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## **Chapter 3**

### **Delivering the Integrated Planning Policy through planning and design of the transport network**

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This chapter contains the following sections:

<b>Section No.</b>	<b>Topic</b>
3.1	Introduction
3.2	State highway and local road networks
3.3	Provision for multi-modal transport and freight
3.4	Development and funding of the state highway network <ul style="list-style-type: none"><li>• Project identification, scoping, programme development and prioritisation</li><li>• Network development</li></ul>
3.5	State highway design principles <ul style="list-style-type: none"><li>• Urban design</li><li>• Route and alignment</li><li>• Speed management</li><li>• Intersection and interchange spacing</li><li>• Environmental standards</li></ul>
3.6	Land and route protection

### 3.1 Introduction

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#### **Facilitating economic development**

Transit's commitment to integrated planning requires that the state highway network is developed and managed alongside local roads and other transport modes to facilitate general economic development and accommodate planned growth. Major growth without infrastructure investment will result in road networks becoming overloaded with traffic, with consequential impacts on road users, freight movements and on the environmental, social and economic wellbeing of communities and surrounding environments.

Transit supports economic growth and aims for consistency with RLTSs and statutory regional and local growth plans in the way it identifies network improvements and prioritises funding for state highways.

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#### **State highway design**

Transit recognises that state highways are important structural elements in many *urban*, *peri-urban* and *rural* environments and that the design of state highways has direct and indirect impacts on these environments. When considering the location and design of state highways and the treatment of surrounding areas Transit balances a wide range of competing interests.

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#### **Purpose of chapter**

This chapter sets out Transit's approach to the planning, development, funding prioritisation and design of state highways. It also considers the role of other transport providers in the development of an integrated transport system.

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## **3.2 State highway and local road networks**

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### **3.2.1 Introduction and issues**

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#### **State highways and local roads**

The state highway network managed by Transit is a key component of the land transport system and an asset of national importance.

The primary purpose of state highways is to provide for the needs of long distance traffic and freight travelling between and within major centres of population and to:

- major ports and airports;
- major industrial areas;
- major primary production areas; and
- major tourist areas and places of interest.

Most local roads are managed by local authorities and are the key component of local mobility and utility networks.

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#### **Transit's role**

The term “state highway network” is used in the PPM to include all roads operated by Transit. The Transit New Zealand Act 1989 (TNZA) states that all roads Transit operates are either “state highways” or “motorways”. A road is a state highway if it has been declared to be a state highway under the TNZA (or its predecessor). Transit may also request the Governor General to declare a road to be a motorway.

Transit has sole powers of control over state highways and motorways unless some or all of those powers are delegated to a territorial authority. The TNZA provides that Transit retains full power and control over state highway policy and financial responsibility, notwithstanding any delegations to territorial authorities<sup>1</sup>.

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#### **Motorways**

Motorway status has a number of specific implications<sup>2</sup> in relation to restrictions on access, road user modes and utility location. Transit has a high degree of control over all motorways. Generally motorways are categorised as *national* state highways to reflect their strategic importance.

Most motorways are designed to “traditional” motorway engineering standards – four or more lanes, often with central median strips and barriers, grade separated interchanges and 100km/h posted speed. However, this is not a legal requirement and Transit retains discretion over the design and form of motorways.

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<sup>1</sup> Transit New Zealand Act 1989 – section 66.

<sup>2</sup> Transit New Zealand Act 1989 – sections 76, 78, 82, 83 84 and 85.

## 3.2 – State highway and local road networks

<b>Expressways</b>	Transit uses the term “expressway” for certain state highways that are likely to become motorways in the future. Typically expressways are 80-100km/h <i>national</i> state highways with four lanes and well spaced at-grade intersections. Expressways are managed with a high level of access control typically by the use of segregation strips (refer section 5.2.4.7). However, describing a state highway as an “expressway” does not affect its legal status as a state highway.
<b>Road hierarchy</b>	The road hierarchy (refer Appendix 3A) is a useful tool for planning, managing and developing state highways and local roads and for guiding the interaction between the two. To maintain an efficient and safe network each level of the hierarchy ideally connects to other roads of that level, or one level above or below. In addition the hierarchy aids management decisions of road controlling authorities.
<b>State Highway Review</b>	Transit undertakes a review of the entire state highway network approximately every five years, in consultation with local road controlling authorities and other stakeholders. The State Highway Review specifically seeks to determine which roads should remain as state highways, whether any local roads should be declared to be state highways, whether any state highways or other roads should be declared to be motorways and, conversely, whether any state highway declaration should be revoked, in which case the road would become a local road. Transit can also consider these issues in relation to individual cases in the periods between State Highway Reviews.
<b>Road funding</b>	Local roads and state highways are funded differently. State highways are funded from Crown sources, whereas local roads are usually funded from a combination of Crown and local sources. It is essential that the local road network and the state highway system are developed together. Where one part of the system has not been sufficiently developed, the function of the whole system may be compromised.

## 3.2 – State highway and local road networks

<b>3.2.2</b>	<b>Network integration policy</b>
	<i>Transit will implement the Integrated Planning Policy by giving effect to this supporting policy:</i>
<b>Road hierarchies</b>	Transit supports the application of road hierarchies to assist the planning and management of road networks where these recognise the <i>national, regional</i> and <i>sub-regional</i> functions of different state highways.
<b>Local road networks</b>	Transit supports local road controlling authorities in developing local road networks that avoid the need for short local trips on state highways, especially <i>national</i> and <i>regional</i> state highways in <i>urban</i> and <i>peri-urban</i> areas.
<b>Motorways</b>	<p>Transit aims to ensure new <i>national</i> state highways are declared as motorway upon opening, including where the road is not constructed to “traditional” motorway engineering standards, and that existing expressways are declared as motorway at the most appropriate opportunity. In pursuing and prioritising motorway declaration, Transit considers the long term, strategic importance of a route as set out in the National State Highway Strategy, the access needs of adjacent land, the needs and safety of all road users and the cost effectiveness of the proposed declaration.</p> <p>Transit may seek declaration of other <i>national</i> state highways as motorway, particularly if they are under pressure for new accessways or intersections or are likely to be so in the future.</p>
<b>Expressways</b>	Transit manages other new or existing state highways as expressways to reflect their strategic importance and as a step towards motorway status in the future.
<b>State Highway Review</b>	Transit will review the composition of the state highway network at regular intervals to identify those roads that should be state highway and those that should be local roads.

### 3.2.3

### Methods

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The following methods will be used to deliver this policy:

1. Road hierarchies
  2. Motorways
  3. Expressways
  4. State Highway Review
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## 3.2 – State highway and local road networks

### 3.2.3.1

#### Method 1 – Road hierarchies

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##### **The purpose of road hierarchies**

Road hierarchies provide a classification system that typically covers all roads within a district. They differentiate roads by primary function and assist in the planning and management of the road network and surrounding land use. Under the road hierarchy concept, ideally each road should connect into roads at the same level in the hierarchy, or one above or below. Thus cul-de-sacs and local access roads should connect to the arterial network via collector roads. Transit accepts that this is not always possible, particularly in rural areas where there may be no roads other than the state highway.

State highways typically feature in the top tiers of a road hierarchy. An example of a road hierarchy is set out in Appendix 3A.

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##### **The road hierarchy and state highway categorisation**

State highway categorisation is a tool that Transit uses to manage different state highways differently, having regard to the national context. It differentiates between state highways by primary function and by the surrounding environment. It allows the planning and management of state highways to be done in a way that reflects local context.

State highway categorisation therefore provides a more detailed tool for Transit to manage state highway and land use integration, but is complementary to road hierarchies.

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##### **Road hierarchies in planning documents**

Transit will promote the use of the road hierarchy in the development of the road network. In particular, Transit will seek adoption of a road hierarchy that recognises the importance of state highways in regional policy statements, district plans, regional land transport strategies and other planning documents and processes such as local network planning. Transit will advocate for decisions consistent with the road hierarchy. Suggested policies for district plans are included in Appendix 4B.

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##### **Local road networks**

For growth and development likely to affect *national* and *regional* state highways, the application of the road hierarchy and the use of local roads to support development are particularly important.

In *urban* areas Transit will advocate for the use of existing local road networks to support development and in some areas these may need further improvement. For *peri-urban* areas, where significant growth is taking place or is reasonably foreseeable, there are opportunities to establish new local road networks to meet local transport requirements. Transit will work with its transport partners to realise these opportunities. In rural areas, where there are fewer opportunities for a network approach to planning, shared access or the provision of a service lane may be sufficient to meet the access needs of development.

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## 3.2 – State highway and local road networks

### 3.2.3.2

#### Method 2 - Motorways

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**Declaration of motorways**

The procedure for declaration of a motorway and the legal effect of a motorway declaration are set out in sections 71-87 of the TNZA, with additional detail in section 1.3 of the State Highway Control Manual (SM012).

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**Implications of motorway declaration**

Declaration of a new or existing state highway as motorway has significant implications for access, cyclists and pedestrian use. While greater control rests with Transit, there are also obligations on Transit, particularly at the time of declaring motorway status, which will affect how appropriate and cost-effective motorway status is:

- access to and from a motorway by a road or other accessway is legally restricted to those that have been specifically authorised by Transit;
- if the making of a motorway has cut off all road access to any land<sup>3</sup> or separated one piece of land of any person from another piece of land of that person, Transit is required to provide access to the land cut off or between the separated pieces of land. If Transit is satisfied that alternative access has become available to any such land, it may close any accessway provided by it on giving not less than three months notice in writing to the owner and occupier of the land affected. If the owner or occupier of land objects to any Transit decision regarding such provision or closing of an accessway and they cannot reach agreement with Transit over that objection the objection can be determined by the District Court;
- Transit is not under any obligation to provide access as a consequence of land being subdivided after the construction of the motorway;
- cycling is permitted on any parts of a motorway where cycling is approved by Transit<sup>4</sup>;
- Transit has a greater level of control over the actions of utility operators as no structure or thing can be placed on, over, or under a motorway without Transit's written consent<sup>5</sup>; and
- in general pedestrians are not allowed on a motorway. There are very limited exceptions to this, e.g. when people are on the motorway as a result of a crash, breakdown or other emergency.

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**Designation**

For new designations for state highways that will be declared as motorways upon opening, or may be declared as motorways in the future, Transit will ensure the designation is consistent with the wording set out in Appendix 3F.

For existing designations for state highways that may be declared as motorways in the future, Transit will review the designation at the time of district plan review to ensure it is consistent with Appendix 3F.

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<sup>3</sup> Other than Crown land.

<sup>4</sup> Transit New Zealand Act 1989 – section 83(6).

<sup>5</sup> Transit New Zealand Act 1989 – section 78.

## 3.2 – State highway and local road networks

### 3.2.3.3

#### Method 3 – Expressways

##### **Purpose of expressways**

A limited number of state highways are managed as “expressways”, which signals Transit’s long term intention to seek the declaration of the road as motorway. In the interim, describing and managing a state highway as an expressway indicates to road users that the strategic importance of the road is above that of an ordinary state highway. In addition it indicates to local authorities and landowners that Transit’s control over access is greater than for an ordinary state highway or a Limited Access Road state highway.

##### **Designation**

For new designations for state highways that will be managed as expressways upon opening or in the future, Transit will ensure the designation is consistent with the wording set out in Appendix 3F.

