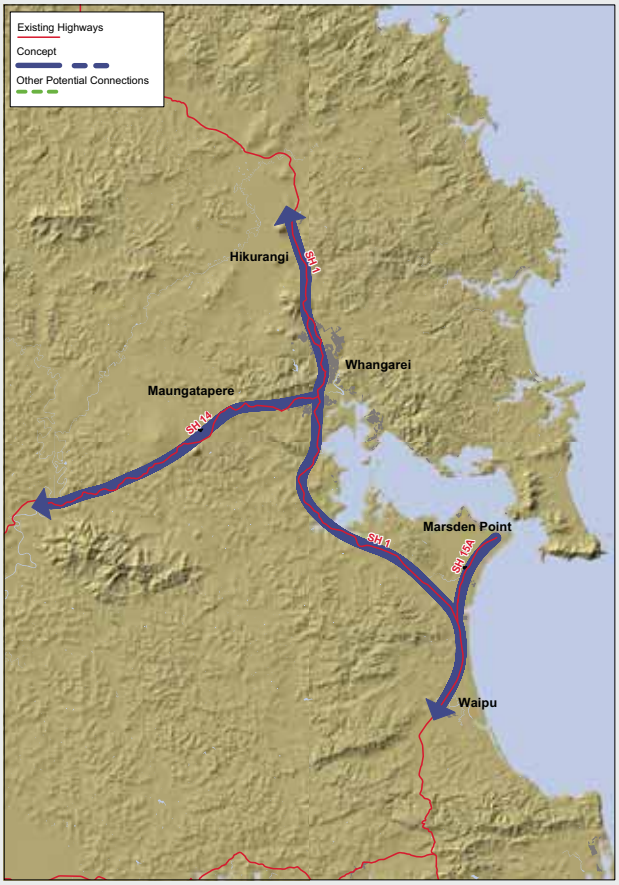


Figure 14 Whangarei Concept

Figure 15 Auckland Concept

Hamilton

Forming an elliptical shape, Hamilton's proposed network concept contains a northwestern connector, an eastern bypass and a southwestern connector. The planned Hamilton bypass forms a strategic part of the Waikato expressway running from south of Auckland to east of Cambridge. Improving mobility within the 'golden triangle' between Auckland, Hamilton and Tauranga, the bypass will be built to motorway standard with minimal access to provide a high quality route through the Waikato and around Hamilton. The network concept has been developed jointly with the territorial local authorities of the Waikato Region through the regional land transport strategy process and recognises the need to get to Hamilton as well as around Hamilton.

Tauranga

The proposed network is largely defined by the existing 'SmartTransport' corridors into and through Tauranga, with improved northwestern access, and an eastern bypass on SH2. SH29 is the proposed key route into Tauranga from the west, from Auckland and the Waikato. SH2 to the northwest will be developed further as the main route for the emerging residential areas to the north of Tauranga and for access to the Coromandel Peninsula.

The strategy detail is being developed within the framework of the Bay of Plenty Regional Land Transport Strategy and the western Bay of Plenty subregional Smart Growth strategy.

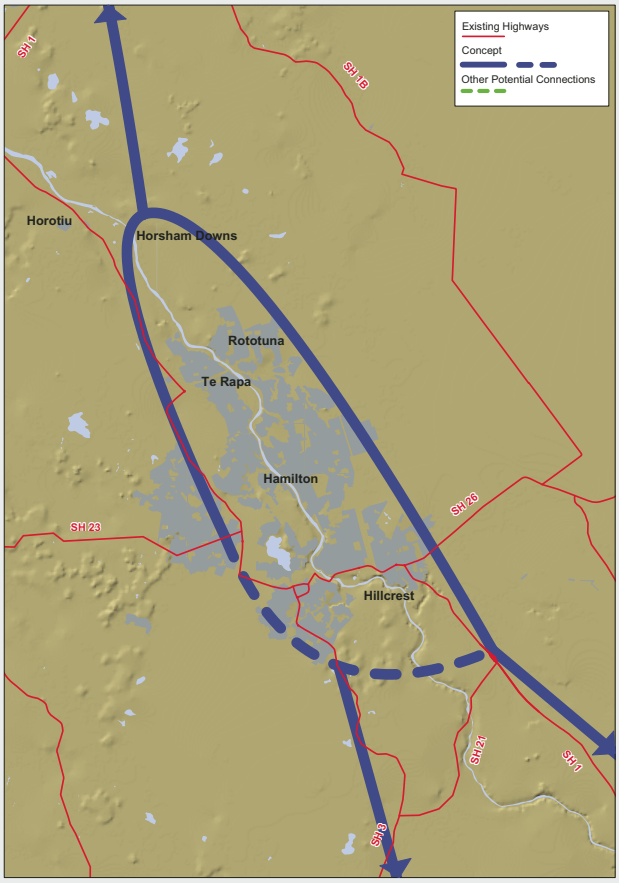


Figure 16 Hamilton Concept

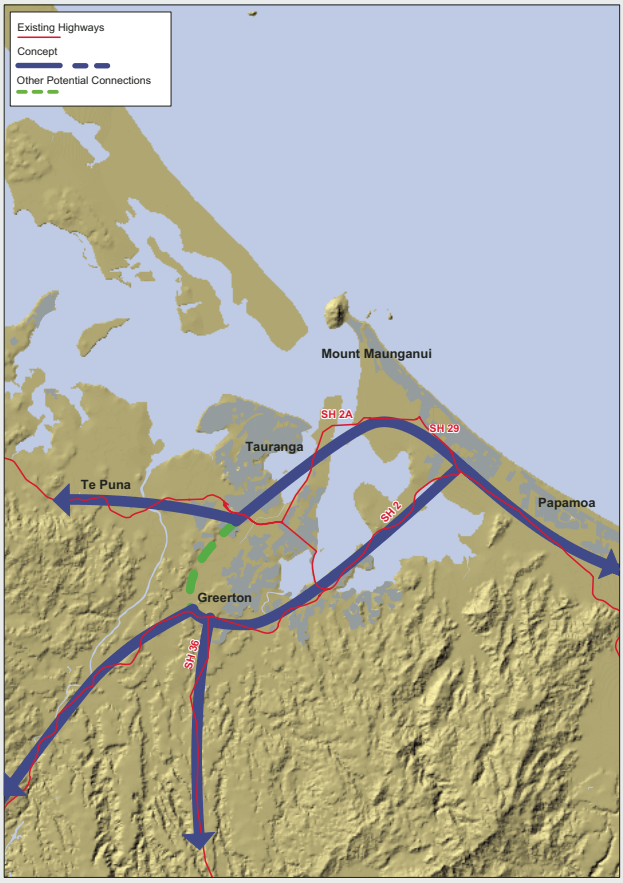


Figure 17 Tauranga Concept

Taupo

The proposed network in the Taupo area places an emphasis on providing an eastern bypass of the Taupo township. It will link SH1 north of Taupo to Central Waikato, and SH1 south of Taupo to the desert road and the Manawatu-Wanganui region. It will also provide an eastern link between SH1 to SH5, to Napier and the Hawke's Bay region.

The bypass is the second highest priority in the Waikato Regional Land Transport Strategy (draft 2006).

Napier/Hastings

Key to the proposed concept for Napier is for SH50A to become SH2. The current SH2 (through Napier) will revert to a local road to support community aspirations and development, taking into account the influence and impact of a good arterial network. SH50 will continue to serve the Gwaras Forest region. Consideration will be given to rationalising the state highways in the Hawke's Bay Region as part of the 2006 Hawke's Bay State Highway Strategy Study. The expectation is that a state highway link to the port via Prebensen Drive will be promoted in preference to the current SH2 route via Meeanee Quay.

Consistent with the principles of the Hawke's Bay Regional Land Transport Strategy, these proposals are being developed further through consultation with the territorial local authorities within the Hawke's Bay region.

