

3

THE STRATEGIES TO DELIVER

3A ENCOURAGING MULTI-MODAL TRAVEL

This section sets out the various areas where Transit has a role in encouraging the use of multi-modal travel. Transit's principal involvement is to provide facilities on the state highway network that make it more attractive, easier and convenient to choose to travel by modes other than the single occupant car. This work therefore is primarily about widening travel options for more journeys across the network and encouraging maximum use of those travel options, for example, via facilities such as Auckland's Northern Busway.

The other involvement Transit has is to encourage and support our key partners who have responsibility for providing transport services and facilities to develop policy and carry out their functions in a way that fully supports New Zealand's travel demand management and wider sustainable transport objectives. This work includes collaborating with partners to implement network wide multi-modal transport projects to contribute towards these objectives.

This section considers each travel mode in turn giving guidance on:

- a. when to consider and implement the measure as part of state highway works;
- b. responses to policy consultation by partners; and
- c. responses to resource consent applications when consulted as an affected party.



3.1 PUBLIC TRANSPORT, PARK AND RIDE AND INTERCHANGES

3.1.1 Introduction

Public transport, park and ride and interchanges – context

Public transport has a major role to play in offering a more sustainable travel option to that of the single occupant car and can contribute to reduced dependence on the car. To achieve this role, it needs to be able to compete viably with the car and be seen as an attractive alternative.

Facilitating improvements for public transport will benefit the state highway network.

Improved performance of public transport has the potential to encourage a shift from the private car. Less cars on the network, particularly in congested areas and at peak times, means potential journey time savings both for public transport and the remaining vehicles using that section of state highway.

Multi-modal interchanges are primarily facilities that provide for easy and quick transfer both between and within transport modes. In order to be effective they need to be easily accessed by various modes of travel.

In working with the relevant bodies to provide park and ride or kiss and ride sites are also most effective where they have direct and quick access from high flow commuter routes can be key to maximising effectiveness. The benefits include enabling drivers to avoid congestion problems downstream, usually a town or city centre, and the difficulty and expense of parking in a central area. From Transit's perspective, this can mean less car trips and hence reduced congestion on particularly busy sections of state highway.

3.1.2 Transit's role in public transport, park and ride and interchange provision

Transit's role in this aspect of travel demand management

Transit has no direct responsibility for providing public transport services. This function lies with regional councils and ARTA. Transit therefore needs to involve these parties at an early stage of any public transport related project. Transit does however, have a role in providing the appropriate supporting infrastructure, operating and maintaining it, and so assisting local authorities in promoting the attractiveness and improving the efficiency of public transport. In doing so, the main aim is to provide travel time benefits through faster and more reliable journeys. Similarly, the provision of public transport interchange facilities and park and ride sites are not part of Transit's core business. However, there may be instances where Transit is able to contribute to and participate in the delivery of such schemes.

Transit's involvement in supporting public transport takes a number of forms:

- Through provision of new facilities on the state highway that will improve the reliability, reduce journey time and increase the overall attractiveness of public transport. Examples are the provision of bus priority lanes, shoulder bus lanes, busways and queue management systems;
- Working with partner transport agencies to assist in developing and implementing bus priority, public transport interchanges, park and ride facilities and improving integration with the rail network where these are integral to the state highway network;
- Participating in local and regional policy development; and
- Commenting as an affected party under the resource management process.

3.1.3 Objectives

TDM objective for public transport

Transit's policy for public transport is set out in the Planning Policy Manual (section 3.3). The objective for public transport in relation to travel demand management is:

To provide a state highway network and participate in public transport strategy development in a way that contributes to a reliable, integrated, safe and attractive public transport system that offers a viable alternative to travel by car, particularly for commuter trips during peak periods.

TDM objective for park and ride and interchanges

The objective for park and ride and public transport interchanges is:

To ensure every opportunity where Transit can assist in providing an interchange or park and ride facility that will potentially benefit the state highway network via congestion reduction, is identified and carefully considered.



3.1.4 Implementing the Public Transport, Park and Ride and Interchange Objectives

To achieve the above objectives Transit will:

1. Work with other transport agencies and providers to identify where the state highway network can contribute to improving public transport services and options and participate in the development of regional and/or local public transport strategies.
2. Promote and increase priority for public transport on the state highway network by implementing the following measures where affordable and appropriate:
 - Busways
 - Guided busways
 - Bus priority lanes
 - Queue management systems
 - Selective vehicle detection
 - Bus build-outs, clearways and bus boxes
 - Bus related infrastructure to provide connectivity to the local roading network including bus interchange facilities, lay-bys and hard standings.
3. Provide safe pedestrian, (and cycle where appropriate), access to public transport services on or in the vicinity of state highways.
4. Support access and mobility via passenger transport by ensuring all state highway shoulders, where suitable and required for the purpose, are distinctively marked in accordance with an agreed code, for buses, and where practicable, for high occupancy vehicles.
5. Ensure adequate provision for bus services where they operate on the state highway network while highway works are carried out either for the purposes of maintenance or new construction.
6. Work with partner agencies to assist in providing appropriately located park and ride and interchange facilities through operational partnering arrangements, or licensing or leasing of land to support on-highway priority facilities where this will widen travel choice, provide benefits for the state highway network and contribute to a wider integrated transport plan for an area.
7. Support and encourage the development of regional policy on developing park and ride and interchange facilities.

3.1.5 Public transport, park and ride, and interchange options

The following gives an indication of the main methods that can be employed to help promote and prioritise public transport on the state highway network. The methods outlined are direct interventions (usually physical works) Transit can introduce on state highways. There are a number of other, “softer” methods that Transit can use to contribute to promoting public transport. Details of these are covered elsewhere in this document, for example in the Travel Planning section. The list of measures identified in this section should not be considered exhaustive, but rather provide an indication of the main types of intervention that Transit will consider.

Importance of package approach

While each measure is described individually, it is likely greatest benefits will be derived where a package approach is taken along a corridor or route. An example is a combination of park and ride, bus priority lanes, queue relocation and junction priorities along a corridor.

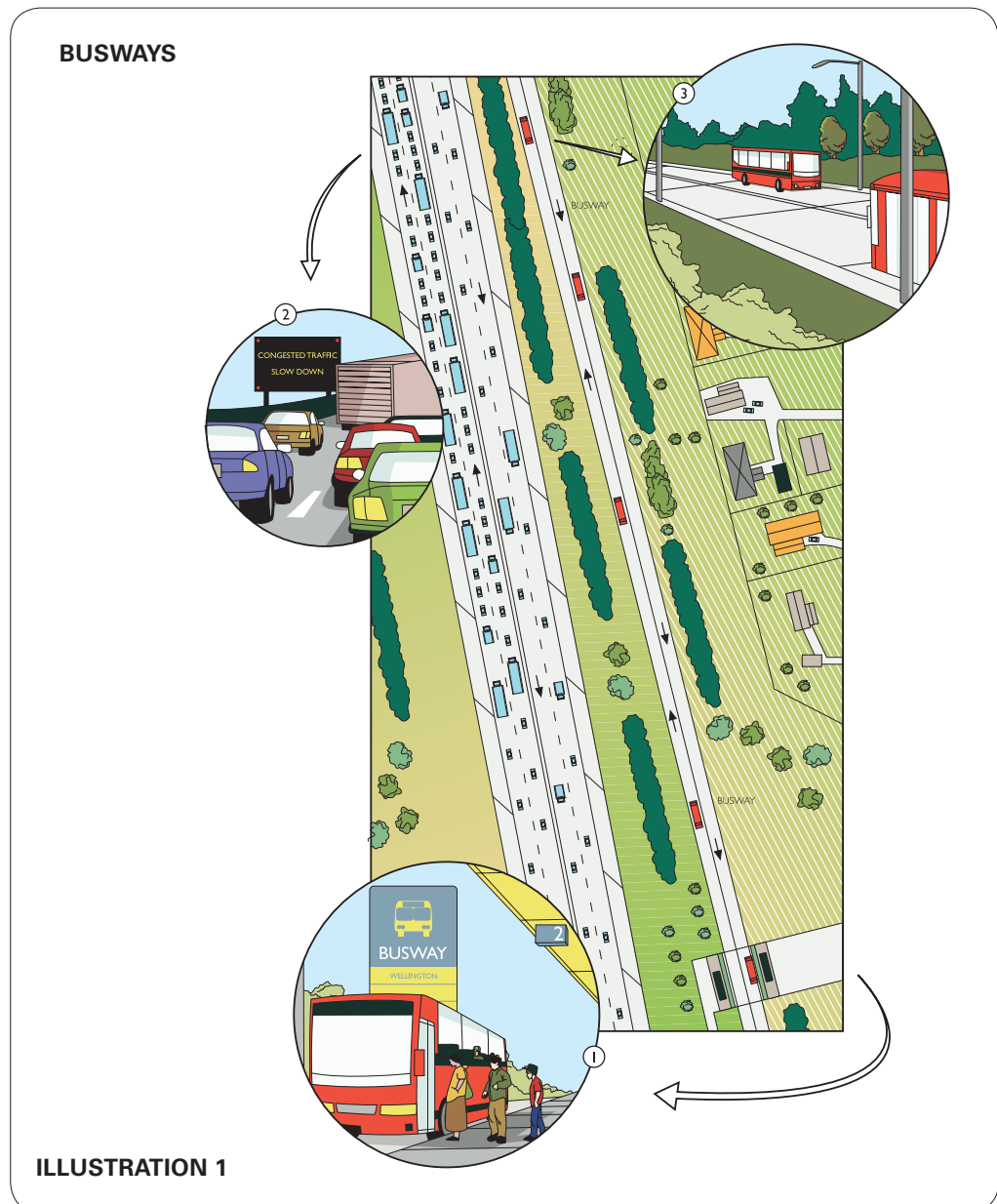
Continuity of facility

Bus priority facilities need to be continuous if they are to be effective. Any interruption has the potential, in some instances, to erode journey time benefits and undermine the entire priority scheme. They also need to be continuous across both state highway and local road networks. This highlights the importance of collaboration and a co-ordinated approach between Transit and other venture partners if we are to achieve journey time benefits of a scale to induce modal shift. Other aspects that need to be addressed are the balance between prioritising public transport and facilitating the movement of other traffic, and providing information to ensure people know what public transport is available for their journey and how to access it.

Busways

Busways (Illustration 1) are a segregated section of carriageway for bus use only. Through this complete segregation from general traffic they can provide effective prioritisation. This level of prioritisation gives effect to bus rapid transit. Studies have found that bus rapid transit has the potential to generate high ridership growth.





For example, between 2002-3 and 2003-4 ridership on the core Brisbane South East Busway increased by 8%¹ while patronage for most of the remaining Brisbane bus services increased by only 2%² thus achieving growth four times higher for busway related services. Similarly,

44% of people parking and riding and using the Northern Express in Auckland used to drive by car³.

Much of this increase can be attributed to an increase in bus frequencies as the busway project develops, however the quality and 'express' nature of the service will also play a part in boosting patronage.

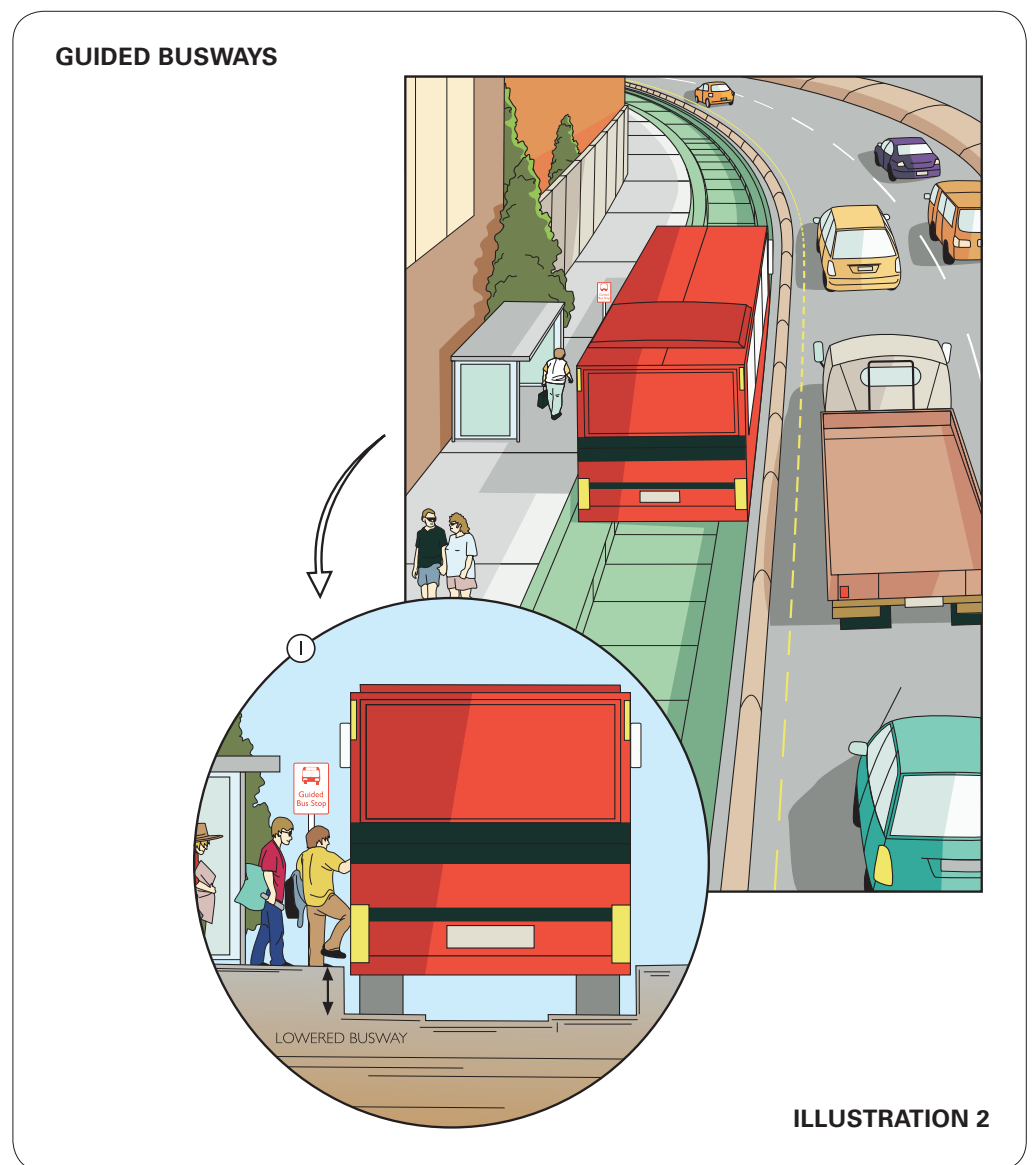
1 Queensland Transport 2004

2 Brisbane Transport 2003, 2004

3 Auckland Regional Transport Authority

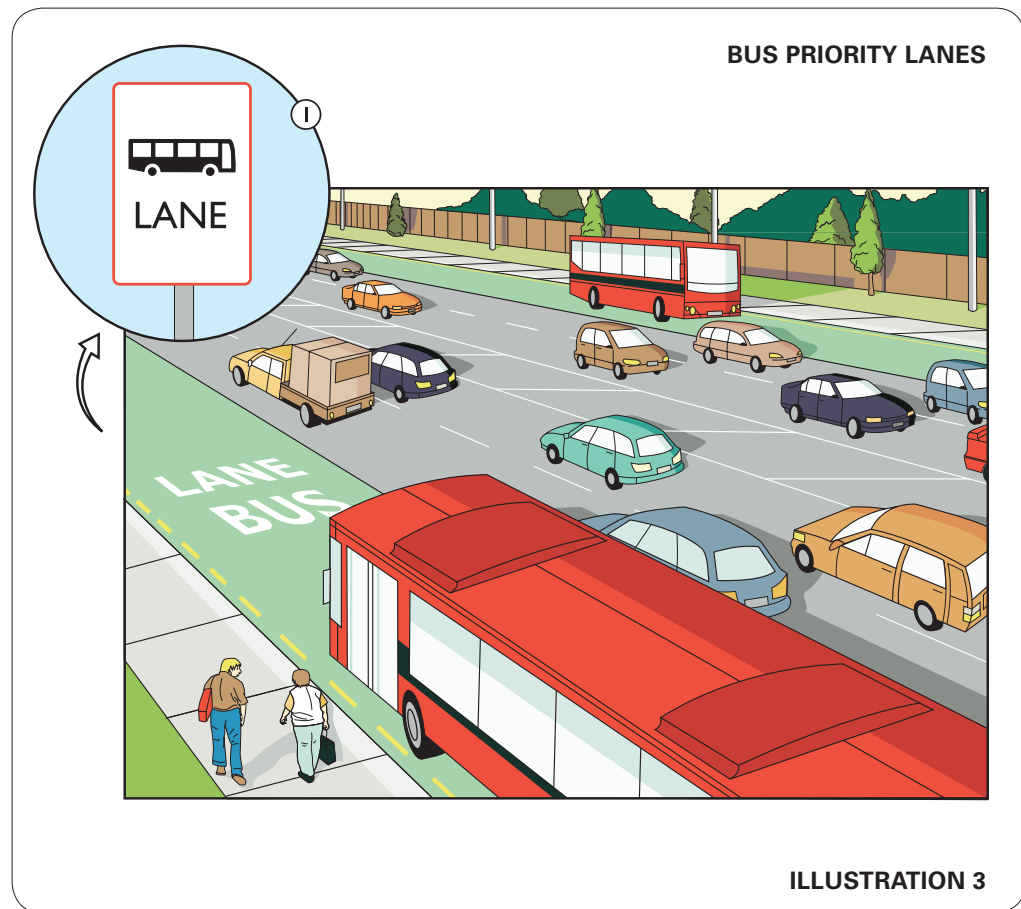
Guided busways

As for busways this option involves a carriageway segregated from general traffic but also includes guide-rails to steer the bus (Illustration 2). The advantages the guided busway provides over a standard busway are that it requires less land to construct (usually can be accommodated within a narrower corridor) and is self-enforcing. The disadvantages are the cost involved, the service disruption caused if a vehicle breaks down, and repairs to the system that can mean closure of the facility.



Bus priority lanes

Bus priority lanes operate where either an additional traffic lane is provided and allocated for the use of buses only or existing carriageway space is reallocated from general traffic use to that of buses only (Illustration 3). The latter option needs to consider the impact of removing capacity for general traffic bearing in mind the overall objective of promoting and enhancing public transport. An alternative for motorways/expressways may be to convert the hard shoulder for bus use only.