For existing designations for state highways that are or may be managed as expressways in the future, Transit will review the designation at the time of district plan review to ensure it is consistent with Appendix 3F.

##### **Access management**

All new state highways to be managed as expressways will preferably be designated as motorways, but otherwise must have segregation strips to control access from the outset.

Existing state highways that may be managed as expressways in the future, must have access controls, preferably segregation strips, but otherwise Limited Access Road status.

Refer to section 5.2 for further information on access controls.

*The Waikato Expressway – a key component of the national state highway network*





## 3.2 – State highway and local road networks

### 3.2.3.4

#### Method 4 – State Highway Review

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##### **Aims of the State Highway Review**

Transit will review the status of all state highways on a regular basis, approximately every five years. In doing so it will involve local authorities and key stakeholders.

The State Highway Review will consider:

- which state highways should remain state highways or be declared motorways;
  - whether any state highways should become local roads; and
  - whether any local roads should become state highways.
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##### **Review criteria**

The criteria to be used in undertaking State Highway Reviews are currently being updated to better reflect the purpose of the LTMA, the objectives of the NZTS and the NSHS.

However, ahead of the development of these updated criteria, Transit has identified some fundamental attributes state highways possess that will be reflected in the criteria. The revised criteria will reflect the purpose of state highways contained in the NSHS. They will also emphasise the importance of integrated planning by taking into account regional and local statutory planning documents where relevant.

As an example of the State Highway Review process, if as a result of a new bypass, a state highway has changed in function and is meeting primarily local needs it is generally appropriate to revoke its status as a state highway.

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### 3.3 Provision for multi-modal transport and freight

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#### 3.3.1 Introduction

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##### Context

State highways are part of a multi-modal, integrated transport system. Integration of different transport modes is a core part of the Government's policy for transport.

Section 3.2 sets out the role that state highways have as part of the road network, alongside local roads. While the state highway network inherently provides for private vehicles, this section provides Transit's policy and guidelines in relation to other components of the transport sector and in particular:

- walking and cycling;
  - freight; and
  - public transport.
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#### 3.3.2 Walking and cycling

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##### 3.3.2.1 Introduction and issues

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##### National walking and cycling strategy

Cycling and walking are common methods of travel for many New Zealanders who appreciate the health, financial and environmental benefits of these low-impact modes. Given the benefits, the government is keen to encourage more people to cycle and walk on a regular basis and has set out its approach for achieving this in the national walking and cycling strategy, *Getting There – on foot, by cycle - a strategy to advance walking and cycling in New Zealand transport*.

The strategy establishes the vision: 'A New Zealand where people from all sectors of the community walk and cycle for transport and enjoyment'. This vision is supported by three goals: 'community environments and transport systems that support walking and cycling, more people choosing to walk and cycle more often and improved safety for pedestrians and cyclists'.

Transit recognises its role in helping to deliver this strategy.

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##### Transit's commitment to walking and cycling

Transit considers walking and cycling matters when:

- participating in transport and land use planning processes;
  - developing all state highway improvement projects; and
  - managing the state highway network, particularly in relation to safety matters.
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## 3.3 – Provision for multi-modal transport

### **Prioritisation and state highway function**

In fulfilling its statutory objective, Transit must consider funding priorities and affordability when making decisions on all state highway maintenance and improvements including walking and cycling facilities. Transit also has a responsibility to maintain the functionality state highways provide, particularly to enable the efficient movement of people and goods. These objectives can pose challenges to creating a safe and supportive environment for pedestrians and cyclists (including powered cycles) and mobility devices.

#### **3.3.2.2**

#### **Walking and cycling policy**

*Transit will implement the Integrated Planning Policy by giving effect to this supporting policy:*

Transit is committed to providing and maintaining appropriate, safe and cost-effective walking and cycling facilities and traffic information and management techniques aimed at cyclists and pedestrians on state highways, especially where specific safety concerns exist and/or where state highways form part of the most appropriate route for these modes of travel.

Transit will fulfil this commitment by:

1. Working with local authorities, Land Transport NZ, other transport providers and representatives of cyclists, pedestrians and the disability sector to facilitate an integrated and affordable network approach to planning, providing and maintaining walking and cycling facilities, including provision for cycling and walking on and across state highways where appropriate.
2. Addressing walking and cycling requirements in its strategic transport planning, in its establishment of funding priorities, in its involvement in local and regional land use planning and at the outset of developing each state highway improvement project.
3. Seeking consistency between local and regional cycling strategies, the relevant provisions of regional land transport strategies and Transit's State Highway Forecast.
4. Delivering facilities for cyclists and pedestrians that represent engineering best practice, high quality urban design and value for money.
5. Recognising the particular requirements of different types of journeys such as commuting, school travel, short urban trips, recreational, tourist and racing. Recognising also that cyclists and pedestrians need to travel both along and across state highways.
6. Gathering data on the numbers of cyclists and pedestrians using the state highway network to enable targeted treatments to be implemented.
7. Maintaining an active network of walking and cycling champions in all Transit regional offices to consult with cycling and walking stakeholders and ensure the needs of these road users are addressed.

## 3.3 – Provision for multi-modal transport

### 3.3.2.3

#### Methods

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The following methods will be used to deliver Transit's policy on walking and cycling:

1. Engaging in network-wide walking and cycling strategies
  2. Providing for walking and cycling on and across state highways
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### 3.3.2.3.1

#### Method 1 – Engaging in walking and cycling strategies

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#### Partnership working

Transit will engage with local authorities, Land Transport NZ, other transport providers and representatives of cyclists, pedestrians and the disability sector in the planning and development of facilities for walking and cycling.

Transit will, as appropriate, participate in the development and delivery of local and regional walking and cycling strategies. These should ideally contain:

- an analysis of issues and options;
  - a vision and objectives;
  - proposals for the development of cycling and walking facilities over a 5-10 year period;
  - proposals for other measures such as education, information and enforcement;
  - arrangements for the funding and delivery of these measures;
  - proposals to use land use planning, including district plan policies and rules, as a mechanism for promoting walking and cycling in new development;
  - consultation arrangements and communication plans; and
  - performance measures, targets, monitoring and reporting responsibilities.
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### 3.3.3.4.2

#### Method 2 – Providing for walking and cycling on and across state highways

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#### Factors relevant to how Transit will cater for cyclists and pedestrians

How Transit caters for cyclists and pedestrians in a particular location depends on a range of considerations including:

- the category of state highway;
- surrounding land uses – existing and planned;
- the existing safety record;
- whether the state highway is existing or proposed;
- the numbers and specific needs of cyclists and pedestrians;
- available funding and funding priorities; and
- the approach taken by the relevant local authorities.

Appendix 3B provides an indication of the types of treatment that may be applied on different categories of state highway.

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### 3.3.3 Freight

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#### 3.3.3.1 Introduction and issues

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##### **The importance of catering for freight on state highways**

One of the key functions of state highways is to assist New Zealand's economic development and international competitiveness. This places a strong focus on the importance of catering effectively for freight. Transit's focus on maintaining the strategic function of *national* state highways in particular directly assists with meeting the needs of long-distance freight and providing access to ports and airports. However, increased numbers and weights of heavy vehicles on state highways can have significant congestion, safety, environmental and highway infrastructure impacts that need to be managed.

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##### **Predicted freight growth in New Zealand**

Freight makes up a significant and rapidly growing proportion of traffic on state highways:

- currently 1 in 6 vehicles on state highways is a heavy commercial vehicle (HCV) (i.e. exceeds 3.5 tonnes gross weight);
  - the volume of HCVs on state highways is growing at 5-6% per annum<sup>6</sup>;
  - research suggests freight will grow by around 85% by 2020<sup>7</sup>;
  - there will be increased carriage of freight by rail and coastal shipping – but this will only account for about 20% of the total freight to be transported and the largest part (80%) of freight movement will be by HCV (*ibid*);
  - by 2020 1 in 4 vehicles on NZ roads will be a HCV (*ibid*);
  - freight growth will be particularly significant in Waikato, Auckland, Bay of Plenty and Christchurch (*ibid*);
  - freight growth will have specific regional and local impacts, e.g. forestry;
  - there will be increasing pressure for greater vehicle mass limits, driven by productivity demands; and
  - likely structural changes internationally in freight services (e.g. larger containers, fewer ports) may place new requirements on the state highway network.
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##### **A multi-sector approach**

Catering for the volume and impacts of freight movements on the state highway network requires a multi-sector and multi-agency approach. For its part, Transit must ensure the state highway network is appropriate to meet the demands placed on it by HCVs and overall economic development requirements. However, a national strategic approach involving multiple agencies is required to ensure that expected freight growth is catered for by all modes in the most cost effective and sustainable way.

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<sup>6</sup> NSHS

<sup>7</sup> 'Prediction of New Zealand's freight growth by 2020' - Transport Engineering Research NZ 2006

## 3.3 – Provision for multi-modal transport

### 3.3.3.2

#### Freight policy

*Transit will implement the Integrated Planning Policy by giving effect to this supporting policy:*

Transit is committed to ensuring the state highway network supports and provides for the cost-effective and sustainable movement of freight within New Zealand by:

- participating in a comprehensive multi-agency approach to develop a national freight strategy that takes account of the impact of projected freight movements on the state highway network;
- contributing to land use planning processes and decisions that affect state highways and freight movement and growth;
- working with local authorities and other agencies in the development and delivery of multi-modal regional freight strategies;
- taking into account freight movements and regional freight strategies in the identification, planning, prioritisation and design of state highway projects including bypasses, passing and overtaking measures, rest areas, motorway service centres, weigh stations, effluent disposal sites and travel demand management measures (e.g. heavy commercial vehicle-only lanes);
- participating in discussions and joint projects with other freight carriers including rail and coastal shipping;
- emphasising safety in relation to heavy commercial vehicles and state highways;
- managing the impact of heavy commercial vehicles, increased mass limits and oversized vehicles on existing infrastructure; and
- collecting, monitoring and improving heavy commercial vehicle movement information and working collaboratively to forecast freight growth.

*Freight makes up a growing proportion of traffic on state highways*



## 3.3 – Provision for multi-modal transport

### 3.3.4 Public transport

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#### 3.3.4.1 Introduction and issues

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**Transit's role** Transit does not provide public transport services, although it has an important role to work with partner agencies to provide state highway infrastructure to support the operation of effective bus services. The state highway network also provides direct access to a number of key passenger transport terminals such as bus and rail stations and air and sea ports.

The main aim of Transit's support for public transport is to provide travel time benefits and improve travel time reliability for public transport, encourage modal shift from private cars and thereby reduce congestion on state highways.

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**A partnership approach** Transit helps facilitate the provision of public transport by providing infrastructure such as bus priority and bus stops on the state highway network. However, the operation of the bus services themselves is outside Transit's control. Transit's support of public transport must therefore always be part of a wider strategy for an area that considers land use planning, public transport infrastructure on local roads and the operation of the services themselves.

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**Delivering bus priority** Providing appropriate and effective bus priority measures in urban areas can be challenging. Where congestion is a problem over larger areas of the transport network for longer periods of time, it can be difficult to achieve continuous bus priority. Interruption to bus priorities can erode journey time benefits and reliability. This highlights the importance of collaboration and a co-ordinated approach between Transit and local road controlling authorities.

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**Impact of bus priority measures on general traffic** Bus priority measures suitable for use on the state highway network, particularly bus priority lanes created by reallocating existing road space, could potentially have an impact on general traffic. It is important to achieve the right balance between prioritising public transport and facilitating the efficient movement of all other traffic.