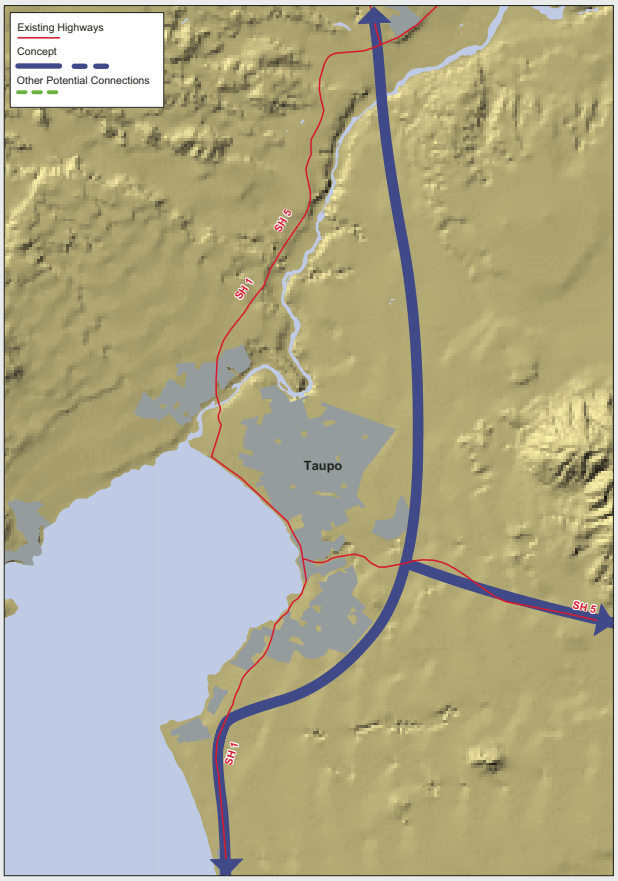


Figure 18 Taupo Eastern Bypass

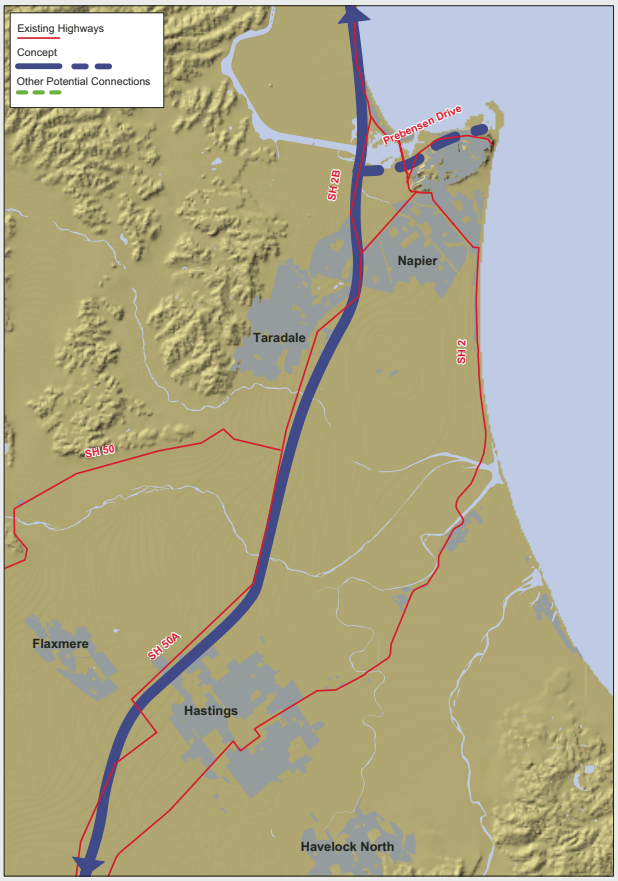


Figure 19 Napier/Hastings Concept

Rotorua

The Rotorua concept is a proposal that links Rotorua city in a large 'Y' shape, encompassing lake Rotorua. The northwestern arm provides links to the Waikato via SH5, and to Tauranga via SH36. The northeastern arm provides links with Te Puke and Mt Maunganui via SH33. It also provides a link with the eastern Bay of Plenty via the SH30 scenic route through the eastern lakes. The southern stem of the Y is formed by the SH5 link to Taupo.

The state highway corridor links to Rotorua City provide for future improvements to be integrated with local roading, particularly in the SH36 Rotorua-to-Tauranga 'Twin City' corridor package, and the SH30 Eastern Arterial package.

New Plymouth

The state highway concept for New Plymouth is at an early stage of development. The main focus of inter-regional highway improvements in the area will be on SH3A and SH3 along the coast and into New Plymouth, and the port. This general concept can be represented as a 'T' shape, as shown.

Detail of the proposed concept for the highways will be developed in partnership with the New Plymouth District Council and other territorial local authorities in the Taranaki region.

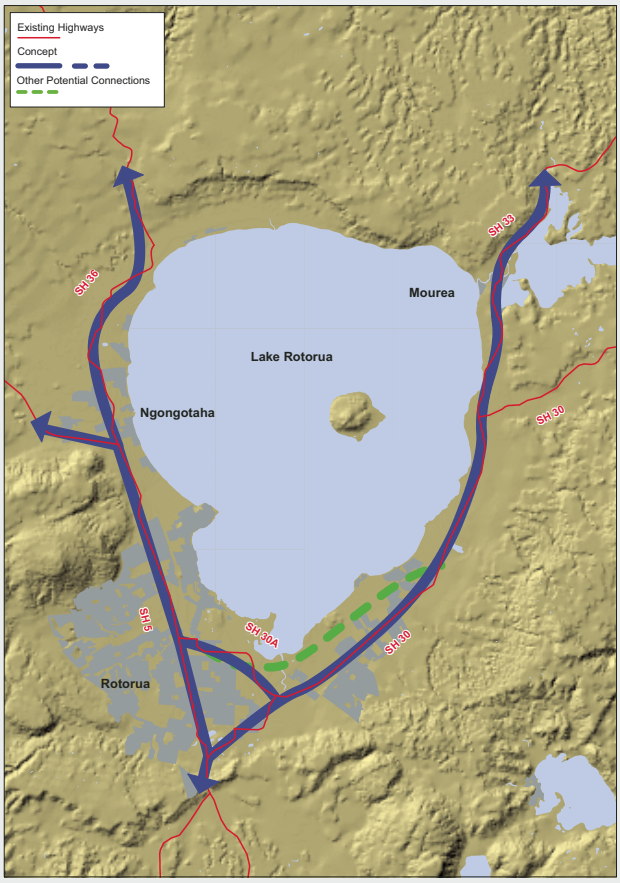


Figure 20 Rotorua Concept

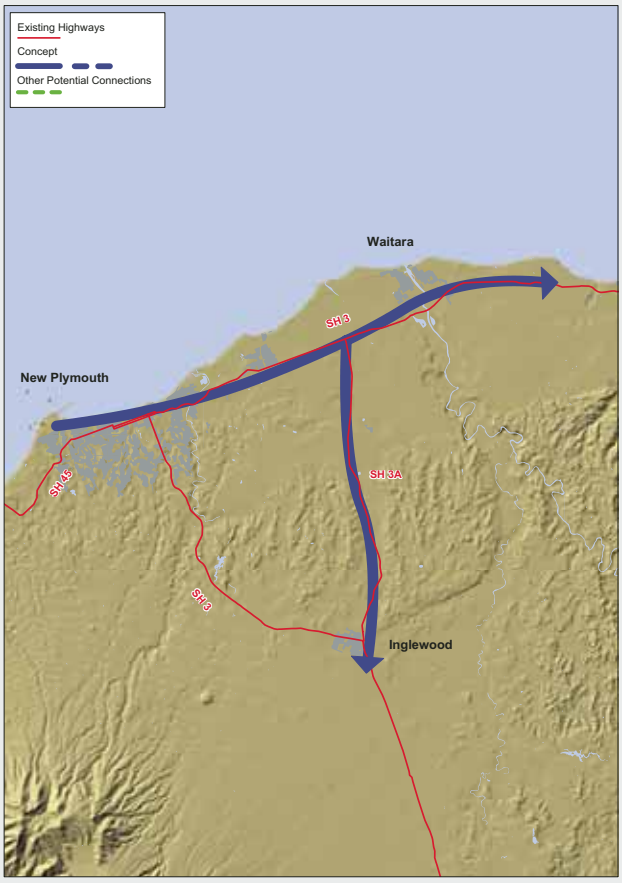


Figure 21 New Plymouth Concept

Palmerston North

The proposed concept for Palmerston North recognises the need for strategic access to and around the inland 'port' of Palmerston North as the city grows. The concept rationalises the state highways into a large triangle around the city, comprising a link along SH1, another towards SH57, and another just north of the city from east to west. The 2002 State Highway Review proposed a further state highway route to the north of Palmerston North. Although not taken up at that time, it remains an option, particularly as further commercial, industrial and warehousing activity is developing to the north, and residential development grows in the east. A final concept will be further developed with territorial local authorities and the region.

