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: traffic on the main arterial routes into and within Christchurch City is increasing by 4 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 interdistrict 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
- Provision of passing opportunities on SH1, north of Kaikoura and south of Ashburton
- Provision of 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 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 (TDM) 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 TDM in Christchurch through infrastructure improvements for public transport on state highways that coincide with core public transport routes, such as Main North Rd. 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 (Christchurch Northern Links Study).

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 at intersections. 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 Timaru and south of Ashburton.

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 will be completed with the Pareora Stock Effluent Disposal Facility, south of Timaru and the Kaikoura facility. Glasnevin, Tinwald and Springfield continue to be monitored and promoted.

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 Halswell Rd Strategic Study, the southern Motorway Extension (Halswell Rd Junction Rd to Waterholes) and the Strategy Study Implementation for Urban Christchurch.

A study of the Waitaki bridges will be undertaken to identify the designation and design requirements of a future bridge replacement. A study of Kaikoura's transportation needs will be undertaken to develop an appropriate management plan.

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 117km of resurfacing, including 2km with low noise surfacing
- Strengthen 25km 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), on 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.

CANTERBURY State Highway Plan and Forecast for 2007/08 to 2016/17

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 $$$$ 100+M	Land Transport Programme 07/08	Plan 08/09–10/11	Forecast 11/12–16/17
	LARGE PROJECTS					
73	Christchurch Southern Motorway Extension ® §	Access and Mobility	2.8			
73	Christchurch Southern Motorway Extension ® §	Access and Mobility	$$$			
	Christchurch TDM Implementation	Economic Development	$			
1	Christchurch Northern Arterial Rural ®	Access and Mobility	$$$			
1	Memorial Ave Intersection (N/R)	Economic Development	$$			
1	Memorial Ave to Yaldhurst Rd 4L	Access and Mobility	$$			
1	Sawyers Arms to Memorial Ave 4L	Access and Mobility	$$			
	SMALL & MEDIUM PROJECTS		**Total Phase Cost**			
1	Belfast Intersection Upgrade	Safety and Personal Security	0.9			
74	Lyttelton Tunnel Deluge System	Safety and Personal Security	0.2			
73	Yaldhurst Rd / Curletts Rd Intersection	Access and Mobility	0.5			
1	Halswell Junction Rd / MSR Intersection Signalisation	Access and Mobility	1.3			
74	Marshland Rd / QEII Dr Intersection Upgrade	Economic Development	0.1			
73	Mingha Bluff to Rough Creek	Access and Mobility	0.1			
8	Burkes Pass West Curve Realignment ®	Safety and Personal Security	0.4			
75	SH75 / Dunbars Rd Intersection ® §	Access and Mobility	1.6			
73	Pound Rd Intersection ®	Access and Mobility	2.8			

§ in conjuction with third party contributions outside NLTP funding

Indicative funding sources identified by Land Transport NZ in the NLTP

® denotes regionally distributed funds

(N/R) denotes national funding, however Land Transport NZ has indicated possible regionally distributed funding

Projects in investigation or design may not necessarily proceed to construction.

CANTERBURY State Highway Plan and Forecast for 2007/08 to 2016/17

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 $$ 5-20M $$$ 20-100M $$$$ 100+M	Land Transport Programme 07/08	Plan 08/09–10/11	Forecast 11/12–16/17
	SMALL & MEDIUM PROJECTS (continued)		**Total Phase Cost**			
1	Lineside Rd On-Ramp	Safety and Personal Security	0.2			
1	Improvement to the Shingle Fans	Safety and Personal Security	0.1			
1 / 8	SH1 & SH8 Intersection Improvements ® §	Access and Mobility	1.2			
	Passing Lanes					
1	Ealing PL ®	Safety and Personal Security	1.0			
1	St Andrews North PL ®	Safety and Personal Security	0.1			
1	Orari South PL	Safety and Personal Security	0.1			
1	Orari North PL	Safety and Personal Security	1.3			
	Walking & Cycling					
	Christchurch City Safe Cycling Facilities	Public Health	$			
	Strategic Studies					
	Ashburton Strategic Study					
	Timaru Strategic Study					
	Christchurch Transportation Model Update					
	Christchurch Northern Links Strategic Study					
	SH1 Woodend Bypass					
	Halswell Road Strategic Study					
	Southern Motorway Extension Halswell Road Junction to Waterholes					
	SH73 Route Security Study					
	SH82 Waitaki Bridges					

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§ in conjuction with third party contributions outside NLTP funding