Bus priority lanes can operate in a number of ways including:

- Peak hour operation only;
- Tidal flow operation (for example, with main commuting flows);
- Contra-flow bus lanes;
- Working day hours/24 hour operation;
- Buses only in lane; and
- Buses, HOV, taxis, freight vehicles or various combinations.

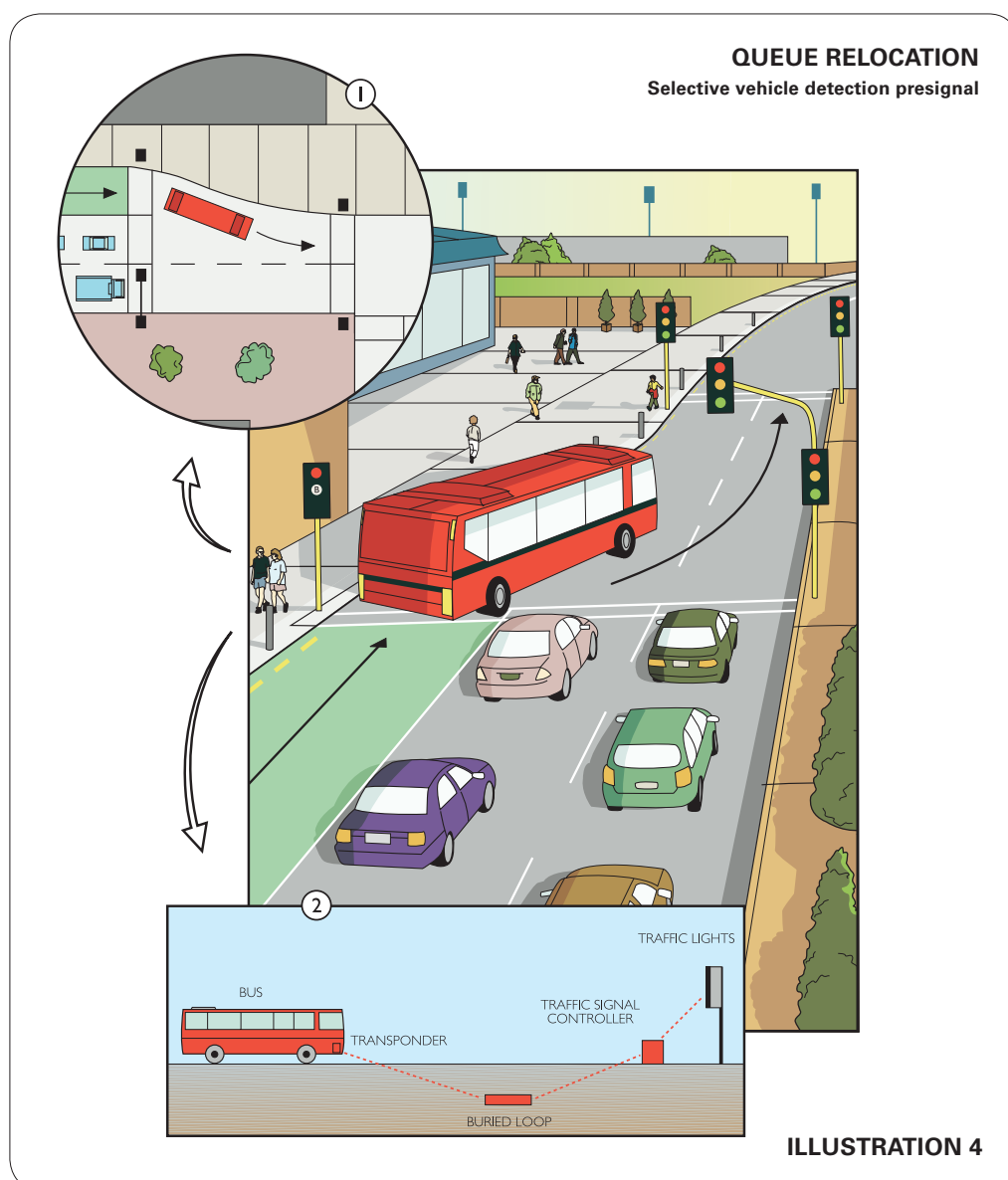
Shared use lanes have the advantage of resulting in more efficient use of capacity, particularly where bus frequencies are low. How such a facility is enforced needs to be considered at the outset, as this can be fundamental to the effectiveness of the priority measure. A parked vehicle in the priority lane, or non priority traffic using the facilities will operate to reduce the level of priority afforded to the bus, as well as having safety implications, therefore enforcement needs to operate, particularly immediately after its implementation.

More information on the operation of priority lanes is provided in section 3.2.

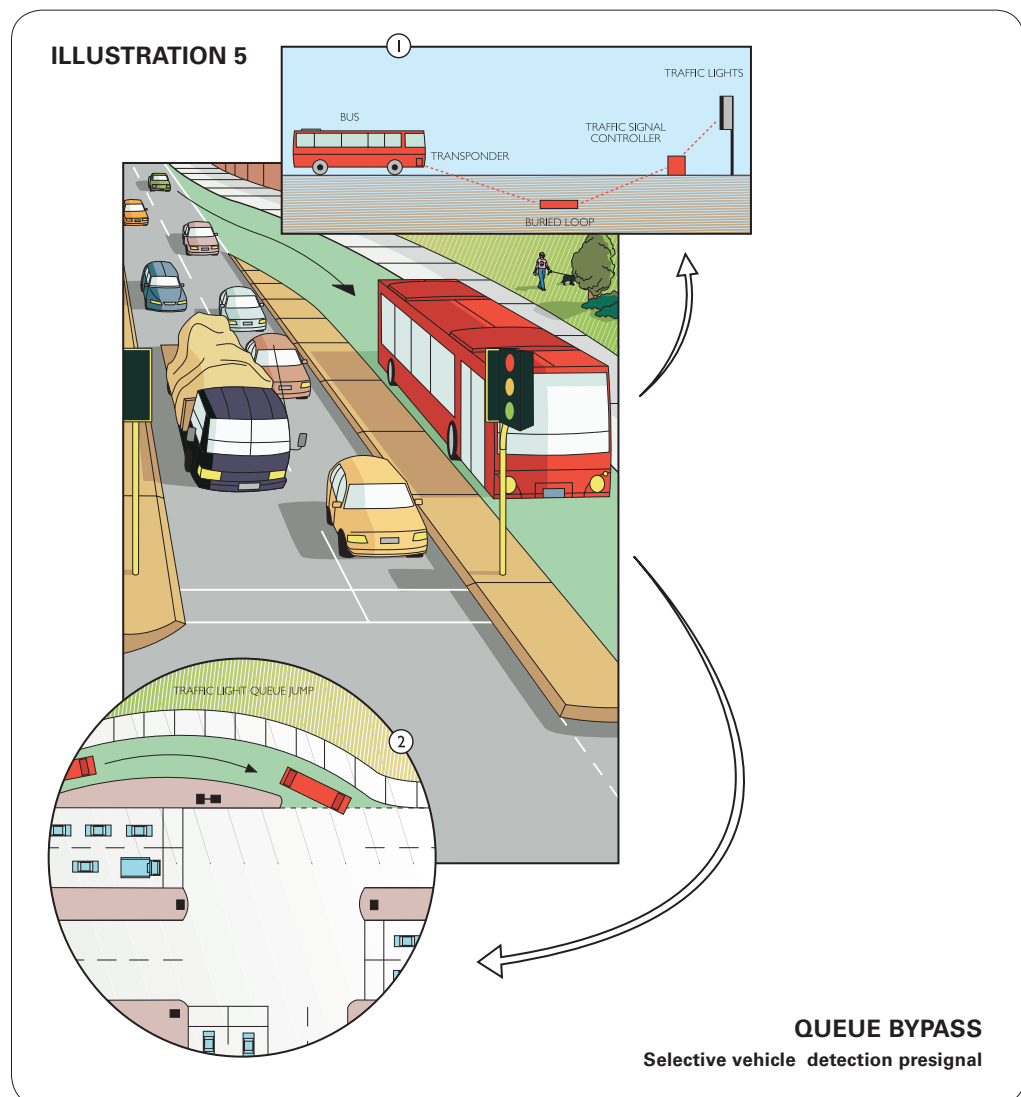
Queue management systems

There are a number of queue management options that can be applied to provide bus priority.

Queue relocation operates by moving traffic queues to an upstream section with sufficient capacity to contain the queues and thus prevent downstream blocking. Providing a priority lane on the upstream section allows the buses to overtake the queue and travel unhindered down the previously congested section of road (Illustration 4).



A **queue bypass** enables buses to effectively bypass a junction. It functions through the operation of a 'mini bypass lane' around a traffic signal installation (Illustration 5).



Pre-signals allow buses to enter an advanced area ahead of the main queue (as demonstrated in illustrations 4 and 5). The pre-signals hold back general traffic in advance of the signalised junction and a bus lane enables buses to access this area to be first in the queue. To ensure junction capacity loss is minimised, pre-signals are synchronised with the main signals. This means that traffic is released from the pre-signals just before the main signals turn green ensuring that full use is made of the green signal. Vehicle detection at the pre-signals is an option for minimising delays as it means general traffic need only be stopped at the pre-signals if a bus is approaching. Pre-signals can be particularly effective in assisting buses re-entering the main carriageway, for instance when a two lane road merges into one lane.

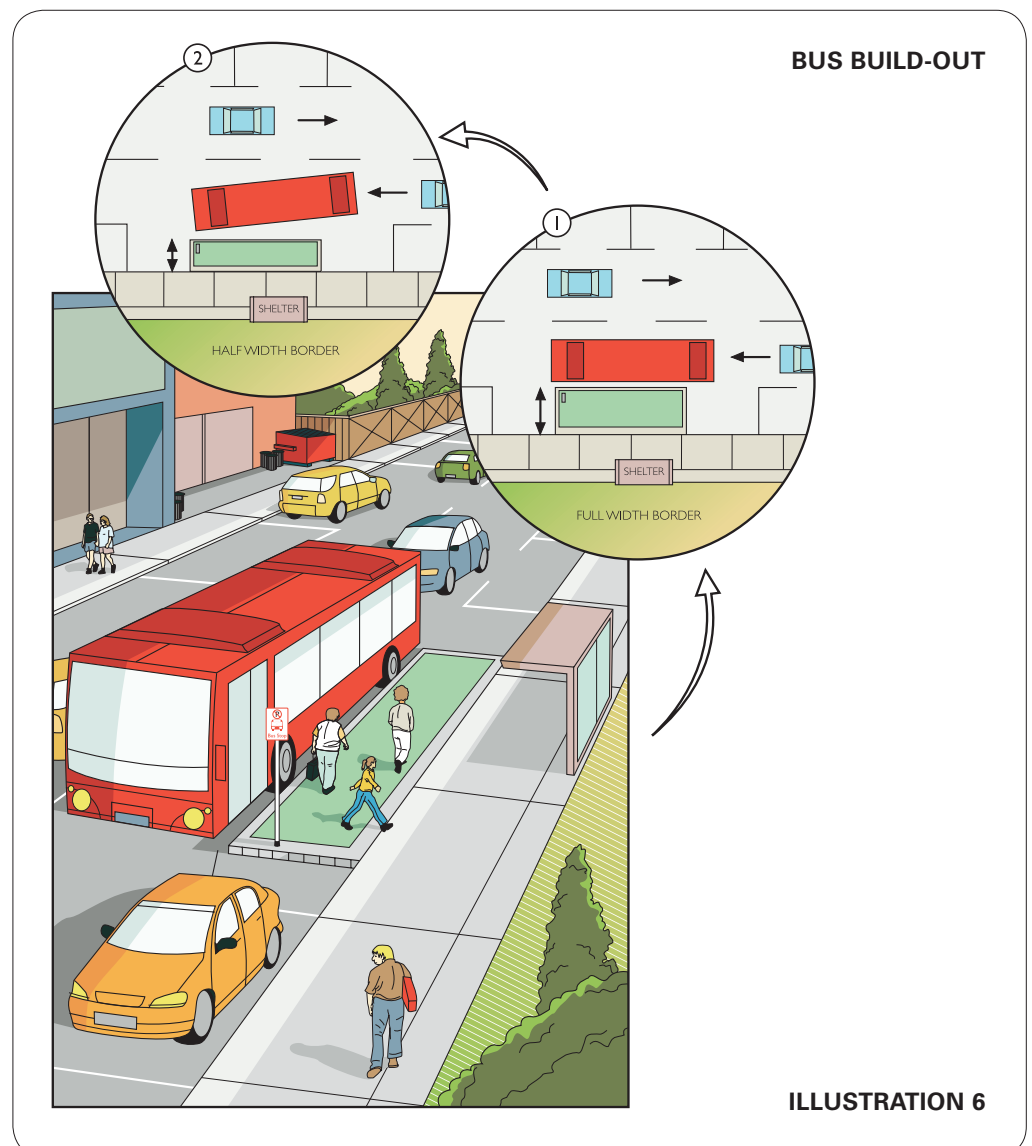
Bus priority at roundabouts can be given through creating **bus advance areas** incorporating pre-signals before the give way line at the entry point to the roundabout. As with pre-signals, general traffic is held at the end of a bus lane by pre-signals while buses can proceed to the roundabout give way line without delay. This allows the bus to have priority over general traffic and enables it to position itself in the correct lane relatively easily.

Selective vehicle detection

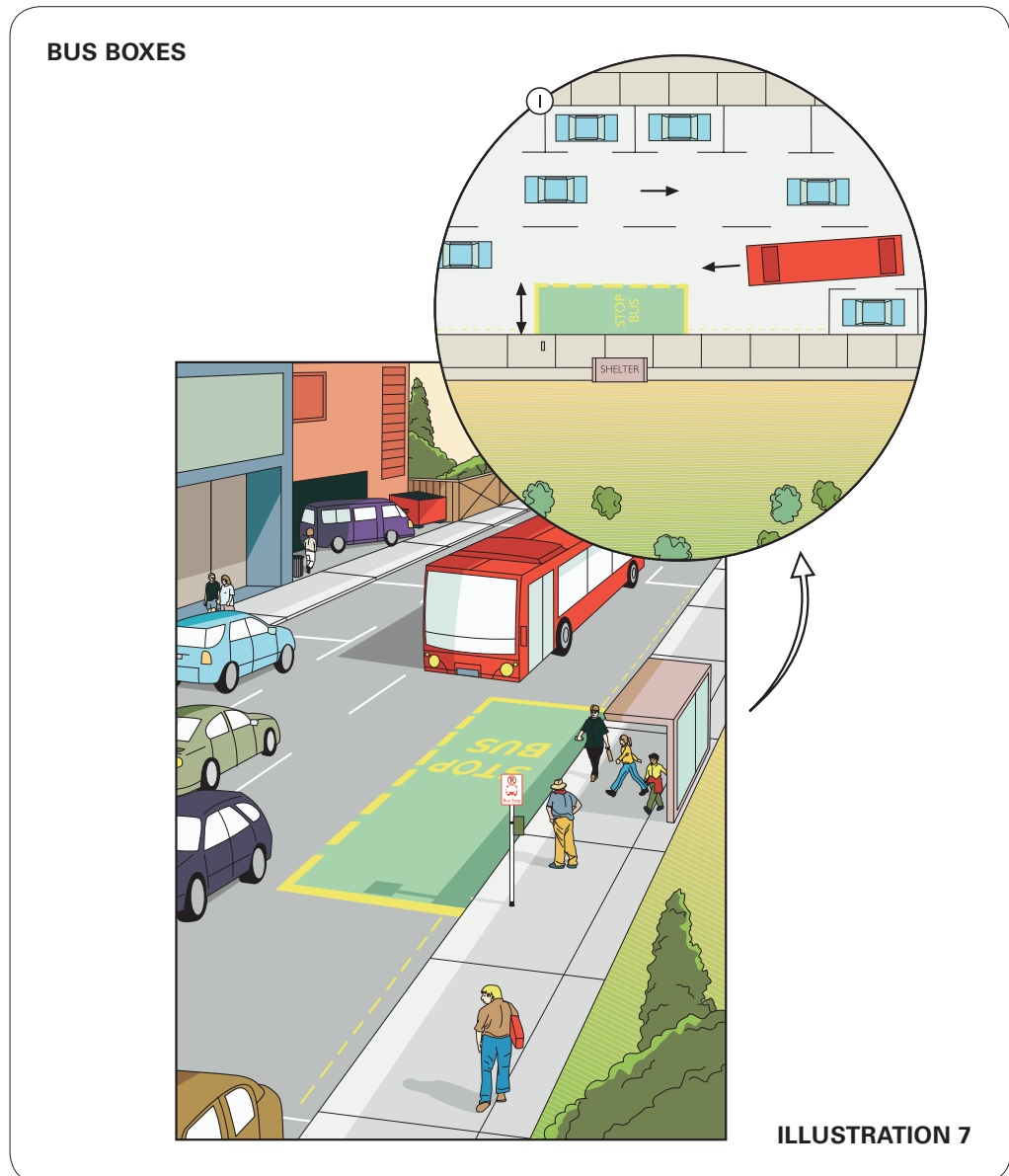
Selective vehicle detection is a facility included in the traffic signal system that gives priority to specified vehicle types such as buses (as demonstrated in illustrations 4 and 5). This use of priority vehicle detection to alter signal timings is known as dynamic priority. It operates by extending the green time or giving a hurry call for green for a particular junction arm to allow buses through the junction faster than the normal signal cycle would permit. Such signal operations can be programmed to provide compensation to side roads after a set number of priority calls on the main road to ensure excessive delay is not incurred.

Bus build-outs, bus stop clearways and bus boxes

Bus build-outs are areas of footway built out into the carriageway enabling the bus to avoid pulling off the main carriageway (Illustration 6). This means buses are unimpeded by parked vehicles and do not have the difficulties associated with trying to rejoin the main carriageway on busy roads. They can also provide accessibility benefits where low floor vehicles operate through reduction in the height differential between the "bus boarder" and the vehicle itself.



Bus stop clearways and bus boxes are carriageway markings and traffic restrictions that operate to ensure the bus stop remains free of parking so the bus service (and other traffic) is not disrupted by inconsiderate parking (Illustration 7).