Wellington

A range of strategies developed in partnership with the Wellington region's territorial local authorities and stakeholders is shaping an integrated highway concept. The Inner City Bypass will strengthen north-south links through the city. The Ngauranga to Wellington Airport Strategic Study will identify solutions to meet current and future land use, access and transport needs in and around the city. The Western Corridor Study, considering the links between Wellington and the Kapiti Coast, includes proposals for public transport, travel demand management and highway improvements such as the Transmission Gully Motorway and improved east-to-west connections. Strategic studies for SH2 and SH58 will provide a short-term programme of high priority projects within a longer-term strategic plan.

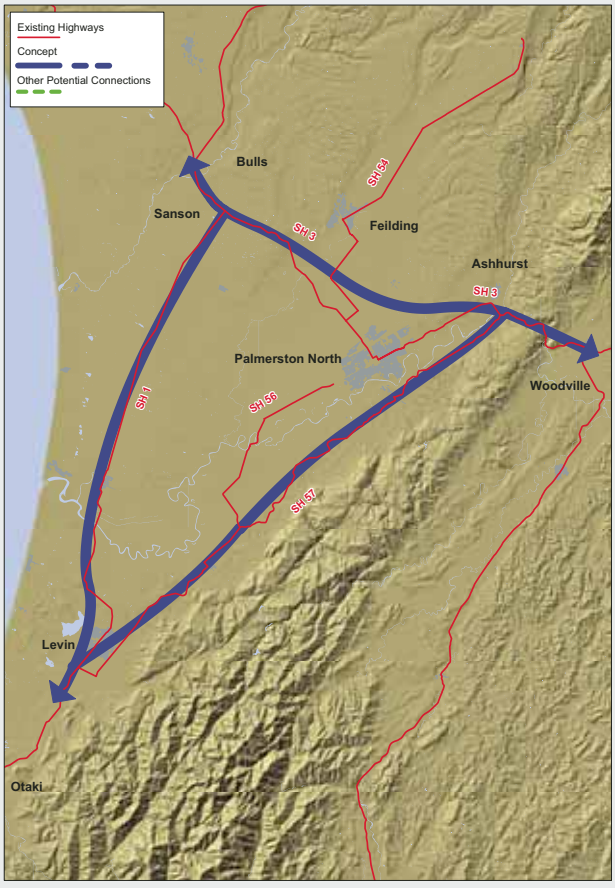


Figure 22 Palmerston North Concept

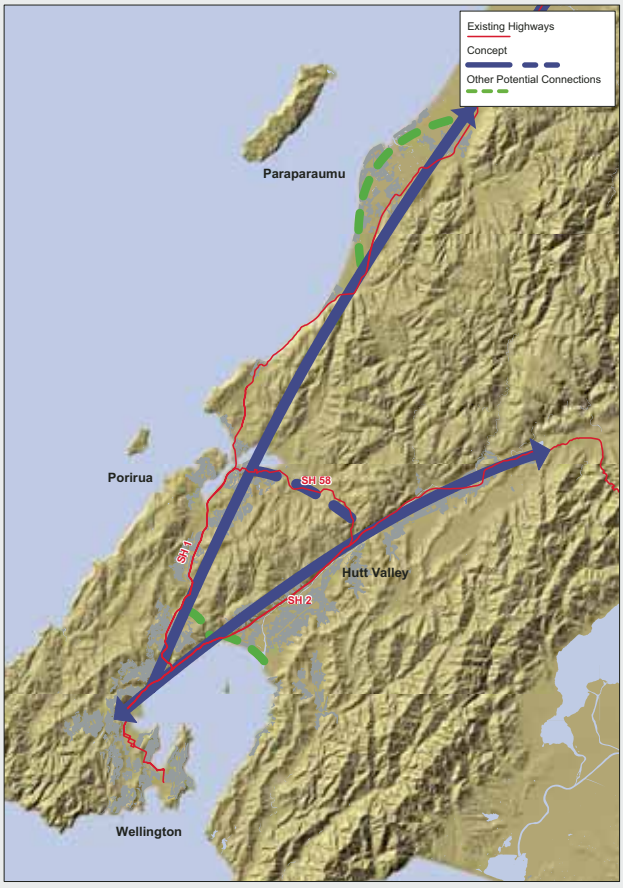


Figure 23 Wellington Concept

Nelson

The proposed highway concept for Nelson is still emerging and is being developed in close partnership with territorial local authorities and the region. The concept will be confirmed as part of the Nelson to Brightwater Study. Currently, study options include making the best use of existing resources, as well as testing various bypass opportunities around the city.

The Richmond Development Study, a study focusing on integrating land-use and transport, will create more certainty around the themes emerging from the Nelson to Brightwater study. It will provide a clear strategic outlook for Richmond in relation to regional growth. Further options, including the Hope bypass, will be tested.

Christchurch

The vision for Christchurch is to provide strategic access to and around the urban area of Christchurch, with connections to Christchurch International Airport and the Port of Lyttelton.

Much of the 'triangle' is provided by existing urban state highways or expressway, with key improvements planned for the northern access links, the Western Corridor and the extension of the Southern Motorway. We are also working with all partner councils to develop an agreed Urban Development Strategy and Greater Christchurch Transport Strategy.

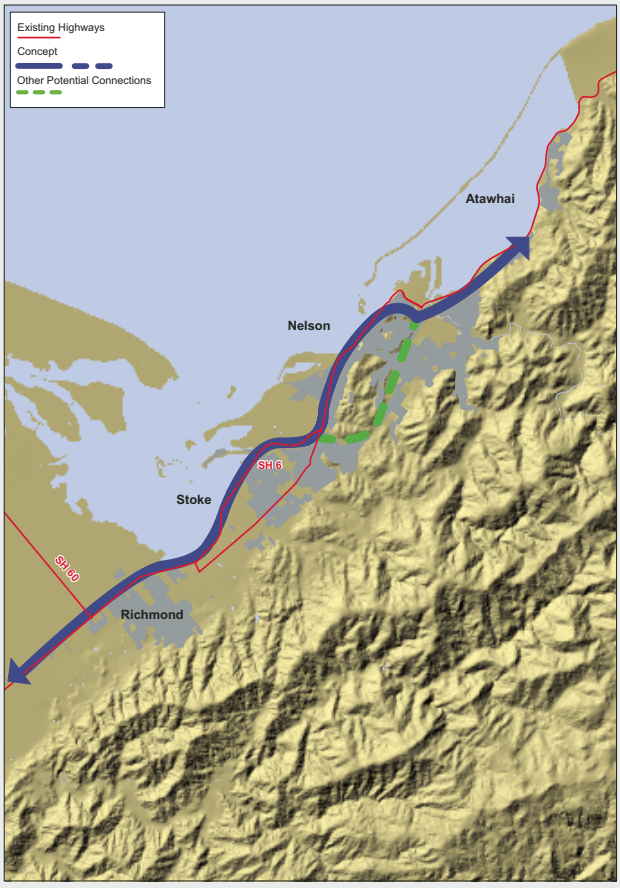


Figure 24 Nelson Concept

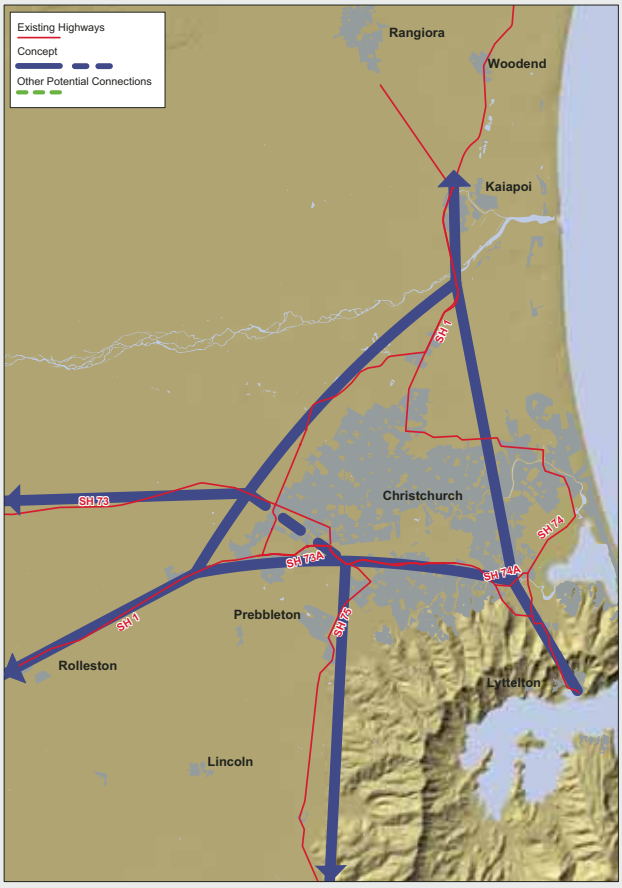


Figure 25 Christchurch Concept

Queenstown

Proposals for Queenstown are still emerging. The state highway concept is subject to investigation by a joint study between Transit, the Queenstown Lakes District Council and Otago Regional Council, which will deliver an integrated transportation strategy for the next 20 years for both state highways and local roads. The study is expected to place a strong emphasis on the implementation of passenger transport priority measures and travel demand management for the short- to medium-term development of SH6A and SH6 at Frankton.