Indicative funding sources identified by Land Transport NZ in the NLTP

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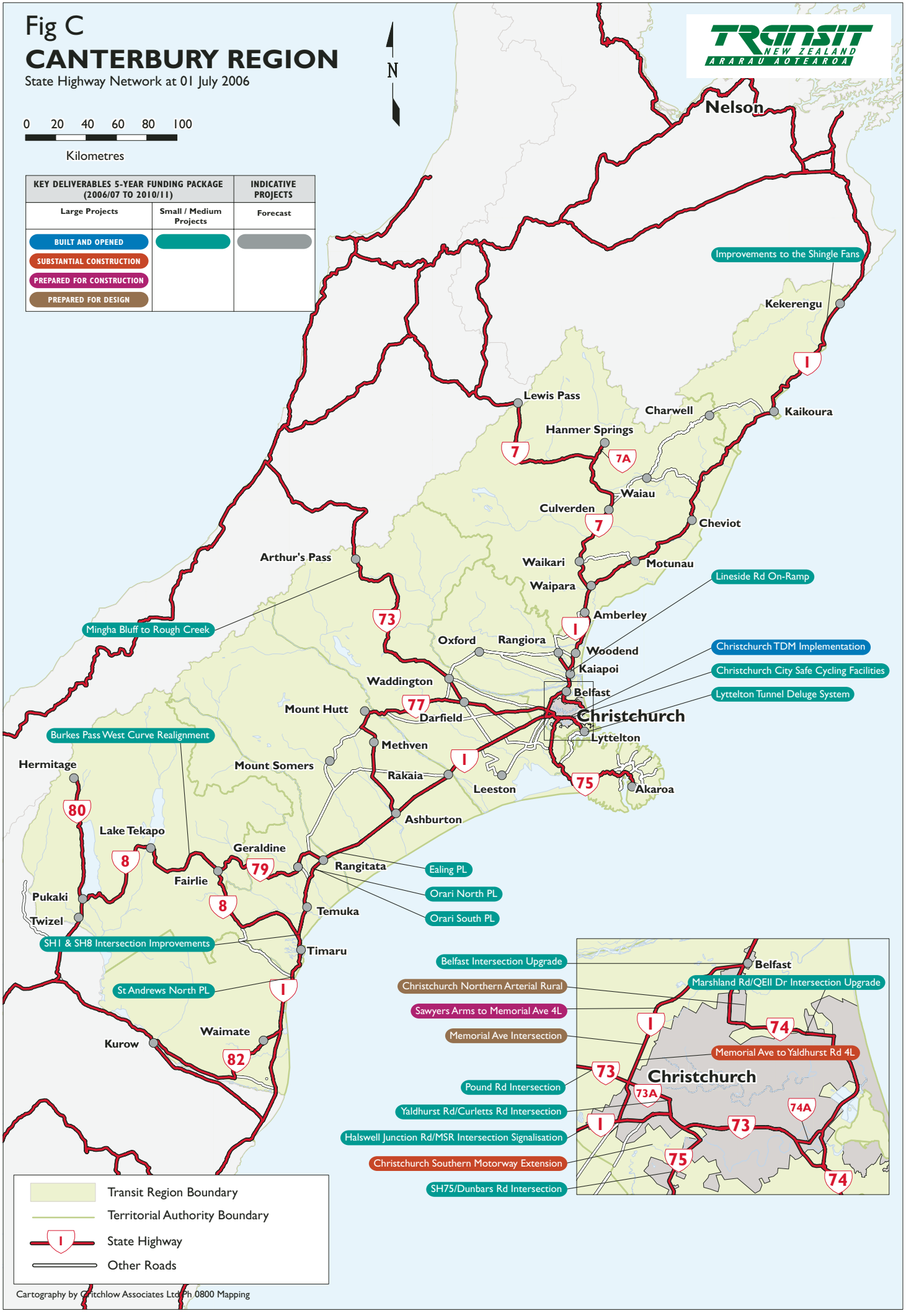