Bus related infrastructure

This includes bus lay-bys, bus stop hard standings, bus station platforms serving motorway shoulder bus lanes⁴ and similar type infrastructure that supports bus service operation. Provision of this type of facility as part of a highway project can have a large impact on promoting and supporting bus use. The assumption should be to include this type of infrastructure in state highway projects unless there are particular circumstances that would make it inappropriate to do so.

4 In general pedestrians are not allowed on a motorway therefore bus station platforms must be excluded from the motorway designation and retained as land held for use in connection with a motorway. Transit New Zealand Act 1989 (Section 43) deals with the issue of land being taken or acquired for the functioning indirectly of any road

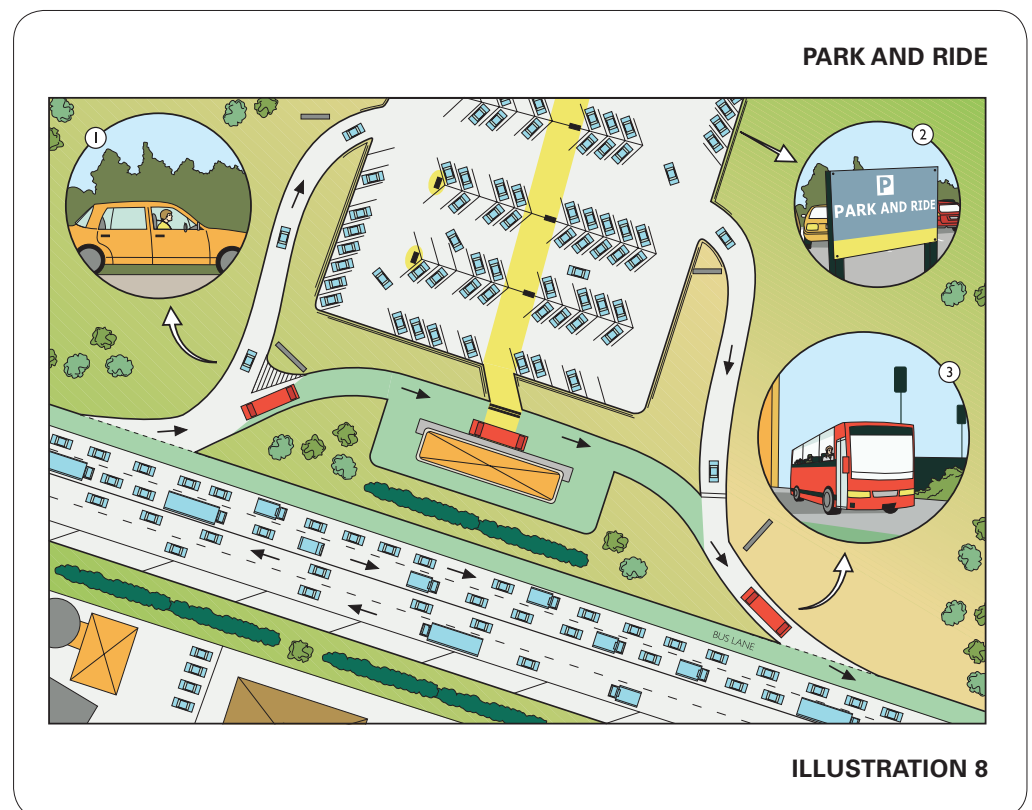
Provision for public transport during road works on state highway

Ensuring buses and pedestrians accessing bus services are adequately catered for during disruption to the normal operation of the state highway is an essential element in supporting public transport. Safe facilities for pedestrians in accessing relocated bus stops, as well as provision of information on how the bus service will operate during the period of works, are examples of the issues to be addressed as part of state highway road works. In providing for public transport during road works on state highways temporary arrangements must be agreed with the relevant regional council. Communication should also take place with bus operators to enable provision of information to public transport users.

Providing interchange or park and ride facilities

Transit may on occasion be in the position of being able to assist in providing an interchange or park and ride facility (either bus or rail based) by way of a range of options: (Illustration 8)

- Venture partners under operational agreements with optimised land tenure agreements that may or may not involve land lease or disposal options; and/or,
- Providing bus priority facilities on the state highway to complement an interchange or park and ride facility.



3.1.6 When to apply public transport, park and ride and interchange options

Key considerations

This section sets out guidance on the type of environment and under what circumstances it may be appropriate to adopt public transport measures on the state highway. This guidance is related to the state highway categorisation set out in the National State Highway Strategy (Table 1) and details the main issues to consider in applying any of these measures (Table 2 at end of section). It should be noted that while this offers recommended good practice, the individual circumstances will determine the final form of any scheme.

Consistency with RLTS and RPTP

All options considered should be consistent with Regional Land Transport Strategies and Regional Passenger Transport Plans (RPTP) and early engagement with the regional council, ARTA and territorial authorities should be undertaken in order to progress public transport related projects. For example, in some local or regional areas work may have been carried out to identify appropriate locations for park and ride facilities as is the case with ARTA and some of the Auckland local authorities. Also all options should be designed to maximise their contribution to improving accessibility to public transport, for example bus build-outs can eliminate the need to step up onto a bus.

State highway categorisation

Environment	Function		
	National	Regional	Sub-regional
Rural (100kph)	7-8	7-8	7-8
Peri-urban (80-100kph)	1-10	1-10	6-8
Urban (50-70kph)	1-10	1-10	1-10

KEY:

1. Busways
2. Guided Busways
3. Bus Priority Lanes
4. Queue Management Systems
5. Selective Vehicle Detection
6. Bus Build-outs, Clearways and Boxes
7. Bus Related Infrastructure
8. Provision for Public Transport during road works
9. Park and Ride
10. Interchanges

3.1.7 Engaging with partner agencies

Transit is committed to engaging in the planning process by contributing to strategic documents such as Regional Policy Statements, Regional Land Transport Strategies and Regional Passenger Transport Plans and responding to plan changes, structure plans and resource consent applications. Transit's approach in working with partners is to encourage the provision of high quality public transport services, infrastructure and information and so contribute to an effective multi-modal transport system. This will primarily, but not solely, involve working with regional councils and ARTA who are responsible for public transport provision, and territorial authorities. The policies and operational guidelines contained in Regional Passenger Transport Plans should be fully considered as part of this process.

Public transport strategy development

In engaging with regional councils and ARTA to contribute to the development of local or regional public transport strategies, Transit's main focus should be on identifying where the state highway network can complement and enhance local network provision to contribute to a comprehensive and effective public transport option. Main considerations in this area should be:

- a. can providing priority on a state highway extend or fill in a gap for a public transport service?
- b. can new "express" services be supported through the provision of bus priority on the state highway network?
- c. can bus or rail services be supported through the provision of park and ride or interchange facilities integral to the state highway network?
- d. can priority facilities be provided to enable buses to "bypass" or move through queuing traffic on the state highway more quickly?
- e. is it appropriate to provide bus related infrastructure on the state highway to assist movement, for example bus build-outs or lay-bys?

RMA process

Detailed guidance on engaging in and responding to RMA processes is provided in Transit's Planning Policy Manual.

National, regional and local policy

In participating in public transport policy development, Transit should advocate for the inclusion of policies, rules or methods that support or facilitate high quality integrated public transport systems. The policy and detailed guidance covering this area, as well as that of Transit's approach on passenger rail is contained in Transit's Planning Policy Manual.

Table 2 Recommended Good Practice for Public Transport Measures associated with State Highways			
Function	Environment		
National/ Regional/ Sub Regional	Urban (50-70kph)	Peri-urban (80-100kph)	Rural (100kph)
<i>Busways</i>	<ul style="list-style-type: none"> • Bus frequency in peak hour should merit separate facility • Should connect major trip generators e.g. large residential areas to employment / urban centres • Area should be experiencing congestion • Should facilitate an “express” service • Should complement and extend existing public transport services • Commitment by regional council/ARTA to provide ongoing revenue funding where this is necessary • RLTC and bus operator should be signed up to scheme • Agreement by regional council/ARTA and all relevant parties that project consistent with RLTS • Proposal should be based on robust modelling, cost benefit analysis and public engagement 		Not appropriate
<i>Guided buses</i>	<ul style="list-style-type: none"> • Should be space limitation to justify guided busway over non-guided • All criteria as set out for Busways above 		Not appropriate
<i>Bus priority lanes</i>	<ul style="list-style-type: none"> • Bus frequency in peak hour should merit separate facility or be appropriate for including HOV use of lane as well • Fulfills a genuine public transport need that is not already catered for on the parallel local road network • Should facilitate an “express” service or provide ability to bypass congestion • Commitment by regional council/ARTA to provide ongoing revenue funding where this is necessary • At minimum, peak hour congestion occurs on the section of state highway in question • RLTC and bus operator must be signed up to scheme • Agreement by regional council/ARTA and all relevant parties that project consistent with RLTS • Proposal should be based on robust modelling, cost benefit analysis and public engagement 		Not appropriate
<i>Queue relocation</i>	<ul style="list-style-type: none"> • At minimum, peak hour congestion occurs on the section of state highway in question • Should complement and extend existing public transport services 		Not appropriate

Table 2 Recommended Good Practice for Public Transport Measures associated with State Highways			
Function	Environment		
National/ Regional/ Sub Regional	Urban (50-70kph)	Peri-urban (80-100kph)	Rural (100kph)
<i>Pre-signals</i>	<ul style="list-style-type: none"> At minimum, peak hour congestion occurs on the section of state highway in question Should complement and extend existing public transport priority where it exists Should be implemented in partnership with bus operator 		Not appropriate
<i>Selective vehicle detection</i>	<ul style="list-style-type: none"> At minimum, peak hour congestion occurs on the section of state highway in question Should be implemented in partnership with bus operator Should be implemented in partnership with TA and cover local road signal control where it exists Should complement and extend existing public transport priority where it exists 		Not appropriate
<i>Bus build-outs</i>	<ul style="list-style-type: none"> Should be currently difficult for bus to re-enter traffic stream from bus stop 	Not appropriate	Not appropriate
<i>Bus stop clearways bus box markings</i>	<ul style="list-style-type: none"> Should be an identified problem of parking on bus stop 		Not appropriate
<i>Bus related infrastructure</i>	<ul style="list-style-type: none"> Should consider appropriateness of providing bus related infrastructure as part of all new state highway works or maintenance works. Presumption should be to provide such infrastructure unless there are particular circumstances as to why it is not appropriate in individual case. Should ensure adequate connectivity for pedestrians between bus facility and local street network 	<ul style="list-style-type: none"> Should consider appropriateness of providing bus related infrastructure as part of all new state highway works or maintenance works. For national and regional state highways the presumption should be to provide such infrastructure unless there are particular circumstances as to why it is not appropriate in individual case. Should ensure adequate connectivity for pedestrians between bus facility and local street network 	<ul style="list-style-type: none"> Bus lay-bys should be provided where bus stopping on carriageway in high speed environment could result in safety issue
<i>Provision for public transport during works on state highway</i>	<ul style="list-style-type: none"> Where bus stop affected, temporary bus stop to be provided within reasonable distance Signage directing pedestrians to temporary bus stop to be provided Early communication with regional council and bus operators should be undertaken For national and regional state highways, safe crossing facilities or signage to such should be provided to relocated bus stop 		

Table 2 Recommended Good Practice for Public Transport Measures associated with State Highways			
Function	Environment		
National/ Regional/ Sub Regional	Urban (50-70kph)	Peri-urban (80-100kph)	Rural (100kph)
<i>Park and ride/ Kiss and ride</i>	<ul style="list-style-type: none"> • Should be located on main commuter route and be clear that the scheme is likely to remove downstream car trips from the state highway • Should be located so as to avoid congestion prior to facility to enable ease of access and encourage use, and be far enough away from main destination to make it worthwhile for drivers to change mode • Should link in with on-state highway bus priority facilities • Should not undermine existing or planned public transport services that may serve a similar catchment area • Should ideally have capacity to be expanded at future date to cater for increased use • If Transit land to be disposed of/leased for facility, it should not be required for any potential future highway works • Any land disposal/leasing should only be made where this contributes to sustainable transport objectives e.g. for park and ride purposes not for parking for any other use • Extent of Transit liabilities should be agreed prior to commencement of any park and ride related works • Should have practical and financial support from all relevant agencies, particularly for ongoing subsidies • Should have agreement between all relevant parties that the project will fit in with the regional land transport strategy and regional passenger transport plan • Proposal should be based on robust modelling, cost benefit analysis and public engagement • Consideration should be given to mitigating all adverse effects on neighbouring properties such as noise, glare, light spill and loss of privacy/amenity • Urban design principles should be applied to the development of the facility 		Not appropriate
<i>Interchange facilities</i>	<ul style="list-style-type: none"> • As for park and ride above 		Not appropriate

3.2 PRIORITY LANES

3.2.1 Introduction

Priority lanes – context

A key component of many strategies to manage the demand for travel is the implementation of priority lanes. Priority lanes are sections of the state highway that are given over to or restricted to certain categories of vehicle. These can be for buses, taxis or private vehicles carrying a minimum number of people. Priority lanes can also be allocated for freight vehicles. The implementation of priority lanes can potentially lead to considerable benefits for the state highway network.

Increased people moving capacity

Firstly, increased vehicle occupancy can free road capacity, increase efficiency and make better use of the existing network.

While priority lanes usually carry fewer vehicles than other lanes, they often carry more people and therefore provide mobility and environmental benefits.

Encouraging mode shift

Secondly, priority lanes can operate to encourage people to car share or use public transport to benefit from travel time savings through bypassing congestion in non-restricted traffic lanes. This means that bus services benefit from greater service efficiency through increased ridership per vehicle and reduced fuel consumption. Freight also experiences the benefits of greater reliability and decreased journey times, thus enhancing economic viability. Priority lanes can also help facilitate wider health, environmental and social benefits.

Types of priority lane

There are various options for providing priority lanes on the state highways. Primarily these are:

- HOV (high occupancy vehicle) lanes
- HOT (high occupancy toll) lanes
- No car lanes

While HOV lanes include buses, more detail on bus only priority lanes is given in section 3.1.

Legal position

Please refer to Appendix 3 for the full legal position on implementing priority lanes.

3.2.2 Transit's role in priority lanes

Transit's role in this aspect of travel demand management

Transit may be able to provide priority lanes in three main ways:

1. By including priority lane provision when constructing new highways.
2. By constructing new priority lanes alongside existing carriageway.
3. By reallocating existing road space to some types of priority lanes.

Partnership approach

It is important that Transit engages with regional and territorial authorities along with bus operators and funders, when pursuing the implementation of priority lanes to ensure maximum effect for both state highways and local roads.

3.2.3 Objective

Objective for priority lanes

Transit's objective for priority lanes is to facilitate:

A state highway network that provides journey time benefits for those choosing to travel by means other than single occupancy vehicles (SOV), while increasing mobility.

3.2.4 Implementing the Priority Lane Objective

To achieve the above objective Transit will:

1. Influence travel needs and choices involving state highways by encouraging the use of non-car and high occupancy modes of travel through the provision of priority lanes where appropriate.
2. Slow down the rate of growth of congestion on key urban state highways during peak times by using priority lanes where appropriate.
3. Work with partner agencies to provide improvements for multi-modal travel to complement the introduction of priority lanes along the state highway corridor.
4. For HOT lanes, work with stakeholders to recommend and monitor pricing to ensure the most efficient use of road capacity.
5. Engage with stakeholder groups to convey objectives of priority lanes, and provide adequate information to allow users of the state highway to make an informed choice regarding their mode of travel.
6. Consider implementing priority lanes wherever new capacity is added to the state highway.
7. Consider priority lanes as part of all future four-lane highway schemes.

3.2.5 Priority lane options

The following gives an indication of the types of priority lanes that Transit can implement. It should be noted, 'hard' measures (infrastructure) need to be effectively combined with 'soft' measures, such as public transport promotion and ride share schemes for priority lanes to be fully effective.

3.2.6 High occupancy vehicle lanes

HOV lanes can be a significant help in improving the people moving capacity of a congested highway corridor, rather than vehicle moving capacity.

HOV lanes are lanes that allow vehicles with two or more occupants (depending on circumstances) to use a designated lane that a single occupant vehicle (SOV) is not able to use. The basic principle behind the HOV lane is to encourage more car sharing so reducing the number of single occupancy vehicle trips on the network and ultimately congestion and emissions. They are also a method of utilising spare capacity in existing bus priority lanes (Illustration 9).

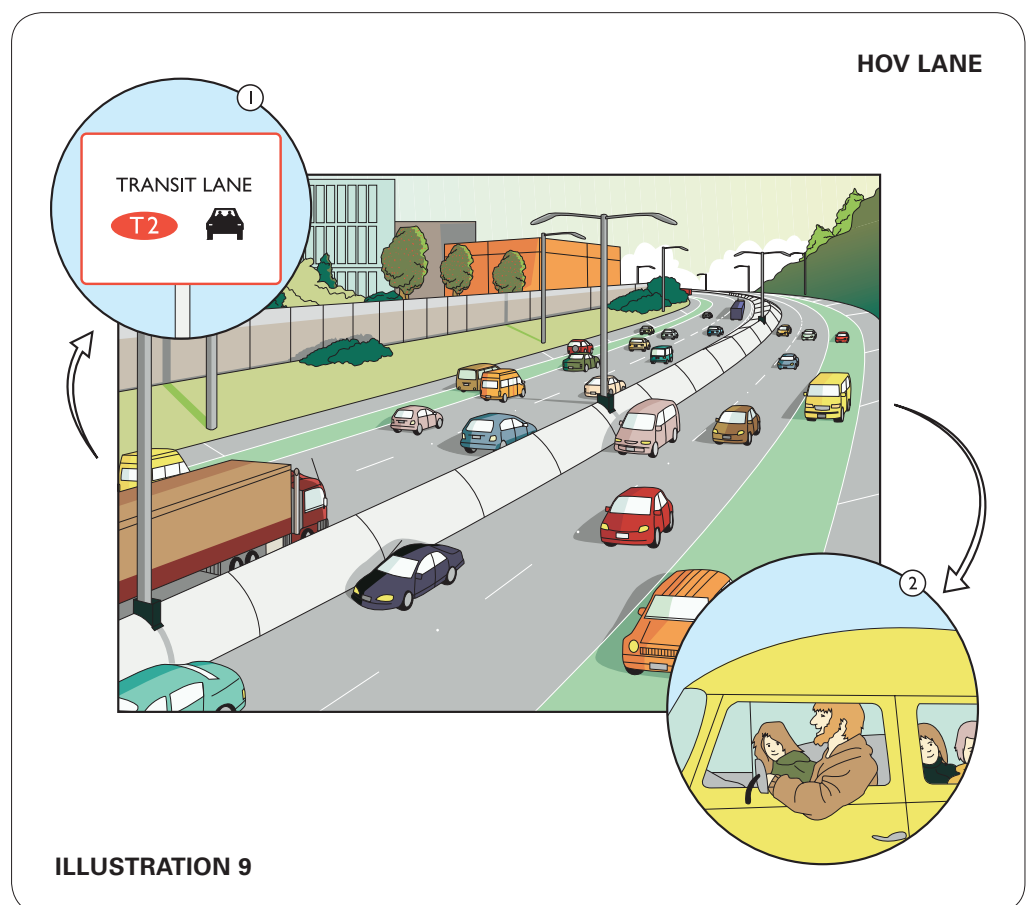


ILLUSTRATION 9

The HOV lane works best in areas where its use enables HOV traffic to bypass congestion in non-restricted traffic lanes. This tends to be in congested urban corridors where the physical and financial feasibility of expanding the roadway is limited. High occupancy vehicles, such as buses, greatly benefit as journey time reliability is increased and ridership rises as the benefits are clear to those using the corridor.