In the longer term, the key aim is for SH6A to bypass Frankton. This would mean that SH6A would revert to a local road.

Dunedin

The key themes of the state highway concept for Dunedin is to make the best use of existing resources and to strengthen the city's arterial road network, particularly focusing on the roles of Port Otago and Dunedin airport

Dunedin City Council is currently working on a proposal to develop a Harbour Arterial Route to provide a safer and more direct route for heavy vehicles through the city centre, between the south and Port Otago. Transit is working with the council to explore the opportunities for the Harbour Arterial Route to become a realignment of SH1 and SH88.

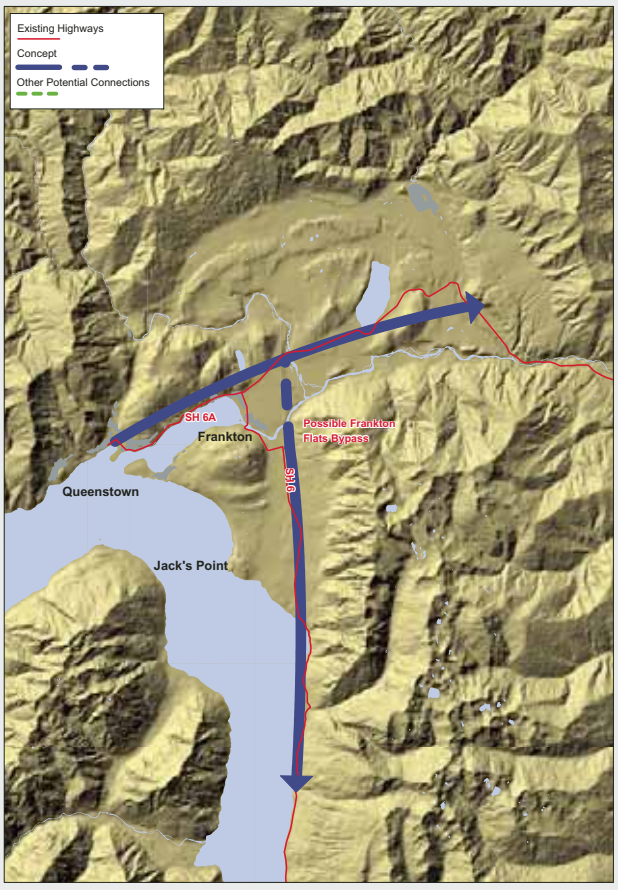


Figure 26 Queenstown Concept

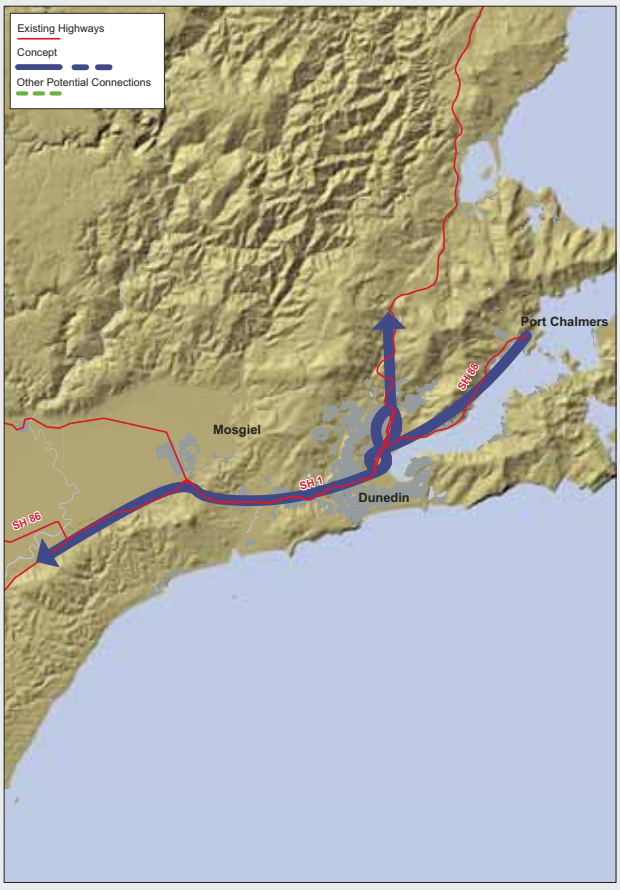


Figure 27 Dunedin Concept

APPENDIX A

DRIVERS OF THE NATIONAL STATE HIGHWAY STRATEGY

A.1 SAFETY

One of the key drivers of the National State Highway Strategy is the safety of all road users. Transit continually works to reduce the number of crashes and the severity of injuries on New Zealand's state highways.

A.1.1 Key characteristics and trends

For some time now the total traffic volume on state highways has grown by around three to four percent per year. Heavy commercial vehicle traffic volume has grown by around five to six percent per year over the same period.[1] Increased traffic volumes lead to capacity issues. For example, the number of two-lane highways with traffic between 10,000 and 20,000 vehicles per day is increasing across New Zealand.

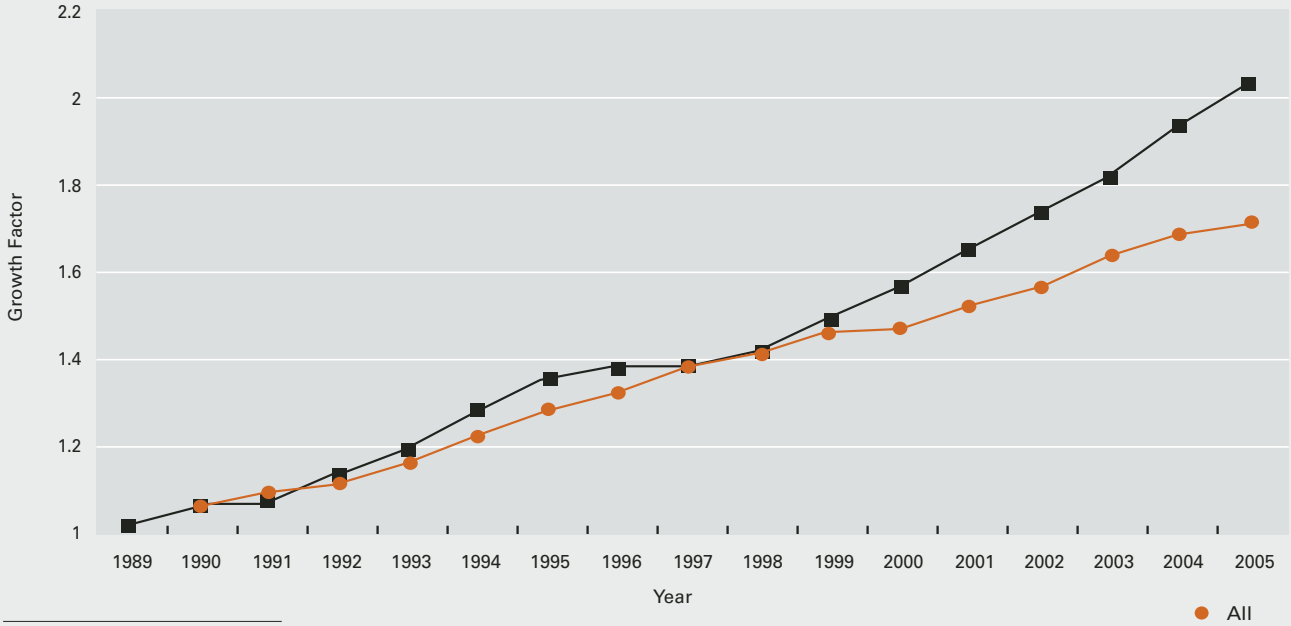
While the rate of total traffic volume growth has recently levelled off, no such trend is evident for heavy commercial vehicle traffic and demand for road use is expected to continue to grow.

