



KEY TRANSPORT ISSUES

In meeting the objectives of the NZTS and LTMA, the key regional transport issues for the Canterbury region include:

- › Road safety
- › Congestion from traffic on the main arterial routes into and within Christchurch City increasing by four percent each year. Journeys during peak periods are regularly taking 15-20 minutes longer than during off-peak periods
- › Ongoing residential development on the outskirts of Christchurch. The Greater Christchurch Urban Development Strategy aims to integrate land use and transport for the social, economic and cultural wellbeing of the Christchurch community, including integrating other forms of transport with the road network
- › Route security of inter-district highway, especially Alpine passes
- › Ongoing commercial development to the west of Christchurch, around SH1 and SH73
- › Dairy activity in Canterbury centred on the Clandeboye Dairy Factory
- › Access to the Ports of Lyttleton and Timaru
- › Continuing tourism development around Kaikoura, south Canterbury and the Mackenzie Country
- › Desire for passing opportunities on SH1, north of Kaikoura and south of Ashburton
- › Desire for more walking and cycling activities
- › Provision for public transport priorities where necessary
- › Significant heavy vehicle growth on SH1
- › High car ownership and use in Christchurch and Canterbury.

How we plan to address these key issues

Transit will work closely with the regional and district councils to ensure there is alignment in priorities, to relieve congestion and support regional growth strategies, particularly the Greater Christchurch Urban Development Strategy.

While there is a significant emphasis for Transit in Canterbury on maintaining the existing state highway network, there are a number of activities prioritised in the 10-year State Highway Forecast to reduce congestion, improve road safety, and improve the security and efficiency of routes into and out of Canterbury.

A further priority is managing the connections between state highways and local roads, as well as access to state highways from adjacent land, to support the strategic long distance travel function of key arterial roads.

Travel Demand Management

The highest priority for the Canterbury region is the implementation of measures to support a Travel Demand Strategy outlined in the Regional Land Transport Strategy. Travel Demand Management is a combination of activities that together seek to reduce the rate of traffic growth by measures such as encouraging the use of alternative modes.

Transit intends to implement this in Christchurch through infrastructure improvements for public transport on state highways that coincide with core public transport routes, such as Main North Road. Transit will continue to work with Environment Canterbury and Christchurch City Council to further the development of the Christchurch Travel Demand Management Strategy.

Access to the North

Further project investigation and scoping will be undertaken on improving access on northern approaches to Christchurch. Specific activities include a four-lane arterial to link the Northern Motorway with QE2 Drive, and the Western Bypass of Belfast.

Access and Mobility around Christchurch

The duplication and extension of the Christchurch Southern Motorway (SH73) south of the city and the four-laning of the Western Corridor between Sawyers Arms and Yaldhurst Road will ensure efficient travel along these key routes.

Road Safety – Secure and Efficient Transport Corridors

Transit has identified a number of activities to improve the safety and efficiency of sections of state highway, including intersection improvements. Proposed improvements are aimed at reducing congestion and contributing towards more efficient transport corridors. Work on the management or removal of roadside hazards will continue.

Passing Opportunities

Limited passing opportunities in some parts of the region's road network lead to driver frustration and crashes. Transit plans to progress further passing lanes on SH1 south of Ashburton, and north of Kaikoura.

Walking and Cycling

Walking and cycling activities identified for Canterbury include continuing Christchurch City cycle lane safety improvements and investigations into options for improving cycle safety at “pinch points” around Canterbury.

Stock Effluent Disposal Facilities

Canterbury is part of a national programme to provide a safe and convenient network of stock effluent disposal facilities. The network in Canterbury is now completed.

Strategic Studies

Strategic studies for the Canterbury region will further improve our long-term planning and assist good decision-making.

New studies proposed are the State Highway 73 Route Security and Halswell Road Strategic Study, the southern Motorway Extension (Halswell Road Junction Road to Waterholes) and the Strategy Study Implementation for Urban Christchurch.

A study of the Waitaki bridges is underway to identify the designation and design requirements of a future bridge replacement.






Maintenance and Operations

Maintenance activities make up the majority of the forecast expenditure in the Canterbury. In addition to preserving the highway network and undertaking maintenance and improvements to meet future levels of service, we propose to:



- › Undertake 125km of resurfacing, including 1.3km with low noise surfacing
- › Strengthen 28km of state highway
- › Improve the availability of road condition information to road users using electronic variable message signs, as already in place on SH7 (Lewis Pass), and SH73 (Arthurs Pass) and in Kaikoura on SH1
- › Use thermal mapping technology on the inland network to better predict where ice will occur
- › Introduce more road weather stations to improve road condition predictions and maintenance team responses to ice and snow, and continue the use of the de-icer calcium magnesium acetate
- › Continue risk analysis of rock falls and river erosion and prioritise work accordingly
- › Strengthen a number of bridges on the network to reduce their vulnerability in the event of a severe earthquake
- › Continue to maintain and improve the coastal defences of SH1, north and south of Kaikoura
- › Work with the Department of Conservation to ensure that maintenance work within New Zealand's national parks represents international best practice
- › Continue with a programme of improvements and upgrade work to tunnels to more closely meet appropriate safety standards.
- › Strategic widening and safety improvements at various locations throughout the network.

CANTERBURY State Highway Plan and Forecast for 2008/09 to 2017/18

Legend: Nature of work

 Committed Investigation	 Committed Design	 Committed Construction
 Investigation	 Design	 Construction

The grey symbols show indicative timings given that the investigation or design phase has not been completed.

SH	Project	Primary LTMA Objective	Estimated Cost Remaining	Land Transport Programme 08/09	Plan 09/10-10/11	Forecast 11/12-17/18
LARGE PROJECTS						
73	Christchurch Southern Motorway Extension §	Access and Mobility	0.6			
I	Memorial Ave Intersection	Economic Development	0.5			
73	Christchurch Southern Motorway Extension §	Access and Mobility	\$\$\$			
Var	Christchurch TDM Implementation	Economic Development	\$			
I	Christchurch Northern Arterial Rural	Access and Mobility	\$\$\$			
I	Memorial Ave Intersection	Economic Development	\$			
I	Memorial Ave to Yaldhurst Road 4L	Access and Mobility	\$			
I	Sawyers Arms to Memorial Ave 4L	Access and Mobility	\$			
I	Western Belfast Bypass	Access and Mobility	\$			
74	QE2 4L Northern Arterial to Hills Road Extension	Access and Mobility	\$			
SMALL & MEDIUM PROJECTS						
I/8	SH1/8 Intersection Improvements §	Safety & Personal Security	2.4			
74	Lyttelton Tunnel Deluge System §	Safety & Personal Security	0.2			
74	Marshland Road/QE2 Dr Intersection Upgrade	Economic Development	0.1			
74	Travis Rd / Burwood Rd / QE2 Dr Intersection Improvement	Safety & Personal Security	0.2			
I	Halswell JR/MSR Intersection Signalisation	Safety & Personal Security	0.5			
I	Belfast Intersection Upgrade	Safety & Personal Security	0.9			







Total Phase Cost

I/8	SH1/8 Intersection Improvements §	Safety & Personal Security	2.4			
74	Lyttelton Tunnel Deluge System §	Safety & Personal Security	0.2			
74	Marshland Road/QE2 Dr Intersection Upgrade	Economic Development	0.1			
74	Travis Rd / Burwood Rd / QE2 Dr Intersection Improvement	Safety & Personal Security	0.2			
I	Halswell JR/MSR Intersection Signalisation	Safety & Personal Security	0.5			
I	Belfast Intersection Upgrade	Safety & Personal Security	0.9			
















§ in conjunction with third party contributions outside NLTP funding
 Projects listed in the plan years may be accelerated into the programme year to ensure full use of available funding (subject to project suitability)

CANTERBURY State Highway Plan and Forecast for 2008/09 to 2017/18

Legend: Nature of work

	Committed Investigation		Committed Design		Committed Construction
	Investigation		Design		Construction







The grey symbols show indicative timings given that the investigation or design phase has not been completed.

SH	Project	Primary LTMA Objective	Estimated Cost Remaining			Land Transport Programme 08/09	Plan 09/10-10/11	Forecast 11/12-17/18
			\$ < 5M	\$\$\$ 5-20M	\$\$\$\$ 20-100M			
SMALL & MEDIUM PROJECTS (continued)								
			Total Phase Cost					
74	Lyttelton Tunnel Deluge System §	Safety & Personal Security			\$			
74	Marshall Road/QE2 Dr Intersection Upgrade	Economic Development			\$			
73	Mingha Bluff to Rough Creek	Access and Mobility			\$			
8	Burkes Pass West Curve Realignment	Safety & Personal Security			\$			
75	SH75 / Dunbars Road Intersection §	Access and Mobility			\$			
73	Pound Road Intersection	Access and Mobility			\$			
I	Lineside Road On-Ramp	Safety & Personal Security			\$			
I	Improvement to the Shingle Fans	Safety & Personal Security			\$			
74	Travis Rd / Burwood Rd / QE2 Dr Intersection Improvement	Safety & Personal Security			\$			
79	Elliots Bridge Widening	Safety & Personal Security			\$			
79	Inmans Bridge	Safety & Personal Security			\$			
74	Dyers Road Improvements	Safety & Personal Security			\$			
Passing Lanes								
I	Winchester Sth Bd PL	Safety & Personal Security			\$			
I	Hapuku Sth Bd PL	Safety & Personal Security			\$			
I	Orari South PL	Safety & Personal Security			\$			

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CANTERBURY State Highway Plan and Forecast for 2008/09 to 2017/18

Legend: Nature of work

	Committed Investigation		Committed Design		Committed Construction
	Investigation		Design		Construction

SH	Project	Primary LTMA Objective	Estimated Cost Remaining
			\$ < 5M \$\$\$ 20-100M \$\$\$\$ 100+M

The grey symbols show indicative timings given that the investigation or design phase has not been completed.