Strategies for congested HOV lanes

The general occupancy requirement for HOV facilities is two plus (2+). However, it may be that HOV facilities become congested with this level of occupancy. If this is the case, studies should be initiated to look at solutions to maintain a desired level of service. Options are:

- a. *increase vehicle occupancy from 2+ to 3+*. There is a need to carefully consider if this will produce a greater reduction in demand than necessary to maintain a free flowing highway.
- b. *alter occupancy rates according to time of day*. In order to avoid driver confusion, it is important that appropriate traffic management systems and information facilities are in place to relay these messages.

Strategies for under-used HOV lanes

There are a number of options that can be considered in order to utilise any spare priority lane capacity. These are as follows:

- a. alter hours of operation of HOV lane – for example, reduce to peak hour operation only and allow general traffic use during off peak periods.
- b. allow use by other categories of high occupancy vehicles – for example, allow HOVs into bus lane, permit use by freight.
- c. lowering vehicle-occupancy requirements – this is likely to be a limited option as most HOV lanes are 2+ designations. If the lane is a 3+ it may mean that the HOV lane will be too congested at 2+.
- d. designated public transport vehicles – public transport vehicles that do not meet the occupancy levels, for example if they are returning to the terminal and not in service, could be allowed to use the HOV lane.
- e. allowing freight vehicle access – this will be dependent upon the type of HOV facility, access, design limitations, safety concerns, and the potential benefits to the freight operators. Safety issues may arise with freight vehicles veering across mixed-use lanes to access an HOV lane. It is important to decide if freight is to be allowed to use the HOV lane at the outset, as this will greatly affect the design and implementation.

Defining HOV lane capacity

There are typically two types of measurements that can be applied to determine if the HOV lane is becoming too congested. These are:

1. Vehicles per hour per lane (vphpl)
2. Average speeds

The maximum flow or capacity will vary with each type of facility. US experience identifies that volumes of 1,200 to 1,500 vphpl on most types of facilities will tend to experience degradations in travel time savings and travel time reliability. Some HOV lanes that are bus only, or contra flow lanes, reach capacity at just 700 vphpl.⁵

The second way to identify capacity issues is to monitor travel speeds in HOV lanes and travel time reliability. For example, the Washington State Department of Transportation uses as a guide that vehicles should maintain an average speed of 45 miles per hour (72kph) or greater at least 90 percent of the time within the HOV lane. This is within peak hours and is measured for a consecutive six-month period.

While these examples are not related to New Zealand experience, they are examples of the types of measures that could be used to identify capacity issues. Prior to implementation of a priority facility, modelling needs to be conducted to ensure that the facility will not be under utilised or capacity exceeded too quickly.

3.2.7 High occupancy toll lanes

HOT lane principles

HOT lanes are lanes that operate as HOV but also allow single occupant vehicles to use the lane provided they pay a fee. The HOT lane operates on the principle of offering a faster and more reliable journey for those willing to pay a specified fee by allowing them to use a designated lane to bypass congestion. The difference between a HOT lane and a HOV lane is that a HOT lane provides all travellers with a choice of levels of service. They can either travel in congested traffic or pay a fee and travel with reduced delay.

HOT lane flexibility

HOT lanes enable more vehicles to use HOV lanes, but still maintain an incentive to shift mode as well as raising revenue. The fees charged can rise and fall to keep the HOT lane flowing smoothly, while HOV users and buses enjoy the journey time benefits at no charge. By varying the fee over the congested period, HOT lanes can be well utilised and provide more congestion relief than a HOV lane with unused capacity. HOT lanes can be a compromise between HOV lanes and road pricing.

Appropriate circumstances for HOT lanes

HOV lanes are often justified on the basis of future growth, even though they can have considerable unused capacity when they are first implemented. HOT lanes can provide the same benefits when there is future growth, without foregoing potential benefits in the early years because of low levels of use. This form of priority lane is most appropriate where predicted bus and multi occupancy vehicle volumes would not justify a dedicated HOV lane.

⁵ Potential Impact of Exempt Vehicles on HOV Lanes, FHWA, 2005

Pricing HOT lanes

The pricing structure is crucial in determining the extent of the benefits. If the price is too low, there is a danger that the lane will experience congestion as for the most part single occupancy vehicles would not be priced off it. If the fee is set too high, the lane may be underused, as motorists are put off by the high cost, resulting in continued congestion in the non-restricted lanes. It is important that HOT lane facilities be managed in favour of optimising HOV use. Traffic management and automated fee collection technologies are highly desirable for enforcement of the HOT lane. It should be noted that under current legislation in New Zealand, the provision of a HOT lane will often require a new lane to be built (see Appendix 3).

3.2.8 No Car lanes

Any vehicle, other than cars are allowed to use this lane. This includes buses, vans, heavy goods vehicles and motorcycles. No Car lanes operate on the principle of discouraging car use by excluding cars completely (Illustration 10).

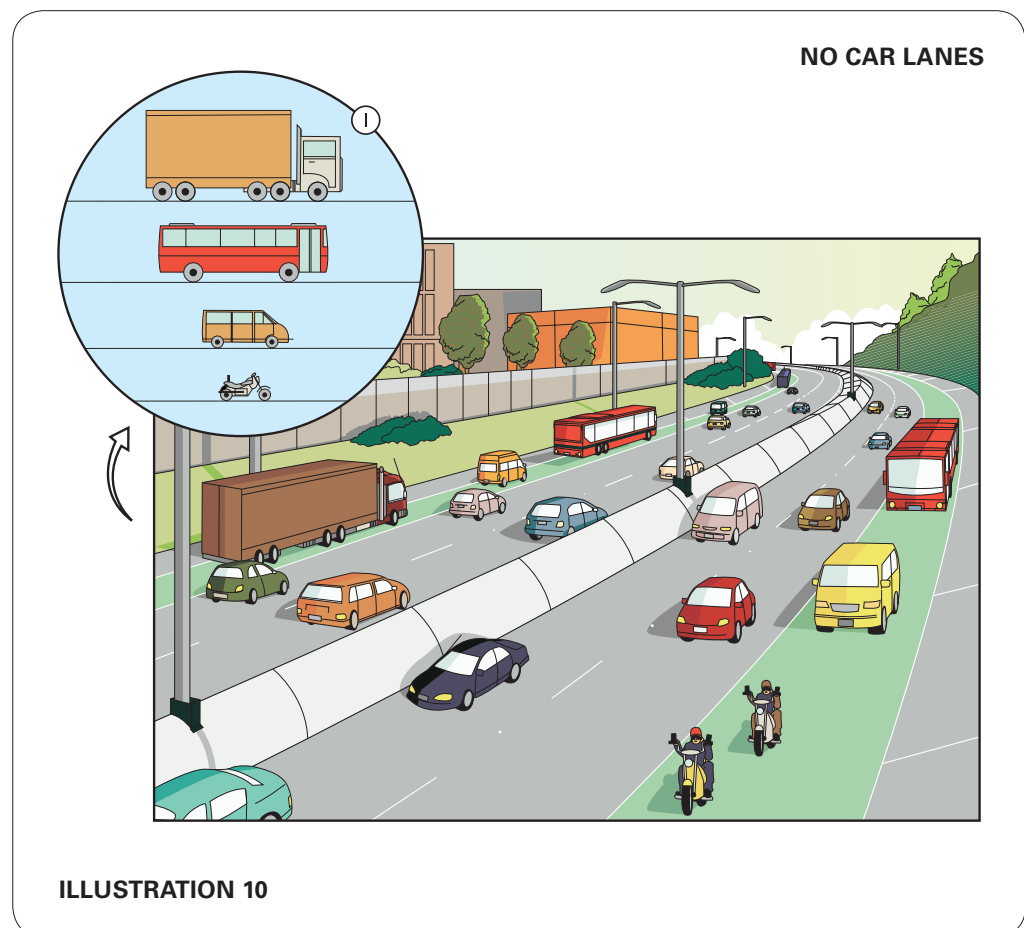


ILLUSTRATION 10

3.2.9 Physical characteristics of priority lanes

Priority lanes can be distinguished by physical barriers, painted markings or signage. There are several types of operations:

Lane conversion

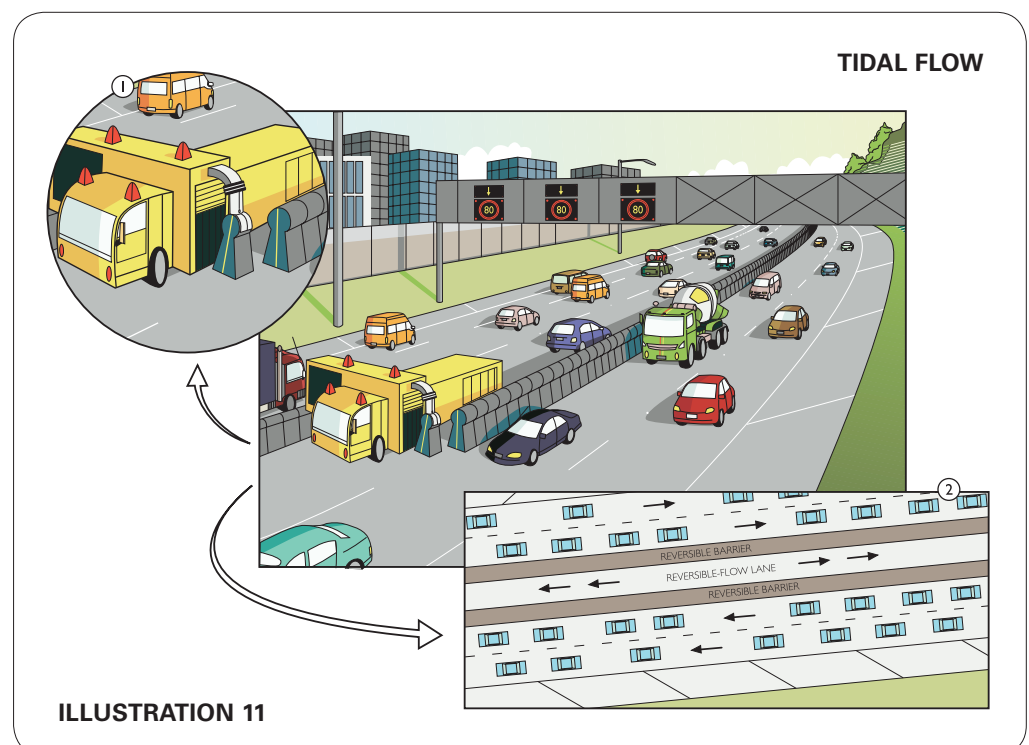
This involves converting a general traffic lane for priority use only. It offers a means of encouraging modal shift to public transport and ridesharing without the need for potentially expensive and disruptive construction associated with new road expansion. It should be noted that under current legislation, a HOT lane could not be provided in this way.

Shoulder conversion

This involves improving the shoulder for priority use. Part-time shoulder conversion involves designating the shoulder as a priority lane during peak hours outside which it reverts back to emergency parking use. There can be safety issues with part-time use if drivers are confused as to when the lane can be used. This can be overcome by effective implementation of traffic management systems. Maintenance implications should be taken into account when considering shoulder conversion as many shoulders may require widening or remarking to allow adequate space for vehicles, particularly buses.

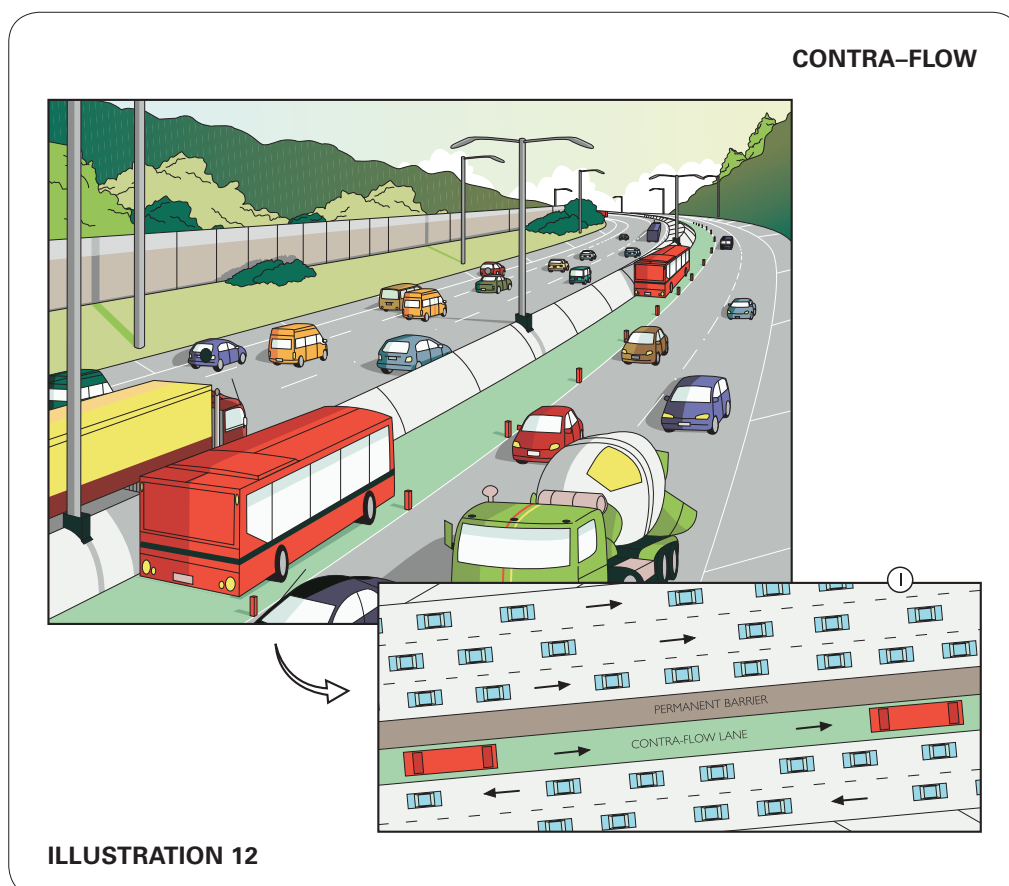
Tidal flow

This involves one or more barrier separated lane(s) usually operating in one direction in the morning peak and the opposite direction in the evening peak in line with the peak flow direction (Illustration 11).



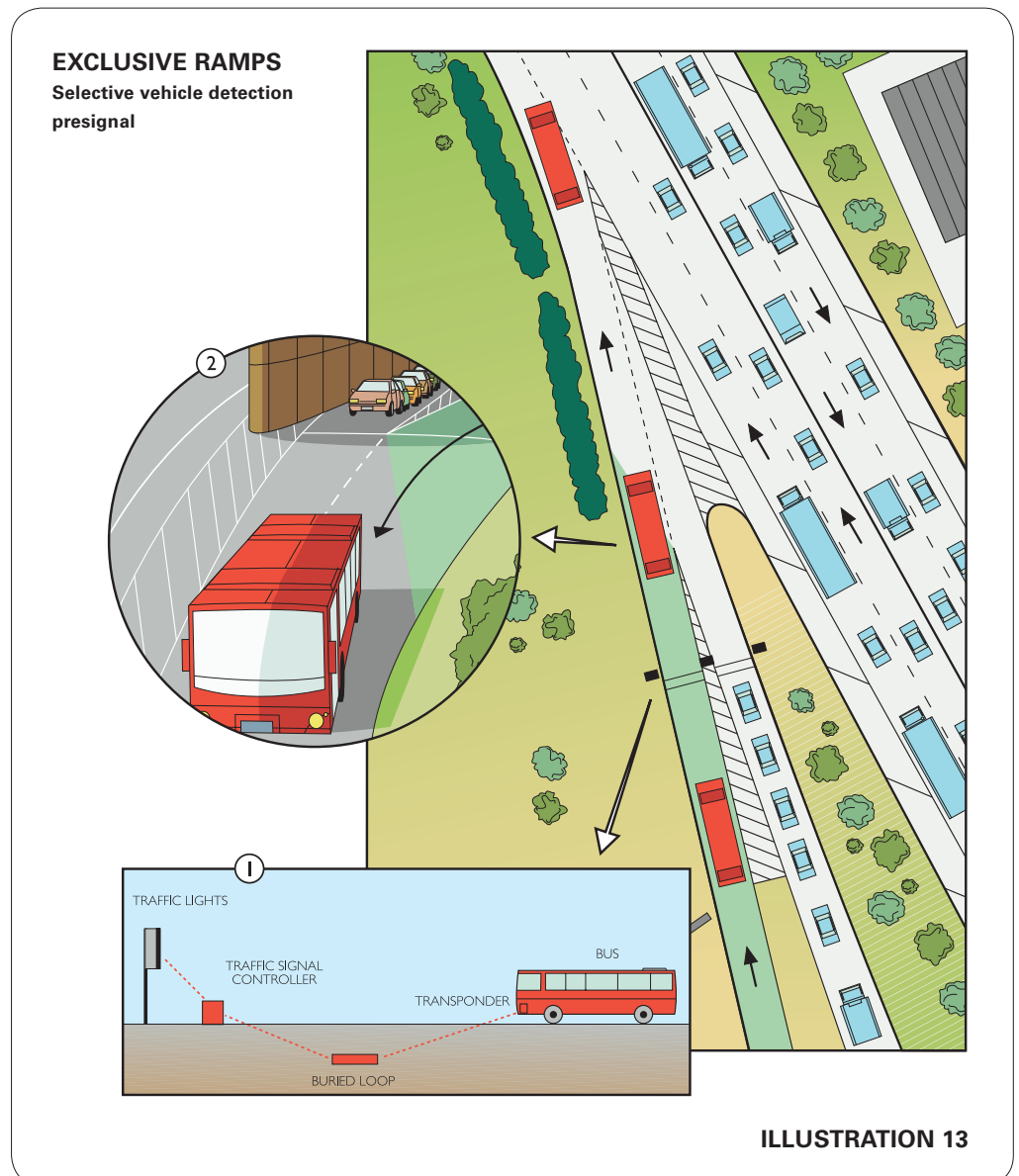
Two-way flow One or more lane(s) operating in both directions of travel during portions of the day.