There were 204 fatal crashes on state highways in 2004/05, a decrease of five percent on 2003/04.[2] 188 fatal crashes have been recorded for the 2005/06 year.[3] Key factors contributing to fatal and injury crashes include speed, loss of control, alcohol and failure to stop or give way.[4] Fatigue is considered a significant underlying factor in contributing to crashes.

A.1.2 Implications for the NSHS

Traffic growth, particularly on state highways, increases the likelihood of crashes. The Government's Road Safety 2010 strategy sets a target of reducing the number of fatalities on New Zealand's roads to no more than 300 fatalities per year by 2010. Our contribution to this target is to reduce the number of fatalities on state highways to no more than 170 per year. Growth in demand, coupled with the Government's aim of reducing road deaths, supports our strong focus on reducing crashes on roads.

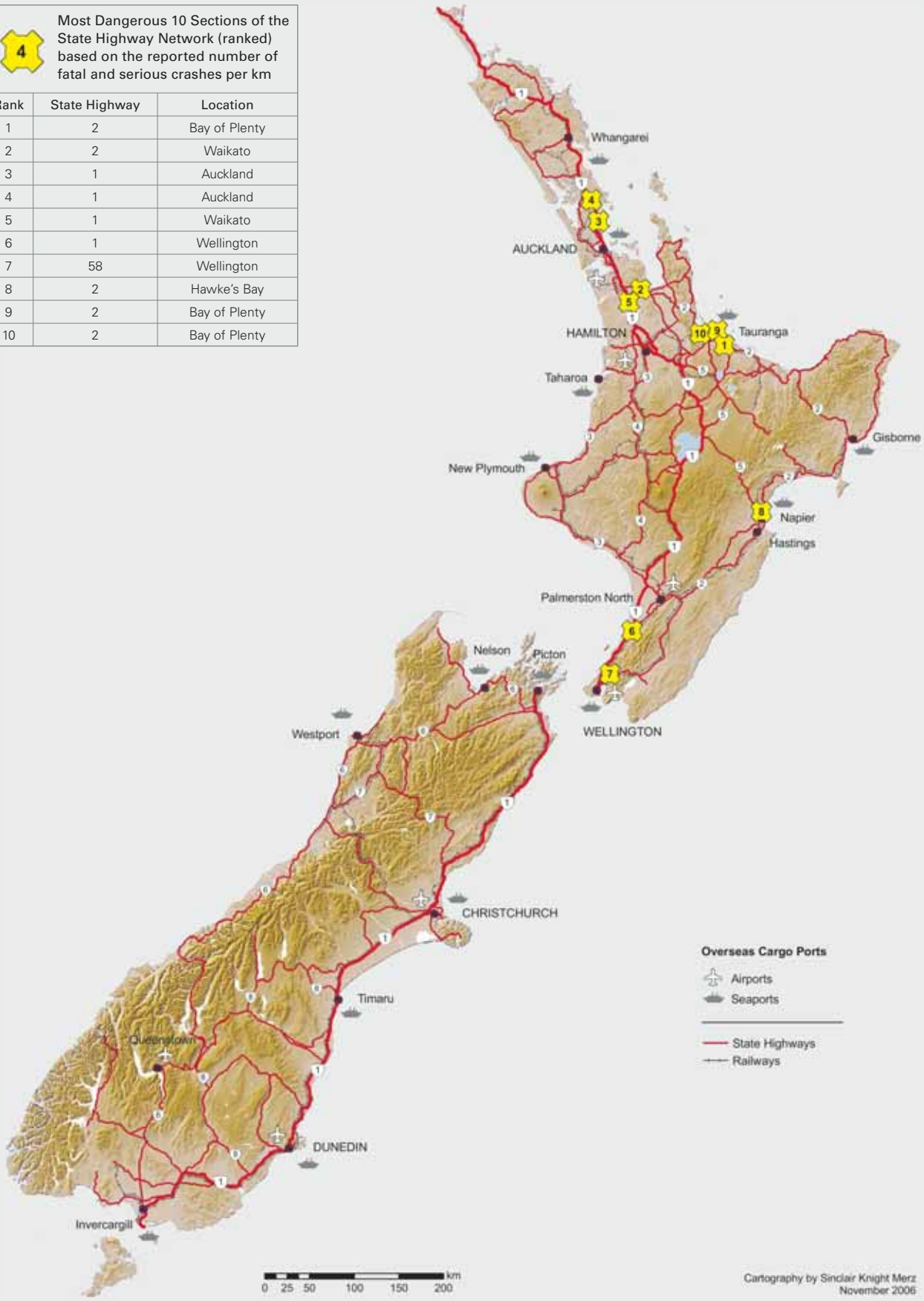
Traffic Growth on State Highways



[1] Transit NZ Annual Report 2004/2005
[2] Ibid
[3] From Ministry of Transport Crash Analysis System Database
[4] For year ending 31 Dec 2004, www.transport.govt.nz

Ten Most Dangerous Sections of State Highway based on 2001–2005 data

4	Most Dangerous 10 Sections of the State Highway Network (ranked) based on the reported number of fatal and serious crashes per km	
Rank	State Highway	Location
1	2	Bay of Plenty
2	2	Waikato
3	1	Auckland
4	1	Auckland
5	1	Waikato
6	1	Wellington
7	58	Wellington
8	2	Hawke's Bay
9	2	Bay of Plenty
10	2	Bay of Plenty



A.2 FACILITATING ECONOMIC GROWTH AND MANAGING GROWING DEMAND

In 'Growing an Innovative New Zealand', the Government sets out its plan for New Zealand's economic well being, social development and environmental protection.

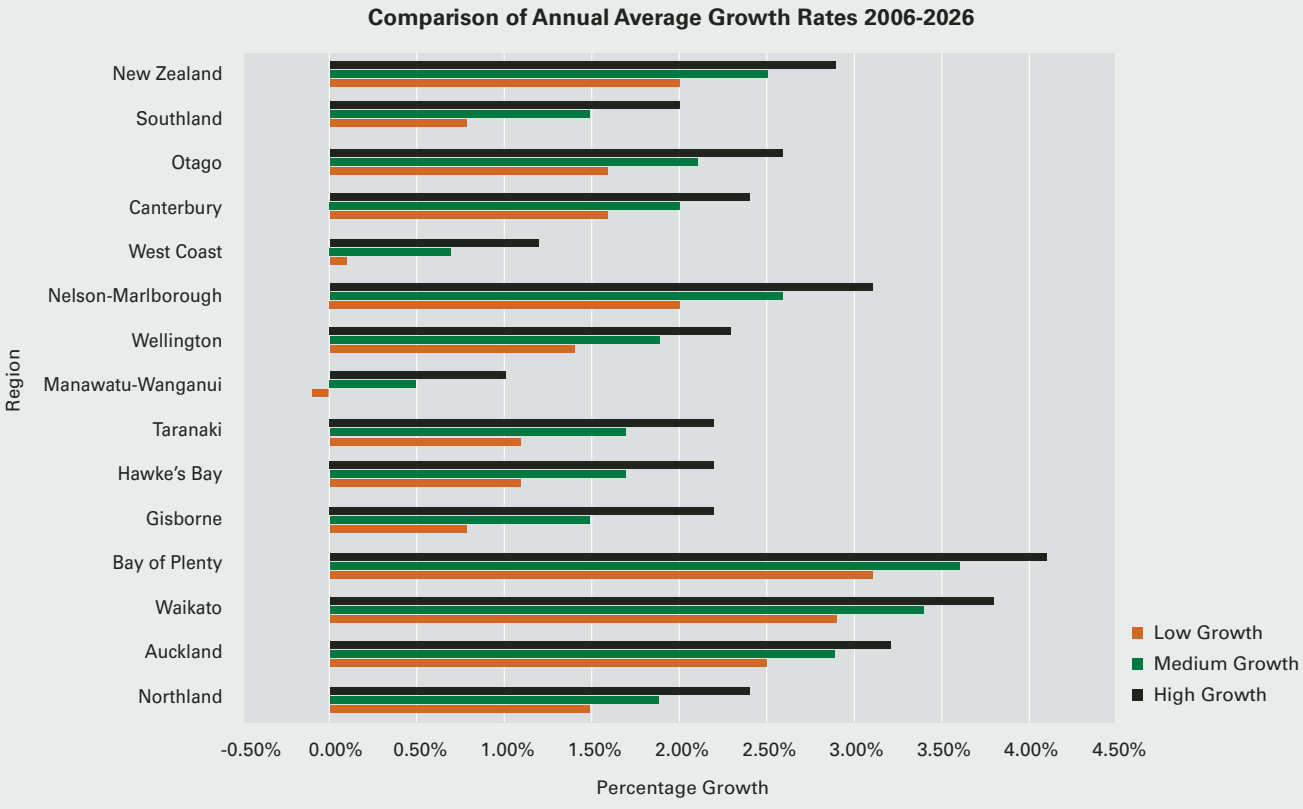
The Ministry of Economic Development's Statement of Intent 2006-2009 states its aim to "transform New Zealand into a high-income, knowledge-based market economy; a place where innovation and creativity are fostered and valued; a place where New Zealanders enjoy high living standards and a unique quality of life". [5]