Fig C
CANTERBURY REGION
State Highway Network at 01 July 2006
N
0 20 40 60 80 100
Kilometres
KEY DELIVERABLES 5-YEAR FUNDING PACKAGE (2006/07 TO 2010/11)
Large Projects
Small / Medium Projects
INDICATIVE PROJECTS
Forecast
BUILT AND OPENED
SUBSTANTIAL CONSTRUCTION
PREPARED FOR CONSTRUCTION
PREPARED FOR DESIGN
Nelson
Improvements to the Shingle Fans
Kekerengu
Lewis Pass
Charwell
Kaikoura
Hanmer Springs
Waiau
Culverden
Cheviot
Arthur's Pass
Waikari
Motunau
Waipara
Lineside Rd On-Ramp
Amberley
Mingha Bluff to Rough Creek
Oxford
Rangiora
Woodend
Christchurch TDM Implementation
Kaiapoi
Christchurch City Safe Cycling Facilities
Waddington
Belfast
Lyttelton Tunnel Deluge System
Mount Hutt
Darfield
Christchurch
Burkes Pass West Curve Realignment
Lyttelton
Methven
Hermitage
Mount Somers
Rakaia
Leeston
Akaroa
Ashburton
Lake Tekapo
Geraldine
Rangitata
Ealing PL
Fairlie
Orari North PL
Pukaki
Temuka
Orari South PL
Twizel
SH1 & SH8 Intersection Improvements
Timaru
Belfast Intersection Upgrade
Belfast
Christchurch Northern Arterial Rural
Marshland Rd/QEII Dr Intersection Upgrade
St Andrews North PL
Sawyers Arms to Memorial Ave 4L
Memorial Ave Intersection
Memorial Ave to Yaldhurst Rd 4L
Waimate
Kurow
Pound Rd Intersection
Christchurch
Yaldhurst Rd/Curletts Rd Intersection
Halswell Junction Rd/MSR Intersection Signalisation
Christchurch Southern Motorway Extension
SH75/Dunbars Rd Intersection
Transit Region Boundary
Territorial Authority Boundary
State Highway
Other Roads
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 West Coast region include:

- Road safety: a key concern is 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 will be undertaken. 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.

The Arahura River Bridge is in urgent need of replacement. There would be significant negative impacts on the West Coast network if the bridge was to become unserviceable. We are working closely with ONTRACK and will be carrying out design in 2007 with construction following soon after.

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.

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.

Stock Effluent Disposal Facilities

In accordance with the plan agreed with local authorities a new stock effluent disposal facility is proposed for SH7 at either Reefton or Springs Junction, depending on stock movements. A facility at Jacksons on SH73 is also being progressed.

Walking and Cycling

We are proposing to prepare 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 new strategic study proposed is the 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 91km of resurfacing
- Strengthen 6.5km 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 to trial the use of the de-icer calcium magnesium acetate
- 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
- Complete the strengthening of the three suspension bridges (Fox, Cook, and Karangarua) on SH6 in south Westland to remove the current weight restriction, which is a significant impediment to heavy goods movement in this area
- Continue with improvements in traffic management during incidents on the network.

WEST COAST State Highway Plan and Forecast for 2007/08 to 2016/17

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 $$$$ 100+M	Land Transport Programme 07/08	Plan 08/09–10/11	Forecast 11/12–16/17
	LARGE PROJECTS					
6	Gates of Haast ®	Safety and Personal Security	$$			
6	Arahura Bridge Replacement	Safety and Personal Security	$$$			
	SMALL & MEDIUM PROJECTS		**Total Phase Cost**			
6	Buller Gorge Signals	Safety and Personal Security	0.1			
73	Goat Creek Bridge Replacement ®	Safety and Personal Security	0.1			
7	McKendries Corner ®	Safety and Personal Security	0.8			
	Stock Effluent Disposal Facility					
73	Jacksons SEDF	Safety and Personal Security	0.4			
6	Reefton – Springs Junction SEDF	Environmental Sustainability	0.1			

Projects in investigation or design may not necessarily proceed to construction.