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**Achieving integration between modes** Where a change between bus services or different modes of transport is required for a particular journey, it is vital that the interchange is as convenient as possible if public transport use is to be encouraged. State highways may be able to contribute in the form of park and ride facilities, network connectivity and passenger information such as signage.

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## 3.3 – Provision for multi-modal transport

### 3.3.4.2

#### Public transport policy

*Transit will implement the Integrated Planning Policy by giving effect to this supporting policy:*

Transit aims to deliver a state highway network that contributes to reliable, integrated, safe and attractive public transport services. Transit will work with others to:

- help develop and deliver regional passenger transport plans and other public transport initiatives;
- increase priority for public transport on the state highway network by implementing bus priority lanes and other bus priority measures where appropriate; and
- facilitate safe pedestrian access to public transport services on or in the vicinity of state highways.

### 3.3.4.3

#### Methods

As supporting public transport is a key component of Transit's commitment to managing travel demand, the methods for the delivery of this policy are found in Transit's Travel Demand Management (TDM) Manual.



*Bus priority lane on State Highway 1, Auckland*



### 3.4 Development and funding of the state highway network

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#### 3.4.1 Introduction

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##### **Sustainable management of the state highway network**

A significant proportion of Transit’s business is concerned with maintaining the state highway network and this is subject to specific policy and funding arrangements that are outside the scope of the PPM. Transit also seeks to develop and improve the network through delivery of an annual programme of capital projects. These range from additional capacity in the form of large new sections of state highway, four-laning schemes, passing lanes and intersection upgrades to smaller scale projects such as safety improvements, travel demand management measures and information systems for travellers.

The development of the state highway network through the addition of capacity is consistent with sustainable management principles and the objectives of the NZTS and LTMA. Although Transit does not pursue a “predict and provide” approach to network development it is nevertheless crucial that prudent, selective investment in new capacity is undertaken, alongside travel demand management measures to increase the efficiency of the current network and encourage low impact travel behaviours.

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##### **Scope of section**

This section relates specifically to Transit’s capital programme for developing the state highway network. The first sub-section (3.4.2) sets out Transit’s policy and general approach to identifying projects and their scoping and early design. It also describes how these are developed into a programme and on how Transit seeks funding and prioritises in response to available resources. The second sub-section (3.4.3) describes in more detail Transit’s policy and approach for evaluating proposed new state highways such as bypasses, four-laning projects and for improving passing and overtaking opportunities on the *rural* and *peri-urban* network.

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## 3.4– Development and funding of the state highway network

### 3.4.2 Project identification, scoping, programme development and prioritisation

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#### 3.4.2.1 Introduction and issues

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##### **Integrated planning**

An integrated approach to planning requires the transport network to be developed to accommodate and facilitate planned growth. It is therefore important that procedures relating to developing and funding state highway projects are consistent with the outcomes and timing of land use planning processes whenever possible. Without this consistency, development may proceed without the infrastructure necessary to service it adequately.

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##### **Balancing all elements of Transit's statutory objective**

Transit's ability to reflect integrated planning outcomes in project prioritising and timing decisions is constrained by the need to balance all elements of its statutory objective. For example, Transit delivers an ongoing programme of safety improvements and maintenance activities, which account for a significant proportion of its operating budget. Identification of safety and maintenance projects is usually based on Transit's own data processes (e.g. data obtained on asset management, levels of service and crash statistics) rather than land use planning processes. Transit strikes a balance between these demands in developing its programme for investment, which is set out in the State Highway Forecast.

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##### **State Highway Forecast**

The State Highway Forecast (SHF) is the term Transit uses to describe its annual land transport programme for the delivery of capital projects, with expenditure, and for maintenance activities, which is a requirement the LTMA. The SHF also sets out Transit's planned projects, indicative projects and financial forecast for the next 10 years. The SHF is consulted on and produced annually.

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##### **Development of the SHF**

The process for including new capital projects in the State Highway Forecast is:

- identification of potential network improvements;
- project feasibility assessment; and
- project prioritisation.

An overview of the process for developing the SHF is provided in Appendix 3C. Detailed information is contained in Transit's Annual Plan Instructions Manual (SM018).

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### 3.4– Development and funding of the state highway network

#### **Funding availability**

Transit is allocated funding for investment in state highways via Land Transport NZ. All activities eligible for these funds must comply with Land Transport NZ's funding allocation process<sup>8</sup>, with large projects (over \$4 million) requiring further specific funding approval from Land Transport NZ.

Transit may also have the option of sourcing additional funds from tolling in specific cases and working in partnership with local authorities. Developer contributions may also be sought to mitigate adverse transport effects of development on state highways on a case-by-case basis.

#### **National priorities**

With a limited amount of funding there will inevitably be competition between different parts of New Zealand for available funds. RLTCs and RLTSs play an important role in determining local and regional priorities for funding, ideally within the context of an agreed regional growth strategy and associated funding plan. Transit takes account of RLTSs in developing the SHF, but also considers national as well as regional and local priorities when determining investment priorities and timeframes.

#### **Regional growth strategies and plans**

Transit's planning for state highway projects in a region is assisted if:

- a regional growth strategy has been developed that appropriately addresses the transport effects of growth and development; and
- that strategy is embedded in statutory documents and applied in regional and district level decision-making processes.

The recognition and application of these strategies and plans helps reduce the likelihood of unplanned development creating unexpected pressure points on the state highway network.

#### **Servicing transport demand**

Transit is committed to using funds prudently and achieving value for money. This is best achieved by pursuing a variety of measures ranging from maximising the efficiency of the existing network through travel demand management techniques (e.g. the promotion of public transport, car sharing, cycling and walking) and more efficient use of existing roadspace (e.g. bus priority lanes) to building new capacity (e.g. four-laning projects and bypasses). A strong focus on cost effectiveness determines that it is important to maximise the capacity of the existing network before investing in new network capacity.

#### **Project scope and stakeholder engagement**

Integrated planning plays a key role in delivering timely and affordable outcomes through ensuring comprehensive early scoping of projects and effective identification and management of stakeholder expectations. As far as practicable, all issues associated with a project need to be identified early and fully to ensure accurate cost estimation. Unforeseen cost increases make it harder to achieve project delivery, reduce certainty within the planning process and compromise value for money objectives.

<sup>8</sup> Refer [www.landtransport.govt.nz/funding](http://www.landtransport.govt.nz/funding) for details.

### 3.4– Development and funding of the state highway network

3.4.2.2	<p><b>Project identification, scoping, programme development and prioritisation policy</b></p>
	<p><i>Transit will implement the Integrated Planning Policy by giving effect to this supporting policy:</i></p>
	<p>Transit is committed to ensuring the state highway network is continually improved in a way that fulfils the objectives of the Land Transport Management Act, the New Zealand Transport Strategy and the National State Highway Strategy.</p>
<b>Project identification</b>	<p>Transit identifies potential improvement projects from a number of sources including land use planning processes, such as regional growth strategies and structure plans and network performance and safety data. For larger projects, Transit generally undertakes strategic studies to evaluate network deficiencies, the transport implications of land use change, the potential for a package of measures including projects undertaken by other parties, the feasibility of specific components of the package and broad design parameters for potential state highway projects.</p>
<b>Project scoping and high-level design</b>	<p>When scoping specific improvement projects and undertaking high-level design, Transit will:</p> <ul style="list-style-type: none"> <li>• consider a range of options for addressing the transport issue, including travel demand management, network optimisation and multi-modal solutions;</li> <li>• seek to ensure stakeholders’ issues and expectations are clearly understood at an early stage;</li> <li>• consider a range of environmental and social mitigation measures;</li> <li>• take into account long term maintenance implications; and</li> <li>• where consistent with legislation and the National State Highway Strategy and where affordable and reasonable, reflect stakeholder expectations in project design.</li> </ul>
<b>Programme development</b>	<p>When developing the list of state highway projects to be included in the State Highway Forecast, Transit will:</p> <ul style="list-style-type: none"> <li>• balance investment in the state highway network to address all elements of Transit’s statutory objective and the objectives of the New Zealand Transport Strategy and National State Highway Strategy;</li> <li>• take into account relevant regional land transport strategies and the National Energy Efficiency and Conservation Strategy;</li> <li>• consider projects that improve the efficiency of the existing state highway network, including those that create additional multi-modal capacity; and</li> <li>• take into account network investment needs identified in regional policy statements and district plans that have been developed in collaboration with Transit.</li> </ul>
<b>Prioritisation</b>	<p>Prioritisation of projects within the State Highway Forecast is undertaken in accordance with Land Transport New Zealand’s prioritisation process.</p>

## 3.4– Development and funding of the state highway network

### 3.4.2.3 Methods

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The following methods will be used to deliver this policy:

1. Project identification and scoping
  2. Prioritisation and programme development
  3. Regional network planning and implementation
- 

#### 3.4.2.3.1 Method 1 – Project identification and scoping

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##### Identification of potential projects

Potential state highway projects are usually identified from one or more of the following sources:

- RLTSs
  - regional growth strategies, strategic studies and structure plans (refer Appendix 3D for further information);
  - stakeholder consultation including discussion with RLTCs and local authorities;
  - projects arising from the need to mitigate adverse transport effects of cumulative land use development;
  - reviews of network operations, including analysis of safety record data;
  - accident reduction or network safety corridor studies; and
  - new/amended standards or legislative requirements (e.g. bridge strengthening requirements) that give rise to a need to retrofit the existing network to ensure compliance.
- 

##### Strategic studies

Strategic studies are normally led by Transit, but are generally undertaken in partnership with local authorities and other agencies. They have a land transport focus and are undertaken to complement integrated planning processes. Common aspects of strategic studies include the identification of:

- network deficiencies (usually involving transport modelling);
- growth and land use issues and pressures (current and foreseeable);
- preferred package(s) of solutions;
- initial assessment of project feasibility; and
- key design parameters (including route options where appropriate) to be reflected in potential projects.

Further detail on these studies is provided in Appendix 3D.

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##### Project development process

Potential improvement projects identified from one or more of the sources above will be developed through the following stages, which are sometimes run in parallel for large projects:

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## 3.4– Development and funding of the state highway network

**Table 3.4/1 – Project development phases**

Stage	Aim	Outcome
Project feasibility report (PFR) (may be undertaken as part of a strategic study, particularly for smaller projects)	Consider the feasibility and estimated costs of proposed project and any alternatives. Includes concept design of main route options.	Preferred option(s) prepared for inclusion in the SHF, along with cost estimate and initial benefit-cost ratio (BCR) calculation.
Investigation and reporting (I and R)	Undertake detailed investigation, which may include some preliminary design of preferred options covering engineering, economic, planning, environmental and social aspects of the project. Includes project consultation, preparation of AEE, issue of a notice of requirement to designate the land/route or alter an existing designation and sometimes application for regional resource consents. May include formal scoping report.	Designation obtained and a revised cost estimate/BCR calculated.
Design and project documentation (D and PD)	Undertake detailed design of project. Includes preparation of outline plan and any other resource consent documentation.	Project fully designed, consented and ready for construction. Revised cost estimate and BCR.
Construction including management, surveillance and quality assurance (MSQA)	Covers the tendering and construction of the project.	Construction complete

Detailed guidance on the above phases is provided in Transit’s State Highway Professional Services Contract Proforma Manual (SM030).