Over the years New Zealand's economy and population have grown and have fuelled traffic volume growth in many regions. A number of key sections of the state highway network, especially in Auckland, are at capacity for significant periods of the day, and more of the network is frequently running at or close to capacity. Growth in Queenstown is outstripping growth in Auckland on a percentage basis without the infrastructure to support it. To support the Government's plan for economic development, we need to ensure that people and goods can move along New Zealand's state highways efficiently and safely and that state highways integrate well with local road networks.

A.2.1 Key characteristics and trends

The potential for future economic growth looks strongest in the northern North Island, with Auckland, Waikato and Bay of Plenty economies expected to almost double in size over the next 20 years. High growth is also expected in the north of the South Island. Elsewhere economic growth is still anticipated, though the divergence in growth rates seen today will increase. The rural-based regions of Gisborne, Wanganui-Manawatu and the West Coast are expected to experience the least growth.[6]

The diagram is a graph showing high, medium and low projected economic growth for each region.



[5] As stated in the Ministry of Economic Development's Statement of Intent 2006-2009
[6] Infometrics. External influences to be considered in the review of the NSHS, Oct 2005

Population trends

New Zealand's population is expected to continue to grow, with projections of 0.7 percent growth per year over the next 20 years. This will slow to 0.3 percent per year growth over the following 20-year period.

Three quarters of the country's population lives in the North Island and around half of all New Zealanders (51%) live in the four most northern regions: Northland, Auckland, Waikato, Bay of Plenty. Ninety percent of future growth is predicted to occur in the North Island. The Auckland, Bay of Plenty, Tasman, Marlborough, Nelson and Canterbury regions have a greater than average population growth, while the Gisborne, Taranaki, Manawatu-Wanganui, West Coast and Southland regions are experiencing a decline in population.[7]

New Zealand's population is aging. The post-war 'Baby Boom' generation is moving into old age as the birth rate continues to decline. By the mid 2020s the median age of New Zealanders will be 42 years, compared with 35 years in 2005. By 2050 the median age of New Zealanders is predicted to be 45 years. People aged 65 and over will increase from today's 17 percent of the population to around 20 percent in the 2020s, and over 25 percent in the 2040s.[8] As people age they tend to drive less and as Baby Boomers retire, their per capita vehicle travel is likely to decline further because they no longer commute to work.[9]

[7] Infometrics. External influences to be considered in the review of the NSHS, Oct 2005
[8] Infometrics. External influences to be considered in the review of the NSHS, Oct 2005
[9] Todd Litman. 2006

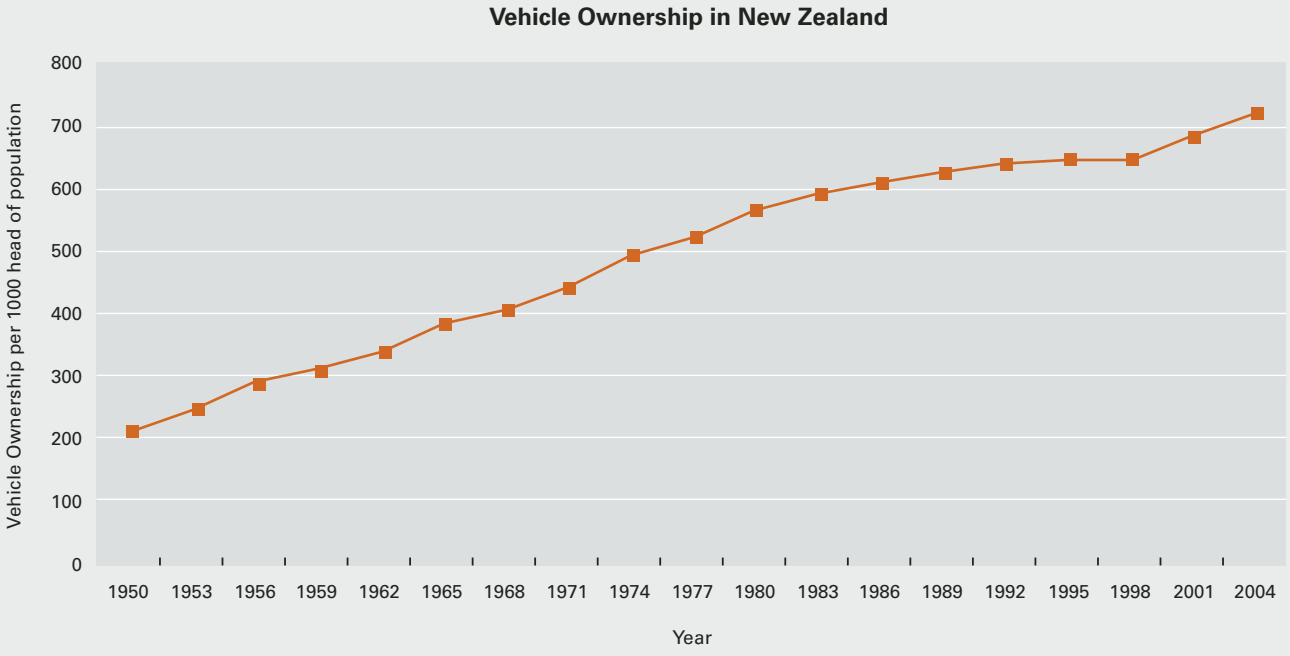
Predicted Population Growth in New Zealand to 2031

Cartography by Sinclair Knight Merz
November 2006
* Source: Statistics New Zealand