Strategic Studies

SH6 Route Security Study

West Coast Passing Opportunities Plan

Indicative funding sources identified by Land Transport NZ in the NLTP

® denotes regionally distributed funds

Fig WC

WEST COAST REGION

State Highway Network at 01 July 2006

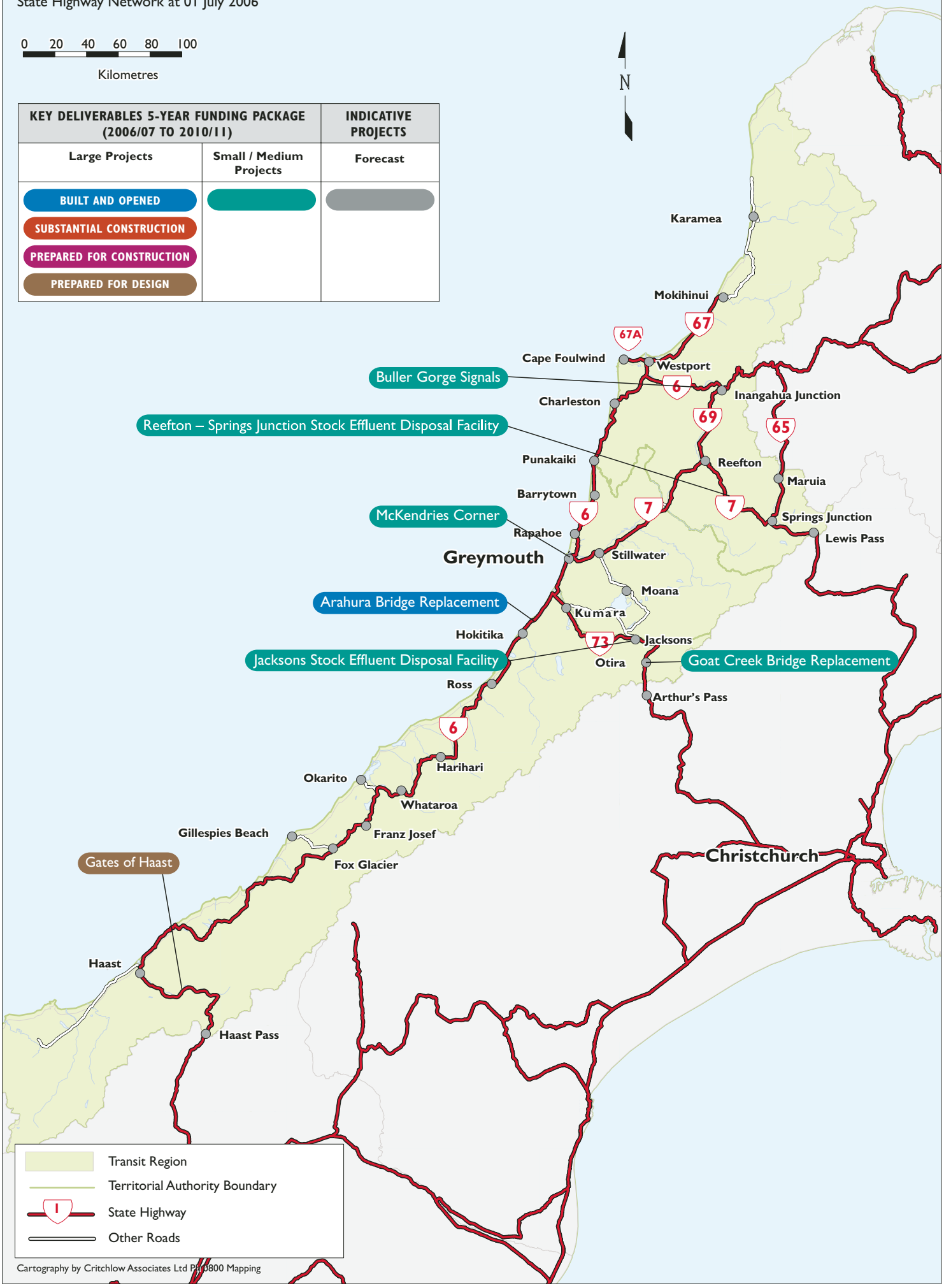
TRANSIT NEW ZEALAND ARARAU AOTEAROA

0 20 40 60 80 100

Kilometres

N

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 P: 0800 Mapping

KEY TRANSPORT ISSUES

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

- Road safety
- Forestry traffic: 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 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.

The key priority for the Otago region is the investigation into the Caversham Bypass project. This is an important project for achieving a safe and efficient corridor between Dunedin and the south, but is only being progressed with a contribution from the regionally distributed funding allocation for Otago. The East Taieri Bypass on SH1 (near Mosgiel) is being investigated as a long-term option to improve traffic flow between Dunedin and the south, particularly Dunedin Airport. Further investigation will be undertaken on the East Taieri Bypass to determine the need for the current designation.

Provision has been made for the investigation of a new bridge to replace the existing one-lane bridge at Kawarau Falls on SH6 to the south of Queenstown, to improve safety, route efficiency and driver comfort in an area that is experiencing rapid population growth. Further projects are likely to be identified for the Queenstown area from the Wakatipu Transportation Study currently underway and some provision has been made for funding their development.

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 that are currently underway and which will be completed in 07/08 are, SH1 Tunnel Hill, west of Lawrence, SH1 Tumai – Waikouaiti and SH8 Morven Hills Bridge widening.