### **Project scoping and high-level design**

Scoping of the project features at various stages in the project development process and will consider a number of high-level design issues, including:

- Urban design aspects;
- Route options and vertical and horizontal alignment;
- Capacity;
- Design speed;
- Intersection spacing and design;
- Environmental standards and mitigation; and
- Appropriate provision for multi-modal transport.

For further detail on each of these design issues refer section 3.5, 3.4.3 and 3.3.

## 3.4– Development and funding of the state highway network

### Stakeholder expectations

Stakeholder engagement, in particular with local authorities and affected parties, is a key element in planning and scoping a proposed project. Transit seeks dialogue with stakeholders at an early stage in the project development process in order to identify and evaluate their concerns and expectations.

Engagement with stakeholders and identification of stakeholder expectations usually commences during the development of regional and local growth strategies, structure plans or in the preparation of strategic studies. Whether or not this is the case, Transit will seek and evaluate stakeholder expectations during the PFR phase, since significant changes in project design and cost estimates after the end of this phase may be difficult to accommodate and may therefore jeopardise the project. Further dialogue with stakeholders will continue during the I and R phase and beyond, but Transit's aim is to ensure that all key issues are identified prior to the completion of the PFR and the inclusion of the project in the SHF.

### 3.4.2.3.2

#### Method 2 – Project prioritisation and programme development

### Prioritisation

The prioritisation of new and existing projects for inclusion in the SHF occurs at several phases in the project development process. Prioritisation is undertaken in accordance with Land Transport NZ's prioritisation process<sup>9</sup>. In applying this process Transit will consider the extent to which each project:

- contributes to statutory and strategic objectives of Transit and relevant local authorities;
- contributes to RLTS priorities;
- generates effective transport linkages with local road networks and alternative modes;
- has involved and adequately reflects multi-disciplinary expertise and stakeholder/public interests;
- reflects a cost efficient and effective solution, having regard to the availability of alternative modal solutions; and
- reflects a context sensitive approach, including consideration of the environmental, social and aesthetic values of the local communities involved and the surrounding area.

### General approach to funding

Transit secures funding from several sources for the continual improvement of the state highway network. Each proposed project may include one or more of the following:

- National Land Transport Programme (includes National, Regional and Crown funding);
- local authority funding;
- contributions from developers to mitigate direct effects; and
- tolling.

<sup>9</sup> Land Transport NZ evaluate priority based on the project's seriousness, urgency, effectiveness and efficiency, as set out in the Economic Evaluation Manual (refer Land Transport NZ's website <http://www.landtransport.govt.nz/funding/manuals.html>)

## 3.4– Development and funding of the state highway network

**National Land Transport Programme** Transit’s main source of funding is from Land Transport NZ via the National Land Transport Fund. Land Transport NZ publish a National Land Transport Programme each year which shows projects it expects to fund in the coming year.

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**Local funding** In some circumstances it may be appropriate for local funding from a local authority to be applied to a state highway project. Where a local contribution has been agreed for a state highway project, Transit will encourage the local authority to embed this contribution into their LTCCP.

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**Contributions from developers** Transit will seek to share the cost of state highway improvements required as a result of new development with the developer(s) and other parties in accordance with Transit’s cost sharing policy (refer section 5.3).

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**Tolling** Transit will consider requesting the Minister to recommend to the Governor-General that a road tolling scheme be established to help fund a state highway project on a case-by-case basis.

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### 3.4.2.3.3 **Method 3 – Regional network planning and implementation**

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**Regional state highway strategies and network management plans** Transit’s strategic vision for the development of the state highway network over the next 30 years is set out in the NSHS. This includes concepts for the state highway network in selected regions.

The delivery of the NSHS will be supported by the development of a Regional State Highway Strategy (RSHS) for each of Transit’s regions or sub-regions. These will set out, in greater detail, Transit’s vision and proposals for the next 30 years. Projects identified within RSHSs for the first 10 years are included in the SHF.

RSHSs will be supported by Network Management Plans (NMPs) that describe Transit’s approach to management and maintenance of the network over similar timescales. Further detail on the scope of RSHSs and NMPs is provided in Appendix 3D.

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## 3.4– Development and funding of the state highway network

### 3.4.3 Network development

#### 3.4.3.1 Introduction and issues

##### Scope of this section

This section sets out Transit's approach to developing the state highway network in response to increased traffic flows, growing vehicle numbers, the increasing proportion of heavy commercial vehicles and the need for a safe and efficient state highway network. In particular it sets out policy on:

- identifying and constructing new state highways;
- four laning existing state highways; and
- improving passing and overtaking opportunities on two-lane state highways in *rural* and *peri-urban* areas with a posted speed limit of 100km/h, up to the point that four-laning is likely to be required.

##### Key issues

Transit's future development of the state highway network takes account of a number of key issues:

##### Projected traffic flows

As set out in section 2.1, significant growth in traffic is projected on the state highway network over the next 30 years. Traffic growth may be particularly high in geographical areas with high economic growth and development, and it is the role of integrated growth planning to anticipate transport demand and ensure adequate infrastructure is provided in these geographical areas. However, even outside growth zones there is projected to be a significant rise in traffic across the network as a whole.

As an example, the following table 3.4/2 sets out projected increases in traffic flows on two-lane state highways in *peri-urban* and *rural* areas:

**Table 3.4/2 - Indicative traffic flows over the next 25-30 years<sup>10</sup>**

Annual average daily traffic (vpd)	Current (2006) (km)	Next 25-30 years (km)
10,000-25,000	200	11,000
4,000-10,000	2,300	3,200
<4,000	7,500	5,600
<b>Total</b>	<b>9,900</b>	<b>9,900</b>

##### Current level of infrastructure

Currently, there are about 350 passing facilities on *rural* and *peri-urban* two-lane state highways (of which about 150 are slow vehicle bays and short passing lanes). This level of infrastructure is unlikely be able to accommodate the projected increase in traffic flows without major impacts on safety and efficiency of the network, and significant future investment in capacity, including passing and overtaking facilities, is likely to be required subject to availability of funds.

<sup>10</sup> Transit NZ projected flows 2006 to 2031

### 3.4– Development and funding of the state highway network

<b>Limited alternative sites</b>	The number of available sites for new facilities may be limited, for example by topography or the location of current accessways and intersections. It is important that a programme for introducing new passing facilities is supported by safeguarding of potential sites in the meantime.
<b>State highway categorisation</b>	State highway categorisation identifies a functional hierarchy for state highways. This is reflected in Transit’s prioritisation of routes and the level of infrastructure on state highways.
<b>Planning documents</b>	Where possible, it is important that Transit’s strategic approach to developing the network is reflected in the hierarchy of planning documents that can influence successful delivery. This includes regional policy statements, RLTSs and district plans.
<b>Minimising the effects of state highway development</b>	<p>Adding capacity to the state highway network can have adverse effects. These can be minimised by:</p> <ul style="list-style-type: none"><li>• ensuring that the range of treatments and measures are appropriate for the level of demand;</li><li>• improving operational efficiency of the existing state highway;</li><li>• staging network development to match traffic growth;</li><li>• minimising effects from adjacent land use;</li><li>• influencing driver behaviour; and</li><li>• managing high traffic demand at localised points.</li></ul>
<b>Nature and character of routes</b>	Transit’s network development planning covers a long term (25-30 year) time horizon. Where, during this period, the nature and character of the land surrounding a particular state highway changes, this will need to be reflected in the development of the state highway. Equally state highways are a resource under the RMA, and as such decisions on proposed development alongside state highways must take into account the nature and character of the state highway network.
<b>Staged development and inter-dependence of projects</b>	The state highway network needs to develop in stages. Safeguarding of a route is important if current and later stages of a long term plan are to remain deliverable. Furthermore, passing and overtaking projects are often interdependent (for example passing lanes at regularly spaced intervals). Inability to deliver one project can adversely affect later stages of the programme.

## 3.4– Development and funding of the state highway network

<b>3.4.3.2</b>	<b>Network development policy</b>
	<p><i>Transit will implement the Integrated Planning Policy by giving effect to this supporting policy:</i></p>
	<p>Transit aims to improve the efficiency, capacity and safety of the state highway network, in a cost effective way, by:</p> <ul style="list-style-type: none"> <li>• constructing new sections of state highway;</li> <li>• four-laning key sections of existing state highway; and</li> <li>• improving passing and overtaking opportunities on two-lane state highways in <i>rural</i> and <i>peri-urban</i> areas with a posted speed limit of 100km/h, up to the point when four-laning is likely to be required.</li> </ul>
<b>New state highways</b>	<p>Transit considers all proposals for bypasses and other sections of new state highways on a case by case basis. Indicative concepts for the next 30 years are identified in the National State Highway Strategy.</p> <p>The capacity of new sections of state highway will take into account factors including:</p> <ul style="list-style-type: none"> <li>• safety;</li> <li>• projected demand;</li> <li>• the expected outcomes of travel demand management initiatives;</li> <li>• the state highway category;</li> <li>• cost effectiveness and affordability; and</li> <li>• Transit’s Draft State Highway Geometric Design Manual (which suggests a design capacity that achieves level of service C in 25 years).</li> </ul>
<b>Four-laning</b>	<p>Transit considers all proposals for four-laning projects on a case by case basis. Indicative concepts for the next 30 years are identified in the National State Highway Strategy.</p>
<b>Passing and overtaking</b>	<p>On two-lane state highways in <i>rural</i> and <i>peri-urban</i> areas, up to the point when four-laning is likely to be required, Transit will:</p> <ul style="list-style-type: none"> <li>• retain and enhance overtaking opportunities at low traffic flows and in conjunction with passing facilities;</li> <li>• optimise the use of existing and proposed passing facilities in terms of design and location;</li> <li>• provide an intermediate treatment (e.g. 2+1 lanes known as continuous alternating passing lanes on flat and rolling road gradients) between passing lanes in series and four-laning; and</li> <li>• apply supporting treatments and measures that assist or act as alternatives to passing and overtaking treatments (e.g. resource planning, enforcement, education).</li> </ul>

## 3.4– Development and funding of the state highway network

### 3.4.3.3

#### Methods

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#### Network development methods

The following methods will be used in relation to network development:

1. Bypasses and other new sections of state highway.
  2. Four-laning.
  3. Provision for passing and overtaking.
  4. Accessway management.
- 

#### 3.4.3.3.1

#### Method 1 – Bypasses and other new sections of state highway

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#### General considerations

The NSHS sets out current proposals for where bypasses and other new sections of new state highway may be considered over the next 30 years.

In the future there may be a need to review these proposals and consider further additions to the state highway network, for example as a result of higher than anticipated economic growth or large scale development in particular locations. Transit will consider each proposal on a case-by-case basis, with particular regard for the extent to which it contributes to the objectives of the LTMA and NZTS and the delivery of the NSHS.

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#### Bypasses

Bypass proposals in particular will be considered in the light of a number of criteria (some of which are set out in the NSHS) including:

- the categorisation of the existing state highway;
  - whether the proposal is supported in the RLTS and any regional growth strategy;
  - the volume and proportion of through traffic;
  - the scale and frequency of traffic delays;
  - the extent and nature of economic, environmental and social effects;
  - the availability of cost-efficient and environmentally and socially acceptable alternative routes;
  - the safety of road users and the local community;
  - the cost effectiveness of the proposed bypass and the availability of third party funding under a cost sharing arrangement; and
  - the level of community and road user support.
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#### 3.4.3.3.2

#### Method 2 – Criteria for four-laning

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#### General considerations

The NSHS sets out current proposals for where four- (or more) laning of an existing state highway may be considered over the next 30 years. However, as for new state highways, there may be a need to review this programme over time, for example as a result of higher than anticipated economic growth or large scale development in particular locations. All current and new proposals will be assessed on a case-by-case basis. In doing so, Transit will have regard to a number of factors.