Car ownership trends

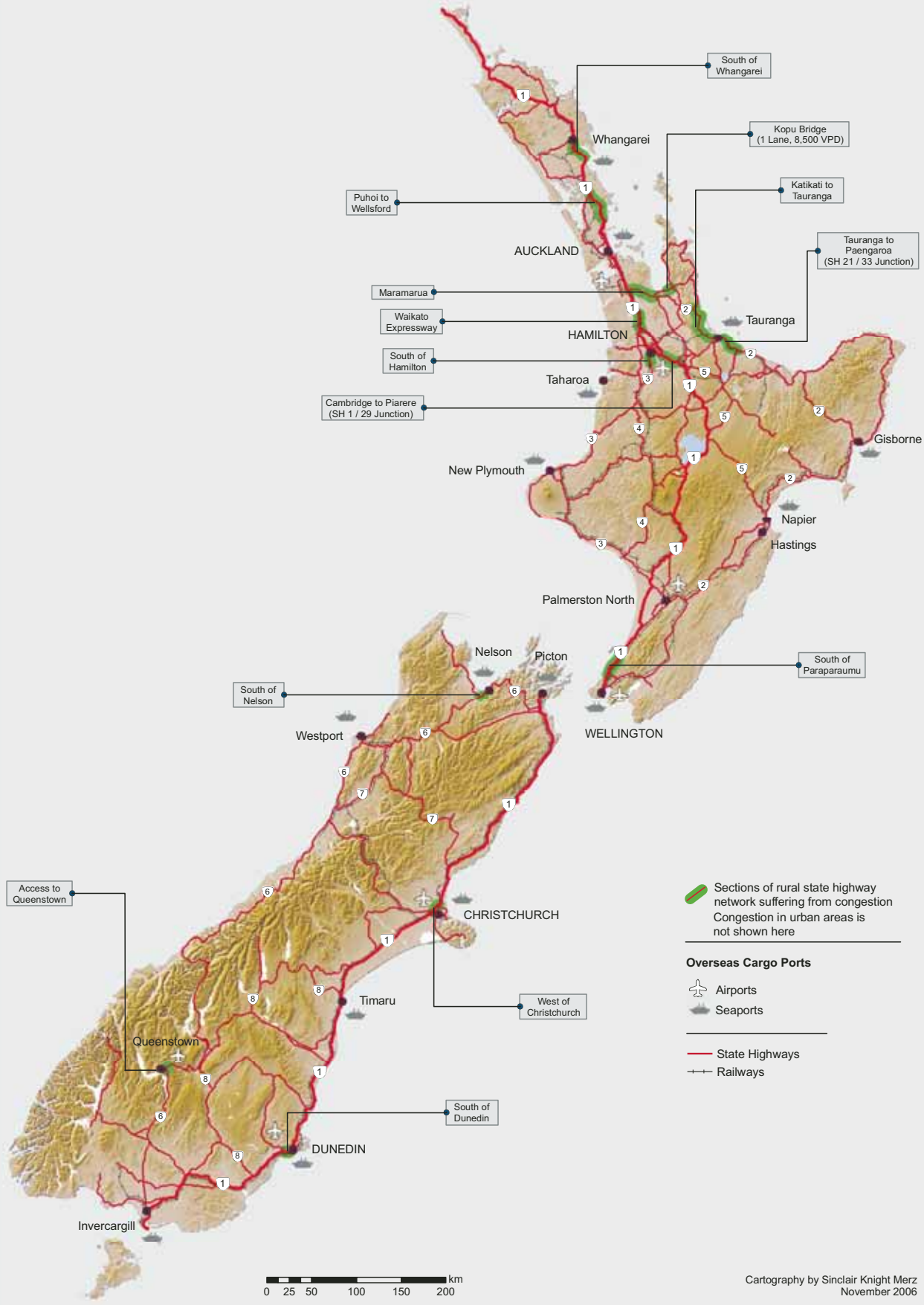
Car ownership in New Zealand is among the highest in the world.[10] Only the United States of America, Italy and Australia have more cars than New Zealanders. As shown in the diagram below, New Zealand's total vehicle[11] ownership exceeded 700 vehicles per 1000 head of population in 2004 and is still rising.[12]

The three to four percent growth in total traffic and five to six percent growth in heavy traffic is expected to continue, further fuelling the demand for road use. Such growth adds to the pressure on network capacity and is increasing congestion in New Zealand's major cities.



[10] 620 cars per 1000 people
[11] Including Cars, Vans, Trucks, Buses, Motor Caravans, Motor Cycles and Mopeds
[12] www.mfe.govt.nz/publications/ser/gentle-footprints-may06/html/page7.html, May 2006

Rural State Highway Sections Experiencing Congestion



Tourism trends

Tourism directly and indirectly contributes over nine percent of New Zealand's gross domestic product. Over the seven-year period from 2005 to 2011, New Zealand tourism is forecast to continue to grow, with international tourism growing faster than domestic tourism. International visitor arrivals are forecast to increase from 2.3 million in 2004 to 3.2 million in 2011, averaging 4.7 percent growth per annum. Domestic trips are forecast to increase from 54 to 59 million, averaging 1.2 percent per annum. Those regions that have a stronger international focus are therefore expected to experience a greater growth rate, including Auckland, Canterbury, Queenstown, Rotorua, West Coast, Nelson and Fiordland. Many regions, mainly in the North Island, rely proportionately more on domestic tourism and are forecast to have slower growth rates.[13]

A significant number of tourists travel along the state highway network to get to tourist destinations around the country. In the North Island key tourist routes include SH1 from Northland to Wellington, and SH2 to Tauranga and the Coromandel, and to Napier. In the South Island key tourist routes include SH1 along the East Coast from Picton to Bluff, SH6 along the West Coast, SH8, and SH94 to Milford Sound.

Sea and air freight trends

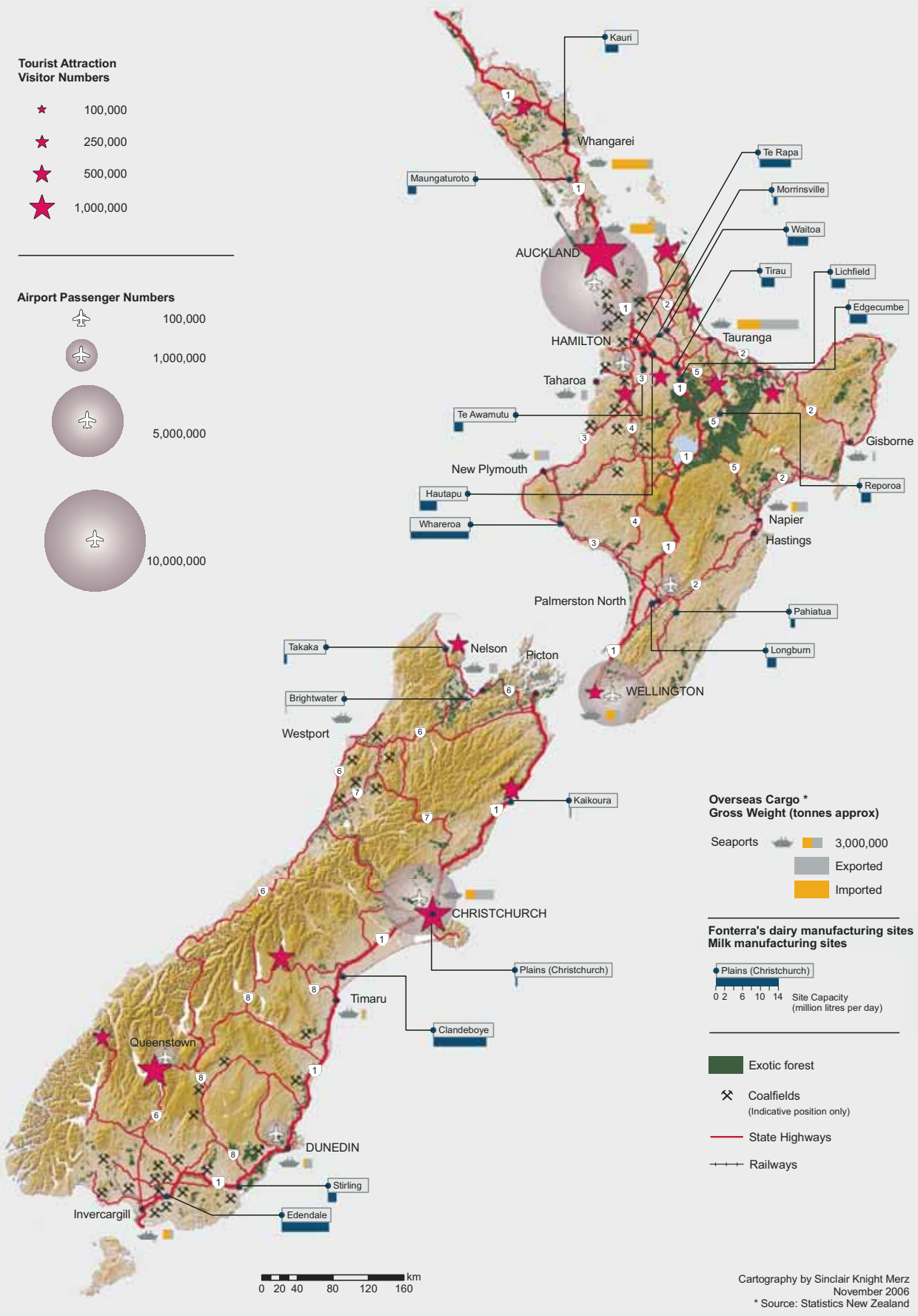
In the coming decade, sea cargo movements are expected to increase by around three percent per year as export industries expand and economic growth increases the demand for imports. On-shore facilities to service larger vessels, such as deep-water harbours, warehousing, distribution centres and the road network, will be required to support any growth in imports and exports. There is potential for some rationalisation of ports, which may require a strengthening of key land transport links.

International airfreight movements are essentially driven by international passenger travel flows, most of which (80%) come through Auckland.[14] While considerably less freight is moved by air than by sea (by weight), as airfreight increases alongside air passenger transport over the next decade, both will require more infrastructure support.

The following diagram shows tourist attraction visitor numbers, airport passenger numbers, international shipping cargo weights, Fonterra manufacturing sites and the location of exotic forests and coalfields in New Zealand.