Contra flow Usually one lane that is borrowed from the off-peak direction mixed-flow lanes and converted to serve buses and possibly other select HOV's. The direction of travel is usually against the mixed-flow traffic in a one-way road, and can be physically separated for example by bollards, or visually separated, for example by dynamic road marking (Illustration 12).



Queue bypasses Usually one or more short distance lanes where the priority lane enters a highway or intersection separately from general traffic and so bypassing queuing traffic. For example ramp signalling bypasses, or a junction bypass for priority vehicles (see illustration 5).

Exclusive ramps On motorways/expressways where the priority lane requires ingress/egress treatments (ramps) to meet specific congestion and distribution requirements. Dedicated ramps, or dedicated lanes on existing ramps, save users additional travel time, can aid enforcement, incident handling, and improve the overall operating efficiency of a priority lane facility. These can have either controlled (signalised) or uncontrolled entry onto the motorway/expressway (Illustration 13).



3.2.10 Hours of operation

Key considerations

The determination of whether priority lanes should operate part or full time will be dependent upon the scale of congestion and the length of peak and off peak periods. For HOT lanes, the hours of operation will depend on the terms of the Order in Council establishing the road tolling scheme, which will reflect the recommendations of the Minister. Other factors will play a part, namely traffic safety, political and public considerations, air quality and noise concerns, enforcement issues, and geographical dispersions of trip patterns. A consistent and uniform priority lane operation is required on a corridor-by-corridor basis to avoid motorist confusion.

Peak period operation

Using peak hour operation only can avoid the public perception that the priority lane is underutilised during off peak periods by enabling all traffic to use the facility outside the peak periods.

Full time operation

Full time operation tends to avoid public confusion regarding operational hours with violation rates being lower and enforcement easier. As continuous priority facilities can be segregated, there is less likelihood of highway incidents affecting its operation. It can also encourage a greater mode shift to ridesharing.

Priority lane evaluation

In order to maximise the effectiveness of priority lanes, Transit should carry out evaluation of the operation at regular periods following implementation. Appendix 4 sets out a priority lane evaluation framework for assessing the effectiveness of such lanes post implementation.

3.2.11 When to apply priority lane options

General considerations

Priority lane facilities tend to be most effective in major urban areas with large employment centres, heavy congestion, and when operating in conjunction with other initiatives to encourage mode shift and ridesharing. They would therefore be most appropriate on state highways within large urban areas, where public transport uses the state highway corridor to encourage shift not only to car sharing but also to bus. They are also most practicable on congested highway corridors where it is possible to convert or add lanes and where there is a significant time saving to users.

Application in Transit regions

Given the above criteria the regions that Transit should be considering implementing priority lanes are Auckland Region (population 1,303,068), Canterbury Region (population 521,823) and Wellington Region (population 448,959)⁶. It is likely however, that for some of our smaller urban areas, such as Hamilton, where significant congestion occurs on key state highways that are also public transport corridors, priority lanes could be appropriate for implementation.

State highway categorisation

Using Transit's National State Highway Strategy categorisation approach, priority lane facilities will only be applicable for implementation on urban and in some cases, peri-urban highways (Table 3). Also, while priority lanes can be considered for sub-regional state highways, it is unlikely traffic volumes would necessitate such a facility.

Environment	Function		
	National	Regional	Sub-regional
Rural (100kph)	-	-	-
Peri-urban (80-100kph)	1-4	1-4	1-4
Urban (50-70kph)	1-4	1-4	1-4

KEY:

1. Priority Bus Lane
2. HOV Lane
3. Freight Lane
4. No Car Lane

Detailed considerations

Table 4 at the end of this section sets out recommended good practice for implementing priority lanes. Reference should be made to this when considering introducing a priority lane on the state highway network.

3.2.12 Engaging with partner agencies

Transit has a role in promoting the use of priority lanes by working with partners on joint schemes and in engaging in policy development.

Project collaboration

Territorial authorities, as the local road controlling authority may often have their own policies on priority lanes. As such Transit should work in close collaboration with the territorial authority to take into account those policies and implement and promote joint schemes where appropriate.

National, regional and local policy

In participating in priority lane policy development, Transit should advocate for the following:

- a. the inclusion/promotion of priority lanes as part of wider transport strategies; and
- b. the provision of local road measures to complement state highway priority measures.



Table 4 Recommended good practice for the implementation of priority lane measures on state highways			
Function	Environment		
National/ Regional/ Sub Regional	Urban (50-70kph)	Peri-urban (80-100kph)	Rural (100kph)
<i>Bus Priority Lanes</i>	<ul style="list-style-type: none"> • Bus frequency in peak hour should merit separate facility or be appropriate for including HOV use of lane as well • RLTC and bus operator must be signed up to scheme • Commitment by regional council/ARTA to provide ongoing revenue funding where this is necessary • Fulfills a genuine public transport need that is not already catered for on the parallel local road network • Should facilitate an “express” service or provide the ability to bypass congestion • At minimum, peak hour congestion occurs on the section of state highway in question • Agreement between all relevant parties that the project will fit in with the regional land transport strategy • Proposal should be based on robust modelling, cost benefit analysis and public engagement 		Not appropriate
<i>HOV Lanes</i>	<ul style="list-style-type: none"> • At minimum, peak hour congestion occurs on the section of state highway in question • HOV Lane should not exceed existing maximum operating threshold (volume) on mixed use lane(s) <p>OR</p> <ul style="list-style-type: none"> • HOV lane should operate at no less than existing average speed on mixed use lane(s) • A viable alternative public transport option should exist, to cater for motorists transferring from cars • RLTC (and bus operator, where HOV lane to carry bus services) must be signed up to the scheme • Must be complementary TDM strategy being pursued by RLTC/TAs • By reallocating existing roadscape for HOV use, the vehicle carrying capacity of the corridor should not be considerably reduced so causing significant congestion in adjacent mixed use lanes • A minimum travel time saving, as defined as the difference in travel time between vehicles in the HOV lane and adjacent mixed use lanes, should be achieved at least for duration of peak period • The lane efficiency of the HOV lane with regards to average operating speed and person throughput should exceed that of adjacent mixed use lanes at least for duration of peak period • Proposal should be based on robust modelling, cost benefit analysis and public engagement 		Not appropriate

Table 4 Recommended good practice for the implementation of priority lane measures on state highways			
Function	Environment		
National/ Regional/ Sub Regional	Urban (50-70kph)	Peri-urban (80-100kph)	Rural (100kph)
<i>Freight Lanes</i>	<ul style="list-style-type: none"> • At minimum, peak hour congestion occurs on the section of state highway in question • State highway should carry above average percentages of HCV's, provide access to a major freight hub or have national significance for freight movements • State highway with high freight concentration and road geometry that contributes to safety issues/ congestion from slow moving freight vehicles • State highway with high levels of congestion at on ramps and where it is viable to introduce a freight bypass lane • Locations of particular importance to freight industry where congestion delays freight vehicles thus affecting their efficiency i.e.: marine terminals, intermodal transfer points, industrial complexes and urban distribution centres • Freight lane has the ability to be used by HOV vehicles during peak periods 		State highway with high freight concentration and road geometry that contributes to safety issues/ congestion from slow moving freight vehicles
<i>No Car Lanes</i>	<ul style="list-style-type: none"> • At minimum, peak hour congestion occurs on the section of state highway in question • A viable alternative public transport option should exist, to cater for motorists transferring from cars • RLTC (and bus operator, where lane to carry bus services) must be signed up • Must be complementary TDM strategy being pursued by RLTC/TAs • By taking a mixed use lane for No Car use, the vehicle carrying capacity of the corridor is not considerably reduced so causing significant congestion in adjacent mixed use lanes 		Not appropriate

Table 4 Recommended good practice for the implementation of priority lane measures on state highways			
Function	Environment		
National/ Regional/ Sub Regional	Urban (50-70kph)	Peri-urban (80-100kph)	Rural (100kph)
<i>HOT Lanes</i>	<ul style="list-style-type: none"> • Only where existing legislation allows • Where predicted bus and multi occupancy vehicle volumes would not justify a dedicated HOT lane • At minimum, peak hour congestion occurs on the section of state highway in question • HOT Lane should not exceed existing maximum operating threshold (volume) on mixed use lane(s) <p>OR</p> <ul style="list-style-type: none"> • HOT lane should operate at no less than existing average speed on mixed use lane(s) • A viable alternative public transport option should exist, to cater for motorists transferring from cars • RLTC (and bus operator, where HOT lane to carry bus services) must be signed up to the scheme • Must be complementary TDM strategy being pursued by RLTC/TAs • By reallocating existing roadspace for HOT use, the vehicle carrying capacity of the corridor should not be considerably reduced so causing significant congestion in adjacent mixed use lanes • A minimum travel time saving, as defined as the difference in travel time between vehicles in the HOT lane and adjacent mixed use lanes, should be achieved at least for duration of peak period • The lane efficiency of the HOT lane with regards to average operating speed and person throughput should exceed that of adjacent mixed use lanes at least for duration of peak period 		Not appropriate

3.3 WALKING AND CYCLING

3.3.1 Introduction

Walking and cycling – context

Walking and cycling has an important role to play in widening travel choice and contributing to travel demand management objectives. The national commitment to walking and cycling is set out in “Getting There” produced by the Ministry of Transport.

Walking and cycling are particularly important for short distance journeys, for instance up to 2km journeys for walking, and up to 10kms in length for cycling.

For these journeys in urban areas where congestion is a problem and where walking and cycling facilities offer direct, accessible, convenient and safe route options, it is likely that the trip time will not be substantially different than by motorised modes.

Walking and cycling benefits

The benefits walking and cycling offers are numerous in that they:

- Produce no air or noise emissions therefore do not impact negatively on the environment;
- Do not create congestion;
- Are relatively cheap for the user;
- Contribute to improving personal health and fitness;
- Offer advantages over motorised transport in congested urban areas for journey time reliability;
- Contribute to improved community cohesion and safety; and,
- Link well with other public transport travel options.



3.3.2 Transit's role in walking and cycling

Transit's role in this aspect of travel demand management

Transit has a number of roles in providing a safe and supportive environment for walking and cycling. These can be summarised as:

- a. working with partner agencies and representatives of cyclists, pedestrians and the disability sector in planning, providing and maintaining appropriate walking and cycling facilities on and across state highways, providing connections with local networks and taking into consideration local cycling and walking strategies;
- b. working with partner agencies and representatives of cyclists, pedestrians and the disability sector to ensure cycle infrastructure provision is considered within the context of the wider road network;
- c. proactively engaging with local authorities in the development of local and regional walking and cycling strategies and wider transport policy development; and
- d. responding as an affected party under the RMA to plan change, structure plans and development proposals.

The overview to Transit's walking and cycling policy as well as the background to it is provided in section 3.3.2 and Appendix 3B of the Planning Policy Manual.

3.3.3 Objective

Transit's objective for walking and cycling is:

To provide and maintain 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.



3.3.4 Walking and cycling policy

Transit will fulfil this commitment by:

1. Work with local and regional authorities, Land Transport New Zealand, 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 cycling and walking on and across state highways where appropriate.
2. Address 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. Seek consistency between local and regional cycling strategies, the relevant provisions of regional land transport strategies and Transit's State Highway Forecast.
4. Deliver facilities for cyclists and pedestrians that represent engineering best practice, high quality urban design and value for money.
5. Recognise the particular requirements of different types of journeys such as commuting, school travel, short urban trips, recreational, tourist and racing. Recognise also that cyclists and pedestrians need to travel both along and across state highways.
6. Gather data on the numbers of cyclists and pedestrians using the state highway network to enable targeted treatments to be implemented.
7. Maintain 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.

3.3.5 Key considerations in providing for cycling and walking

There are a number of fundamental considerations that should be allowed for when implementing facilities for pedestrians and cyclists. In essence, facilities should be:

- Convenient;
- Safe;
- Accessible; and,
- Attractive.

Convenient Walking and cycling networks should allow pedestrians and cyclists to reach their destination by the most direct and convenient route. Routes and key destinations should be signed, have a clear purpose (for instance, with a start and finish), and reflect desire lines (this is particularly important when installing an at grade crossing). New facilities should offer advantages in terms of directness/permeability and/or journey time with the minimum of detours.

Safe Routes should not only be safe they should feel safe, if necessary by ensuring that vehicle speeds are appropriate to the surroundings, with controls being introduced where they are required. Pedestrians and cyclists should not feel their personal security is at risk when using the facility. Where possible avoid installing underpasses or bridges that could facilitate crime and fear of crime. A level of lighting must be provided that caters for security needs of pedestrians and cyclists, but is also sufficient for the safety requirements of drivers.

Accessible Routes should link key origins and destinations and connect naturally with other walking and cycling routes. They should coincide with natural desire lines and be continuous without barriers or gaps. They should also be obvious by design in order to reduce the need for signage. People should be able to move along footpaths and cyclepaths unhindered by street clutter, parked cars, poor quality materials and inappropriately located obstacles.

People of all abilities should be able to access different modes of transport and change between them. For example, for pedestrians it is important to provide dropped kerbs with tactile paving that align on both sides of the street. For further information reference can be made to *Guidelines for facilities for blind and vision-impaired pedestrians RTS 14, Land Transport Safety Authority, 2003*. This is particularly relevant with the increase in use of mobility scooters.

Attractive Providing advantage over other modes will make walking and cycling a more natural choice of transport for short trips. This will be enhanced if the environment is as attractive as possible. An attractive pedestrian and cycling environment operates to encourage more active travel and means that good urban design should be an integral aspect of Transit's projects.

Opportunities for enjoying the 'travelling landscape', including innovative design, public art, opening up views, landscaping are other important considerations. The facility should also be comfortable in the fact that it is even, well drained and has places to rest, for example for pedestrian routes, benches evenly spaced along the route. The provision of pedestrian and cycle facilities should adhere to urban design best practice principles.

3.3.6 Cycling Options

The main types of measure that can be implemented to assist cyclists on the network are described below. For more detailed information reference should be made to *New Zealand Supplement to the Austroads Guide to Traffic Engineering Practice Part 14: Bicycles* and to *Austroads Guide to Traffic Engineering Practice Part 14: Bicycles* (the current Austroads Traffic Engineering series is being replaced by Traffic Management and Traffic Design guidelines over the next 2-3 years), available on the Transit website and the *Traffic Control Devices 2004* (and Amendments 2005 and 2006). Another useful document for reference is the *Cycle Network and Route Planning Guide*⁷.

Cycle lanes and sealed shoulders

These are on highway lanes specifically provided for cyclists and comprise a strip of carriageway normally at the kerbside edge of the highway. They are usually separated from the main running carriageway by a white line and have regularly repeated carriageway cycle symbols and signing.

Cycle lanes do not always need to be located at the kerbside. For instance they can be installed between parked vehicles and the running carriageway or between lanes on a multi-lane one-way street. In both cases consideration needs to be given to ensure safety, for instance leaving a strip between parked vehicles and the cycle lane to ensure doors opening from parked vehicles do not cause danger to the cyclist. Cycle lanes can also run contra-flow to the direction of traffic flow. In such instances careful consideration must be given to the beginning and end treatments of the facility as well as the overall safety factor in each individual circumstance.

It is also worth noting that under the provisions of the Traffic Control Devices Rule and the Road User Rule referring to “transit lanes”, cyclists are permitted to use a bus lane unless specifically excluded. Any such exclusion will be notified through signage. The advantage for cyclists of using bus priority lanes are that these lanes can often be less busy than general traffic lanes and that they can offer more direct routes by permitting access to roads excluded from general traffic use, particularly in central urban areas. Consideration needs to be given to the width of such lanes, particularly where bus flows are high to ensure cyclist safety is not compromised and buses are not unduly held up behind a cyclist.

Transit can assist cyclists in the rural environment through the provision of wider sealed shoulders. These shoulders are not specifically marked for cycle use but nevertheless, operate to assist cycle safety.



⁷ Land Transport New Zealand 2004

Cycle paths

A cycle path is a facility segregated, for example, by a strip of land, from the running carriageway. In the majority of instances this will lie within the highway reserve although in some instances it may lie outside this, for example through a park. Cycle paths can be designated for shared use with pedestrians or exclusively for cyclists and can cater for one or two way cycle flows.

The advantage of cycle paths are that they offer additional safety to cyclists where traffic flows are particularly high or fast and will be more attractive to those cyclists who are not used to, or are unsure of, the highway environment.

Particular care should be taken when a cycle path in the urban and peri-urban environment crosses individual vehicle accesses, for instance in a residential area. Where visibility is restricted due to boundary features, a margin should be maintained between the cycle path and the property boundaries. If the facility is shared use and this is demarcated through lining and signing, the cycle element of the shared use path should be nearer the highway.

Attention should be given to whether lighting is required for the facility and how it will be maintained. Careful attention should also be given to the siting of highway infrastructure such as signing poles, lighting columns and bus shelters in relation to the cycle facility.

It is likely that funding arrangements for cycle paths will need to be explored on a case by case basis and in partnership with the appropriate local authority. Consideration should also be given to how the facility will be maintained.

Advanced stop lines and advanced stop boxes

The advanced stop line and box is a facility that permits cyclists to enter an area ahead of a general traffic queue at traffic signal junctions. The main objective is to allow cyclists to pass queuing traffic and to improve safety, particularly for right turning cyclists as it enables them to manoeuvre to the right side of the carriageway ahead of general traffic. The box is in effect a queuing reservoir for cyclists ahead of the traffic queue and the advanced stop line delineates the limits of this advanced area. This facility is usually implemented in conjunction with cycle lanes or at minimum a short length of cycle lane leading up to the junction to ensure cyclists can access the advanced facility.