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## 3.4– Development and funding of the state highway network

### **Rural and peri-urban areas**

In *rural* and *peri-urban* environments, the need for four-laning will be considered primarily in relation to the category of state highway, projected vehicle flows, road terrain and consistency with the RLTS. In particular:

- on *national* state highways with flat road gradient, four-laning may be considered where traffic flow over the next 30 years is projected to be over 12,000vpd. However it will generally become a likely option where projected traffic flow is 20,000-25,000 vpd;
- on *national* state highways with rolling road gradient, four-laning may be considered where traffic flow over the next 30 years is projected to be over 10,000vpd. However it will generally become a likely option except where projected traffic flow is 20,000-25,000 vpd;
- on *national* state highways with mountainous road gradient, where four-laning is unlikely to be appropriate below 25,000 vpd and other measures such as passing lanes will be considered instead;
- four-laning is unlikely to be undertaken on *regional* and *sub-regional* state highways or where not supported by the RLTS; and
- where the length of state highway is short and a lower level of infrastructure would be markedly inconsistent with current or proposed adjoining sections of state highway.

### **Urban areas**

In *urban* environments, the need for four-laning will be considered in relation to a range of criteria and in particular:

- the category of state highway (four-laning is more likely on *national* than on *regional* or *sub-regional* routes);
- the extent to which the proposal has been developed as part of a multi-modal, multi agency integrated transport plan and its consistency with the RLTS, RPS and any relevant growth strategy or structure plan;
- the transport benefits of the proposal, including reduced congestion, journey time savings, reduced vehicle operating costs and increased safety;
- the extent to which the additional lanes could be reserved for buses and other high occupancy vehicles as part of a travel demand management approach; and
- the economic, social and environmental benefits and costs and in particular the impact of four-laning on community cohesion and urban form.

### **3.4.3.3**

#### **Method 3 – Provision for passing and overtaking**

### **Passing and overtaking strategy**

Each *rural* and *peri-urban* two-lane state highway is subject to one of four passing and overtaking “strategy types”. Selection is based primarily on projected traffic flows and road gradient, as follows:

## 3.4– Development and funding of the state highway network

**Table 3.4/3 - Summary of passing and overtaking strategy types**

Strategy types	Summary of passing and overtaking treatments for each strategy type A range of supporting treatments and measures are also applied, depending on strategy type	Typical 25-30 year projected traffic flow where each strategy type applies (vpd)	
		Flat road gradient	Rolling or mountainous road gradient
<b>Overtaking</b>	<ul style="list-style-type: none"> <li>• Sight distance improvements</li> <li>• Overtaking enhancements</li> <li>• Possibly, isolated short passing lanes, slow vehicle bays, shoulder widening or crawler shoulders.</li> </ul>	Less than 4,000	Less than 2,000
<b>Mainly overtaking</b>	<ul style="list-style-type: none"> <li>• Sight distance improvements</li> <li>• Overtaking enhancements</li> <li>• Some short passing lanes, slow vehicle bays, shoulder widening or crawler shoulders, possibly “in series” (i.e. regular and frequent).</li> </ul>	4,000-5,000	2,000-4,000
<b>Passing and overtaking</b>	<ul style="list-style-type: none"> <li>• In series passing lanes.</li> <li>• Overtaking enhancements.</li> <li>• Crawler lanes, where appropriate.</li> </ul>	5,000-12,000	4,000-10,000
<b>Passing</b>	<ul style="list-style-type: none"> <li>• 2+1 lanes on flat/rolling road gradients (subject to comparison with four-lanes).</li> <li>• Passing lanes in series on mountainous road gradients.</li> </ul>	12,000-25,000	10,000-25,000

Other factors such as the proportion of HCVs may also influence the strategy type that is appropriate for a particular section of state highway.

### Treatments and measures

State highways covered by each passing and overtaking strategy type will be considered for a range of treatments and measures to improve passing and overtaking opportunities. These fall into four main categories:

- overtaking treatments (e.g. sight distance improvements);
- passing treatments (e.g. passing lanes);
- supporting treatments (e.g. clear zones); and
- supporting measures (e.g. management of direct access).

Appendix 3E and Transit’s Passing and Overtaking Guidelines provide more detail on all aspects of Transit’s approach to passing and overtaking.

### 3.4.3.3.4

#### Method 4 – Accessway management

### Management of accessways

Transit is particularly concerned that new accessways to and from the state highway should not compromise future plans to introduce four lanes or passing and overtaking treatments. Proposed accessways or the increased use of existing accessways at particular locations, such as near to the tapers of existing and proposed passing lanes or near the end of existing overtaking zones, can represent an unacceptable safety hazard and may also make it unviable to implement any proposed network development projects at that location. This may in turn have effects at “downstream” locations, causing additional adverse effects, and may compromise the passing and overtaking strategy type for a significant stretch of state highway. Transit’s policy on accessway management is set out in section 5.2 of the PPM.

### 3.5 State highway design principles

#### 3.5.1 Introduction and issues

##### Design as an integrated planning issue

The design of a state highway project has a strong bearing on the extent to which integrated planning objectives are met. Strategic discussions with partners undertaken as part of planning exercises need to consider not just the presence or absence of state highways, but also factors such as their route, capacity, speed and urban design principles. These considerations are vital not just to inform land use planning, but also to achieve integration within the land transport sector.

Key design issues that must be considered at an early stage in the planning of a state highway project and why they are important are set out below:

Design issue	Relevance to integrated planning
Capacity	<ul style="list-style-type: none"> <li>• Cost</li> <li>• Level of congestion, journey times, safety</li> </ul>
Urban design	<ul style="list-style-type: none"> <li>• Cost</li> <li>• Environmental and social effects including amenity values</li> </ul>
Route and alignment	<ul style="list-style-type: none"> <li>• Cost</li> <li>• Noise and other environmental and social effects</li> <li>• Energy consumption</li> <li>• Community severance</li> <li>• Safety (operating speed and sight distances)</li> </ul>
Speed management	<ul style="list-style-type: none"> <li>• Design requirements and therefore cost</li> <li>• Journey times (compared to other routes)</li> <li>• Network efficiency and safety</li> <li>• Noise and other environmental and social effects</li> </ul>
Intersection spacing and design	<ul style="list-style-type: none"> <li>• Cost</li> <li>• Demand for short, local trips</li> <li>• Network efficiency</li> <li>• Noise and other environmental and social effects at intersections</li> <li>• Induced development pressure and travel demand</li> <li>• Safety</li> </ul>
Environmental standards	<ul style="list-style-type: none"> <li>• Cost</li> <li>• Environmental and social effects including amenity values</li> </ul>

Section 3.5 contains policy and guidance on each of these design issues except for the design capacity of new state highways, which is addressed in the network development policy in section 3.4.3.

## 3.5 – State highway design principles

**Cost** Transit’s ability to improve the network is determined by the level of funding. Transit strikes a balance between the benefits of particular design features and their cost in order to achieve value for money.

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**Stakeholder expectations** In designation and resource consent processes, Transit may be requested to include certain features within the design of a state highway project by local authorities, other agencies, interest groups or members of the public. As set out above, Transit balances these requests with any additional costs and benefits that may result. This balance is influenced by the category of the state highway within the state highway categorisation system

For example, the number of intersections designed into a state highway project will have a strong bearing on the way the road is used and will require a balance to be struck between the needs of through traffic and the access needs of local communities. The number of intersections is likely to be fewer on new *national* than *sub-regional* state highways.

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### 3.5.2 Urban Design

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#### 3.5.2.1 Introduction and issues

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**New Zealand Urban Design Protocol** Transit, as a signatory to the New Zealand Urban Design Protocol (the Protocol), is committed to planning and delivering quality urban design. State highways play a key role in contributing to the quality and character of urban and rural environments. Transit’s primary contribution to achieving the objectives of the Protocol is a state highway network that achieves a high level of functionality while at the same time supports a high quality natural, built and social environment.

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**What is urban design?** Urban design involves the design and placement of buildings, roads and open spaces in towns and cities to create desirable places in which to live, work and play. On a large scale it is concerned with urban and rural structure, the pattern of buildings, open space and movement networks. On a small scale, it is concerned with urban and rural character and function and how roads, open spaces and buildings interact, appear and function.

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**What urban design is not** Urban design is not just about the aesthetic characteristics of roads and the introduction of public art and sculpture. These may contribute to good urban design, but the concept is more fundamentally concerned with the structure, character and function of urban and rural areas.

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## 3.5 – State highway design principles

### **How urban design assists Transit**

The application of urban design principles assists Transit in the identification and evaluation of key issues early in the project development process. This allows Transit to identify scope and funding needs more accurately in the planning phase of a new state highway project, which is an essential prerequisite for cost efficiency and effectiveness. On existing state highways there may be limited opportunity to fulfil the objectives of the NZ Urban Design Protocol and each initiative will be considered on a case-by-case basis.

One of the objectives of this focus on urban design is the achievement of an affordable state highway network that New Zealanders can be proud of in the future. However, there are many challenges involved in fulfilling this objective, including that many of the benefits of good urban design accrue in the long term.

### **State highway categorisation and urban design**

State highway categorisation helps deliver urban design by allowing the planning and construction of state highways to reflect local context. It also requires this emphasis on local context to be balanced with the need to maintain the primary function of the state highway concerned.

For example, where the state highway forms the main street in a small town, it will be designed and managed in conjunction with the local community and may contain features to aid connectivity and town centre vibrancy such as traffic calming or controlled pedestrian crossings.

### **Partnership and cost sharing**

Good urban design can only be achieved by working in partnership with local authorities, other agencies and communities. A number of urban design components are outside of Transit's mandate as an infrastructure provider, or may not be appropriate for Transit to seek funding for as part of a state highway project. In these situations Transit looks to its transport and planning partners to share or meet the costs involved.