Intersection improvements will be constructed at SH84 Anderson Road, Wanaka, SH1 Thames Street, Oamaru and SH1 One-Way Pair, Dunedin.

Realignments will be constructed at SH8 Pig Hunters (Manuka Gorge) and SH1 Jefferies Road, South of Palmerston.

Bridge improvements are being investigated for Roaring Meg, west of Cromwell on SH6. 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 Waihola northbound and Clarendon on SH1 south of Dunedin will be completed. Two further two passing lanes will be investigated on SH1, Waihola southbound and Brydone Memorial, south of Oamaru. Progress on these is dependent on regional distribution funding.

Walking and Cycling

Investigations are underway on SH88 in Dunedin to continue the harbourside cycleway between Adderly Terrace to De Lacy Street to make this section of highway safer for cyclists and pedestrians. This is part of an integrated walking and cycling network being developed in association with Dunedin City Council and Otago Regional Council.

Strategic Studies

We are undertaking, or propose to undertake, three strategic studies for the Otago region, to improve our long term planning and assist good decision-making. The studies are the Wakatipu Transportation Study (Queenstown), a study of Oamaru, and the Waitiki River to Waipahi Study.

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 134km of re-surfacing, including 5km of thin asphaltic surfacing, which, while more expensive, is more durable and quieter
- Undertake 10km 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 carried out 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
- Reduce the likelihood of “heavy metals” draining from the Fairfield Motorway into Kaikorai Stream estuary by constructing “catch pits” (chambers that allow heavy metals to be separated out)
- Enhance the landscaped areas on the Fairfield Motorway and plant low growth grass on selected road verges

  Install variable message signs on Lindis Pass (SH8) and the Northern Motorway, to give motorists up to date information on road conditions
- Develop a strategy, including an in-depth crash analysis, in an effort to reach the Government’s 2010 safety targets.

OTAGO State Highway Plan and Forecast for 2007/08 to 2016/17

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 $$$$ 100+M	Land Transport Programme 07/08	Plan 08/09–10/11	Forecast 11/12–16/17
	LARGE PROJECTS					
1	Tumai – Waikouaiti Realignment	Safety and Personal Security	0.9			
1	Caversham 4 Laning ®	Access and Mobility	0.6			
1	Caversham 4 Laning (N/R)	Access and Mobility	$$$			
6	Kawarau Falls Bridge Replacement ®	Access and Mobility	$$			
1	East Taieri Bypass ®	Access and Mobility	$$			
	SMALL & MEDIUM PROJECTS		**Total Phase Cost**			
8	Morven Hills Bridge Improvements	Safety and Personal Security	0.6			
1	Clarendon Realignment and Passing Lane	Safety and Personal Security	1.1			
8	Tunnel Hill Realignment	Safety and Personal Security	0.8			
6	Albert Town Bridge Improvements	Safety and Personal Security	0.2			
84	Anderson Rd Intersection Improvements	Access and Mobility	0.5			
1	Alma Safety Improvements	Safety and Personal Security	0.1			
1	One Way Pair Pedestrian Safety Improvements ®	Safety and Personal Security	1.0			
8	Alexandra SH8/85 Intersection Improvements	Safety and Personal Security	0.1			

Indicative funding sources identified by Land Transport NZ in the NLTP

® denotes regionally distributed funds

(N/R) denotes national funding, however Land Transport NZ has indicated possible regionally distributed funding

Projects in investigation or design may not necessarily proceed to construction.

OTAGO State Highway Plan and Forecast for 2007/08 to 2016/17

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 $$ 5-20M $$$ 20-100M $$$$ 100+M	Land Transport Programme 07/08	Plan 08/09–10/11	Forecast 11/12–16/17
	SMALL & MEDIUM PROJECTS (continued)		**Total Phase Cost**			
6	Boyd Rd Realignment	Safety and Personal Security	0.1			
1	Crawford (Jervois St and Police St)	Safety and Personal Security	0.1			
6	Roaring Meg Bridge Improvements	Safety and Personal Security	0.1			
1	Jefferis Rd Realignment	Safety and Personal Security	1.4			
1	Kakaho Creek Realignment	Safety and Personal Security	0.1			
1	Moeraki Vertical Realignment ®	Safety and Personal Security	0.9			
8	Pig Hunters Rd Safety Improvements	Safety and Personal Security	2.8			
1	Waitati Curve Realignment	Safety and Personal Security	0.1			
1	Pine Hill Heavy Vehicle Run Off	Safety and Personal Security	0.1			
87	Riccarton / School Rd Intersection Improvements	Safety and Personal Security	0.1			
1	Thames St (Oamaru) Safety Improvements	Safety and Personal Security	1.9			
85	Macraes Rd Intersection Improvement		0.8			