Land Transport Programme 08/09	Plan 09/10-10/11	Forecast 11/12-17/18

Walking & Cycling

Christchurch City Safe Cycling Facilities

Public Health

0.3

Strategic Studies

CTS Model Update

Halswell Road Strategic Study

Southern Motorway Extension HJR to Waterholes

SH73 Route Security Strategy – Springfield to Arthurs' Pass

Greater Christchurch Transportation Strategy

SH82 Waitaki Bridges

Woodend Bypass

Christchurch Bus Priority Measures

South Canterbury Passing Opportunities Plan

Fig C

CANTERBURY REGION

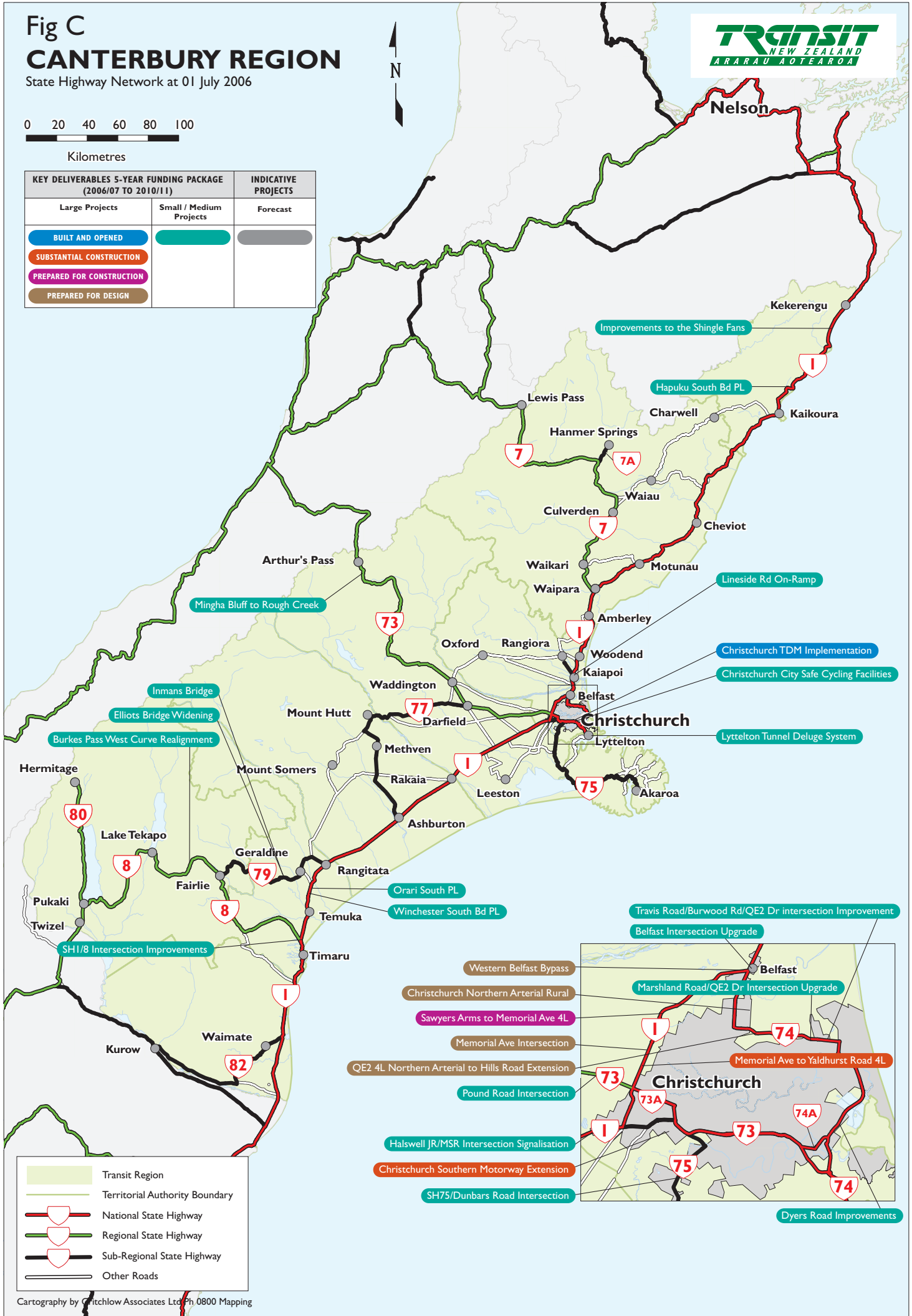
State Highway Network at 01 July 2006



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KEY DELIVERABLES 5-YEAR FUNDING PACKAGE (2006/07 TO 2010/11)		INDICATIVE PROJECTS
Large Projects	Small / Medium Projects	Forecast
BUILT AND OPENED		
SUBSTANTIAL CONSTRUCTION		
PREPARED FOR CONSTRUCTION		
PREPARED FOR DESIGN		





KEY TRANSPORT ISSUES

In meeting the objectives of the NZTS and LTMA, the key regional transport issues for the West Coast region include:

- › Road safety, a key concern being the potential conflict between heavy and light vehicle traffic, particularly on single-lane bridges on SH6
- › Ensuring secure and efficient transport corridors to the east via SH73 and Arthur's Pass, and via SH7 and Lewis Pass, to the north via SH6 and Hope Saddle, and to the south via SH6 and the Haast Pass
- › Increasing traffic due to the coal mining, dairy and tourist industries
- › Lack of passing opportunities.

How we plan to address these key issues

State Highway 6 forms the essential spine for land transport on the West Coast. A strategic study looking at route security (including areas of rockfall and coastal erosion) and passing opportunities is underway. Significant works on SH73 over recent years have greatly improved the security of this strategic link. The latest improvement to be completed was the construction of a new rail bridge at the Otira Underpass, which has allowed the vertical clearance to be increased for road traffic. Vehicles of all legal dimensions can now use this route to access the West Coast.

Traffic volumes on the West Coast are generally quite low and the state highway network is maintained to a high standard for low-volume highways. In maintaining this standard, Transit acknowledges the large tourist content of the traffic in this region. While the emphasis for Transit in the West Coast region is on maintaining the existing state highway network, there are a number of activities prioritised in the 10-year State Highway Forecast to improve road safety as well as route security and efficiency in the West Coast region.

A further priority is managing the connections between state highways and local roads as well as access to state highways from adjacent land to support the strategic long distance travel function of key arterial roads.

Construction of the Arahura River Bridge is now underway, and being managed by ONTRACK. Transit will tender the approaches work before the end of the year.

The lack of alternative access to and through the West Coast means that both SH73 and SH6 are of great strategic importance to the West Coast economy. The Gates of Haast scheme assessment is being developed to ensure the route remains secure.

Road Safety – Secure and Efficient Transport Corridors

Transit has identified a number of small to medium activities to improve the safety and efficiency of sections of state highway, including the Goat Creek Bridge Replacement on SH73. In addition, traffic signals will be installed on SH6 through the Buller Gorge to improve the safety of passing vehicles in some of the narrower locations. Also, McKendries Corner Curve Improvements are programmed for a construction start in 2008/09.

Stock Effluent Disposal Facilities

In accordance with the plan agreed with local authorities, a facility at Jacksons on SH73 is also being progressed.

Walking and Cycling

We are preparing a West Coast Cycle Strategy in association with local authorities, to improve our long term planning and ensure good decisions that lead to safer and more efficient transport networks.

Passing Lanes

Limited passing opportunities in some parts of the region's road network lead to driver frustration and accidents. Transit will continue to develop a strategy to identify possible locations for passing opportunities, using a mix of slow vehicle bays, seal widening and passing lanes.

Strategic Studies

A strategic study is underway, looking at Route Security Study for SH6, which will identify mitigation measures for sections of SH6 under threat of coastal erosion and rockfalls.

Maintenance and Operations











Maintenance activities make up the majority of the forecast expenditure in the West Coast region. In addition to preserving the highway network and undertaking maintenance and improvements to meet future levels of service, we propose to:

- › Undertake 95km of resurfacing
- › Strengthen 7.8km of highway
- › Improve the availability of road condition information to road users at critical points on the network using electronic variable message signs, as erected on SH7 (at Lewis Pass and Rahu Saddle). Signs for SH73, at Arthur's and Porters Pass, are soon to be commissioned
- › Use thermal mapping technology on the inland network to predict where ice may occur
- › Introduce more road weather stations to improve emergency responses to ice and snow on roads, and continue use of the de-icer calcium magnesium acetate to improve overall road safety for winter drivers
- › Continue to monitor Waiho River erosion at Franz Josef and take appropriate action to ensure SH6 remains safe and open
- › Continue risk analysis of rock falls and river erosion and prioritise works accordingly to avoid road closures
- › Strengthen a number of bridges on the network to reduce their vulnerability in the event of a severe earthquake
- › Work with the Department of Conservation to ensure maintenance works within national parks represent best practice
- › Strategic widening and safety improvements at various locations throughout the network
- › Continue with improvements in traffic management during incidents on the network.

WEST COAST State Highway Plan and Forecast for 2008/09 to 2017/18

Legend: Nature of work

	Committed Investigation		Committed Design		Committed Construction
	Investigation		Design		Construction

SH	Project	Primary LTMA Objective	Estimated Cost Remaining \$ < 5M \$\$\$ 20-100M \$\$ 5-20M \$\$\$\$ 100+M	Land Transport Programme 08/09	Plan 09/10-10/11	Forecast 11/12-17/18
LARGE PROJECTS						
6	Arahura Bridge Replacement	Safety & Personal Security	19.7			
6	Gates of Haast	Safety & Personal Security	0.5			
6	Gates of Haast	Safety & Personal Security	\$\$			
SMALL & MEDIUM PROJECTS						
6	Buller Gorge Signals	Safety & Personal Security	\$			
73	Goat Creek Bridge Replacement	Safety & Personal Security	\$			
7	McKendries Corner Curve Improvements	Safety & Personal Security	\$			
Stock Effluent Disposal Facilities						
73	Jacksons SEDF	Environmental Sustainability	\$			

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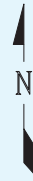
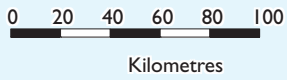
Projects listed in the plan years may be accelerated into the programme year to ensure full use of available funding (subject to project suitability)

- SH6 Route Security Study
- West Coast Passing Opportunities Study
- West Coast Walking and Cycling Strategy