*Urban design is concerned with issues such as connectivity*



## 3.5 – State highway design principles

3.5.2.2	<p><b>Urban design policy</b></p> <p><i>Transit will implement the Integrated Planning Policy by giving effect to this supporting policy, which relates to the contribution made by state highways to urban and rural form and amenity. Transit’s policy on seeking to influence land use planning as part of an urban design approach is set out in Chapter 4.</i></p> <p>As a signatory to the New Zealand Urban Design Protocol Transit plans and design state highways in a way that supports good urban design and value for money. In particular, Transit aims to:</p> <ul style="list-style-type: none"> <li>• ensure state highways contribute to vibrant, attractive and safe urban and rural areas; and</li> <li>• achieve integration between state highways, local roads, public transport, cycling and walking networks and the land uses they serve.</li> </ul>
<b>Urban design implementation principles</b>	<p>Transit will apply its Urban Design Implementation Principles to all state highway activities:</p> <ol style="list-style-type: none"> <li>1. Appropriate urban design needs to be determined on a case-by-case basis for state highway improvement activities. Each activity is different and should not be assumed to be a precedent for the next.</li> <li>2. Urban design elements need to be incorporated into the activity at the outset. This will help ensure the project design addresses urban design in an efficient and cost effective manner.</li> <li>3. Urban design will not represent an extravagant use of public funds. Urban design initiatives should not attempt to ‘disguise’ a road, rather they should enhance its integration with the surrounding environment.</li> <li>4. Early collaboration with local stakeholders will occur to promote alignment between urban design initiatives of Transit and the views of affected communities.</li> <li>5. Co-funding of urban design initiatives with local stakeholders will always be considered. Where a local community desires a higher level of urban design than Transit provides, Transit will seek the cost of the higher level outcomes from local stakeholders.</li> <li>6. Urban design will be consistent with the operational requirements of state highways, while recognising the needs of motorists, pedestrians, cyclists and surrounding communities. State highway categorisation has a key role to play.</li> <li>7. All components of urban design will be considered when incorporating urban design into state highway activities. Urban design can contribute to: <ul style="list-style-type: none"> <li>• assisting economic development;</li> <li>• improving safety and personal security for all state highway users;</li> <li>• improving access and mobility for motorists, pedestrians, cyclists and passenger transport;</li> <li>• protecting and promoting public health through the state highway being appropriately integrated with an interconnected road network; and</li> <li>• ensuring environmental sustainability through appropriate use of materials and influencing surrounding land use development.</li> </ul> </li> </ol>

## 3.5 – State highway design principles

### 3.5.2.3

#### Method

#### Urban design method

To achieve Transit’s urban design policy outlined above, as it relates to the design of state highways, Transit will:

1. use the Transit Urban Design Professional Services Guide PSG/12 (contained within the State Highway Professional Services Contract Proforma Manual SM030) to implement urban design in the various stages of each Transit project.
2. seek early collaboration with local stakeholders to promote alignment between Transit’s urban design initiatives and the views of affected communities.
3. seek cost sharing of urban design initiatives with relevant local authorities and other stakeholders to maximise opportunities to improve urban and rural environments, multi-modal transport opportunities and visual quality and character.
4. consider all environmental treatments (such as stormwater facilities), features to facilitate economic development (such as access to urban centres), engineering factors (such as road design being safe and functional) and facilities to address social requirements (such as community cohesion, providing pedestrian and cycling linkages) in the design of a state highway project from the outset. Guidance on detailed design issues is provided in the Urban Design Professional Services Guide PSG/12.

### 3.5.3

#### Route and alignment

#### 3.5.3.1

#### Introduction and issues

#### Impact of route and alignment

The route and horizontal and vertical alignment of a new or improved state highway have a major bearing on the project’s economic, environmental and social impacts. Typical impacts are shown in the following table:

Impact	Route	Horizontal alignment	Vertical alignment
Cost of project	✓	✓	✓
Operational costs including time savings	✓	✓	✓
Safety		✓	✓
Cut and fill	✓		✓
Carbon and other emissions from vehicles	✓		✓
Ecological, culture and heritage impacts	✓	✓	✓
Urban design, including visual quality, noise, vibration and community cohesion	✓	✓	✓

## 3.5 – State highway design principles

### State highway categorisation

The category of a state highway will influence the choice of route and alignment. It will generally be important to reduce journey times on *national* state highways by providing relatively direct, level roads. Conversely, *sub-regional* state highways generally carry less traffic and it may be more appropriate to design *sub-regional* state highways with steeper gradients and less direct routes.

Route choice and alignment will also need to be undertaken particularly carefully in urban and peri-urban areas because of the number of sensitive adjoining land uses that are likely to be affected and the strong influence transport has on urban form.

### Balancing objectives

There is often a tension between reducing the environmental and social effects of a particular route choice and alignment and its cost. Avoiding community severance, for example, may entail a longer route with additional cost and an increase in the environmental impact of construction.

In other cases there may be a conflict between different environmental and social objectives. For example, allowing steeper gradients may reduce the amount of cut and fill required, but may increase the carbon and other emissions from vehicles using the state highway. Transit seeks an appropriate balance between these factors.

#### 3.5.3.2

#### Route and alignment policy

*Transit will implement the Integrated Planning Policy by giving effect to this supporting policy:*

The design of state highway improvements will consider route choice and vertical and horizontal alignment options in relation to state highway categorisation and other issues including:

1. **physical parameters** including topography, surface water and groundwater, geophysical conditions, natural hazards and land use;
2. **environmental and social considerations** including effects on land use in the vicinity, effects on employment opportunities and patterns, community cohesion, noise, vehicle emissions, heritage buildings and landforms, culturally significant locations, visual quality, ecologically sensitive areas and cut and fill balance;
3. **economics** including potential project benefits, property acquisition and construction costs, utility impacts, operating and maintenance costs;
4. **safety** including clear zones, sight distances and consistency of alignment; and
5. **other design factors** including level of service, design speed, design standards, expected vehicle mix and whether median strips will be required.

## 3.5 – State highway design principles

### 3.5.3.3 Route and alignment method

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The following manuals provide guidance on delivering the policy above:

Factors	Manual
Engineering	Draft SHGDM
Design speed	Section 3.5.4 PPM
Urban design/community severance	Section 3.5.2 PPM
Noise	Environmental Plan
Air quality	Environmental Plan
Culture and heritage	Environmental Plan
Ecological resources	Environmental Plan
Visual quality	Environmental Plan
Climate change adaptation	Transit's climate change webpage

### 3.5.4 Speed

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#### 3.5.4.1 Introduction and issues

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##### **The role and effect of speed**

Vehicle speed on state highways and land use are closely interrelated. The speed of traffic influences urban amenity and the safety of direct property access. Changes to posted speed limits influence land use, especially adjacent to state highways and equally changes in land use can require speed limits to be reviewed.

Transit recognises the role that the design speed of new and improved roads and the setting of speed limits on new and existing state highways has on land use, but must balance these effects with other factors such as safety and efficiency. In particular high speed environments help to allow people and freight to travel faster to their destinations with consequent social and economic benefits. Time savings are an important factor in the economic evaluation of road projects.

Conversely, the costs of road construction can increase rapidly as design speed increases. In addition, there are some circumstances where reduced speeds can improve network efficiency by stabilising flow and increasing effective capacity. High vehicle speeds can have a number of environmental and social consequences including noise and community disruption. Importantly, higher speeds can lead to increases in the numbers and/or severity of road crashes, particularly where design and posted speed limits have been exceeded.

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## 3.5 – State highway design principles

### **Influencing operational speed**

Operational speed (the speed that vehicles actually travel at) is determined by a number of factors including:

- the design speed of the road (curve geometry, gradient, camber, width, sight distances etc);
- the posted speed limit;
- roadway features including physical measures (e.g. speed humps, curb extensions, edge lines etc) and visual treatments (e.g. roadside driver information, warnings and advisory speed signs);
- the surrounding environment and in particular the nature of roadside development and access and provision of roadside parking;
- levels of congestion;
- levels of speed limit enforcement;
- general driver education and driving habits; and
- vehicle technology.

### **Further guidance**

Guidance on speed issues can be found in the following documents:

- The geometric requirements for a particular design speed are set out in the Draft SHGDM.
- Rules on the setting of posted speed limits are set out in NZ Land Transport Rule: Setting of Speed Limits 2003.
- Transit's policy on influencing the nature of surrounding land use is set out in Chapters 4 and 5 of the PPM.
- Transit's policy on driver information is contained in the draft VMS guidelines and MOTSAM.
- The use of speed advisory signs is specified in the LTNZ Traffic Control Devices Rule 2004.
- Transit's policy on the construction of new capacity to address congestion issues is set out in sections 3.3 and 3.5.4 of the PPM.

## 3.5 – State highway design principles

<b>3.5.4.2</b>	<b>Speed policy</b>
	<i>Transit will implement the Integrated Planning Policy by giving effect to this supporting policy:</i>
<b>Influencing operational speed</b>	Transit influences the operational speed of state highways by: <ul style="list-style-type: none"><li>• setting posted speed limits;</li><li>• selecting a design speed for new and improved state highway projects;</li><li>• implementing traffic calming measures;</li><li>• implementing accessway controls (refer section 5.2); and</li><li>• working with other agencies to influence surrounding land use, enforce speed limits and educate drivers and other road users.</li></ul>
<b>Setting posted speed</b>	Transit sets the posted speed limits for state highways in accordance with the New Zealand Land Transport Rule: Setting of Speed Limits 2003.
<b>Design speed</b>	Once the posted speed limit for a new state highway has been set in accordance with the above process, Transit will normally use a design speed that is the same as the posted speed limit. However, there may be factors that justify a design speed that is lower than, or up to 10% above, the posted speed limit, including: <ul style="list-style-type: none"><li>• for projects to improve existing roads, where the 85<sup>th</sup> percentile operational speed is lower than the posted speed limit, design speed may be based on the 85<sup>th</sup> percentile operational speed;</li><li>• topographical or other factors may indicate that a lower design speed will reduce harm for users or be more cost effective; or</li><li>• it may be necessary to harmonise design speed with adjacent sections of the state highway to achieve network continuity and avoid surprises for road users.</li></ul>

## 3.5.5 Intersection spacing and design

### 3.5.5.1 Introduction and issues

#### The importance of intersections

The spacing of intersections along a state highway can affect a number of land use and transport planning objectives by influencing:

- the ability of local communities/traffic to access the state highway network and therefore the extent to which it is used for short, local trips;
- development pressures in close proximity to the state highway;
- the safety and network efficiency of the state highway and local transport networks.

Intersection spacing and design can also significantly affect project costs for proposed state highway projects, particularly given the substantial cost of constructing interchanges. Spacing and design decisions may therefore be a key determinant of the viability of a proposed state highway project.

## 3.5 – State highway design principles

### Effects of intersections

Intersections with state highways can significantly influence land use patterns, transport networks and the environment by:

- **potentially affecting the safety and efficiency of traffic movements on state highways through traffic conflicts and “side friction”.** Each intersection on a state highway introduces conflict and friction into the traffic stream. Accordingly new intersections, or significant increases in the use of existing intersections, can create a higher potential for crashes and longer travel times due to traffic delays. Conversely, a state highway with few intersections can lead to additional travel for some local residents in order to access the state highway.
- **improving the accessibility of surrounding settlements and properties.** The desire for improved connectivity and accessibility and the associated economic benefits will often drive a local community’s preference for frequent spacing of intersections on state highways. However, this is generally likely to result in the state highway being used as a local road for short trips creating interrupted flow conditions. In addition, new intersections can induce pressure for ad hoc development, often in *rural* and *peri-urban* locations.
- **influencing traffic volumes on local road networks.** The number of local traffic movements on state highways is affected by the number of intersections with local roads. Appropriately spaced state highway intersections are more likely to meet the needs of both local traffic and through traffic.
- **influencing environmental conditions.** Intersections may have localised environmental effects such as noise associated with acceleration and deceleration of traffic and visual intrusion in the case of grade separated interchanges.

### Balancing local connectivity with network safety and efficiency

As a result, when determining the spacing and design of intersections, there is a need to balance local connectivity, safety, network efficiency and social and environmental objectives. Decisions on the design and spacing of intersections will be strongly influenced by the state highway categorisation. On *national* state highways the priority will generally be to maintain the through flow of long distance traffic and will discourage short local trips. This is likely to lead to fewer intersections, particularly in *urban* and *peri-urban* areas. Conversely it will be appropriate to accommodate more intersections on *regional* and *sub-regional* state highways, which have a greater local access role.