Toucan crossings

Toucan crossings are signalised crossings that cater for pedestrians and cyclists. The term is based on the principle that "two can" cross, namely cyclists and pedestrians. These are particularly appropriate where a cycle route crosses a state highway in an urban or peri-urban area. The main differences from traditional signalised pedestrian crossings are the width of the crossing area and the fact that they have a green 'cycle' symbol in addition to the red and green 'person' symbols. They may be activated by sensors as well as push buttons.

Highway pinch-points

Many sections of state highway have pinch-points where the width of the carriageway is reduced. This may occur due to topography or on bridges and in tunnels. There are a number of ways of addressing such pinch-points to improve safety for cyclists. These include provision of:

- Alternative non-state highway route
- “Clip-on” bridge
- Traffic management features such as cyclist activated signage to alert drivers to presence of cyclist
- Narrowing of general traffic lanes to provide space for cyclists

3.3.7 Walking Options

Austrroads Guide to Traffic Engineering Practice Part 13: Pedestrians is a useful reference when considering providing pedestrian facilities. Land Transport New Zealand has produced the *Pedestrian Network Planning and Facilities Design Guide* which should be available in the second half of 2007. This guide takes forward and provides further detail to the Austrroads publication. Another useful tool, again produced by Land Transport New Zealand is the *Non Motorised User Review*. This enables an audit of proposals to ensure pedestrians, cyclists and equestrians are adequately catered for and is available on the LTNZ website.

3.3.8 Other walking and cycling considerations

Reducing community severance

New and existing sections of state highways can have a severance effect on communities especially in high speed or multi-lane locations. This particularly applies to pedestrian movements, but can also apply to cyclists and in some cases, vehicle movements where limited access state highways divide a community. Urban areas are where severance tends to occur most frequently. However, it may also occur in peri-urban and rural areas.

Transit’s projects should consider whether the community will experience severance as a result of improvements to the state highway or new state highway works. Where this is the case, measures should be included in the works to reduce these effects. Similarly, some projects will produce an opportunity to add in treatments that reduce community severance where the state highway is currently dividing a community. Treatments could include new or improved crossing facilities, measures to slow traffic, or works to narrow carriageway width at specified locations.

Community severance is an important urban design consideration. More information on urban design can be found in section 3.5 of Transit’s Planning Policy Manual.

Facilities for journey to school

Special consideration should be given to the particular walking and cycling needs created by schools, where these are located on or near the state highway network. The type and nature of facilities provided need to be able to cater safely for young users and potentially large numbers over a short period of time.

Other types of crossing facility

A number of mechanisms to assist pedestrians or cyclists in crossing state highways are available. The key factors to consider in deciding the most appropriate option for the circumstances are speed and volume of traffic as well as the current and likely future volume of pedestrians or cyclists using the facility. To assist in deciding the most appropriate option, the *Pedestrian Crossing Selection Calculation Tool* available on Land Transport New Zealand's website could be helpful. Options for crossings include:

- Signalised crossing facilities (either for pedestrians/cyclists only or as part of traffic control at junctions);
- Widened central traffic islands;
- Overpasses;
- Underpasses;
- Footway build-outs; and,
- Hook turns or jug handles (cycling only) – these allow cyclists to better position themselves at the left hand side of the carriageway in order to make a right turn rather than doing so from a cycle lane travelling along the carriageway.

Treatment at junctions

Particular attention should be given to the treatments provided for pedestrians and cyclists at junctions to ensure safety. The type of treatment most appropriate will be determined by the type of junction in question. For example, roundabouts will necessitate a different type of approach to ensure provision for pedestrians and cyclists where this is appropriate, from that applied to signalised junctions.

Marking and signing

All markings and signing in relation to walking and cycling features should be in accordance with the *Traffic Control Devices 2004* (and Amendments 2005 and 2006).

Provision during construction or maintenance work

It is important that during the construction of highway projects or implementation of highway maintenance schemes pedestrians and cyclists are catered for. Where an existing facility occurs and will be disrupted by the works, alternative provision should be made. Any existing link severed during new or upgraded works should be reinstated to current standards. This should include appropriate signing to direct pedestrians or cyclists to the temporary facility.

Where a specific walking or cycle facility does not exist but scheme construction or highway maintenance reduces lane widths or restricts access in an environment that forms part of a route for pedestrians or cyclists, consideration should be given to how to safely accommodate such pedestrian and cycle movements for the duration of the works.

3.3.9 Motorcycling

Motorcyclists can contribute to travel demand management by physically taking up less space than cars and therefore minimising their impact on congestion. Current legislation allows motorcyclists to use bus priority lanes unless specifically excluded by signage. The requirements of motorcyclists are primarily centred around safety, quality of road maintenance and parking facilities.

Transit's role in this area is to fully consider these aspects in all schemes and to encourage local road controlling authorities to provide appropriate motorcycle parking.

3.3.10 When to apply walking and cycling options

Guidance on the types of measures most appropriate to each state highway category (as set out in the National State Highway Strategy) and under different circumstances is provided in the table in Appendix 5 (this is also included as Appendix 3B in the Planning Policy Manual).



3.3.11 Engaging with partner agencies

Project collaboration

While Transit will work with a number of partners to implement joint walking or cycling initiatives, it is expected that there will be close liaison with the local road controlling authority to ensure delivery of joint schemes and integration between local road and state highway networks. This collaboration will give due effect to the cycling and walking policies and strategies of both organisations.

Local and regional cycling strategy development

In its role of working with partner agencies to consider walking and cycling infrastructure provision in the wider transport network context and in engaging in the development of local and regional walking and cycling strategies, Transit may advocate for the following:

- Identification of area wide walking or cycle networks;
- Implementation of networks that include a range of walking and cycling facilities to improve the directness, convenience and safety, and complement urban design good practice;
- Provision of adequate lighting and route signing for walking and cycle facilities;
- Provision of high quality on-street cycle and motorcycle parking facilities at main trip attractors and across urban areas;
- Minimum cycle parking standards for new development
- Provision of walking and cycle route information and mode marketing/communications plan;
- Program for delivery and funding of walking and cycling strategy;
- Identification of mode share targets and monitoring regime;
- Facilities to cater for the needs of people with mobility difficulties; and,
- The use of land use planning mechanisms including plan policies and rules to deliver growth and development that accommodates walking and cycling, travel plans that promote walking and cycling and developer contributions to assist with funding the strategy.

Wider transport policy development

In participating in wider local and regional transport policy development, Transit will encourage the inclusion of policies and strategies that support and promote walking and cycling as part of a multi-modal transport system that enables smooth integration between those transport modes.

RMA process

Reference should be made to Transit's Planning Policy Manual (section 3.3.2) for guidance on its role under the resource management process in relation to walking and cycling.

3.4 TRAVEL PLANNING

3.4.1 Introduction

Travel planning – context

Much work has been carried out to take forward travel planning in New Zealand. The main area of focus to date has been on working with existing schools and organisations to develop travel plans for their operations. Significant progress has been made by a number of local authorities (territorial and regional) across the country and by Auckland Regional Transport Authority (ARTA) and Greater Wellington Regional Council in particular, and by Land Transport New Zealand in providing guidance around this initiative. Travel planning in New Zealand is primarily the responsibility of local authorities to promote and support with the assistance of national guidance. Transit however, has a role in relation to state highways.

Travel planning and the RMA process

This role is where Transit is an affected party to a resource consent application or plan change and a travel plan would be one potential mitigation measure. In this situation Transit would like to work with its transport and planning partners to require the development to have a travel plan in right at the start of its operation.

The objective is to ensure a wide choice of travel options and ongoing support for the travel plan is facilitated from the beginning of its operation and thereby influencing travel choice before travel patterns have become established.

Once established, travel behaviour is often much harder to change at a later date. This approach is centred around the ‘prevention rather than cure’ philosophy and recognises there is an opportunity at the resource consent stage to ensure developments do not unnecessarily encourage car dependence but instead contribute to a more multi-modal transport system.

This section describes the role travel plans can have in contributing to better integration between land use and transport planning, particularly at the resource consent stage, and Transit’s involvement in this area. It is primarily to assist Transit staff when engaging in the resource management process where a travel plan may be an appropriate mitigation measure. For national guidance Land Transport New Zealand’s Travel Planning Guidance (www.landtransport.govt.nz/sustainable-transport) should be referred to and where regional or local guidance exists, this should be sought, for example through the appropriate regional council or for Auckland region, ARTA’s TravelWise initiative.

3.4.2 What is a travel plan?

Travel plan definition

A travel plan is a means of promoting sustainable travel behaviour through widening travel choice and reducing reliance on the car.

It can also be a means of securing some of the mitigation measures identified within an Integrated Transport Assessment (ITA). A travel plan identifies a package of measures tailored to the needs of an individual site, the objective of which is to increase travel options to that site and so help to reduce reliance on single occupancy car journeys. In doing so, it should also minimise any adverse impact on the local road and state highway networks.

Travel plans can be applied to businesses, residential areas and schools. This guidance is predominantly aimed at promoting the implementation of workplace travel plans, although some advice will be provided on school and residential travel plans. This is because it is likely that business/retail related developments will occur more frequently than new school developments close to state highways.

3.4.3 Travel planning in relation to development proposals

Travel planning and the Integrated Transport Assessment

The Resource Management Act requires that the impact of development is remedied, avoided or mitigated. An Integrated Transport Assessment (ITA) is a means of ensuring a multi-modal approach is taken to development and that the likely impacts of development proposals on transport networks and accessibility are identified. ARTA has developed ITA Guidelines for the Auckland Region and Transit has advocated the use of ITAs in relation to managing the impacts of development where this affects the state highway network through its Planning Policy Manual. Many other areas of the country currently require a traffic impact assessment, however the objective of the ITA over this process is to ensure all modes of transport are considered rather than primarily car traffic.

Where it is assessed that a development will have a significant impact on the network, the ITA should include the identification of measures that could potentially mitigate those impacts so minimising future transport and accessibility problems. One of a range of potential mitigation measures that could be implemented is a travel plan for the development. Transit seeks to work with territorial authorities and regional councils and ARTA in the case of Auckland, to encourage the production of a travel plan by the site occupiers as one of a range of potential mitigation measures where it is identified that the development will impact on the state highway network.

Transit requests an ITA for development proposals that are likely to be significant trip generators affecting the state highway. This also aligns with ARTA's objective of ensuring developments apply a multi-modal approach. Details of Transit's role in this area, the ITA process, and the triggers for an ITA can be found in Appendix 5C of Transit's Planning Policy Manual.

Process for including travel plans in development proposals

While Transit may request a travel plan as part of mitigation to development proposals, the ability to require the production of a travel plan lies with the consenting authority.

Transit's role therefore is primarily one of advocacy and hence Transit is keen to work with the relevant authorities to see travel plans introduced as part of wider mitigation measures where they can help minimise impact on the state highway network. The process envisaged is set out below:

1. As an affected party to a plan change, structure plan or resource consent application Transit requests an ITA (triggers set out in Transit's Planning Policy Manual);
2. ITA identifies likely level of impact on local road and state highway network;
3. Range of potential mitigation measures identified, one of which could be a travel plan for development;
4. Transit advocates for consenting authority to include requirement for site occupier to produce travel plan;
5. Transit works with consenting authority to identify best means of ensuring travel plan is produced by site occupier where this is to make up part of mitigation measures; and,
6. Consenting authority includes requirement for travel plan on site occupier.

Transit will also work with the territorial authority and the regional council to make clear that the objective of any travel plan required as part of the mitigation for a development should be to widen travel choice to that location, reduce reliance on the single occupant car, and hence achieve more sustainable transport outcomes for the proposal. In doing so, the impact on the state highway network as well as the local road network in the vicinity of the development should be reduced.

Where the need for an ITA has not been triggered, or the territorial authority chooses not to require one, Transit will still encourage a commitment to sustainable transport objectives to be made as part of the proposal in order to minimise any potential impact on the state highway.



3.4.4 What is Transit's role in travel planning?

Transit's role in this aspect of travel demand management

Transit has the following roles in promoting travel plans as an affected party and submitter to a structure plan, plan change or resource consent application:

- a. where the need for an ITA (or traffic/transport assessment) has been triggered, Transit will advocate for the consenting authority to require a travel plan to be produced by the eventual site occupier as one of a range of potential mitigation measures identified as part of the ITA where this is appropriate;
- b. where a travel plan has been identified as an appropriate mitigation measure for a development, Transit will work with the relevant local and regional authorities to secure and support the production of that travel plan where required;
- c. working with local and regional authorities and ARTA to identify the best method of ensuring the requirement to produce a travel plan is passed onto the site occupier;
- d. advocating for methods and rules in regional policy statements and district plans that require the preparation of travel plans or an ITA to support a major trip generating activity. A travel plan could then be requested as part of the mitigation identified through the ITA process where appropriate;
- e. working with transport partners to promote and raise awareness of the benefits of travel planning and to develop and implement travel plans on a multi-agency basis where these are likely to reduce impacts on the state highway network;
- f. implementing and supporting Transit's own travel plan; and
- g. requiring Transit's contractors to have a travel plan for their operations in urban and peri-urban areas. The travel plan should be submitted as part of the tender process.

Resourcing travel plans

Given resourcing issues for many territorial authorities, it is considered that realistically the role of the TA in requiring travel plans under the resource management process would be minimal. Broadly this could include the following steps:

- Requiring a travel plan;
- Assessing the travel plan (responsibility for producing the travel plan would lie with the site occupier); and,
- Enforcing the travel plan (see 3.4.9 for more detail).

National support for resourcing

It is recognised that resourcing the travel planning process is potentially a major issue for many local authorities. Transit is willing to work with local authorities where this would assist, however Transit advocates for national intervention to help resource, support and promote this aspect of travel behaviour change and demand management.

3.4.5 Travel planning objective

The intended outcome of the implementation of travel plans is to promote sustainable travel behaviour and to ensure developments avoid, remedy or mitigate their transportation impact on both the local road and state highway networks. Travel plans can achieve this through increasing the opportunities to use public transport, cycle or walk to the site while discouraging car use, particularly single occupant car use, by introducing measures such as parking management.

Objective for travel planning

Transit's overall objective for travel planning is:

To encourage the production and implementation of a travel plan for major new developments to minimise their transport impact, particularly on the state highway network, through reducing single occupant car trips and maximising travel options to that development.

3.4.6 Implementing the travel planning objective

In order to avoid, remedy or mitigate the transport impacts of new developments on the state highway network Transit will encourage:

1. Territorial authorities and regional councils to include the production of a travel plan as one potential mitigation measure identified through the ITA process. The key mechanisms for achieving this are through regional policy statements, district plans and the resource management process.
2. Good practice through requiring Transit's contractors to have their own travel plan for the Transit project work site in urban and peri-urban areas.
3. Targets to be set for mode share for the development in each travel plan.
4. A monitoring and reporting regime to be identified and included in the travel plan.

3.4.7 The benefits of travel plans and the issues they address

Travel planning benefits

The benefits of applying travel plans are numerous and span a variety of policy areas outside transport such as health, environment and social inclusion. Appendix 6 provides greater detail of the benefits derived for specific parties, however the overarching benefits are:

- Reduced congestion around site – through wider travel options lessening reliance on single occupant car in particular;
- Improved accessibility and social inclusion – wider travel choice means those without use of a car can still get to site to work or access services therefore assisting social equity issues;
- Improved business efficiency – increased productivity through less absenteeism, better access for staff, visitors and deliveries, cost savings from need for less parking, justification for providing less car parking;
- Supporting staff travel – caring employer, improved health, cost and time savings, less stress and greater choice of travel options;
- Being a good neighbour – community benefits from reduced traffic congestion and improved safety; and,
- Reduced environmental footprint – less air and noise pollution and contribution to wider environmental targets such as reduced impact on climate change.

3.4.8 Developing a travel plan

Much work has been done in New Zealand and overseas on how to develop a travel plan and what it should consider. Transit recommends that where travel planning guidance has been developed by a local or regional council or ARTA, this guidance is used. Where this is not available for the particular area, the travel plan checklist contained in Appendix 7 may provide assistance. This appendix also includes the minimum requirements for a Transit contractor in producing a travel plan for its operation. Appendix 8 gives a fuller description of potential measures that could be included in a travel plan with Appendix 9 providing some examples of travel planning good practice from New Zealand and overseas as well as some useful websites.

3.4.9 Engaging with partner agencies

Transit's role in engaging with other parties in relation to travel planning is described in Section 3.4.4 above. Detailed guidance regarding the areas covering Transit's participation in regional policy statements and district plans, is provided in Transit's Planning Policy Manual.

Promoting travel planning

Transit may at times be in the position to work with other agencies to help promote and implement travel plans either as a result of the proposal having an impact on the state highway network as discussed above, or where Transit is part of a forum or group promoting travel demand management and travel behaviour change. Similarly, Transit may have an involvement in developing a Neighbourhood Accessibility Plan (NAP)⁸ where a state highway passes through the area covered by the plan. The objective of a NAP is to assist councils improve walking and cycling access and safety in conjunction with community groups. In such circumstances staff should be proactive in providing assistance as benefits could potentially be derived for both the state highway and wider transport network.

Securing a travel plan

Where it has been identified that a travel plan will form part of the mitigation measures for a development proposal through the ITA process, Transit considers it important to ensure that this requirement is given statutory status through the plan change or resource consent.

There is often the risk that a development that requires resource consent or individual developments that result from a plan change or structure plan exclude identified travel demand management measures if they are not included in the final statutory document (for example, as part of the plan change or as resource consent conditions). A practical example of this would be the requirement to incorporate the request for a travel plan identified through the ITA, into the plan change.

Mechanism for ensuring production of travel plan by site occupier

Transit will seek to work closely with local authorities (territorial and regional) and ARTA to establish the best means of ensuring a travel plan is produced by the site occupier where it has been identified as an appropriate mitigation measure. Some of the options available are set out below, however the final decision will lie with the consenting authority.

RMA process

Perhaps the most appropriate and effective means of securing the production of a travel plan by the site occupier is through the resource consent process. The following options enable the requirement for a travel plan to 'run with the site' rather than being an obligation on the developer. These are:

- a. putting a consent notice on the title of the site. This would alert potential purchasers of the ongoing obligation regarding the travel plan; or,
- b. putting a condition on the resource consent, however there may be an issue of the potential purchasers being unaware of such a condition pre-purchase which could lead to future disputes.

8 www.landtransport.govt.nz

Submissions in support of external organisations

An alternative method for incorporating these measures into the statutory framework is to submit evidence in support of other organisations, such as a regional council, ARTA or Land Transport New Zealand, who may also require the inclusion of such measures. If incorporated successfully into the statutory framework, this will provide a strong foundation for a travel plan to be developed and implemented.