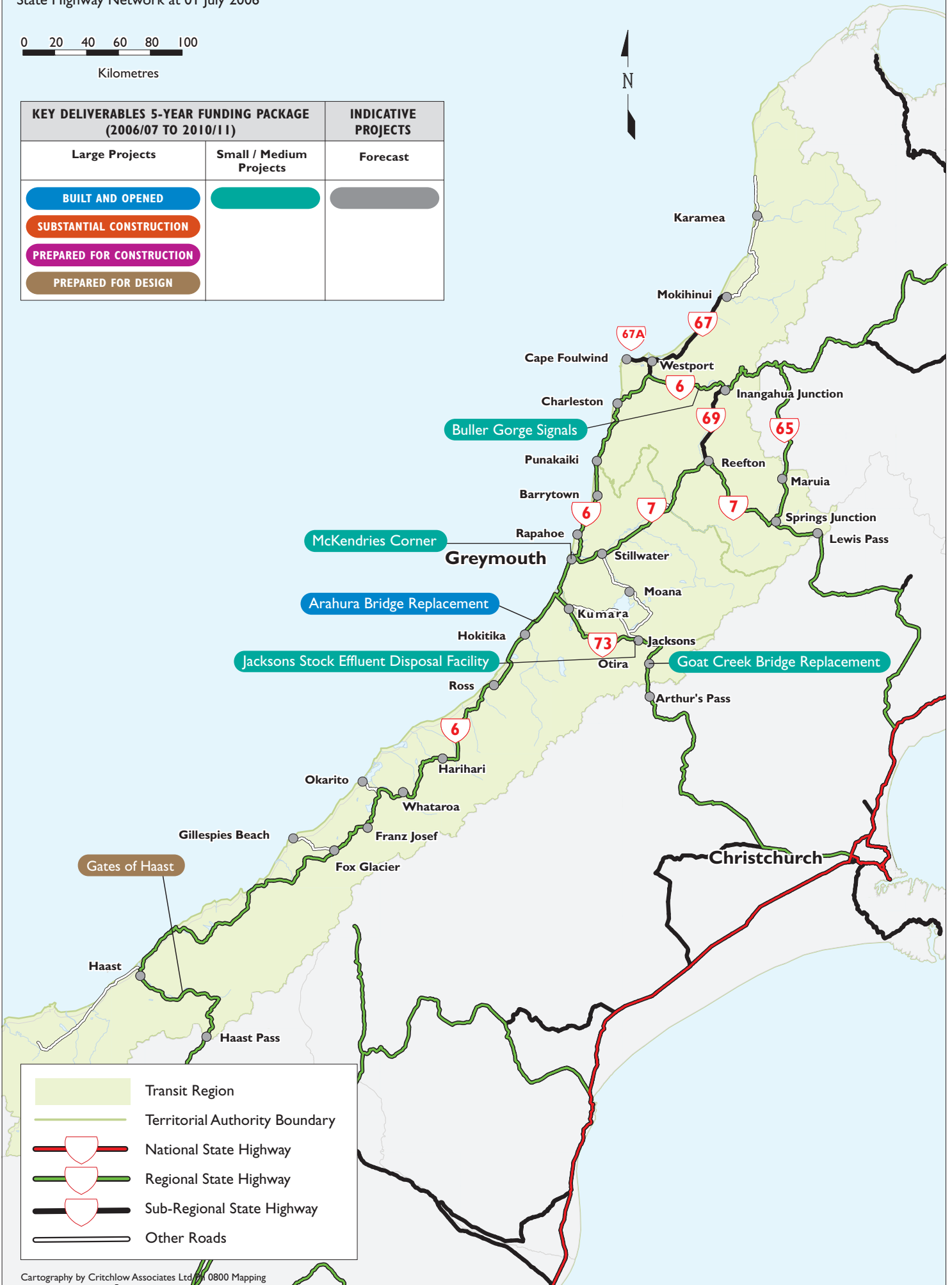
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WEST COAST REGION

State Highway Network at 01 July 2006



KEY DELIVERABLES 5-YEAR FUNDING PACKAGE (2006/07 TO 2010/11)		INDICATIVE PROJECTS
Large Projects	Small / Medium Projects	Forecast
BUILT AND OPENED		
SUBSTANTIAL CONSTRUCTION		
PREPARED FOR CONSTRUCTION		
PREPARED FOR DESIGN		



	Transit Region
	Territorial Authority Boundary
	National State Highway
	Regional State Highway
	Sub-Regional State Highway
	Other Roads



KEY TRANSPORT ISSUES

In meeting the objectives of the NZTS and LTMA, the key regional transport issues for the Otago region include:

- › Road safety
- › Increased forestry traffic, as over the next 5 to 10 years the region is anticipating a significant increase in forest harvesting to two million tonnes per year, much of which will be exported through Port Chalmers
- › Tourist traffic increasing particularly around Queenstown and Wanaka
- › Areas of significant and rapid growth in Central Otago and the associated impact on the transport network
- › Congestion in Dunedin and Queenstown.

How we plan to address these key issues

While there is a significant emphasis for Transit in Otago on maintaining the existing state highway network, there are a number of activities prioritised in the State Highway Forecast to improve road safety, route security and route efficiency in the Otago region.

A key focus, especially in areas of high development growth, is the management of the connections between state highways, local roads and development accesses, in a way that supports the medium to long distance travel function of state highways.

Two key priorities for the Otago region are the investigations into the SH1 Caversham Valley Improvements Project and development of the state highway components of the Wakatipu Transportation Strategy.

The Caversham Valley Improvements Project is an important project for achieving a safe and efficient corridor between Dunedin and the south. Investigations are underway for the project.

The Wakatipu Transportation Strategy identified a number of projects for the state highway in Queenstown. One of the most significant is the

multi-modal corridor improvements along SH6A, which aim to integrate passenger transport, walking and cycling facilities and safe vehicular access. Feasibility and scoping for the SH6A multi-modal corridor project is currently underway.

Also in Queenstown, investigations for a new bridge to replace the existing one-lane bridge at Kawarau Falls on SH6 to the south of Queenstown and upgrading of the SH6/Glenda Drive intersection are underway. Both projects aim to improve safety, route efficiency and driver comfort in an area that is experiencing rapid population growth.

Road Safety – Secure and Efficient Transport Corridors

Transit has identified a number of activities to improve the safety and efficiency of sections of state highway, including intersection improvements and realignments, for progress in the next five years. Some are subject to regional distribution funding.

Projects with a committed construction start in 2008/09 include, SH1 Pig Hunters Realignment, east of Lawrence and SH1 Thames Street, Oamaru.

Projects likely to have a construction start in 2008/09 include SH1 Jefferies Road, South of Palmerston, SH1 near Moeraki and SH8 east of Raes Junction

Further work on the management or removal of roadside hazards will continue.

Passing Opportunities

Limited passing opportunities in some parts of the region's road network lead to driver frustration and accidents. Two passing lanes will be completed between Balclutha and Clinton (southbound and northbound).

Further passing lanes being progressed include, investigations on SH1, near Waihola (southbound) and design of passing lanes on SH1 at Brydone Memorial, south of Oamaru.

Walking and Cycling

Construction will be commenced to extend the cycleway between Adderly Terrace to De Lacy Street on SH88 in Dunedin. Completion of a strategic study along SH88, looking at walking and cycling facilities will result in the identification and progression of further projects.

Strategic Studies

We are undertaking, or propose to undertake, three strategic studies (five listed in draft forecast) for the Otago region, to improve our long-term planning and assist good decision-making. The studies are the SH6A Bus Priority Investigations, Cromwell Structure Plan, and SH6, SH8, SH93 Passing Opportunities.

Maintenance and Operations

Maintenance activities make up a large proportion of the forecast expenditure in the Otago region. In addition to preserving the highway network and undertaking maintenance and improvements to meet future levels of service, we propose to:


































- › Undertake some 133km of re-surfacing, including 4km of thin asphaltic surfacing, while more expensive, is more durable and quieter
- › Undertake 13km of pavement rehabilitation
- › Manage risks from snow and ice on the network by using the anti-icer calcium magnesium acetate and implement more cost effective and safer methods as they become available
- › Follow up the first stage of thermal mapping that has been conducted throughout Otago
- › Continue to develop procedures for managing rock falls and major slips to ensure route security and safety
- › Continue to manage wet road crashes by maintaining high skid resistant surfacing
- › Plant on sensitive areas along SH1 at Katiki Beach, Kilmog and the Northern Motorway to enhance the environment
- › Install electronic variable message signs on SH6 Haast Pass, to give motorists up-to-date information on road conditions
- › Continue with on-going safety strategies, to achieve the Government's 2010 safety targets.

OTAGO State Highway Plan and Forecast for 2008/09 to 2017/18

Legend: Nature of work

	Committed Investigation		Committed Design		Committed Construction
	Investigation		Design		Construction

The grey symbols show indicative timings given that the investigation or design phase has not been completed.

SH	Project	Primary LTMA Objective	Estimated Cost Remaining \$ < 5M \$\$\$ 20-100M \$\$\$ 5-20M \$\$\$\$ 100+M	Land Transport Programme 08/09	Plan 09/10-10/11	Forecast 11/12-17/18
LARGE PROJECTS						
6	Kawarau Falls Bridge Replacement	Access and Mobility	0.35			
1	Caversham 4 L	Access and Mobility	\$\$\$			
SMALL & MEDIUM PROJECTS						
Total Phase Cost						
8	Pig Hunters Road Safety Improvements	Safety & Personal Security	1.5			
1	Thames St (Oamaru) Safety Improvements	Safety & Personal Security	2.9			
6	Boyd Road Realignment	Safety & Personal Security	0.1			
1	Kakaho Creek Realignment	Safety & Personal Security	0.1			
1	Jefferies Road Realignment	Safety & Personal Security	0.92			
6	Albert Town Bridge Improvements	Safety & Personal Security	\$			
1	Alma Safety	Safety & Personal Security	\$			
8	Alexandra SH8/85 Intersection Improvements	Safety & Personal Security	\$			
6	Boyd Road Realignment	Safety & Personal Security	\$			
1	Crawford St (Jervois & Police St's) Safety Improvements	Safety & Personal Security	\$			
1	Kakaho Creek Realignment	Safety & Personal Security	\$			
1	Moeraki Vertical Realignment	Safety & Personal Security	\$			
1	Waitati Curve Realignment	Safety & Personal Security	\$			
87	Riccarton / School Road Intersection Improvements	Safety & Personal Security	\$			

Projects listed in the plan years may be accelerated into the programme year to ensure full use of available funding (subject to project suitability)

OTAGO State Highway Plan and Forecast for 2008/09 to 2017/18

Legend: Nature of work

	Committed Investigation		Committed Design		Committed Construction
	Investigation		Design		Construction

SH	Project	Primary LTMA Objective	Estimated Cost Remaining	Land Transport Programme 08/09	Plan 09/10–10/11	Forecast 11/12–17/18
				Total Phase Cost		
SMALL & MEDIUM PROJECTS (continued)						
6	Glenda Drive Intersection Upgrade	Safety & Personal Security	\$			
1	Waikouaiti South Realignment	Safety & Personal Security	\$			
8	Raes Junction Safety Improvement	Safety & Personal Security	\$			
6	Crawfords Hill Realignment & PL	Safety & Personal Security	\$			
1	Hillend – Balclutha Realignment	Safety & Personal Security	\$			
1	Station Road Realignment	Safety & Personal Security	\$			
1	Grey Street Intersection Improvements – Right Turn Bay	Safety & Personal Security	\$			
6	Peninsula Road Intersection Improvements	Safety & Personal Security	\$			
8	Dip Creek Realignment	Safety & Personal Security	\$			
8	Ryan Road Realignment	Safety & Personal Security	\$			
Passing Lanes						
1	Balclutha to Clinton Sth Bd PL	Safety & Personal Security	\$			
1	Balclutha to Clinton Nth Bd PL	Safety & Personal Security	\$			
1	Waihola Sth Bd PL	Safety & Personal Security	\$			
1	Brydone Memorial Nth Bd PL	Safety & Personal Security	\$			
1	McEneaney Road Nth Bd PL	Safety & Personal Security	\$			
1	West Road Nth Bd PL	Safety & Personal Security	\$			
1	Palmerston Nth Bd PL	Safety & Personal Security	\$			

The grey symbols show indicative timings given that the investigation or design phase has not been completed.