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OTAGO State Highway Plan and Forecast for 2007/08 to 2016/17

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 07/08	Plan 08/09–10/11	Forecast 11/12–16/17
	Passing Lanes (Priority Order)		**Total Phase Cost**			
1	Waihola Nth Bd PL	Safety and Personal Security	0.3			
1	Balclutha to Clinton Sth Bd PL	Safety and Personal Security	0.1			
1	Balclutha to Clinton Nth Bd PL	Safety and Personal Security	0.1			
1	Waihola Sth Bd PL ®	Safety and Personal Security	0.1			
1	Brydone Memorial Nth Bd PL ®	Safety and Personal Security	0.1			
	Walking & Cycling					
88	Adderly Tce to De Lacy St Cycling Improvement	Public Health	$			
	Strategic Studies					
	Wakatipu Transportation Study					
	SH88 Cycling Improvements					
	SH88 to Port Chalmers Strategic Study					
	SH6 / 8 / 93 Passing Opportunities Plan					
	SH1 Waitaki River to Waipahi					
	Oamaru Strategic Study					

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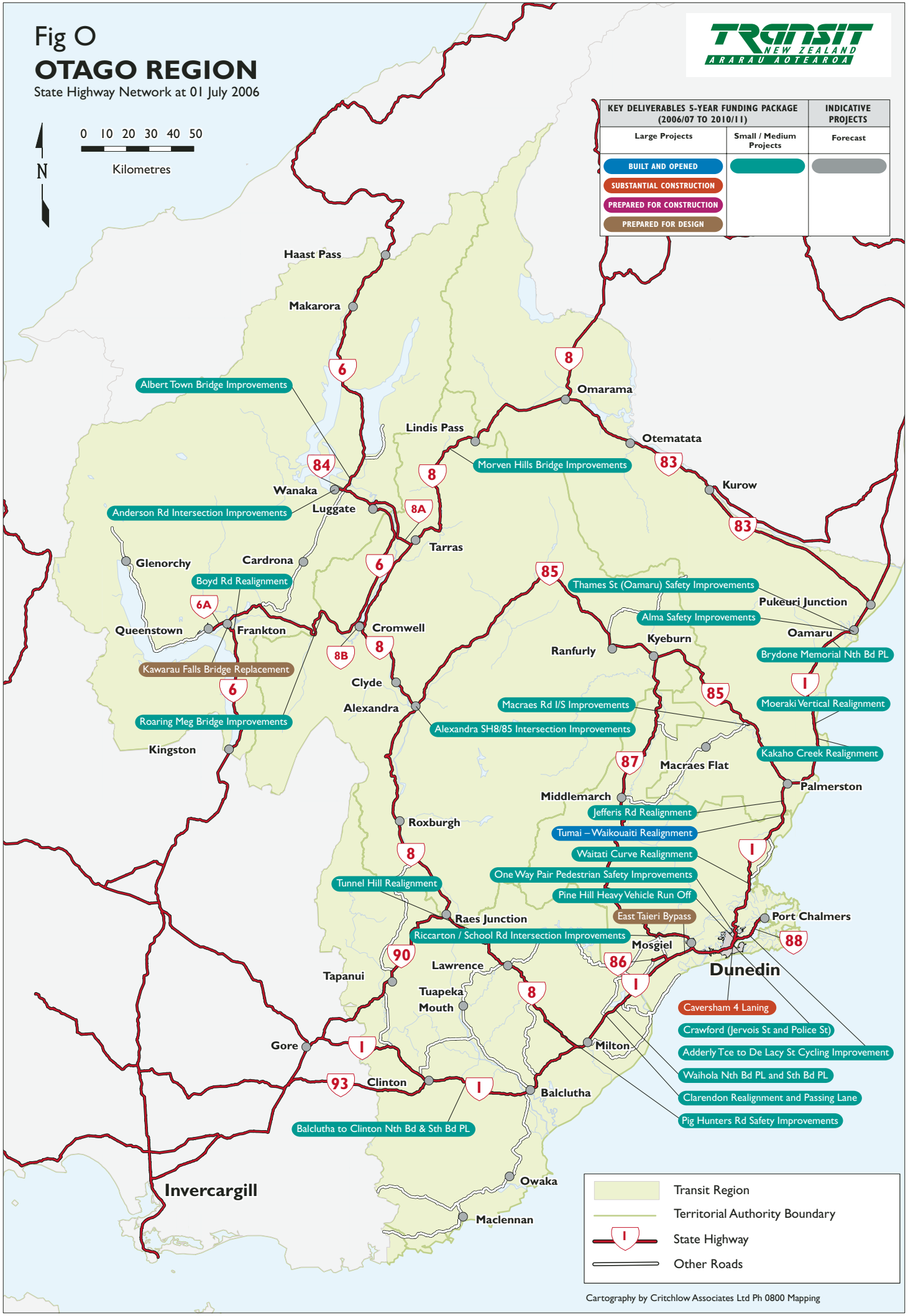