### Intersection design

The design of an intersection can have a strong bearing on the impact it has on travel patterns, the local community and the environment. Intersections can be at grade (e.g. signalised junctions, unsignalised junctions, roundabouts, signalised roundabouts), or grade separated. The type of intersection will influence its capacity, the efficiency of turning movements and the safety for users. While grade separated intersections have many benefits, particularly in creating free flowing traffic conditions, due to their nature and size can adversely affect amenity values in urban areas and therefore need to be carefully designed and located.



## 3.5 – State highway design principles

<b>3.5.5.2</b>  <b>Intersection spacing</b>       <b>Intersection design</b>	<b>Intersection spacing and design policy</b>  <i>Transit will implement the Integrated Planning Policy by giving effect to this supporting policy:</i>  Transit will determine intersection spacing on state highways on a case-by-case basis, following an assessment of criteria including: <ul style="list-style-type: none"><li>• key transport outcomes from growth strategies and Transit’s strategic studies;</li><li>• the state highway category;</li><li>• anticipated safety issues on the state highway and connecting local road(s); and</li><li>• anticipated project costs, available funding options and affordability.</li></ul> The design of intersections will be determined on a case by case basis following consideration of a number of criteria including: <ul style="list-style-type: none"><li>• motorway intersections will normally be grade separated;</li><li>• grade separated interchanges will also be considered on other <i>national</i> state highways in major <i>urban</i> areas;</li><li>• traffic signals and roundabouts will normally be restricted to <i>urban</i> and <i>peri-urban</i> locations where posted speeds are 80 km/h or less; and</li><li>• all intersections will be designed with particular regard to:<ul style="list-style-type: none"><li>- safety;</li><li>- cost;</li><li>- capacity and network efficiency;</li><li>- the needs of cyclists and pedestrians; and</li><li>- environmental and social impacts.</li></ul></li></ul>
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### 3.5.5.3

#### Methods

#### Intersection spacing and design methods

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Transit will use the following methods to deliver its intersection spacing and design policy:

1. Intersection spacing - detailed assessment criteria
  2. Intersection design
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## 3.5 – State highway design principles

### 3.5.5.3.1

#### Method 1 – Intersection spacing - detailed assessment criteria

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##### Assessment criteria

Transit will determine the appropriate spacing of intersections on state highways by considering a number of factors including those listed below:

1. The categorisation of the state highway.
  2. Consistency with relevant planning documents, including RLTSs, regional growth strategies, RPSs, district plans and any structure plans.
  3. Consistency with Transit's NSHS and future upgrading plans for the state highway.
  4. The access controls on the state highway – whether it is a motorway, expressway, bypass and/or Limited Access Road.
  5. The affordability of the intersection.
  6. Consistency with the applicable road hierarchy.
  7. How the intersection will affect road safety.
  8. The level of development likely to take place and the future transport demand that would create on the intersection.
  9. The projected operating demand on the state highway and approach roads and whether the intersection would significantly compromise average vehicle speeds, cause delays, or compromise or enhance the effectiveness and efficiency of public transport services.
  10. The cumulative effects of the intersection relative to the number and location of existing state highway intersections. This may include consideration of any network management plans and regional state highway strategies in place for existing sections of the state highway.
  11. The views of affected communities, landowners and occupiers, local authorities and other key stakeholders.
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### 3.5.5.3.2

#### Method 2 – Intersection design – sources of guidance

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##### Intersection design – sources of guidance

Transit will design intersections based on the policy set out above. Further guidance is to be found in the Draft SHGDM and Austroads publications.

Guidance on the specific requirements of cyclists and pedestrians in relation to intersections can be found in the Austroads Guide to Engineering Practice Part 13 – Pedestrians and Part 14 – Bicycles and the New Zealand Supplement.

Guidance on minimising visual intrusion, noise and other potential adverse effects of intersections can be found in the Environmental Plan.

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## 3.5 – State highway design principles

### 3.5.6 Environmental standards

#### Environmental and social responsibility

Transit is committed to exhibiting a sense of social and environmental responsibility in meeting its statutory objective. Transit's policy and guidelines on avoiding, remedying or mitigating adverse environmental and social impacts of the existing state highway network and new road construction, are set out in the Environmental Plan.

Integrated planning has an important role in achieving good environmental and social outcomes. Transit recognises that the way the state highway network is developed and in particular how new projects are planned and constructed, has a direct impact on environmental quality and social wellbeing.

#### Sources of policy and guidance

The following table sets out where particular policy and guidance on managing environmental and social issues associated with state highways can be found:

Environmental/social issue	Source of policy and guidance
Overarching Environmental Policy	Environmental Plan
Noise	Environmental Plan Appendix 6 to 1999 PPM
Air quality	Environmental Plan
Water resources	Environmental Plan
Community cohesion	Environmental Plan
Culture and heritage	Environmental Plan
Ecological resources	Environmental Plan
Resource efficiency	Environmental Plan
Climate change adaptation	Transit's climate change webpage
Visual quality	Environmental Plan
Landscaping	Guidelines for Highway Landscaping
Community uncertainty from potential state highway projects	Section 3.6 PPM
Community severance (minimising effect of state highways)	Section 3.5 PPM
Urban design (contribution of state highways)	Section 3.5 PPM Transit's urban design webpage

#### Project development

Transit ensures social and environmental issues are addressed in an affordable manner when developing projects through the use of a Social and Environmental Management System. The approach to social and environmental management adopted by Transit is detailed in the State Highway Professional Services Contract Proforma Manual (SM030) Appendix 01 Z/19 Social and Environmental Management.

### 3.6 Land and route protection

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#### 3.6.1 Introduction and issues

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##### **Coordinating long-term transport provision with land use change**

Regional and local growth strategies will typically provide a framework for growth and development over a long time period (20-30 years). A key objective of such strategies is the delivery of transport infrastructure in time to support planned development. The NSHS also adopts a long term view for the development of the state highway network.

This long term approach means that both development and supporting transport infrastructure may be planned many years before they are delivered. This long term planning often extends beyond Transit's 10-year funding framework for major investment in state highways.

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##### **Safeguarding**

Once the need for and approximate alignment of, a future road or road upgrade are known, it is often important that the required land is "safeguarded" – i.e. protected from incompatible development until the road/upgrade can be built. Development on land required for the road may lead to sub-optimal route choice, reverse sensitivity effects and/or significant increases in cost in order to acquire the land required for the project and provide additional mitigation. It may even make the road project undeliverable, thus compromising the success of integrated planning.

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##### **Designation**

Designation of the land required for a future road project in a district plan under the RMA provides a mechanism for Transit to safeguard the land, while at the same time securing authorisation to construct the project and assisting the Crown to exercise land acquisition powers if necessary. Designations for future road projects can have a long lapse period (up to 30 years or more), providing long term protection. However, many have much shorter lapse periods and sometimes just the statutory default lapse period of five years. Designations with short lapse periods provide less certainty for all parties.

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##### **Stage at which a designation is sought**

Normally designations are sought when Transit has developed a project to a significant level of design detail. Having such a level of detail allows the environmental effects of a project to be assessed accurately.

This detail may not be available at an early stage of a project, as funding for detailed design is typically not available until the project is in the State Highway Forecast. However, obtaining a designation early in the project lifecycle may be possible, particularly where the intention to pursue that project is already recognised in regional or territorial authority planning documents. It may be advisable to seek such an "early designation" where there is significant development pressure in the surrounding area.

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## 3.6 – Land and route protection

<b>Land acquisition</b>	Advanced land acquisition provides another mechanism of safeguarding the land required for future road projects. While the Crown can purchase land on the open market it can be more difficult for the Crown to exercise powers to compulsorily acquire land if no designation for the project is in place and Transit generally does not request the Crown to do so.
<b>Planning documents</b>	Once a proposed road project has been identified in consultation with local authorities and the RLTC, embedding it in the relevant regional policy statement, RLTS, district plan and LTCCP will help to safeguard the required land. In particular, regional policy statements and district plans can contain policies and rules that restrict incompatible development on the route and seek to ensure that development adjacent to the required land is compatible with the long term operation of a state highway.
<b>Potential effects of identification of future road projects</b>	<p>When the intention to pursue a road project is recognised in local authority planning documents or the land has been designated:</p> <ul style="list-style-type: none"><li>• the value of land adjacent to the land required for the project may fall due to perceptions of the potential environmental impacts of the project when it is constructed (although land values may rise elsewhere as a result of expectations that the project will be constructed);</li><li>• there may be a disincentive for the owners of the land that has been identified for a future road project to invest in improvements; and</li><li>• in addition, where the land has been designated, landowners and occupiers require Transit’s prior written consent before doing anything that would prevent or hinder the project.</li></ul>
<b>Reducing uncertainty</b>	Conversely, safeguarding the land required for a road project through the designation process reduces uncertainty over the proposed route and alignment. It is also an indication of Transit’s commitment to a project, which can help to reduce community uncertainty.
<b>Future-proofing</b>	When safeguarding the land required for a future road project it is important that a wide enough strip of land is protected to accommodate uncertainties in alignment, possible future requirements such as the need for additional road space for multi-modal transport (e.g. bus lanes), any land required for the construction of the project and any land required for environmental mitigation measures and safety measures such as clear zones. It may also be appropriate to seek to designate additional land “ <i>where a restriction is reasonably necessary for the safe or efficient functioning or operation</i> ” of the project. <sup>11</sup>
<b>Limited Access Roads and segregation strips</b>	The future status of a state highway as motorway, Limited Access Road and/or the purchase of additional non-designated land for a segregation strip, are considered in the early stages of planning a new state highway (refer sections 3.2 on motorways and 5.2.4.7 on access management).

<sup>11</sup> Section 168(2)(b) RMA.

## 3.6 – Land and route protection

<b>3.6.2</b>	<b>Land and route protection policy</b>
	<i>Transit will implement the Integrated Planning Policy by giving effect to this supporting policy:</i>
<b>Recognition in planning documents</b>	Transit seeks early identification of proposed new state highways or significant improvements to existing state highways in regional and district planning documents to identify and protect the land.
<b>Designation</b>	<p>All existing and new state highways are to be designated, unless there are exceptional circumstances that make it inappropriate to do so.</p> <p>Transit will obtain statutory authorisation for the land use element of proposed road projects from designations. Designations for limited purposes, such as “investigation” purposes only, will not be pursued.</p> <p>Transit will lodge a notice of requirement for a new designation or to amend an existing designation for the purposes of a proposed road project around five to seven years before the expected start of construction. However, where there is considered to be a significant risk that the land required may be compromised by new development before the project can be constructed, earlier designation will be considered.</p> <p>Transit seeks designation lapse periods long enough to cover the period from inclusion of the designation in the relevant district plan to the project becoming operational. Often this will be longer than the statutory default lapse period of five years.</p> <p>Designations will seek to accommodate foreseeable future improvements to the road as well as those that will be undertaken when the project is first constructed.</p> <p>At each district plan review Transit will review existing designations and seek to designate any part of the state highway network that is currently not designated.</p>
<b>Advanced land acquisition</b>	Transit will typically initiate land acquisition around two to four years before the expected start of construction. However, where the land is considered to be under significant threat from incompatible development earlier land acquisition will be considered.
<b>Minimising uncertainty</b>	Transit will generally only seek to protect land required for a road project where it is confident the project is reasonably likely to proceed to implementation.