Projects listed in the plan years may be accelerated into the programme year to ensure full use of available funding (subject to project suitability)

OTAGO State Highway Plan and Forecast for 2008/09 to 2017/18

Legend: Nature of work

 Committed Investigation	 Committed Design	 Committed Construction
 Investigation	 Design	 Construction

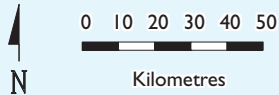
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SH	Project	Primary LTMA Objective	Estimated Cost Remaining \$ < 5M \$\$\$ 20-100M \$\$ 5-20M \$\$\$ 100+M	Land Transport Programme 08/09	Plan 09/10-10/11	Forecast 11/12-17/18
	Walking & Cycling		Total Phase Cost			
88	Adderly Tce to De Lacy St Cycling Improvement	Public Health	\$			
8	Clyde Pedestrian/Cycle Underpass	Safety and Personal Security	\$			
	Strategic Studies					
	SH6, SH8, SH93 Passing Opportunities					
	SH1 North Oamaru					
	Cromwell Structure Plan					
	SH1 East Taieri Strategy					
	SH6A Bus Priority Investigations					
	SH6 Cromwell – Queenstown Strategic Study					
	Otago Regional Walking & Cycling Strategy					

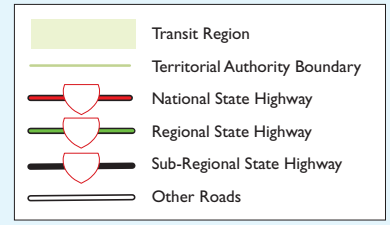
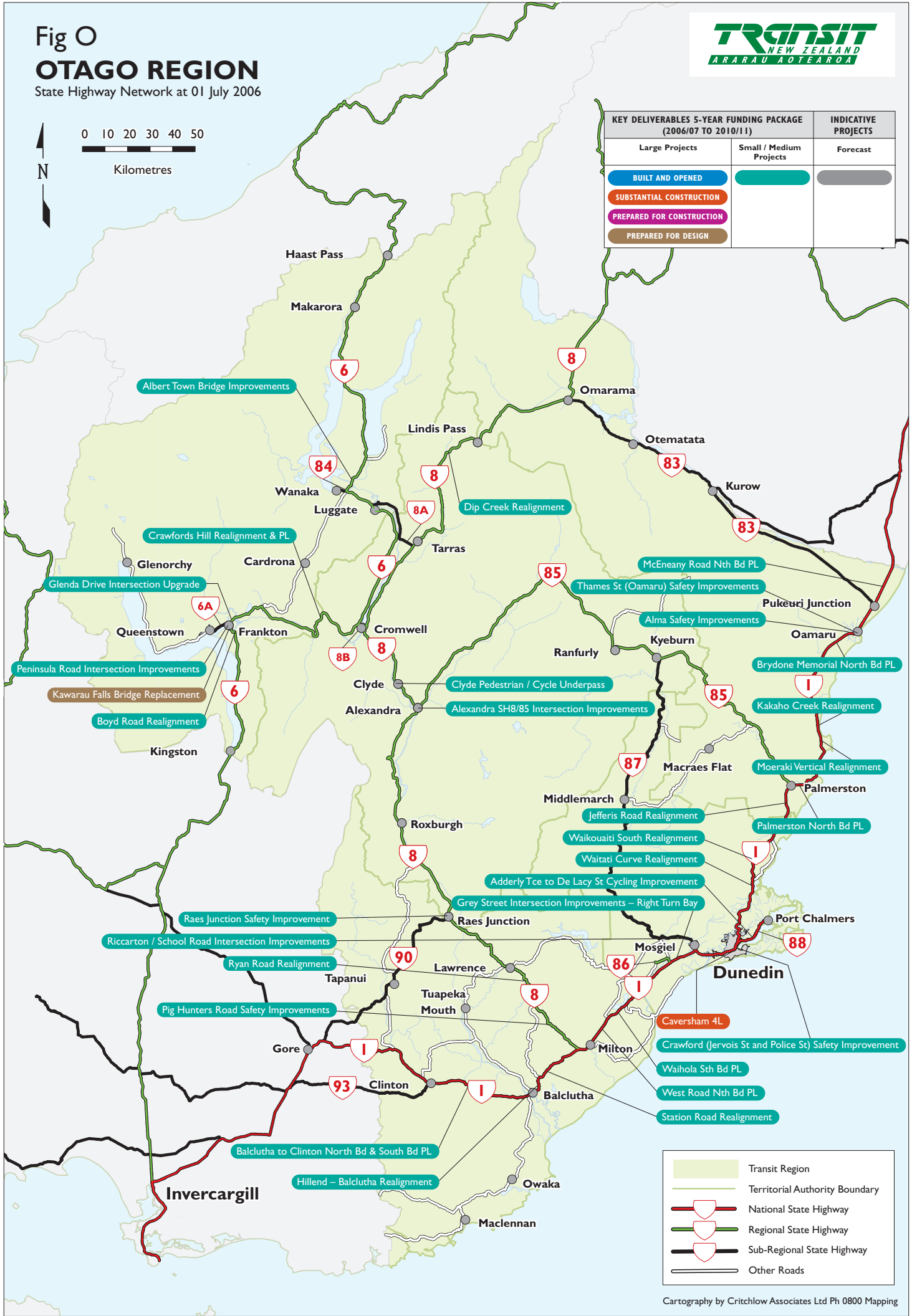
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OTAGO REGION

State Highway Network at 01 July 2006



KEY DELIVERABLES 5-YEAR FUNDING PACKAGE (2006/07 TO 2010/11)		INDICATIVE PROJECTS
Large Projects	Small / Medium Projects	Forecast
BUILT AND OPENED		
SUBSTANTIAL CONSTRUCTION		
PREPARED FOR CONSTRUCTION		
PREPARED FOR DESIGN		



Cartography by Critchlow Associates Ltd Ph 0800 Mapping



KEY TRANSPORT ISSUES

In meeting the objectives of the NZTS and LTMA, the key regional transport issues for the Southland region include:

- › Road safety
- › Forestry traffic
- › Dairying traffic, as the increase in the number of dairy farms is seeing increasing heavy vehicle movements, particularly around the processing plant at Edendale
- › Tourist traffic, particularly increases on the southern scenic route, to Fiordland National Park and between Queenstown and Milford Sound (SH94)
- › Lack of passing opportunities, particularly on SH1 between Edendale and Invercargill.

How we plan to address these key issues

Most state highways in Southland carry relatively low traffic volumes and few improvements are currently required apart from safety improvements to Homer Tunnel on SH94, and a realignment of SH1 at Edendale. Southland's economic growth and conversion of pasture farming to dairying is actively monitored to ensure that the current high levels of service on Southland highways are maintained.

While the emphasis for Transit in Southland is on maintaining the existing state highway network, there are a number of activities prioritised in the State Highway Forecast to improve road safety as well as route security and efficiency.

A key priority is managing the connections between state highways and local roads, as well as access to state highways from adjacent land, to support the medium to long distance travel function of state highways.

There is a continuing need for active management of SH94 between Te Anau and Milford Sound to provide an appropriate level of avalanche protection and traffic management. Transit is investigating safety improvements for the Homer Tunnel. This tunnel provides the only road access to the key tourist destination of Milford Sound.

In addition, the Edendale Realignment is proposed to improve the safety of that section of SH1 through Edendale.

Road Safety – Secure and Efficient Transport Corridors

Transit has identified a number of activities to improve the safety and efficiency of sections of state highway in Southland, including realignments, bridge widening and intersection improvements, for progress in the next five years. Further work on the management or removal of roadside hazards will continue.

Stock Effluent Disposal Facilities

As part of a national programme to provide a safe and convenient network of stock effluent disposal facilities, Transit is proposing a new facility on SH1, between Gore and Mataura and SH6 at Lumsden.

Strategic Studies

We are proposing to progress four strategic studies for the Southland region to improve our long-term planning and assist good decision-making. These include SH94/95 The Key to Milford (Te Anau), SH1 Invercargill to Bluff and SH94 Homer Tunnel Operations Study.

Maintenance and Operations







Maintenance activities make up the majority of the forecast expenditure in the Southland region.

In addition to preserving the highway network and undertaking maintenance and improvements to meet future levels of service, we propose to:

- › Undertake 72km of resurfacing, including 2.5km of thin asphaltic surfacing, which, although more expensive, is more durable and quieter
- › Undertake 15km of road pavement rehabilitation
- › Ensure the latest hazard management systems are installed at Homer Tunnel on SH94. The current avalanche hazard management system is recognized as being world-class. We intend to ensure that the programme remains adequately funded and the latest techniques are used to maximise access to Milford Sound and minimise risks to road users
- › Maintain high skid resistance surfacing to help prevent wet road crashes
- › Continue with on-going safety strategies, to achieve the Government's 2010 safety targets.
- › Install electronic variable message signs on SH94 Milford Road to give motorists up-to-date information on road conditions.

SOUTHLAND State Highway Plan and Forecast for 2008/09 to 2017/18

Legend: Nature of work

 Committed Investigation	 Committed Design	 Committed Construction
 Investigation	 Design	 Construction

SH	Project	Primary LTMA Objective	Estimated Cost Remaining
			\$ < 5M \$\$\$ 20-100M \$\$ 5-20M \$\$\$\$ 100+M

LARGE PROJECTS

94	Homer Tunnel #	Safety & Personal Security	\$\$\$
I	Edendale Realignment	Safety & Personal Security	\$


















SMALL & MEDIUM PROJECTS

			Total Phase Cost
96	Gill Road Realignment	Safety & Personal Security	0.1
94	Falls Creek Bridge Widening	Safety & Personal Security	0.1
6	Dipton Curve Realignment	Safety & Personal Security	0.1
6	Gap Road Intersection Improvements	Safety & Personal Security	0.1
I	Longbush Curve Realignment	Safety & Personal Security	\$
96	Gill Road Realignment	Safety & Personal Security	\$
6	Gap Road Intersection Improvements	Safety & Personal Security	\$
94	Falls Creek Bridge Widening	Safety & Personal Security	\$
6	Dipton Curve Realignment	Safety & Personal Security	\$
97	Acton Downs Curve Realignment	Safety & Personal Security	\$
I	Tay Street / Racecourse Road Intersection Improvements	Safety & Personal Security	\$

being re-scoped via a strategic study

Projects listed in the plan years may be accelerated into the programme year to ensure full use of available funding (subject to project suitability)

The grey symbols show indicative timings given that the investigation or design phase has not been completed.

	Land Transport Programme 08/09	Plan 09/10-10/11	Forecast 11/12-17/18
			
			
			
			
			
			
			
			
			
			
			
			

SOUTHLAND State Highway Plan and Forecast for 2008/09 to 2017/18

Legend: Nature of work

	Committed Investigation		Committed Design		Committed Construction
	Investigation		Design		Construction

SH	Project	Primary LTMA Objective	Estimated Cost Remaining \$ < 5M \$\$\$ 20-100M \$\$\$ 5-20M \$\$\$\$ 100+M	Land Transport Programme 08/09	Plan 09/10-10/11	Forecast 11/12-17/18
	Passing Lanes		Total Phase Cost			
1	Dowling Road / Mona Bush Road PL	Safety & Personal Security	\$			
1	Baird Road – Kerr Road PL	Safety & Personal Security	\$			
6	Wilson's Crossing PL	Safety & Personal Security	\$			

The grey symbols show indicative timings given that the investigation or design phase has not been completed.