Fig O
OTAGO REGION
State Highway Network at 01 July 2006
0 10 20 30 40 50
Kilometres
N
TRANSIT NEW ZEALAND ARARAU AOTEAROA
KEY DELIVERABLES 5-YEAR FUNDING PACKAGE (2006/07 TO 2010/11)
Large Projects
Small / Medium Projects
INDICATIVE PROJECTS
Forecast
BUILT AND OPENED
SUBSTANTIAL CONSTRUCTION
PREPARED FOR CONSTRUCTION
PREPARED FOR DESIGN
Haast Pass
Makarora
Albert Town Bridge Improvements
Omarama
Lindis Pass
Morven Hills Bridge Improvements
Otematata
Kurow
Wanaka
Luggate
Anderson Rd Intersection Improvements
Tarras
Glenorchy
Cardrona
Boyd Rd Realignment
Thames St (Oamaru) Safety Improvements
Pukeuri Junction
Alma Safety Improvements
Oamaru
Queenstown
Frankton
Cromwell
Kyeburn
Ranfurly
Brydone Memorial Nth Bd PL
Kawarau Falls Bridge Replacement
Clyde
Moeraki Vertical Realignment
Alexandra
Macraes Rd I/S Improvements
Alexandra SH8/85 Intersection Improvements
Roaring Meg Bridge Improvements
Kingston
Kakaho Creek Realignment
Macraes Flat
Palmerston
Middlemarch
Jefferis Rd Realignment
Roxburgh
Tumai – Waikouaiti Realignment
Waitati Curve Realignment
One Way Pair Pedestrian Safety Improvements
Tunnel Hill Realignment
Pine Hill Heavy Vehicle Run Off
East Taieri Bypass
Raes Junction
Port Chalmers
Riccarton / School Rd Intersection Improvements
Mosgiel
Tapanui
Lawrence
Dunedin
Tuapeka Mouth
Caversham 4 Laning
Crawford (Jervois St and Police St)
Gore
Milton
Adderly Tce to De Lacy St Cycling Improvement
Waihola Nth Bd PL and Sth Bd PL
Clinton
Balclutha
Clarendon Realignment and Passing Lane
Pig Hunters Rd Safety Improvements
Balclutha to Clinton Nth Bd & Sth Bd PL
Owaka
Invercargill
Maclennan
Transit Region
Territorial Authority Boundary
State Highway
Other Roads
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: 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 minor safety improvements, improvements to Homer Tunnel on SH94, and a realignment of SH1 at Edendale. Southland's economic growth and conversion of pasture farming activity 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 continuing investigations into replacing the eastern portal to the Homer Tunnel that was damaged some years ago. 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 stock effluent disposal facility on SH1, between Gore and Mataura.

Strategic Studies

We are proposing to undertake a number of 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), Invercargill to Winton and Lorneville to Wallacetown.

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 74km of resurfacing, including 1.5km of thin asphaltic surfacing, which, although more expensive, is more durable and quieter
- Undertake 13km of road pavement rehabilitation
- Ensure the latest hazard management systems are installed at Homer Tunnel on SH94. The current avalanche hazard management system is recognised 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
- Develop a strategy, including in-depth crash analysis, in an effort to meet the Government's 2010 safety targets
- Continue with improvements in traffic management during incidents on the network.