## 3.6 – Land and route protection

### 3.6.3

### Methods

#### Safeguarding and designation methods

Transit will use the following methods to deliver its land and route protection policy:

1. Safeguarding tests
2. Identification of the land required for road projects in planning documents
3. Designation
4. Land acquisition

#### 3.6.3.1

#### Method 1 – Safeguarding tests

#### Reducing uncertainty and providing value for money

Protection of land required for a road project can cause uncertainty for landowners and occupiers particularly where the project is not likely to be constructed for many years. In addition, there may be additional costs when safeguarding land, resulting from earlier design work and land purchase. For these reasons Transit will generally only seek to protect land where the project is reasonably likely to proceed to implementation. Transit will therefore apply the following safeguarding tests:

Before taking action to protect the land required for a particular project:

- 1 Transit will undertake a risk assessment to evaluate the likelihood that the land required for the project will be compromised by incompatible development. The risk assessment will consider development trends and district plan rules relating to development in the area.
- 2 Transit will discuss the proposed project with local authorities, preferably in the context of a district or regional growth strategy or Transit strategic study.
- 3 Community views will be canvassed, normally as part of consultation associated with the RLTS and other planning documents. There will also be preliminary discussions with potentially affected landowners.
- 4 Transit will ensure that the project meets the objectives of the NZTS and LTMA and is likely to do so in the future; and
- 5 Transit will aim to minimise risks to the delivery of proposed projects through adequate early stage scoping and investigation. This will include, in particular, assessment of:
  - geotechnical conditions to identify risk factors;
  - the factors requiring resource consent from the regional council (for example stormwater drainage); and
  - Maori and heritage interests, through early discussions with relevant iwi and hapu and the Historic Places Trust.

## 3.6 – Land and route protection

### 3.6.3.2

#### Method 2 – Identification of routes in planning documents

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##### **Multi-agency support for projects**

Transit's commitment to integrated planning means some of its proposed road projects evolve from discussions with local authorities and RLTCs over future growth as well as from discussions with developers. Land Transport NZ is also likely to have been engaged in discussions over funding.

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##### **Recognition in planning documents**

Once the concept of a proposed project has been developed in consultation with such agencies it is important that all agencies do what they can to assist project delivery. In particular, Transit will seek recognition of projects in:

- RLTSs;
- regional policy statements and regional coastal plans;
- district plans;
- structure plans (where developed); and
- LTCCPs and annual plans.

Doing so will demonstrate the multi-agency commitment to seeing the project progress, which should help reduce uncertainty for the local community. Transit will seek inclusion of projects in planning documents even if the likelihood that the required land will be compromised by incompatible development is low.

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##### **Planning policies and rules**

When seeking recognition of and provision for a proposed road project in regional policy statements, regional and district plans Transit will seek objectives, policies and rules that:

- protect the land required for the project from incompatible development; and
- reduce reverse sensitivity effects by imposing appropriate standards and conditions on development in the vicinity of the required land.

A number of tools are available and currently used for achieving this, including:

- lines on plan maps indicating the possible alignment of proposed roads;
- specific zoning of proposed roads;
- rules that limit development on the protected land, or restrict it to temporary activities; and
- appropriate zoning of land in the vicinity of proposed roads.

Appendix 4B contains suggested policies and rules for use in regional policy statements, regional coastal plans, other regional plans (where appropriate) and district plans.

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## 3.6 – Land and route protection

**Plan reviews** Policy statement and plan provisions that recognise and provide for proposed road projects will be reviewed as the policy statements/plans themselves are reviewed. As part of this process, Transit will reassess the likelihood of the project proceeding with particular reference to the safeguarding tests set out in Method 1.

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### 3.6.3.3 Method 3 – Designation

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**Designations** Transit's preferred tool for protecting the land required for a proposed road is designation under the RMA. Designation performs a number of very important functions for Transit, including:

- 1 it prevents any person from doing anything in relation to the designated land that would prevent or hinder the project without first obtaining Transit's written consent;
  - 2 it provides the RMA land use authorisation for Transit to construct, operate and maintain the state highway;
  - 3 it assists the Crown, on request from Transit, to exercise powers under the Public Works Act 1981 to compulsorily acquire land required for the project if needed;
  - 4 it triggers the provisions in s185 of the RMA whereby owners of designated land (or land that is subject to a notice of requirement for a designation) can apply for an Environment Court order requiring the Crown to purchase their land;
  - 5 it provides the opportunity to manage or avoid reverse sensitivity issues by signalling Transit's intention to undertake the proposed project to landowners/developers; and
  - 6 it informs the local community of Transit's intentions in a transparent way.
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**RMA requirements**

The requirements of the RMA and the procedures that Transit, as a requiring authority, follows in order to secure and maintain designations are set out in Appendix 3F. Further information is also available on the Quality Planning website [www.qualityplanning.org.nz](http://www.qualityplanning.org.nz).

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**Designation lapse period**

Transit will seek designation lapse periods long enough to cover the period of time from inclusion of the designation in the relevant district plan to the project becoming operational.

The default lapse period of five years provided for in section 184 of the RMA will not normally be sufficient, even for projects where early designation is not being pursued. This is because the lapse period needs to cover the period prior to construction, the construction period (sometimes several years) and a buffer period to allow for delayed commencement or completion of the construction works.

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## 3.6 – Land and route protection

<b>Level of detail</b>	Where early designation is sought, Transit may not be in a position to provide the level of detail typically provided to support a notice of requirement. Under these circumstances, Transit will discuss with the territorial authority the level of detail that can reasonably be provided to support a notice of requirement and that which may be reserved for the outline plan process.
<b>Lapsing</b>	Where it becomes apparent that a designation for a proposed project is likely to lapse before the project has been completed Transit will aim to secure an extension of the lapse period from the territorial authority and will need to demonstrate that “ <i>substantial progress or effort has been made towards giving effect to the designation and is continuing to be made</i> ” <sup>12</sup> . Whether “ <i>substantial progress or effort</i> ” has been made will be decided on a broad common sense review of all the circumstances and is a matter of fact and degree. <sup>13</sup>
<b>Rollover and updating</b>	<p>When a district plan is reviewed Transit must advise the territorial authority whether it requires the state highway designations in that district plan to be included in the proposed plan, with or without modification. Further, if a territorial authority proposes to publicly notify a proposed plan within 40 working days of receipt of a new notice of requirement for a state highway designation it can, with Transit’s consent, include that requirement in the proposed district plan.</p> <p>In general, the district plan review process provides an opportunity for Transit to review the existing and proposed state highway network in that district and seek the most appropriate method of protection for the network and land required for any proposed road projects. Transit will aim to designate any parts of the state highway network that are not designated through the district plan review process, including roads that have recently been declared state highways, unless there are exceptional circumstances that justify not doing so.</p>
<b>Outline plans</b>	<p>When required under the RMA, Transit will submit outline plans of its proposed projects to the relevant territorial authority prior to commencement of construction. Section 176A(3) RMA specifies what information must be shown in an outline plan. The amount of information needed depends on the amount of detail that was incorporated in the original notice of requirement and assessment of environmental effects.</p> <p>Where a designation for a project was obtained early in the project’s lifecycle, the outline plan may need to contain significantly more information than it would have if the designation had been obtained later. Where a project has changed considerably since a designation was obtained Transit may need to seek an alteration to that designation or possibly a new designation. Throughout the lifecycle of a project Transit reviews whether the designation needs to be amended or replaced and whether an outline plan is needed.</p>

<sup>12</sup> Section 184(1)(b) of the RMA

<sup>13</sup> *Ashburton BC v Clifford* [1969] NZLR 927;

## 3.6 – Land and route protection

### Designation width

In determining the width of the area of land to be designated, Transit will consider a range of issues, including:

- the width required for the proposed carriageway and shoulder, verges, clear zones, embankments and cuttings, bridges and other structures;
- the extent of any land required for the implementation of environmental mitigation measures such as noise bunds or setbacks, landscaping or stormwater treatment facilities;
- uncertainties over the final alignment of the road;
- the possibility that the road will need to be widened in the foreseeable future or that additional facilities will be required such as passing lanes, slow vehicle bays, priority lanes, cycleways and footpaths; and
- the extent of any additional land required for the construction of the project.

Seeking to designate a large area of land can increase project costs and create uncertainty for landowners and the community. It may also require acquisition of land that is not ultimately needed for the project. A balance is therefore required in determining the optimum area of land to be designated. However, if land is available at little additional cost wider designations are preferred to future-proof the route.

Guidance on selecting designation width is provided in Appendix 3F.

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### Designation of additional land for limited purposes

It is also appropriate to consider designation of additional land “*where a restriction is reasonably necessary for the safe or efficient functioning or operation*”<sup>14</sup> of the project, such as clear zones.

Designation of additional land for limited purposes will usually not impose significant limitations on the use of the land. The use of “limited” designations is common for such purposes as maintaining safe airspace around commercial airports. Transit may use such limited designations to enhance safety and provide for environmental mitigation. Designating land adjacent to a state highway to prevent non-frangible structures, fences and vegetation establishing, or to protect sight lines are examples. The SHGDM gives detail on the need for and size of clear zones.

Transit will not normally purchase land subject to a limited designation, as use of the land will not normally be unduly restricted.

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### Removal of designations

Where all or part of a designation becomes redundant, either because the route has changed or the project will not be built or because part of the land designated was solely required for construction purposes, Transit will generally remove the redundant part(s) of the designation. However, the decision to remove all or part of a designation will be based on the safeguarding test in Method 1.

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<sup>14</sup> Section 168(2)(b) RMA.

## 3.6 – Land and route protection

### 3.6.3.4

#### Method 4 – Land acquisition

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##### **“Just in time” land acquisition**

Transit’s policy on land acquisition is set out in its Property Policy and Information Manual. The policy is to normally request the Crown to acquire land for a project approximately four years in advance of construction. This allows sufficient time for a voluntary acquisition process to be pursued and for compulsory acquisition powers to be used if necessary. This “just in time” approach reduces uncertainty for landowners and occupiers.

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##### **“Early” land acquisition**

Where the land required for a project is considered to be at risk from incompatible development, it may be in Transit’s interests to consider requesting the Crown to acquire the land earlier in the project life cycle. “Early” acquisition can have a number of benefits:

- the land comes under Transit’s control earlier, which protects it from incompatible development;
- purchase of land demonstrates Transit’s commitment to a project, which can assist Transit in obtaining a designation/resource consents for the project;
- under RMA provisions, ownership of all land to be designated can assist the designation process; and
- there may be cost savings in areas where land value is likely to escalate rapidly.

Transit will consider early land acquisition, as part of a wider strategy to protect the land required for a particular project, where it is affordable and one or more of these circumstances exist.

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##### **Land acquisition by territorial authorities**

There are circumstances where a territorial authority owns or is in a position to acquire land required for a proposed state highway project or a component of the local road network that supports the project. In particular, the territorial authority may acquire land required to connect a proposed state highway project to the local road network or for a multi-modal facility such as a park and ride facility or cycle path. Transit encourages such acquisition where it protects the required land and will seek a written agreement with the territorial authority outlining respective obligations.

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##### **Land acquisition prior to designation**

Where acquisition of land required for a proposed project is pursued prior to a designation being obtained, it is best obtained by voluntary agreement as it is more difficult for the Crown to exercise compulsory acquisition powers. Even where land required for a project is available by voluntary agreement, Transit may not be in a position to request the Crown to purchase that land due to funding constraints.

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