Stock Effluent Disposal Facilities

6	Lumsden SEDF	Environmental Sustainability	\$			
1	Gore to Mataura SEDF	Environmental Sustainability	\$			

Strategic Studies

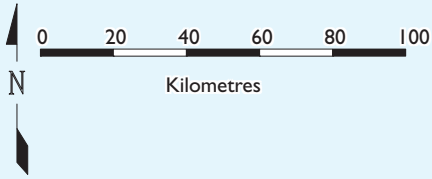
- SH94 The Key to Milford
- SH94 Homer Tunnel Operations Study
- SH1 Invercargill to Bluff Strategic Study
- Invercargill to Winton/Lorneville to Wallacetown

Projects listed in the plan years may be accelerated into the programme year to ensure full use of available funding (subject to project suitability)

Fig S

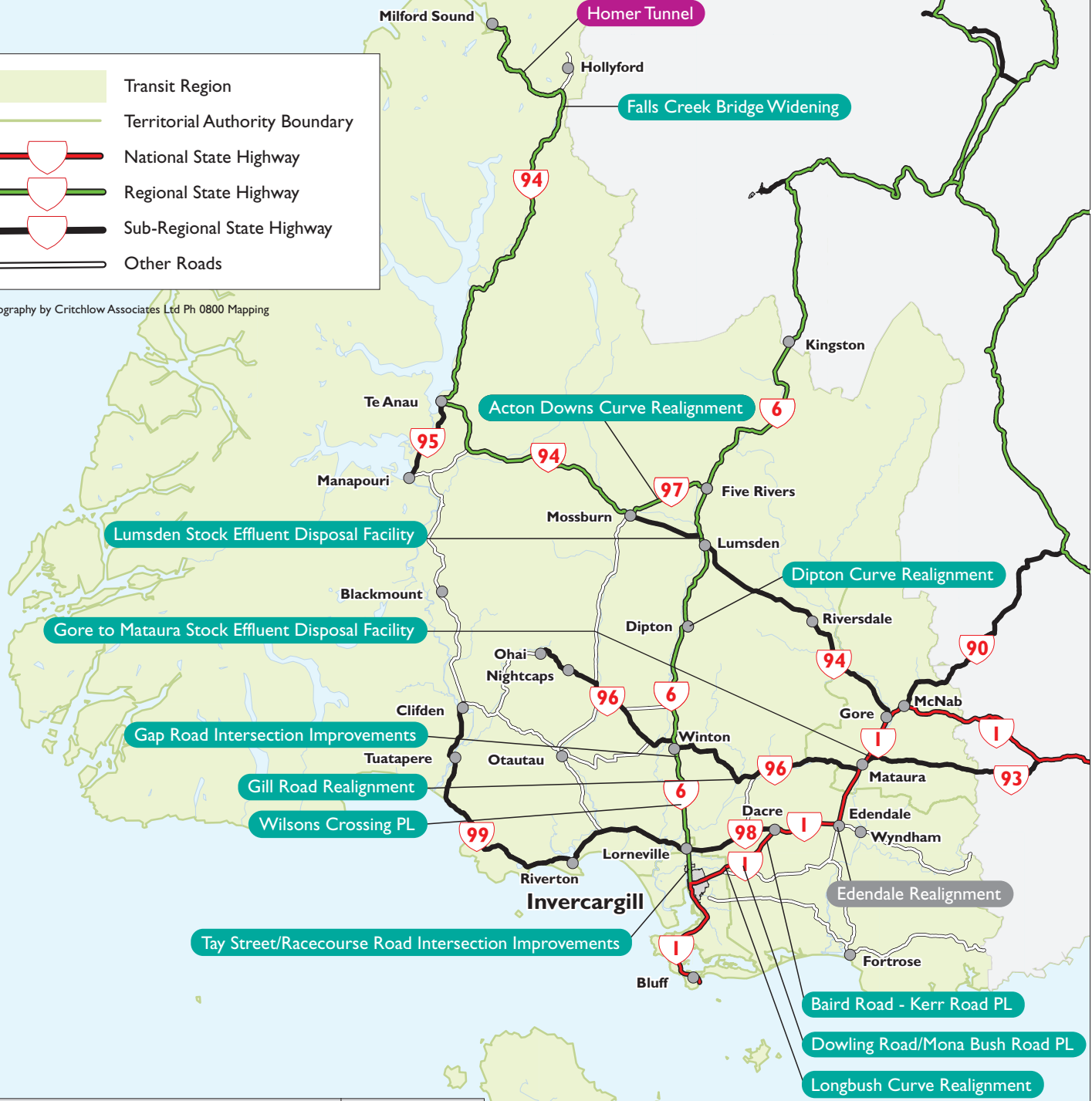
SOUTHLAND REGION

State Highway Network at 01 July 2006



	Transit Region
	Territorial Authority Boundary
	National State Highway
	Regional State Highway
	Sub-Regional State Highway
	Other Roads

Cartography by Critchlow Associates Ltd Ph 0800 Mapping



KEY DELIVERABLES 5-YEAR FUNDING PACKAGE (2006/07 TO 2010/11)		INDICATIVE PROJECTS
Large Projects	Small / Medium Projects	Forecast

APPENDIX I – STATE HIGHWAY ACTIVITIES FOR 2008/09 (LAND TRANSPORT PROGRAMME)

Large Activities (2008/09)		Economic Development	Safety and Personal Security	Access & Mobility	Public Health	Environmental Sustainability	Alternatives Considered	Options Considered	
Northland	Akerama Curves Realignment and 5th B'd PL	Rural Realignment (Safety)	<ul style="list-style-type: none"> Should reduce travel delays between economic nodes Should provide greater time reliability Ensures route efficiency 	<ul style="list-style-type: none"> Expected to reduce the number of accidents caused by sub-standard alignment and limited passing opportunities 	<ul style="list-style-type: none"> No significant contribution to access and mobility 	<ul style="list-style-type: none"> Reduces the incidence of injuries caused by accidents 	<ul style="list-style-type: none"> Reducing traffic delays are likely to lead to small improvements in air quality 	<ul style="list-style-type: none"> Strategies to reduce traffic volumes and growth 	<ul style="list-style-type: none"> Alternative realignment options, passing lanes
	Matakohe Realignment	Rural Realignment (Safety)	<ul style="list-style-type: none"> Promotes route security Should reduce travel delays between economic nodes Likely to provide greater time reliability 	<ul style="list-style-type: none"> Expected to reduce the number of accidents caused by sub-standard alignment and seal width 	<ul style="list-style-type: none"> Likely to improve mobility by reducing the length of travel delays caused by a accidents Preserves an important access route to Auckland 	<ul style="list-style-type: none"> Reduces the incidence of injuries caused by accidents 	<ul style="list-style-type: none"> Eliminates instability of road built on a siding on current alignment Reducing traffic delays are likely to lead to small improvements in air quality 	<ul style="list-style-type: none"> Strategies to reduce traffic volumes and growth 	<ul style="list-style-type: none"> Alternative realignment options, routes
	Brynderwyn Hill Realignment	Rural Realignment (Safety)	<ul style="list-style-type: none"> Promotes route security Should reduce travel delays between economic nodes Likely to provide greater time reliability 	<ul style="list-style-type: none"> Expected to reduce the number of accidents caused by sub-standard alignment and seal width 	<ul style="list-style-type: none"> Likely to improve mobility by reducing the length of travel delays caused by accidents Preserves an important access route to Auckland 	<ul style="list-style-type: none"> Reduces the incidence of injuries caused by accidents 	<ul style="list-style-type: none"> Eliminates instability of road built on a siding on current alignment Reducing traffic delays are likely to lead to small improvements in air quality 	<ul style="list-style-type: none"> Strategies to reduce traffic volumes and growth 	<ul style="list-style-type: none"> Alternative realignment options, routes
Auckland	Punganui Stream Bridge	Bridge Renewals	<ul style="list-style-type: none"> Promotes route security Should reduce travel delays between economic nodes Likely to provide greater time reliability 	<ul style="list-style-type: none"> Potentially reduces the number of accidents caused by narrow width constraints Minimises safety risks from potential structural failure 	<ul style="list-style-type: none"> Preserves a secure SH16 access route Supports improved access for pedestrians and cyclists 	<ul style="list-style-type: none"> Could support walking and cycling health benefits May reduce the incidence of injuries caused by accidents 	<ul style="list-style-type: none"> Likely to facilitate flow of the watercourses during flood periods Reducing traffic delays are likely to lead to small improvements in air quality 	<ul style="list-style-type: none"> Short-term alternatives, do-nothing 	<ul style="list-style-type: none"> Alternative engineering options
	Newmarket Viaduct to Greenlane Auxiliary Lane	Additional Lanes	<ul style="list-style-type: none"> Reduces travel delays between economic nodes Provides greater travel time reliability 	<ul style="list-style-type: none"> Potentially reduces the number of accidents caused by congestion 	<ul style="list-style-type: none"> Improves mobility by reducing levels of congestion Improves access to central Auckland and Newmarket 	<ul style="list-style-type: none"> May reduce the incidence of injuries caused by accidents 	<ul style="list-style-type: none"> Reducing traffic delays are likely to lead to small improvements in air quality 	<ul style="list-style-type: none"> Strategies to reduce traffic volumes and growth 	<ul style="list-style-type: none"> Alternative TDM strategies and options
	Schedewys Hill Deviation	Rural Realignment (Safety)	<ul style="list-style-type: none"> Should reduce travel delays between economic nodes Likely to provide greater time reliability 	<ul style="list-style-type: none"> Expected to reduce the number of accidents caused by sub-standard alignment 	<ul style="list-style-type: none"> Likely to improve mobility by reducing the length of travel delays caused by accidents 	<ul style="list-style-type: none"> May reduce the incidence of injuries caused by accidents 	<ul style="list-style-type: none"> Reducing traffic delays are likely to lead to small improvements in air quality 	<ul style="list-style-type: none"> Strategies to reduce traffic volumes and growth 	<ul style="list-style-type: none"> Alternative realignment options, routes
	Warkworth Stage I	Intersection Improvement	<ul style="list-style-type: none"> Should reduce travel delays caused by local/through traffic conflicts Likely to provide greater travel time reliability 	<ul style="list-style-type: none"> Potentially reduces the number of accidents caused by congestion 	<ul style="list-style-type: none"> Likely to improve mobility by reducing levels of congestion Expected to improve accessibility within Warkworth 	<ul style="list-style-type: none"> May reduce the incidence of injuries caused by accidents 	<ul style="list-style-type: none"> Reducing traffic delays are likely to lead to small improvements in air quality 	<ul style="list-style-type: none"> Strategies to reduce traffic volumes and growth 	<ul style="list-style-type: none"> Alternative TDM strategies and options
Waikato	Te Rapa Bypass	Bypass	<ul style="list-style-type: none"> Reduces travel delay between economic nodes Provides greater travel time reliability Potentially creates opportunities for localised economic gains 	<ul style="list-style-type: none"> Potentially reduces the number of accidents caused by congestion and local/through traffic conflicts 	<ul style="list-style-type: none"> Likely to improve mobility by reducing the length of travel delays caused by accidents in bypassed areas 	<ul style="list-style-type: none"> Reduces the incidence of injuries caused by accidents 	<ul style="list-style-type: none"> No significant contribution to environmental sustainability 	<ul style="list-style-type: none"> Additional safety measures, increased maintenance 	<ul style="list-style-type: none"> Alternative realignment options
	Hamilton Southern Links	Bypass	<ul style="list-style-type: none"> Reduces travel delay between economic nodes Provides greater travel time reliability Provides efficient link to key industrial and commercial areas 	<ul style="list-style-type: none"> Potentially reduces the number of accidents caused by local/through traffic conflicts 	<ul style="list-style-type: none"> Likely to improve mobility by reducing levels of congestion Improves access to key industrial and commercial areas Supports improved access for pedestrians and cyclists on bypass route 	<ul style="list-style-type: none"> Promotes walking and cycling health benefits Could reduce noise, vibration and air pollution impact on communities in bypassed area 	<ul style="list-style-type: none"> Reducing traffic delays are likely to lead to small improvements in air quality 	<ul style="list-style-type: none"> Strategies to reduce traffic volumes and growth 	<ul style="list-style-type: none"> Alternative bypass routes
	Huntly Bypass	Bypass	<ul style="list-style-type: none"> Reduces travel delay between economic nodes Provides greater travel time reliability Potentially creates opportunities for localised economic gains due to improved local retail/main street conditions on bypassed route 	<ul style="list-style-type: none"> Potentially reduces the number of accidents caused by congestion, sub-standard alignment, local/through traffic conflicts 	<ul style="list-style-type: none"> Likely to improve mobility by reducing the length of travel delays caused by accidents in bypassed areas Improves important access route to Auckland Supports improved access for pedestrians and cyclists in bypassed areas 	<ul style="list-style-type: none"> May reduce the incidence of injuries caused by accidents 	<ul style="list-style-type: none"> Could reduce noise, vibration and air pollution impact on communities in bypassed area Likely to have minimal impacts on sensitive receiving environments and significant ecological resources Possibility of promoting community cohesion in bypassed area 	<ul style="list-style-type: none"> Strategies to reduce traffic volumes and growth 	<ul style="list-style-type: none"> Alternative bypass routes
	Long Swamp to Rangiriri 4L	Additional Lanes	<ul style="list-style-type: none"> Provides greater travel time reliability 	<ul style="list-style-type: none"> Expected to reduce the number of accidents at traffic conflict points 	<ul style="list-style-type: none"> Likely to improve mobility by reducing the length of travel delays caused by accidents 	<ul style="list-style-type: none"> May reduce the incidence of injuries caused by accidents 	<ul style="list-style-type: none"> Likely to have minimal impacts on sensitive receiving environments and significant ecological resources 	<ul style="list-style-type: none"> Strategies to reduce traffic volumes and growth 	<ul style="list-style-type: none"> Alternative TDM strategies and options
	Hamilton Bypass	Bypass	<ul style="list-style-type: none"> Reduces travel delay between economic nodes Provides greater travel time reliability Potentially creates opportunities for localised economic gains due to improved local retail/main street conditions on bypassed route 	<ul style="list-style-type: none"> Potentially reduces the number of accidents caused by congestion, sub-standard alignment, local/through traffic conflicts 	<ul style="list-style-type: none"> Likely to improve mobility by reducing the length of travel delays caused by accidents in bypassed areas Improves important access route to Auckland Supports improved access for pedestrians and cyclists in bypassed areas 	<ul style="list-style-type: none"> May reduce the incidence of injuries caused by accidents 	<ul style="list-style-type: none"> Could reduce noise, vibration and air pollution impact on communities in bypassed area Likely to have minimal impacts on sensitive receiving environments and significant ecological resources Possibility of promoting community cohesion in bypassed area 	<ul style="list-style-type: none"> Strategies to reduce traffic volumes and growth 	<ul style="list-style-type: none"> Alternative bypass routes
Bay of Plenty	Tauranga Central Corridor Improvements	Intersection Improvement	<ul style="list-style-type: none"> Reduces travel delays on heavily-trafficked corridor Provides greater travel time reliability Likely to encourage shift in transport modal use 	<ul style="list-style-type: none"> Dedicated and/or purpose built facilities reduce the accident risk for pedestrians and cyclists 	<ul style="list-style-type: none"> Enhances mobility by providing choice of viable transport modes Supports improved access for pedestrians and cyclists Improves transport choices for transport disadvantaged 	<ul style="list-style-type: none"> Possible improvement in air quality could reduce respiratory illnesses Promotes walking and cycling health benefits 	<ul style="list-style-type: none"> Reducing traffic delays are likely to lead to small improvements in air quality 	<ul style="list-style-type: none"> Four lane corridors, alternative routes 	<ul style="list-style-type: none"> Other TDM strategies and options