[13] Ministry of Tourism
[14] Infometrics. External influences to be considered in the review of the NSHS, Oct 2005

Key Traffic Generators in New Zealand 2006



Cartography by Sinclair Knight Merz
November 2006
* Source: Statistics New Zealand

Freight Flows by Weight on State Highways 2006

Rail and road freight trends

If economic growth continues at the same rate it has for the last 10 years, the amount of freight transported around New Zealand is expected to double by 2020. Much of this will need to be carried by road, because of time sensitivity and lack of access to freight rail links. Even if rail takes a considerable amount of freight, roads would still need to carry at least 80 percent of all freight, with Auckland, Waikato, Bay of Plenty and Canterbury experiencing the highest growth in heavy vehicle activity.[15] Freight growth on state highways is increasing at a much faster rate than the total traffic growth rate.[16]

International trends indicate that freight truck axle weights may also increase in New Zealand, providing economic and environmental benefits,[17] but also generating maintenance impacts.

Climate change trends

As noted in the Energy Efficiency and Conservation Authority's 2006-2009 Statement of Intent[18] "global climate change is a looming threat to our economic, social and environmental interests." Climate change can lead to rising sea levels, increasing frequency and intensity of storms, and changing rainfall patterns. In turn, this can lead to super-saturation of soils resulting in slips, particularly in locations where there are steep cutting walls, and can impact infrastructure near coastal areas, waterways and already flood-prone areas. Risks to the state highway network arising from climate change need to be managed to mitigate the long-term effects. Improvements to the state highway network need to address climate change impacts, and energy efficiency and renewable energy sources need to be pursued and promoted in order to reduce CO_2 emissions.

Oil price trends

There is much uncertainty around oil supply and oil prices. The price of oil at the pump has been highly volatile. While the price of oil at the pump has doubled between 2002 and 2006, in real terms it has actually reduced since the late 1970s when, during the 1979 oil shock, the cost of oil per barrel was over US$90 in today's prices.[19] Rising oil prices have led to increasing discussions about whether and when oil extractions might peak and then decline. Various national and international agencies have predicted this could occur anytime between 2007 and 2070 (Association for the Study of Peak Oil, International Energy Agency, and New Zealand's Ministry of Economic Development) but factors such as new oil reserves and improvements in extraction technology may alter these predictions. The effects of a decline in oil supply are also debated. For example, rising oil prices may lead to greater production and use of alternative fuels, and limit the impacts of a reduction in oil supply.

Monitoring trends and responding to change

There are inherent uncertainties in all the trends discussed above. Transit needs to remain aware of these and other changes, for example, technological changes that could impact on transport systems, such as improvement to intelligent tranpsort systems, and be responsive and able to adapt to such changes. Transit understands that uncertainties, including around oil supply and prices, mean we should continue to monitor trends and predictions, and remain flexible in terms of our future direction.

[15] 2020: Doubling the freight
[16] Transit Network Operations Statistics
[17] Ibid
[18] Energy Efficiency & Conservation Authority Statement of Intent 2006-2009
[19] The World Bank

A.2.2 Implications for the NSHS

New Zealand's population and economic growth are likely to result in a greater demand for goods and services and ultimately an increasing demand for travel. Despite increasing fuel prices, it is likely this growth and resulting demand will cause an increase in heavy vehicles, commuters and other traffic on New Zealand's roads, including state highways. Even in areas with static or falling populations, household numbers can increase because of falling household sizes. Transit will endeavour to counter traffic growth using travel demand measures and by encouraging other modes of transport such as coastal shipping and rail. However the need to move more freight, particularly where roads are congested, will most likely still see an increase in the amount of traffic on our roads.

Traffic growth will lead to more wear and tear on roads, particularly as freight vehicles become heavier, and pressures build to increase the capacity of our highways. Transit will need to influence the design and management of areas neighbouring the state highway network and access to state highways to promote compatibility with state highway traffic and ensure safety for all road users. Increasing traffic volumes, plus the growth in heavy commercial vehicles, can also reduce motorists' passing opportunities, particularly during weekends and peak periods, such as holidays. The same applies to highways that rely on overtaking opportunities rather than passing lanes. This in turn has implications for safety.

To achieve the Government's goal of transforming New Zealand into a high-income knowledge-based market economy, developers fuelling that growth have not necessarily contributed to the mitigation of the impacts of their development on state highways.

Funding limitations mean solutions have to be applied selectively and incrementally rather than achieved more quickly through large investment steps. These limitations also mean investment in high cost items, such as bridge widening and interchanges, may have to be deferred depending on priorities. The increasing price of oil will affect the supply of materials, such as bitumen, and contractors' costs in running large equipment, for example.

Research and analysis on how to loosen the link between economic growth and the need for more physical movement is needed. The emphasis must be on facilitating growth, not on responding to it. Innovation is needed to improve network efficiency and safety at reasonable cost while putting in place measures and initiatives to manage travel demand and influence travel behaviour.

A.3 INTEGRATING LAND-USE, TRANSPORT AND THE ENVIRONMENT

Transit places a lot of emphasis on achieving a high degree of alignment between land use and transport and the environment. Our decision-making processes are designed to find appropriate solutions that address economic, social and environmental considerations. Doing so is consistent with our objectives under the LTMA. Our focus is on the future.

Contributing to community well being, and hence quality of life, is a core driver of Transit's business. State highways in New Zealand allow for the efficient movement of goods and people throughout the country. In many areas of New Zealand they also act as local roads providing commuting routes, access to property, and serving retail, commercial and community facility needs. These functions have developed historically and we need to ensure that such local needs continue to be met while maintaining the integrity of the state highway for through-traffic.

A.3.1 Key characteristics and trends

Environmental and social parameters are increasingly determining where and how new transport routes are planned and constructed. This is illustrated by the ALPURT B2/Northern Gateway on SH1 north of Auckland, and the community's views on the Wellington Western Corridor.

Existing transport infrastructure was built to the standards of the day, and often falls short of current community and environmental expectations. This leads to increasing pressure to manage existing networks carefully and improve social and environmental performance where practicable.

Transport is one of a number of concerns important to communities. Community expectations for quality of life, environmental performance and social responsibility are steadily increasing, and this trend is expected to continue. The outcomes of state highway projects are considered under the Resource Management Act and balanced with a range of other factors, such as economic viability, access, community cohesion and the landscape, so that community values and aspirations are reflected in decisions.

As has been illustrated in section A.1.1, demand for road transport is still increasing, with corresponding increases in energy use, vehicle emissions, contaminant loadings in road run-off and noise emissions.

Technological improvements in vehicles, improved traffic management and travel demand management will help improve environmental performance over the long-term. But these are unlikely to be a solution to all issues or a stand-alone solution.

The importance of walking and cycling within the transport mix and their potential to contribute to economic, social and environmental objectives is promoted in the Government's national strategy 'Getting there – on foot, by cycle'. Active modes of transport such as walking and cycling provide transport choices and can have health benefits, but New Zealanders' use of these modes has recently declined.

A.3.2 Implications for the NSHS

Transport infrastructure is key in determining the form and function of urban and rural areas. Transit is a leading participant in the planning, design and management of transport systems. We also have a role in influencing the design and management of adjacent areas to promote compatibility between state highways and surrounding land uses and to avoid reverse sensitivity issues, i.e. those that arise when environmentally sensitive land uses establish alongside an existing highway.

Environmental and social responsibilities are key parts of how we operate and make balanced decisions, sometimes inevitably involving trade-offs. Such influence will increase over time. While most highways carry traffic between population centres and key economic activities, many are also an integral part of communities. The different functions of state highways need to be recognised and a balance found between social, environmental and economic needs through using the road categorisation. We need to continue to develop mechanisms to quantify environmental and social impacts in decision-making processes.

There is a need to move on from debate on the form and function of state highways. Instead we need to work with communities and raise awareness of potential long-term environmental outcomes and encourage shared responsibility for those outcomes. Community involvement in the environmental and social implications of new roads may lead to producing outputs with higher environmental and social quality.

Construction or realignment of state highways can sever parts of a community from services and facilities, disrupting people's usual travel patterns. This not only affects access to, but also the viability of, community facilities, local businesses and homes. We need to actively consult with affected communities to ensure equitable decisions that contribute to the social well being of New Zealand.

Working with our partners to provide an integrated multi-modal land transport system is essential to ensure New Zealand enjoys a sustainable transport system that offers transport choices.

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