Other options

There are a number of other means of securing a travel plan for a site, for instance through a Memorandum of Understanding, however, the most appropriate method is likely to depend on the individual development circumstances. Transit will work with the relevant authorities to identify the best method as each instance arises.

Enforcement

Enforcement of any resource consent condition for a site occupier to develop a travel plan will be necessary to ensure that the travel plan is implemented. The responsibility for enforcement rests with the consenting authority however Transit will work closely with the authority where appropriate to explore how enforcement could be managed.

Target setting, monitoring and evaluation

The more effective travel plans are those that set targets for mode share and carry out regular monitoring. This allows revisions as appropriate to better ensure the travel plan meets its targets and hence achieves maximum impact. Transit is keen to work with the consenting authority and other relevant bodies such as the regional council or ARTA to explore how targets will be set and the travel plan will be monitored and reported on. One potential option is for the territorial authority to require the applicant to provide a specified sum to cover ongoing monitoring of the travel plan.

Where monitoring and evaluation procedures already exist, for example through ARTA's Travelwise initiative to support travel plan development, these should be used. Land Transport New Zealand is currently working on a national travel plan monitoring and evaluation process. When this becomes available, Transit would support organisations monitoring their travel plans in a way that would contribute to national monitoring and hence, evaluation.

3.5 COMMUNICATION

3.5.1 Introduction

Communication – context

To achieve travel demand management objectives, we are attempting to change what for many people are ingrained travel behaviours.

In our society, this behaviour is largely centred around the car. One vital part of the jigsaw in affecting this change is communication. Communication needs to happen in three ways in order to have an impact:

1. Communicating that there may be better ways to travel than how we are currently choosing to do so. This needs to be clear on what the benefits of altering travel behaviour are likely to be, for example, time and cost savings, health benefits, environmental benefits.
2. Communicating what the alternatives are, particularly in relation to the state highway network.
3. Working with partners to provide sufficient information on each travel option available on the state highway network to enable people to make an informed decision.

It is fully acknowledged that in many areas of New Zealand there are no realistic alternatives to travel by car for many trips. Where alternatives do exist however, the key issue is to communicate that another form of transport to the car is available and could be an option for a particular journey.

Individuals need to be able to change their behaviour voluntarily through a range of choices that will contribute to improving their quality of life in some way. It is important that individuals are allowed to identify their own issues and find a solution to it for behaviour change to occur.

A recent study in New Zealand found that people had a good awareness and knowledge of environmental issues, but this did not correlate to commuting behaviour and related emissions⁹.

It is important that the information provided enables individuals to draw a parallel between their current travel behaviour, the impacts this has, and what effect there would be if they changed their behaviour.

Information can help increase the acceptance of initiatives designed to manage the demand for travel and widen transport options. It does so by assisting understanding of why these measures are being introduced and why there is a need to consider changing travel behaviour where possible.

⁹ Thomas et al in 'Application of Psychological Principles to Promote Travel Behaviour Change' Seethaler, R. Rose, G, 2003

3.5.2 Transit's role in communication

Transit's role in this aspect of travel demand management

It is fully acknowledged that the role of communicating on transport issues in general is one for agencies such as the Ministry of Transport and Land Transport New Zealand. Transit however does have a part to play where the state highway system and individual state highway projects stand to benefit. The key role for Transit in this area is to ensure every opportunity is taken to communicate what travel demand management is about, why Transit is pursuing it, and what this means for the travelling public on the state highway network. The main subject matter of this will be centred around communicating:

1. The opportunities for changing existing travel behaviour. This will usually be linked to state highway projects and joint projects on the wider transport network designed to offer a wider choice of travel options. It will also involve communicating the benefits of making a change, such as health, environmental;
2. Establishing realistic expectations. Transit has a role in managing peak travel time expectations, particularly for critical network links;
3. Supporting others. Transit has a role in supporting and encouraging both transport partners and the planning authorities to include travel demand management principles in their policy development and across their areas of work.

3.5.3 Communication objective

Take every opportunity to promote the objectives and benefits of managing the demand for travel, particularly for the state highway network, through effective communication and dissemination of information to increase understanding of transport issues and raise awareness of the wider transport options.

3.5.4 Communicating effectively on managing the demand for travel

Transit will, at all opportunities:

1. Promote travel demand management principles, initiatives and benefits particularly associated with state highway projects.
2. Communicate to raise awareness of the issues surrounding travel behaviour, particularly its implications for the level of service on the state highway network at peak travel times.
3. Engage with and encourage all related stakeholders regarding managing the demand for travel.

3.5.5 The Challenges

Raising awareness

A challenge that needs to be overcome is the fact that a high proportion of individuals are unaware that there may be an issue with the way they currently travel. Additionally, even when individuals are relatively environmentally aware, they may not make the link that their travel behaviour, and particularly travelling alone by car, can have adverse effects on the environment. While particular actions may make sense on an individual basis, for example driving to work by car, when repeated by enough individuals it can have major implications for society as a whole.

Communicating the whole picture

The main challenge is to communicate this information in a way that is clear on the issues associated with current behaviour as well as the potential benefits of changing this behaviour where this is possible and in a way that motivates the desired effect.

3.5.6 Transit's Message

Key message

Transit's messages around managing the demand for travel are likely to change depending on the initiative, project or audience. However, there is one consistent theme to these messages:

Transit is seeking to encourage and support the use of a wider range of travel options on the state highway and wider transport network.

In promoting this message Transit recognises that this will only happen where there are feasible transport options appropriate for the individual.

Managing expectations

Any communication on travel demand management should also include information to manage expectations for level of service on critical state highway links during peak travel times.

3.5.7 Communication Options

Communication opportunities

There are various mechanisms that Transit can adopt to promote measures to manage the demand for travel and communicate their benefits. In addition to the opportunities below, State Highway projects involving travel demand management initiatives will be a prime means of getting the message over. The list below serves as a guide to where Transit can communicate its message on travel demand management and is by no means exhaustive.

- Media;
- Local/regional/national forums;
- Partnerships;
- Workshops/conferences;
- Transit's own publications such as 'Intransit', regional and project newsletters; and
- Transit's website.

3.5.8 When to apply options

Ongoing nature of communication

Communication will be an ongoing feature of managing the demand for travel and communications via as many mediums as possible should be considered at every opportunity. Word of mouth can be one of the most effective means. If people can be influenced to change their habits it can have a knock-on effect, as they are likely to communicate the benefits they have found to others.

Communication prior to project implementation

An ideal time for the message to be conveyed is prior to a travel demand management related scheme. This should provide information on the purpose of the measure and help to negate any potential opposition. It is important that this is linked into the scheme communication plan from the outset.

Communication post project implementation

It is important to communicate the benefits that have been gained from a demand management measure once it has been implemented as people can often be sceptical of benefits materialising. It is therefore vital to demonstrate that benefits have been produced and ensure this message is effectively communicated. Again, this aspect should be built into the project communication plan.

3

THE STRATEGIES TO DELIVER

3B IMPROVED EFFICIENCY AND NETWORK MANAGEMENT

The state highway network is one of New Zealand's major assets, valued at \$22 billion.

The work Transit carries out to improve its efficiency and manage the network is all about getting the most from this asset, mainly through increasing the people and freight carrying capacity of the network. In doing so we are ensuring long term value for money as well as contributing to the wider objectives of the New Zealand Transport Strategy.

The main approaches for managing the demand for travel available to Transit in this area are:

- Applying techniques to increase the capacity of existing highways. This is primarily technology based and can be used to assist specific transport journey types such as public transport, freight or tourist movements, or address congestion on the network at specific times of day;
- Providing information to travellers before and during their journey to enable them to make an informed choice about mode of transport, route and time of travel. This information can be conveyed via a range of media from radio bulletins and variable message signing to web sites and mobile phones; and
- Proactive management of particular transport movements across the network.

The majority of work in this area, and particularly around improving the efficiency of the network, will be within Transit's own remit. However, for some of the initiatives relevant to managing the network, Transit's role will be to engage with agencies across the transport sector to deliver on objectives.

3.6 TRAFFIC MANAGEMENT SYSTEMS (TMS)

3.6.1 Introduction

TMS – context

Traffic Management Systems (TMS) apply a variety of technologies designed to manage traffic flows and the effects of congestion on the network. The aims of these types of systems are to improve the operation, efficiency and safety of the network, by addressing the traffic management effects of crashes and slow moving or queuing vehicles as a result of recurrent congestion, planned events or extreme weather.

TMS comes in a variety of guises including, ramp signalling, dynamic lane management, variable speed limits, incident detection, vehicle activated signs and adaptive traffic signal control.

Until recently Transit's existing traffic management systems did not include the ability to manage traffic in real time. This is beginning to change with the installation of ramp signalling, and variable mandatory speed control.



3.6.2 Transit's travel demand management role in traffic management systems

Transit's role in this aspect of travel demand management

The development of the TMS function for Transit is managed centrally by Network Operations from the national office, and for further information regarding the TMS programme, or if considering TMS as part of a project, contact should be made with Transit's Network Demand Manager. In providing this service, Transit's role is:

- a. to identify and implement appropriate TMS schemes on the state highway network to fully utilise state highway capacity, manage traffic flow and the effects of congestion, and improve safety. This will involve the latest information technology to monitor and review traffic on an ongoing basis.
- b. to work with other road controlling authorities to ensure where appropriate, TMS systems are co-ordinated and managed across the wider network.

3.6.3 Objective

Transit's objective for TMS is:

To optimise the people and freight carrying capacity of the state highway network and minimise disruption from any incident or unforeseen event, while managing that capacity to ensure that it does not encourage additional single occupancy vehicle trips.

It should be noted that managing the capacity to ensure it does not encourage more single occupant vehicle trips will largely be achieved through other demand management measures than TMS, for example by converting existing road capacity to HOV use.

3.6.4 Implementing TMS to Achieve this Objective

Transit will:

1. Implement traffic management tools, such as TMS to seek to improve journey time reliability through optimising network capacity
2. Maintain the level of availability of state highway, through improved incident-response times, and operational procedures by the effective application of TMS
3. Evaluate and monitor each TMS scheme implemented to assess its effectiveness
4. Actively collaborate and consult with other road controlling authorities to promote and implement TMS measures in a co-ordinated manner to provide wider network benefits where appropriate

3.6.5 TMS options

TMS functions

Traffic management systems generally comprise of the following high level functions and technologies:

- **Detection and confirmation** – using technologies, such as inductive loop detectors (in pavement) and closed circuit television cameras to monitor traffic flow, detect and confirm the presence of incidents or problems such as congestion;
- **Response** – providing information to motorists through the use of, for example, variable message signs and lane control signals. This information contains warning of the presence of incidents or problems and appropriate mitigating actions, including advice on reducing speed (can be advisory or mandatory), using alternative lanes or alternative routes;
- **Active capacity management** – making more efficient use of the available network capacity using technologies, such as ramp signalling, dynamic lane management, mandatory speed controls and tolling.

Incident detection

Incident detection tools are designed to reduce the time taken in identifying and reacting to incidents on the network. If combined with other TMS and Traveller Information Services (TIS) measures it can improve network efficiency by minimising congestion caused by incidents and help reduce vehicle emissions caused by the congestion associated with these incidents. It can contribute to reduced response times for emergency vehicles and also minimise the chances of secondary accidents occurring.

Ramp signalling

Ramp signalling is implemented to enhance efficiency of the network by balancing demand and capacity through controlling the rate of vehicle entry onto the motorway. This helps to improve journey times and journey reliability, generate consistent speeds and provide better throughput of vehicles on the motorway. It enhances safety through safer merging and thus fewer accidents.

Variable speed limits

Variable speed limits (VSL) and advisory speeds are designed to 'smooth traffic flow' by introducing a temporary speed limit based on traffic volumes and so reducing the occurrence of stop-start driving conditions. This results in improved journey times and reduced accidents and can produce environmental benefits through less emissions.

Lane control

Lane control aims to enhance the efficiency of the highway through ensuring best use of existing road space. There are several types of lane control that can be implemented and include:

- Tidal flow operations;
- Part time running lanes;
- Lane management for specific vehicle types e.g. bus priority lanes;
- Lane management systems e.g. overhead lane control matrix signs; and,
- Dynamic road markings (DRM).

Adaptive traffic signal control

Adaptive traffic signals can improve highway efficiency by optimising signal timings and balancing traffic flows. This is achieved through automatic updating of cycle times that highlight changes in traffic distribution and volumes.

Variable message signs

Variable message signs alert drivers to such matters as traffic incidents ahead, congestion, events, parking availability and weather conditions. Providing this real time travel information can reduce driver stress levels, allow for the use of alternative routes, reduce congestion and improve safety.

3.6.6 When to apply TMS options

Application of TMS

The measures described above can be applied in urban, peri-urban, and rural areas, as appropriate. The design and implementation of TMS schemes will be predominantly centrally co-ordinated. In considering the inclusion of TMS within a state highway project, consultation should take place with Transit's Network Demand Manager.

Wider network impacts

TMS systems, particularly on the state highway network, are likely to operate across different organisational boundaries. To effectively implement TMS measures, Transit will work closely with local and regional authorities, the police, passenger transport operators and other stakeholders in order to consider wider network implications.

In addition to this, planned measures by the local road authority that may displace extra vehicles onto the state highway network, will need to be assessed in terms of their implications for TMS applications on the state highway system.

3.6.7 Engaging with partner agencies

Transit has a role in promoting the use of TMS by engaging in policy development with regional and local authorities to highlight the benefits that TMS can bring to the wider road network. This role also includes working to ensure that potential multi-agency TMS schemes are identified and implemented where appropriate and in accordance with regional land transport strategy priorities.



3.7 TRAVELLER INFORMATION SERVICES (TIS)

3.7.1 Introduction

TIS – context

Traveller information services (TIS) have a role in helping reduce congestion and improve the service Transit can deliver by providing high value information services to the travelling public.

TIS services are targeted at better informing the public about the status of the transport network, and can lead to a change in travel behaviour.

Pre-trip information allows the traveller to plan their journey and make choices regarding the mode of transport, timing of the journey, best route to take or whether to travel at all.

On-route information enables travellers to make changes to their journey. These services can help reduce driver frustration and lead to an improvement in road network efficiency.

TIS facilities in the United States and in Europe have been demonstrated to improve arrive on-time reliability by between 5 and 16%¹⁰.

In congested urban situations, TIS research has also indicated that around 66% of commuters change their departure time, with 86% changing their route after receiving such real time information from a variety of delivery channels.¹⁰

3.7.2 Transit's travel demand management role in traveller information services provision

Transit's role in this aspect of travel demand management

The development of the TIS function for Transit is managed centrally by Network Operations from the national office, and for further information regarding the TIS programme, or if considering TIS as part of a project, contact should be made with Transit's Network Demand Manager. The purpose of TIS from Transit's perspective is:

- To collect, manage and deliver quality information to travellers that will lead to an improvement in state highway efficiency and safety, maximising the effective and efficient use of the existing highway network; and
- To provide appropriate, accurate and reliable information to road users, or would-be road users, within a timeframe suitable for their needs.

¹⁰ Transit New Zealand Traffic & Road Information Services Strategy

In order to effectively deliver TIS, seven features have been identified as critical to developing successful applications and to ensure road user uptake:

1. Accuracy;
2. Timeliness;
3. Reliability;
4. Certainty of cost (one-time and on-going);
5. Degree of decision guidance and personalisation;
6. Convenience (ease of access and speed); and,
7. Safety (of operation).

3.7.3 Objective

Transit's objective for TIS is:

The collection, management and delivery of quality information to travellers that will improve highway efficiency and safety by allowing travellers to make informed decisions regarding their travel time, route and mode.

3.7.4 Implementing traveller information services to achieve this objective

Transit will:

1. Work with strategic partners to enhance the availability of real time travel information.
2. Influence travel needs and choices by informing of travel options through the use of website links, real time congestion reporting and publicity, variable message signs and other travel information services.
3. Seek to expand its range of traveller information services to enable more informed decisions about where, when and how to travel while recognising the changing needs of the road user, in collaboration with key stakeholders and strategic partners.

3.7.5 TIS options

Current initiatives

Transit's current TIS initiatives include:

- Traffic information cameras for Auckland, Wellington and Tauranga;
- An Auckland traffic information website;
- A partnership with the Radio Network providing broadcast traffic reports in Auckland and Wellington every 15 minutes during peak periods; and
- A partnership with the AA who host a web site providing state highway incident information on a national basis.

Below are measures that are being developed to expand the range of Transit traveller information services in terms of:

- Increasing the scope of information reporting;
- Providing a wider geographic coverage; and
- Developing the range of media used.

E-mail

This operates by the generation of an automated e-mail providing subscribers with real time information regarding an incident or congestion and allows them to change their time of travel, route or mode of travel in order to avoid the congestion.

VMS fixed and mobile

Variable message signs (VMS) are one of the most effective tools in giving road users real time information regarding the condition of the highway ahead of them. They are generally placed in specific locations along high volume highways that experience regular congestion or incidents.

Cell phone text

This facility is similar to an automated e-mail but has the added capability of targeting a wider range of end users. Potential users can be targeted via a Cell site. Travellers can use the service either prior to departure or en route so they have the opportunity to make a change, either in route or timing.

Cell phone WAP (wireless application protocol)

Cell phone WAP technology allows the user to view internet based traffic information on a WAP enabled cell phone. Again, travellers can use the service either prior to departure or en route to help them make an informed travel choice.

Mapping software

Mapping software offers mobile phone users the ability to browse local travel information in real time. This information is overlaid on high quality mapping and operates by allowing mobile devices to download mapping software that can receive up to date travel information.

Public radio

Public radio is a well-established medium for informing travellers in vehicle or in the home or workplace of real time travel conditions.

**Website
congestion map
and video
TV (and digital)**

Transit's website provides real time information for road users. This can also support public and private radio broadcasts in providing travel information.

Television can be an effective means of reaching travellers, particularly weekday and AM peak commuters in the home, and provide them with real time information regarding travel conditions.

**In-car navigation
devices**

Route guidance and navigation information can be provided through in-vehicle navigation systems. The inclusion of real time information in such a system alerting the driver to an incident or congestion enables the opportunity of altering travel plans. While this is predominantly a private sector initiative, Transit can provide accessible information to support this type of service.

3.7.6 When to apply TIS options

The design and implementation of TIS measures will be predominantly centrally co-ordinated within Transit.