Table continues overleaf

APPENDIX I – STATE HIGHWAY ACTIVITIES FOR 2008/09 (LAND TRANSPORT PROGRAMME)

Large Activities (2008/09)		Economic Development	Safety and Personal Security	Access & Mobility	Public Health	Environmental Sustainability	Alternatives Considered	Options Considered	
Hawke's Bay	Waipukurau Overbridge Realignment	Bridge Renewals	<ul style="list-style-type: none"> Promotes route security Should reduce travel delays between economic nodes Likely to provide greater time reliability 	<ul style="list-style-type: none"> Expected to reduce the number of accidents caused by narrow width constraints and sub standard approach alignments Minimises safety risks from potential structural failure 	<ul style="list-style-type: none"> Contributes to a secure SH2 access route Supports improved access for cyclists 	<ul style="list-style-type: none"> Reduces the incidence of injuries caused by accidents Promotes cycling health benefit 	<ul style="list-style-type: none"> Higher travel speeds (associated with the improved realignment) are likely to lead to small improvements in air quality 	<ul style="list-style-type: none"> Do nothing 	<ul style="list-style-type: none"> Alternative realignments, bridge structures
Wellington	Basin Reserve Improvements	Intersection Improvement	<ul style="list-style-type: none"> Reduces travel delays between economic nodes Provides greater travel time reliability. 	<ul style="list-style-type: none"> Expected to reduce the number of accidents at traffic conflict points 	<ul style="list-style-type: none"> Likely to improve mobility by reducing levels of congestion (which cause travel delays) Improved access to CBD and airport. Supports improved access for pedestrians and cyclists 	<ul style="list-style-type: none"> May reduce the incidence of injuries caused by accidents Promotes walking and cycling health benefits 	<ul style="list-style-type: none"> Reducing traffic delays are likely to lead to small improvements in air quality 	<ul style="list-style-type: none"> Do nothing Strategies to reduce traffic volumes and growth 	<ul style="list-style-type: none"> Alternative intersection improvement options
	Melling Interchange	Intersection Improvement	<ul style="list-style-type: none"> Reduces travel delays between economic nodes Provides greater travel time reliability 	<ul style="list-style-type: none"> Expected to reduce the number of accidents at traffic conflict points 	<ul style="list-style-type: none"> Could improve mobility by reducing levels of congestion (which cause travel delays) Improves access to central business district and state highway network 	<ul style="list-style-type: none"> May reduce the incidence of injuries caused by accidents 	<ul style="list-style-type: none"> Reducing traffic delays are likely to lead to small improvements in air quality 	<ul style="list-style-type: none"> Do nothing 	<ul style="list-style-type: none"> Alternative intersection improvement options
	SH2/58 Grade Separation	Intersection Improvement	<ul style="list-style-type: none"> Should reduce travel delays caused by local/through traffic conflicts Likely to provide greater travel time reliability 	<ul style="list-style-type: none"> Potentially reduces the number of accidents at traffic conflict points 	<ul style="list-style-type: none"> Likely to improve mobility by reducing levels of congestion Expected to improve access onto the state highway network 	<ul style="list-style-type: none"> Reduces the incidence of injuries caused by accidents 	<ul style="list-style-type: none"> Reducing traffic delays are likely to lead to small improvements in air quality 	<ul style="list-style-type: none"> Strategies to reduce traffic volumes and growth 	<ul style="list-style-type: none"> Alternative TDM strategies and options
Nelson-Marlborough	Whangamoa South Realignment	Rural Realignment (Safety)	<ul style="list-style-type: none"> Reduces travel delay between economic nodes Provides greater travel time reliability Promotes route security 	<ul style="list-style-type: none"> Expected to reduce the number of accidents caused by sub-standard realignment and narrow seal width 	<ul style="list-style-type: none"> Likely to improve mobility by reducing the length of travel delays caused by accidents Supports improved access for cyclists 	<ul style="list-style-type: none"> May reduce the incidence of injuries caused by accidents Promotes cycling health benefits 	<ul style="list-style-type: none"> Reducing traffic delays are likely to lead to small improvements in air quality 	<ul style="list-style-type: none"> Do nothing 	<ul style="list-style-type: none"> None
Canterbury	Western Belfast Bypass	Bypass	<ul style="list-style-type: none"> Reduces travel delay between economic nodes Provides greater travel time reliability 	<ul style="list-style-type: none"> Potentially reduces the number of accidents caused by local/through traffic conflicts in Belfast 	<ul style="list-style-type: none"> No significant contribution to improving accessibility and mobility 	<ul style="list-style-type: none"> May reduce the incidence of injuries caused by accidents 	<ul style="list-style-type: none"> Likely to have minimal impacts on sensitive receiving environments and significant ecological resources 	<ul style="list-style-type: none"> Strategies to reduce traffic volumes and growth 	<ul style="list-style-type: none"> Alternative bypass routes
	QE2 4L Northern Arterial to Hills Road Extension	Additional Lanes	<ul style="list-style-type: none"> Reduces travel delays between economic nodes Provides greater travel time reliability 	<ul style="list-style-type: none"> Expected to reduce the number of accidents caused by congestion 	<ul style="list-style-type: none"> Likely to improve mobility by reducing congestion (which causes travel delays) Expected to improve access to and from the growth areas to the north of Christchurch 	<ul style="list-style-type: none"> May reduce the incidence of injuries caused by accidents 	<ul style="list-style-type: none"> Reducing traffic delays are likely to lead to small improvements in air quality 	<ul style="list-style-type: none"> Strategies to reduce traffic volumes and growth 	<ul style="list-style-type: none"> Alternative realignment options
	Sawyers Arms to Memorial Avenue 4L	Additional Lanes	<ul style="list-style-type: none"> Provides strategic through route on the western edge of Christchurch city Reduces travel delays between economic nodes Provides greater travel time reliability 	<ul style="list-style-type: none"> Expected to reduce the number of accidents caused by congestion 	<ul style="list-style-type: none"> Likely to improve mobility by reducing congestion (which causes travel delays) Expected to improve access and mobility to Christchurch International Airport and surrounds Supports improved access for cyclists 	<ul style="list-style-type: none"> May reduce the incidence of injuries caused by accidents Promotes cycling health benefits 	<ul style="list-style-type: none"> Reducing traffic delays are likely to lead to small improvements in air quality 	<ul style="list-style-type: none"> Strategies to reduce traffic volumes and growth 	<ul style="list-style-type: none"> Alternative realignment options, carriageway widening
	Christchurch Northern Arterial Rural	Bypass	<ul style="list-style-type: none"> Reduces travel delay between economic nodes, particularly CBD and Port Provides greater travel time reliability 	<ul style="list-style-type: none"> May reduce the number of accidents at traffic conflict points 	<ul style="list-style-type: none"> Likely to improve mobility by reducing levels of congestion 	<ul style="list-style-type: none"> May reduce the incidence of injuries caused by accidents 	<ul style="list-style-type: none"> Likely to have minimal impacts on sensitive receiving environments and significant ecological resources 	<ul style="list-style-type: none"> Strategies to reduce traffic volumes and growth 	<ul style="list-style-type: none"> Alternative bypass routes
	Memorial Avenue to Yaldhurst Road 4L	Additional Lanes	<ul style="list-style-type: none"> Provides strategic through route on the western edge of Christchurch city Reduces travel delays between economic nodes Provides greater travel time reliability. 	<ul style="list-style-type: none"> Expected to reduce the number of accidents caused by congestion 	<ul style="list-style-type: none"> Likely to improve mobility by reducing congestion (which cause travel delays) Expected to improve access and mobility to Christchurch international airport and surrounds Supports improved access for cyclists 	<ul style="list-style-type: none"> May reduce the incidence of injuries caused by accidents Promotes cycling health benefits 	<ul style="list-style-type: none"> Reducing traffic delays are likely to lead to small improvements in air quality 	<ul style="list-style-type: none"> Strategies to reduce traffic volumes and growth 	<ul style="list-style-type: none"> Alternative realignment options, carriageway widening
	Christchurch TDM Implementation	Travel Demand Management	<ul style="list-style-type: none"> Reduces travel delays on heavily-trafficked roads Provides greater travel time reliability 	<ul style="list-style-type: none"> Likely to reduce accident risks for pedestrians and cyclists 	<ul style="list-style-type: none"> Likely to improve mobility by reducing congestion (which causes travel delays) Expected to improve mobility by providing a choice of viable transport modes Improves transport choices for transport disadvantaged 	<ul style="list-style-type: none"> Possible improvement in air quality to could reduce respiratory illnesses Promotes walking and cycling health benefits 	<ul style="list-style-type: none"> Reducing traffic delays are likely to lead to small improvements in air quality 	<ul style="list-style-type: none"> Do nothing 	<ul style="list-style-type: none"> Alternative TDM strategies and options

APPENDIX 2 – CONTRIBUTION OF GENERIC PROJECTS TO NZTS AND LTMA OBJECTIVES

Project Categories	Assists Economic Development	Assists Safety and Personal Security	Improves Access & Mobility	Protects and Promotes Public Health	Ensures Environmental Sustainability	Alternatives Considered	Options Considered
Bridge Renewals	<ul style="list-style-type: none"> Minimises the risk of road closures and associated economic costs of traffic diversion and delays Preserves valuable public assets Reduces the need for bridge load restrictions which could impact on freight movements Enhances route security Can reduce travel delay and improve travel time reliability 	<ul style="list-style-type: none"> Minimises safety risks from structural failure Can reduce accidents caused by substandard alignment and congestion Can improve safety for cyclists/pedestrians 	<ul style="list-style-type: none"> Preserves or enhances current levels of access and mobility Opportunity to provide adequate access for pedestrians/cyclists 	<ul style="list-style-type: none"> May reduce injury-related accidents Potential health benefits from improved walking and cycling opportunities 	<ul style="list-style-type: none"> Opportunity to reduce adverse ecological impacts of bridge structures e.g. by reducing footprint of the bridge Opportunity to enhance visual amenity through improved design Reduces the risk of adverse environmental impacts from vehicle crashes 	<ul style="list-style-type: none"> Provision of alternative routes 	<ul style="list-style-type: none"> Alternative engineering options
Carriageway Lighting	<ul style="list-style-type: none"> Potential reduction in travel delay between economic nodes (by improving visibility, route definition and reducing accident rates) 	<ul style="list-style-type: none"> May reduce accidents caused by poor visibility or route definition Increased visibility may lessen perceived threats to personal security for cyclists and vehicle occupants 	<ul style="list-style-type: none"> Improves mobility by reducing travel delays Improves modal choice by improving conditions for cycling 	<ul style="list-style-type: none"> Health benefits from increased use of 'active' transport modes Potential reduction in injury-related accidents 	<ul style="list-style-type: none"> Reduces the risk of adverse environmental impacts from vehicle crashes Opportunity to install energy efficient lighting systems Potential reduction in vehicle related emissions by reducing dependency on motor vehicles 	<ul style="list-style-type: none"> Do nothing 	<ul style="list-style-type: none"> Variations in lighting design and location
Crash Reduction Studies	<ul style="list-style-type: none"> Reduced accidents from resulting network improvements would: <ul style="list-style-type: none"> Reduce travel delay between economic nodes Improve travel time reliability 	<ul style="list-style-type: none"> Network improvements likely to reduce accident rates 	<ul style="list-style-type: none"> Improves mobility by reducing accident-related travel delays 	<ul style="list-style-type: none"> Potential reduction in injury-related accidents 	<ul style="list-style-type: none"> Reduces the risk of adverse environmental impacts from vehicle crashes Resulting network improvements provide opportunity for environmental enhancement through improved environmental mitigation and low impact design 	<ul style="list-style-type: none"> Do nothing - continue to use adhoc/reactive initiatives 	<ul style="list-style-type: none"> n/a
Maintenance	<ul style="list-style-type: none"> Reduces vehicle servicing costs Maintenance practices designed to minimise traffic disruptions and duration of necessary works Minimises the likelihood of long-term traffic diversions/delays caused by significant deterioration in quality of surface and smoothness of state highways Preserves valuable public assets Reduces the need for load restrictions which could impact on freight movements Enhances route security 	<ul style="list-style-type: none"> Minimises safety risks from structural failure Ensures safety and personal security features on the network are maintained for their specified purposes e.g. pedestrian underpasses 	<ul style="list-style-type: none"> Preserves current levels of access and mobility Enables modal choice by maintaining walking and cycling facilities 	<ul style="list-style-type: none"> Risk of adverse health effects reduced by noise mitigation measures, stock effluent facilities, street cleaning, litter removal Enables/promotes continued use of walking and cycling facilities May reduce the risk of injury-related accidents 	<ul style="list-style-type: none"> Enables ongoing compliance with resource consent conditions Stock effluent facilities reduce the uncontrolled discharge of environmental contaminants Opportunity to improve the function of the existing network as it relates to the surrounding area e.g. using stormwater treatment devices to reduce pollutant contamination of water bodies, installing fish passages in drainage systems, improving ecological connectivity through landscaping, reduced chemical use in vegetation control, using recycled materials in pavement maintenance Improved visual amenity through litter removal, vegetation control and landscaping 	<ul style="list-style-type: none"> Do nothing Strategies to reduce traffic growth and volumes Promotion of alternative routes that avoid sensitive environments Advocate for appropriate land use controls to recognise reverse sensitivity (e.g. noise) 	<ul style="list-style-type: none"> Set different levels of service for maintenance
Major Drainage Control	<ul style="list-style-type: none"> Minimises damage to private property in flood/heavy rain events Reduces long term maintenance costs 	<ul style="list-style-type: none"> No significant contribution 	<ul style="list-style-type: none"> Assists in preserving current levels of access 	<ul style="list-style-type: none"> Opportunity to use stormwater treatment devices to reduce pollutants entering drinking water supplies 	<ul style="list-style-type: none"> Opportunity to use stormwater treatment devices to reduce pollutants entering water bodies 	<ul style="list-style-type: none"> Do nothing 	<ul style="list-style-type: none"> n/a
Minor Safety Projects: Intersection Improvement	<ul style="list-style-type: none"> Reduces travel delay between economic nodes Reduces congestion on heavily-trafficked corridors and at network pinch points Improves travel time reliability State highway access improvements can generate land development opportunities 	<ul style="list-style-type: none"> Reduces risk of intersection crashes (vehicle and non vehicle related) 	<ul style="list-style-type: none"> Improves mobility by reducing congestion and accident-related travel delays Opportunity to improve crossing facilities for pedestrians and cyclists e.g. signalised crossings Can improve connectivity between local roads and state highway networks 	<ul style="list-style-type: none"> Potential reduction in injury-related accidents Potential public health benefits from improved walking and cycling opportunities Can reduce respiratory illnesses due to improved air quality from decreased congestion and vehicle emissions 	<ul style="list-style-type: none"> Reduces emissions by improving traffic flows Reduces the risk of adverse environmental impacts from vehicle crashes Opportunity for improved visual amenity through landscaping Provides opportunity for environmental enhancement through improved environmental mitigation and low impact design 	<ul style="list-style-type: none"> Do nothing 	<ul style="list-style-type: none"> Alternative interchange upgrade options
Minor Safety Projects: barriers and level crossing warning devices	<ul style="list-style-type: none"> Reduction in accident rate would: <ul style="list-style-type: none"> Reduce travel delay between economic nodes Improve travel time reliability 	<ul style="list-style-type: none"> Reduces risk of head-on and railway crossing accidents 	<ul style="list-style-type: none"> Improves mobility by reducing accident-related travel delays 	<ul style="list-style-type: none"> Potential reduction in injury-related accidents 	<ul style="list-style-type: none"> Reduces the risk of adverse environmental impacts from vehicle crashes 	<ul style="list-style-type: none"> Do nothing Advocating for improved coordination between railway timetables and congestion peaks 	<ul style="list-style-type: none"> Alternative engineering options/ carriageway widening
Minor Safety Projects: General	<ul style="list-style-type: none"> Reduction in accidents would: <ul style="list-style-type: none"> Generate accident cost savings Reduce travel delay between economic nodes Provide greater travel time reliability 	<ul style="list-style-type: none"> Reduces risk of accidents 	<ul style="list-style-type: none"> Improves mobility by reducing accident-related travel delays Opportunity to review provision of walking/ cycling facilities 	<ul style="list-style-type: none"> Potential reduction in injury-related accidents 	<ul style="list-style-type: none"> Reduces the risk of adverse environmental impacts from vehicle crashes Provides opportunity for environmental enhancement through improved environmental mitigation and low impact design 	<ul style="list-style-type: none"> Do nothing 	<ul style="list-style-type: none"> Alternative engineering options/ carriageway widening
New Roads and Bridges: Additional / Passing Lanes	<ul style="list-style-type: none"> Reduces travel delay between economic nodes Reduces congestion on heavily-trafficked corridors and at network pinch points Improves travel time reliability Vehicle operating costs (e.g. fuel consumption) may decrease 	<ul style="list-style-type: none"> Reduces accidents caused by: <ul style="list-style-type: none"> congestion sub-standard alignment unsafe overtaking manoeuvres conflicts between road users 	<ul style="list-style-type: none"> Improves mobility by reducing congestion Provides opportunity to provide HOV lanes, cycling and walking facilities to improve travel choice and manage demand 	<ul style="list-style-type: none"> Potential reduction in injury-related accidents Can reduce respiratory illnesses due to improved air quality from decreased congestion and vehicle emissions 	<ul style="list-style-type: none"> Improves energy efficiency and vehicle emission performance by reducing congestion Road alignments and construction practices designed to minimise impacts on sensitive receiving environments and significant ecological resources Provides opportunity for environmental enhancement through improved environmental mitigation and low impact design Opportunity to enhance visual amenity through design 	<ul style="list-style-type: none"> Strategies to reduce traffic volumes and growth e.g. promotion of alternative modes Development of bypass routes 	<ul style="list-style-type: none"> Overtaking treatments Different alignments
New Roads and Bridges: Bypass	<ul style="list-style-type: none"> Reduces travel delay between economic nodes Reduces congestion on heavily-trafficked corridors and at network pinch points Improves travel time reliability Vehicle operating costs (e.g. fuel consumption) may decrease Potential for localised economic gains resulting from improved local retail/main street conditions on bypassed route Reduces maintenance costs on bypassed route 	<ul style="list-style-type: none"> Reduces accidents caused by: <ul style="list-style-type: none"> congestion sub-standard alignment local/through traffic conflicts Improves safety for pedestrians and cyclists on bypassed routes 	<ul style="list-style-type: none"> Improves mobility by reducing congestion Opportunity to improve local connectivity and modal choice (e.g. walking and cycling) on bypassed route 	<ul style="list-style-type: none"> Reduces noise, vibration and air pollution impacts for communities adjacent to bypassed route Air quality improvements from decreased congestion and vehicle emissions can reduce respiratory illnesses Potential health improvements due to increased opportunities for cycling and walking on bypassed routes 	<ul style="list-style-type: none"> Improves energy efficiency and localised air quality by reducing congestion and emissions on bypassed route Road alignments designed to minimise impacts on sensitive receiving environments and significant ecological resources Promotes community cohesion on bypassed route Provides opportunity for environmental enhancement through improved environmental mitigation and low impact design Opportunity to enhance visual amenity on bypassed and bypass routes through improved design 	<ul style="list-style-type: none"> Strategies to reduce speed, traffic volumes and growth 	<ul style="list-style-type: none"> Alternative realignment options, carriageway widening