3.7.7 Engaging with partner agencies

Transit has a role in promoting the use of TIS by engaging with partners and stakeholders to highlight the benefits that TIS can offer for the travelling public and the wider road network. Transit also has a role in working to ensure that potential multi-agency schemes regarding TIS are identified and implemented where appropriate, and in accordance with regional land transport strategy priorities.



3.8 FREIGHT MOVEMENT MANAGEMENT

3.8.1 Introduction

Freight movement management –Context

The goal for the New Zealand government, as stated in the New Zealand Transport Strategy (NZTS), is

“... to return New Zealand’s per capita income to the top half of the OECD and to maintain that standing.”

However, the government recognises that social and environmental progress should be integrated with this economic development goal and “sustainability will be paramount”.

One area Transit can contribute to this goal is encouraging and assisting the most effective, cost-efficient and sustainable means of transporting freight within New Zealand.

Almost all freight movements on the road network will rely, at least in part, on state highways. Travel time and its variability are critical factors in a product’s logistical costs, particularly since companies have the least control over these factors.

**Any improvements that assist the transportation of
freight around the state highway network will contribute
to the economic position of the country.**

The challenge will be to achieve this while heavy vehicle kilometres grow by a predicted 85% between 2005 and 2020.¹¹



¹¹ ‘Prediction of New Zealand’s freight growth by 2020’ Transport Engineering Research NZ 2006

3.8.2 Transit's role in freight movement management

Transit's role in this area is to ensure freight vehicles are adequately provided for on the state highway network. In doing so Transit will work collaboratively with partner organisations to ensure the movement of freight is optimised across the transport network to achieve the best outcome for New Zealand's economy.

3.8.3 Objective

Transit's TDM related objective for freight movement is:

To ensure the state highway network supports and provides for the cost-effective and sustainable movement of freight within New Zealand.

3.8.4 Transit's policy on freight

Transit will seek to achieve this by:

1. 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.
2. Contributing to land use planning processes and decisions that affect state highways and freight movement and growth.
3. Working with local authorities and other agencies in the development and delivery of multi-modal regional freight strategies.
4. 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).
5. Participating in discussions and joint projects with other freight carriers including rail and coastal shipping.
6. Emphasising safety in relation to heavy commercial vehicles and state highways.
7. Managing the impact of heavy commercial vehicles, increased mass limits and oversized vehicles on existing infrastructure.
8. Collecting, monitoring and improving heavy commercial vehicle movement information and working collaboratively to forecast freight growth.

3.8.5 Freight movement management options

Measures for freight movement management

The types of measures and activities that will be considered in formulating Transit's position on freight movement management are:

- Dedicated traffic management;
- Dedicated lanes;
- Freight specific signage;
- Parking and rest facilities;
- Freight bypasses;
- Engineering features to reduce freight vehicle impacts; and
- Roadspace allocation measures to reduce freight vehicle impacts.

3.8.6 Tourist movement management options

Measures for tourist movement management

Transit recognises that some state highway routes cater for a high percentage of tourist movements, and in some cases state highways solely serve nationally significant tourist locations. As tourism is an important part of the national economy, ensuring tourists are well catered for on these routes is important. A number of measures that can be developed for freight movements can also apply to managing these tourist movements.

3.8.7 When to apply freight movement management options

Future development of options

Guidance on when to apply various options will be developed as part of the main travel demand management actions for 2007/08. It is envisaged that the final options and when to apply them will be incorporated into future versions of this publication.

3.8.8 Engaging with partner agencies

Partnership approach

The predicted growth in freight in New Zealand in the short to medium term is likely to have significant impacts, particularly on specific sections of the state highway network. Transit therefore is committed to working with the wider transport sector to identify and support transfer of freight from road to other modes such as rail and shipping where possible.

Key aspects of this work will include:

- Engaging with the freight industry to identify current and future demands;
- Working with non-road transport sectors to identify potential freight hubs and transfer facility options;
- Reviewing the contribution the state highway network can make in terms of facilitating appropriate access to any such freight hub or transfer site.

RMA process

Transit's Planning Policy Manual (section 3.3.3) sets out the issues, Transit's roles, and methods to be used for managing the effects of growth and development on the transport network and reference should be made to this for guidance in relation to freight and the resource management process.

National freight approach

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. Transit supports the development of such a strategic approach and is keen to collaborate with the agencies leading on that work.

Regional freight strategies

Transit's position in relation to contributing to regional freight strategies will be developed over the coming year. The activities that Transit should consider include, amongst other things:

- The connectivity of the local road and state highway networks in terms of facilitating freight;
- The location of major freight generating activities;
- The opportunity to transfer freight to non road modes;
- Access to freight transfer facilities;
- Access to national and regional gateways; and
- Freight specific facilities, for example, traffic management installations or rest areas.



3

THE STRATEGIES TO DELIVER

3C REDUCING CAR DEPENDENCE

In recent years New Zealand has become increasingly car dependent. For instance, 75% of all travel time in New Zealand is spent in the car.¹²

One of the objectives of managing the demand for travel for Transit is to ensure state highways cater for the movement of people and goods by all modes of transport and so help reduce this increasing car dependence.

The car will always have its place in society and for many journeys, and particularly in rural New Zealand, will be the only option. Managing the demand for travel is about ensuring that where the car is not the only option, the use of other forms of transport is encouraged and supported while working to ensure additional car trips, and particularly single occupant car trips, are not unnecessarily encouraged.

Transit's role in this area has two main focuses:

1. Applying mechanisms that operate to shift the balance of cost between travel modes. These are mechanisms whereby the user pays to use a particular section of road or drive into a designated area. Tolling is one such mechanism and is currently the only pricing option possible under New Zealand legislation; and,
2. Influencing local authority parking strategies and policy. The availability of parking at a destination is often a key factor in determining whether the car is used for a journey. Transit has a role in engaging with local authorities in the development of parking strategies to:
 - a. encourage the application of parking management to public parking facilities; and,
 - b. influence parking requirements associated with new development.



¹² Ministry of Transport, Household Travel Survey, April 2007

3.9 TOLLING AND ROAD PRICING

3.9.1 Introduction

Tolling and road pricing – context

Internationally the need for transport improvements has outpaced available funding and in many cases this has led to the investigation of alternative sources of funding, for example, tolling. This is also the case in New Zealand where desirable infrastructure improvement cannot be advanced because it is unable to be funded in the current fiscal environment.

Tolling is a new source of revenue. This revenue can support significant levels of debt that can be used to construct infrastructure projects earlier than planned. A current example of a toll project on state highway in New Zealand is the ALPURT B2 toll road north of Auckland.

One of the consequences of tolling can be a travel demand management effect.

That occurs when the price signal on the road may result in changes in time of travel, the number of trips undertaken or modal shift, contributing to more sustainable travel patterns.

Transit's toll policy is primarily driven by revenue generation and the need to advance projects that would otherwise not be constructed as this is a requirement of legislation. There may however be instances where demand management benefits can be accrued by such toll projects.

Road pricing is concerned with pricing for the full economic, environmental and social costs of road use and has an objective of reducing congestion while also raising revenue. It is not legislated for in New Zealand at the current time. Road pricing has the potential to discourage the use of particular modes of transport and increase the attractiveness of alternative modes. It can result in both a reduction in traffic and the need to provide additional road capacity.

Legislative context

The Land Transport Management Act 2003 (LTMA) provides a framework for promoting tolls and concession agreements as a means of supplementing National Land Transport Programme (NLTP) funds.

Under the LTMA (and in this context a new road includes a new lane on an existing road):

- Tolling may be established on a new road, or part thereof, and, in some circumstances, on an existing road;
- Revenues raised can only be used to pay for the planning, design, supervision, construction, maintenance, or operation costs of a new road;
- Where tolling is considered for an existing road or part thereof, that existing road must be located near to and be physically or operationally integral to the new road to be funded from tolls;
- The toll on the road must be removed at the time specified in the Order in Council establishing the road tolling scheme, which may or may not coincide with the time that debt raised to fund capital expenditure in respect of the road has been repaid; and,
- Tolls can be levied for different class of vehicle, different times of day, different directions of travel, and different methods of payment, and as such can influence travel demand.

Under the LTMA there is no current provision for the introduction of road pricing systems in New Zealand.

Tolling definition

Tolls can be considered as a fee-for-service for the use of a new asset, such as a bridge, tunnel, or road and is generally focused on raising revenue. The revenues generated from tolls are used to meet or repay the cost of developing and maintaining the asset in question. Tolls can be set to maximise revenue in order to shorten the project cost recovery period (payback period), or at an optimal network utilisation level that balances the revenue raised with the ability to manage traffic demand. To this effect, tolling can either be considered as a stand-alone cost recovery exercise, or it can also be a subset of road pricing for TDM purposes.

Road pricing definition

Road pricing, subsets of which are *congestion pricing* and *value pricing*, involves motorists paying directly for driving on an *existing* roadway, or in a particular area and is generally focused on pricing for the full economic, environmental and social costs of road use including those caused by congestion.

3.9.2 Transit's role in tolling and road pricing

Transit's role in this aspect of travel demand management

Transit's role in this area is to:

- a. consider tolling where appropriate in accordance with legislation and government policy;
- b. work with local road controlling authorities to consider projects that complement state highway tolling initiatives where these occur; and
- c. participate as required by the Ministry of Transport in any development and feasibility work around road pricing and associated enabling legislation.

3.9.3 Objective

Transit's TDM objective in this area is:

To be aware of the potential opportunities and benefits for managing the demand for travel resulting from the implementation of tolling projects.

3.9.4 Transit's approach to tolling

Transit's current position on tolling can be summarised as follows. It should be noted however that this current position is under review and subject to change.

1. Utilising tolling when it is desired to increase the priority of a state highway project and allow for an earlier start date.
2. Where appropriate on tolling projects, to recommend appropriate toll charges so as to optimise the network and through doing so support demand management principles.
3. Participate as required by the Ministry of Transport in its development and feasibility work around road pricing and associated legislation.

3.9.5 Tolling options

Legislated options

The kinds of tolling options for new roads or part thereof, covered under the legislation include the following:

Public Toll Roads

The current example is the development of ALPURT B2, where a new section of public highway is developed. In this case a toll is applied to recover the costs of financing the new road, which has been constructed ahead of its schedule in the State Highway Forecast.

Toll or HOT

Toll or high occupancy toll (HOT) lanes are usually based upon a closed system that charges for distance travelled (refer to section 3.2.5 HOT lanes).

Further detail on the types of tolling system that could be implemented along with toll collections methods is provided in Appendix 10.

3.9.6 When to apply tolling options

Tolling can apply to all state highway categories as set out in the National State Highway Strategy.

3.9.7 Engaging with partner agencies

Transit has a role in promoting the use of tolling as a means of bringing forward specific projects, and to recognise the potential for accruing travel demand management benefits from such projects where appropriate. To this end, Transit will engage with relevant transport partners in pursuing such projects.

3.10 URBAN PARKING MANAGEMENT

3.10.1 Introduction

Urban parking management – context

The availability and cost of parking can be a key determinant of whether the car is used for a particular journey or not.

This factor can often have consequences for the state highway network, particularly in terms of congestion. Transit therefore has an interest in seeking to influence urban parking management. The statutory function to enforce parking management and require specific parking ratios lies with local authorities.

Implications of not managing parking

The availability of unlimited free parking at a destination often operates to make it more attractive to travel by car and less attractive to use alternative modes where they exist. Unlimited car parking can therefore contribute to increasing car dependence. In addition, developments where ample parking is provided but access by other modes is difficult or impossible, an equity issue is created as those without access to a car are precluded from visiting, shopping or working there. Congestion can be created on the surrounding network as more and more vehicles, and often, single occupant cars, travel to the site. This can have major consequences for the local road and state highway networks and the viability of public transport in the surrounding area.

On highway parking

Parking on state highways or local roads can also take up valuable road space that may be better utilised for moving traffic, particularly for bus or cycle priority users. Roadside parking can also be a safety hazard for cyclists.

Where parking is managed in conjunction with the provision and promotion of alternative travel modes where practicable, car dependence and in particular the single occupant car trip, can be reduced.

Education and communication will be an important part of this process, for instance people often feel parking is a right rather than a service which costs money to provide, manage and maintain.

3.10.2 Transit's role in urban parking management

Transit's role in this aspect of travel demand management

Transit's role in parking can be summarised as:

- a. influencing local, regional and national parking policy where this is being developed;
- b. responding under resource management processes;
- c. contributing to provision of park and ride to facilitate passenger transport services; (refer to section 3.1) and
- d. managing on-state highway parking provision.

3.10.3 Objective

Objective for urban parking management

Transit's objective for parking is:

Parking management that operates to reduce car dependence, and in particular single occupant car trips, increase the attractiveness of alternative travel modes where available, and improve the efficiency of the state highway.



3.10.4 Implementing the urban parking management objective

Transit will:

1. Encourage and participate in the development of national parking guidelines as appropriate.
2. Proactively participate in the development of regional and local parking policy and strategies and the resource management process by advocating for:
 - Parking strategies that help create more accessible and efficient land use patterns and reduce single occupant car travel;
 - The setting of parking standards for new development linked to public transport accessibility;
 - The setting of maximum car parking standards for new development where appropriate;
 - The setting of minimum parking standards for people with disabilities, cycle and motorcycle parking and car pool vehicles;
 - The management of parking (variable time restrictions/charges) linked to public transport accessibility, particularly to discourage all day commuter car parking in central urban areas;
 - The setting of public car parking limits for urban areas;
 - Shared parking allocations for land uses where peak parking periods do not coincide;
 - Parking provision to support and enhance integration between transport modes such as cycle parking at park and ride facilities; and
 - The inclusion of parking information systems and car park security measures.
3. Rationalise the number and location of parking spaces on the state highway network or set appropriate time restrictions where necessary, in the interests of traffic flow, capacity management or priority lanes, where appropriate and taking into account the views of the affected community.

3.10.5 Urban parking management options

Some of the parking management options available for the local authority to implement are summarised below. Maximum impact of parking policy will be achieved if neighbouring authorities adopt similar parking management principles for consistency across a wider region where work, shopping and leisure trips are likely to be interdependent.

Parking standards linked to public transport accessibility

In areas where public transport services have greater coverage and are more frequent, the car parking requirements can be reduced. This operates to support the attractiveness of public transport where it is a viable option for those travelling to the area. It also recognises that “a one size fits all” approach to car parking standards is not appropriate as in many areas of New Zealand viable alternatives to the car simply do not exist.

An example of this would be applying maximum parking standards across a central urban area or linked to a new development where public transport accessibility is good. This may need to be combined with on-street parking restrictions to manage any increased demand for on-street parking demand around the development. The advantage of this approach is the developer cannot “over-provide” parking and hence unnecessarily encourage more car trips, including single occupant trips, where realistic transport alternatives exist.

Time restrictions and charging

This involves applying either time restrictions or charges to contribute to local objectives. For example, time restrictions or charges can be set to discourage all day commuter parking in central urban areas but encourage short stay visitor and shopper parking to support the local economy. Commuter trips are most often the ones that can use alternative modes of travel to the car. The appropriate balance between long stay and short stay parking will need to be considered at the local level as will the balance between car parking charges and public transport fares.

Shared parking allocations

Shared parking allocations is an option that can be applied where developments located in close proximity are such that their periods of peak parking demand does not coincide. For example, an office development located beside a cinema or leisure complex could provide a combined total below the parking requirement that would have been expected if they had been located in isolation. Each can make use of the car parking of the other facility to accommodate demand during their peak operating times as the leisure facility peak will be different to that of the office development.

Parking information and signing systems

These can be valuable in urban areas in helping to reduce unnecessary circulating traffic and resulting congestion when looking for parking, and in maximising use and efficiency of the existing parking resource. Options range from permanent signing indicating the location of car parks to real time Variable Message Sign systems indicating which car parks have space at the current time.

Car park safety security measures

Safety and security measures are a feature of good car park design. Adequate lighting and clear pedestrian routes in to, out of and across the car park should be prerequisites. Additional measures include CCTV coverage and customer help points.

3.10.6 Engaging with partner agencies

As the majority of parking is under the control and management of the territorial authority, Transit's main role is to engage in parking strategy development to influence the parking management function. The exception to this is parking on the state highway network where Transit does have the opportunity to directly manage parking, albeit this will represent a very small percentage of the country's parking stock. The following section sets out how Transit will go about carrying out its role in parking management.

National parking guidance

Transit will proactively engage with other transport partners to ensure that the need for national parking guidelines is fully considered. In participating in the development of national parking guidelines, Transit will advocate for:

- The use of parking management as a means to help manage the demand for travel by single occupant car;
- The use of minimum parking standards for parking allocations for people with disabilities, cyclists and motorcyclists;
- Car parking standards to be linked to public transport accessibility;
- The use of maximum parking standards where appropriate;
- The setting of public car parking limits for urban areas; and
- The implementation of parking management for urban areas.

Influencing regional and local parking strategies and district plans

In participating in the development of regional and local parking strategies and the District Plan review process which is pivotal to the management of parking in a district, Transit will advocate for all of the above requirements, and in addition:

- Shared parking allocations for land uses where their peak parking periods do not coincide;
- Parking management that operates to discourage single occupant car use and in particular all day commuter parking in central urban areas;
- Parking provision to support and enhance integration between transport modes such as cycle parking at park and ride facilities;
- The provision of parking information/signing systems in urban areas to minimise unnecessary travel incurred when looking for a parking space; and
- The provision of features to ensure safe car parks and personal security for all users.

RMA process

In Transit's capacity as an affected party to a resource consent application or plan change, and when engaging in land use planning processes such as structure plans, the following should be taken into consideration in addition to the above:

- The potential to reduce parking over time. This should be linked to the requirement for, and implementation of, a travel plan for the development;
- Developer contributions towards various measures to manage the demand for travel such as public transport, cycling or walking improvements, in lieu of meeting full parking requirements; and
- The provision of features to ensure safe car parks and personal security for all users.

On State highway parking management

Many sections of state highway within urban areas cater for on road parking. In some circumstances this may exacerbate congestion problems and hinder increasing capacity for all road users or specified groups of travellers such as cyclists or public transport users.

Transit will consider rationalising on state highway parking where:

- Provision of additional road capacity will address a congestion issue;
- A positive contribution will be made to Transit's or the local authority's transport objectives by improving the multi-modal nature of the network through the provision of such facilities as cycle, bus or HOV lanes; and
- The views of the community affected by the proposals and alternative off-street parking provision have been considered.