Table continues overleaf

APPENDIX 2 – CONTRIBUTION OF GENERIC PROJECTS TO NZTS AND LTMA OBJECTIVES

Project Categories	Assists Economic Development	Assists Safety and Personal Security	Improves Access & Mobility	Protects and Promotes Public Health	Ensures Environmental Sustainability	Alternatives Considered	Options Considered
New Roads and Bridges: Rural Realignment - Safety and Time	<ul style="list-style-type: none"> Reduce travel delay between economic nodes Improve travel time reliability Reduces vehicle operating costs (e.g. fuel consumption) Improves efficiency for freight movements 	<ul style="list-style-type: none"> Reduces accidents caused by congestion and sub-standard alignment Provides opportunity to improve safety for all road users 	<ul style="list-style-type: none"> Improves mobility by reducing accident-related travel delays 	<ul style="list-style-type: none"> Potential reduction in injury-related accidents Air quality improvements from decreased congestion and vehicle emissions can reduce respiratory illnesses 	<ul style="list-style-type: none"> Road realignments designed to minimise impacts on sensitive receiving environments and significant ecological resources Reduced travel delay may improve energy efficiency and localised air quality by reducing emissions Provides opportunity for environmental enhancement through improved environmental mitigation and low impact design Opportunity to enhance visual amenity through design 	<ul style="list-style-type: none"> Do nothing Development of alternative routes 	<ul style="list-style-type: none"> Alternative realignment options, carriageway widening
New Roads and Bridges: General	<ul style="list-style-type: none"> Reduces travel delay between economic nodes Reduces congestion on heavily-trafficked corridors and at network pinch points Improves travel time reliability Vehicle operating costs (e.g. fuel consumption) may decrease Reduces maintenance costs on existing route 	<ul style="list-style-type: none"> Reduces accidents caused by congestion and sub-standard alignment Provides opportunity to improve safety for all road users 	<ul style="list-style-type: none"> Improves accessibility by providing more direct route Potential to improve walking and cycling linkages Improves mobility by reducing congestion 	<ul style="list-style-type: none"> Potential public health benefits from improved walking and cycling opportunities Air quality improvements from decreased congestion and vehicle emissions can reduce respiratory illnesses 	<ul style="list-style-type: none"> Potential for improved energy efficiency and localised air quality by reducing congestion Road alignments designed to minimise impacts on sensitive receiving environments and significant ecological resources Provides opportunity for environmental enhancement through improved environmental mitigation and low impact design Opportunity to enhance visual amenity through design 	<ul style="list-style-type: none"> Strategies to reduce traffic volumes and growth 	<ul style="list-style-type: none"> Alternative realignment options, carriageway widening
Public Transport Rooding Improvements: Bus lanes	<ul style="list-style-type: none"> Reduces travel delay between economic nodes Provides greater travel time reliability Reduces congestion on heavily-trafficked corridors 	<ul style="list-style-type: none"> Potential to reduce accidents caused by congestion 	<ul style="list-style-type: none"> Improves mobility by reducing congestion and improving modal choice Improves viability of bus travel as an alternative to the private car Assists in managing travel demand by improving modal choice 	<ul style="list-style-type: none"> Air quality improvements from decreased congestion and vehicle emissions can reduce respiratory illnesses 	<ul style="list-style-type: none"> Potential for improved energy efficiency and localised air quality by reducing congestion Provides opportunity for environmental enhancement through improved environmental mitigation and low impact design Opportunity to enhance visual amenity through design 	<ul style="list-style-type: none"> Do nothing Increase roading network capacity 	<ul style="list-style-type: none"> Other TDM measures
Route Protection (Preventive Maintenance)	<ul style="list-style-type: none"> Preserves valuable public assets Minimises the risk of road closure and associated economic costs of traffic diversion and delay 	<ul style="list-style-type: none"> Minimises risk of personal injury from vehicle accidents, falling debris etc. in emergency event 	<ul style="list-style-type: none"> Reduces risk of access and mobility being severely compromised in emergency event 	<ul style="list-style-type: none"> Reduces risk of injury related accidents 	<ul style="list-style-type: none"> Reduces risk of erosion and adverse effects of soil dumps on receiving environments e.g. sedimentation 	<ul style="list-style-type: none"> Do nothing Develop alternative routes 	n/a
Seal Extension	<ul style="list-style-type: none"> Reduces long term maintenance costs Reduces travel time and delays Reduced roughness reduces vehicle operating cost 	<ul style="list-style-type: none"> Improves safety by improving grip (vehicle cyclists) Potential reduction in loss of control accidents 	<ul style="list-style-type: none"> Improves access to remote areas Improves modal choice by improving conditions for cycling and walking 	<ul style="list-style-type: none"> Reduces air and water pollution impact by reducing dust Reduces noise impact Health benefits of walking and cycling Potential reduction in injury-related accidents 	<ul style="list-style-type: none"> Dust reduction improves local air and water quality 	<ul style="list-style-type: none"> Do nothing 	<ul style="list-style-type: none"> More extensive realignment and carriageway reconstruction Increased use of dust suppression measures and low dust generating surfaces
Seal Widening	<ul style="list-style-type: none"> Reduces travel time by improving traffic speeds/flow 	<ul style="list-style-type: none"> Potentially reduces accidents caused by narrow seal width and loss of control 	<ul style="list-style-type: none"> Improves modal choice by improving conditions for cycling and walking (i.e. opportunity to widen shoulder) 	<ul style="list-style-type: none"> Can promote cycling and walking in rural areas 	<ul style="list-style-type: none"> No significant contribution 	<ul style="list-style-type: none"> Do nothing 	<ul style="list-style-type: none"> More extensive realignment and carriageway reconstruction
Traffic Management Systems	<ul style="list-style-type: none"> Reduces travel delay between economic nodes Provides greater travel time reliability Reduces congestion on heavily-trafficked corridors 	<ul style="list-style-type: none"> Potential to reduce accidents caused by congestion or incidents Can improve response time for emergency services 	<ul style="list-style-type: none"> Improves mobility by reducing congestion, identifying incidents and informing motorists of alternative routes 	<ul style="list-style-type: none"> May reduce risk of injury related accidents 	<ul style="list-style-type: none"> Improves energy efficiency and vehicle emission performance from reduced congestion Enables prompt responses to incidents such as hazardous spills 	<ul style="list-style-type: none"> Do nothing Develop alternative routes 	<ul style="list-style-type: none"> Other TDM measures
Transportation and Strategic Studies	<ul style="list-style-type: none"> Network improvements resulting from study recommendations may reduce congestion and improve safety along a corridor, which would: <ul style="list-style-type: none"> Reduce travel delay between economic nodes Improve travel time reliability Reduce congestion on heavily-trafficked corridors 	<ul style="list-style-type: none"> Network improvements resulting from the strategy may: <ul style="list-style-type: none"> reduce accident rates along corridor improve safety and personal security of cyclists and pedestrians 	<ul style="list-style-type: none"> Network improvements resulting from the strategy may improve access and mobility by: <ul style="list-style-type: none"> improving modal choice reducing congestion reducing accident rates providing priority for freight or HOV etc. 	<ul style="list-style-type: none"> Air quality improvements from decreased congestion and vehicle emissions can reduce respiratory illnesses Potential health improvements from improved cycling and pedestrian facilities Opportunities to identify and address specific health-related community concerns 	<ul style="list-style-type: none"> Resulting strategy can: <ul style="list-style-type: none"> improve energy efficiency and vehicle emission performance from reduced congestion ensure road alignments are designed to minimise impacts on sensitive receiving environments and significant ecological resources improve visual amenity through design and landscaping provide opportunity for environmental enhancement through improved environmental mitigation and low impact design provide opportunity to identify and address specific community concerns identify urban design framework to guide future development of corridor(s) 	<ul style="list-style-type: none"> Do nothing Ad hoc/reactive initiatives 	n/a
Walking and Cycling facilities	<ul style="list-style-type: none"> Marginal reduction in congestion and travel delay by encouraging shorter and medium length trips to be undertaken by non-vehicular means Improves traffic flows by controlling pedestrian crossing points 	<ul style="list-style-type: none"> Dedicated and/or purpose-built facilities reduce the accident risk for pedestrians and cyclists Opportunity to improve personal security for pedestrian and cyclists by designing facilities in accordance with urban design principles 	<ul style="list-style-type: none"> Improves mobility by providing choice of viable transport modes for short/medium trips Improves transport choices for transport disadvantaged 	<ul style="list-style-type: none"> Health benefits of walking and cycling Marginal reduction in noise, vibration and air pollution impacts by reducing motor vehicle short trips 	<ul style="list-style-type: none"> Reduces vehicle related emissions by reducing dependency on motor vehicles Reduces reliance on non-renewable sources of energy Provides opportunity for environmental enhancement through improved environmental mitigation and low impact design Opportunity to enhance visual amenity through design 	<ul style="list-style-type: none"> Do nothing Advocate to local authorities to provide walking and cycling facilities 	<ul style="list-style-type: none"> Alternative engineering options e.g. road widening

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