SOUTHLAND State Highway Plan and Forecast for 2007/08 to 2016/17

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 $$$$ 100+M	Land Transport Programme 07/08	Plan 08/09–10/11	Forecast 11/12–16/17
	LARGE PROJECTS					
94	Homer East Portal Avalanche Shed	Safety and Personal Security	$$$		Design, Construction	Construction
1	Edendale Realignment	Safety and Personal Security	$			Design, Construction
	SMALL & MEDIUM PROJECTS		**Total Phase Cost**			
94	Eweburn to Henry Creek Safety Improvements ®	Safety and Personal Security	1.6	Design, Construction		
1	Longbush Curve Realignment	Safety and Personal Security	0.1	Design		
96	Gill Road Realignment	Safety and Personal Security	0.1	Design		
6	Gap Rd Intersection Improvements	Safety and Personal Security	0.1	Investigation		
1	Boundary Creek Bridge Widening	Safety and Personal Security	0.2	Construction		
94	Falls Creek Bridge Widening ®	Safety and Personal Security	0.1	Investigation		
6	Dipton Curve Realignment ®	Safety and Personal Security	0.1	Investigation		
	Passing Lanes					
1	Dowling Rd / Mona Bush Rd PL	Safety and Personal Security	0.1	Investigation		
1	Baird Rd – Kerr Rd PL	Safety and Personal Security	0.1	Investigation		
6	Wilsons Crossing PL ®	Safety and Personal Security	0.1	Investigation		
	Stock Effluent Disposal Facilities					
1	Gore to Mataura SEDF	Environmental Sustainability	0.2	Design, Construction		
6	Lumsden SEDF	Environmental Sustainability	0.2	Construction		
	Strategic Studies					
	SH94/95 The Key to Milford (Te Anau)					
	Invercargill to Winton / Lorneville to Wallacetown					

Projects in investigation or design may not necessarily proceed to construction.

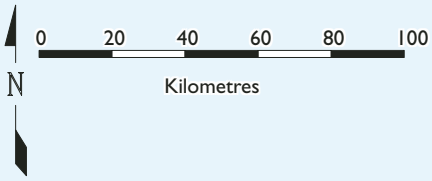
Indicative funding sources identified by Land Transport NZ in the NLTP

® denotes regionally distributed funds

Fig S

SOUTHLAND REGION

State Highway Network at 01 July 2006



Milford Sound
Hollyford
Homer East Portal Avalanche Shed
Falls Creek Bridge Widening
Eweburn to Henry Creek Safety Improvements
94
Kingston
Te Anau
6
95
94
Manapouri
97
Five Rivers
Mossburn
Lumsden Stock Effluent Disposal Facility
Lumsden
Dipton Curve Realignment
Boundary Creek Bridge Widening
Blackmount
Gore to Mataura Stock Effluent Disposal Facility
Dipton
Riversdale
Ohai
Nightcaps
94
90
96
6
McNab
Clifden
Gore
Gap Rd Intersection Improvements
Winton
1
1
Tuatapere
Otautau
96
Mataura
93
Gill Road Realignment
6
Dacre
Edendale
99
98
1
Wyndham
Lorneville
1
Riverton
Invercargill
Edendale Realignment
Wilsons Crossing PL
1
Fortrose
Bluff
Baird Rd - Kerr Rd PL
Dowling Rd/Mona Bush Rd PL
Longbush Curve Realignment
Oban

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
1 State Highway
Other Roads

Cartography by Critchlow Associates Ltd Ph 0800 Mapping

APPENDIX I – STATE HIGHWAYS ACTIVITIES FOR 2007/08 (LAND TRANSPORT PROGRAMME), CONTRIBUTION TO LTMA OBJECTIVES

	Large Activities (2007/08)		Economic Development	Safety and Personal Security	Access & Mobility	Public Health	Environmental Sustainability	Alternatives Considered	Options Considered
Northland	Kamo Bypass Stage 2	Bypass	• Reduces travel delay between economic nodes • Reduces congestion on heavily-trafficked corridors and at network pinch points • Improved travel time reliability. • Vehicle operating costs (fuel) may decrease	• Reduces accidents caused by congestion and sub-standard alignment	• Reduces congestion	• Reduces noise, vibration and air pollution impacts by shifting through traffic away from existing communities	• Provides improved levels of amenity to properties on the existing State highway route • Improves energy efficiency and localised air quality by reducing congestion and emissions on bypassed route	• Strategies to reduce traffic volumes and growth	• Alternative realignment options, carriageway widening, bypass routes and various TDM options
	Bulls Gorge Realignment	Rural Realignment (Safety)	• Reduces travel delay between economic nodes • Provides greater time reliability	• Reduces accidents caused by substandard alignment	• Improves mobility by reducing accident-related travel delays	• Potential reduction in injury-related accidents • Air quality improvements from decreased congestion and vehicle emissions can reduce respiratory illnesses	• Reduced travel delay may improve energy efficiency and localised air quality by reducing emissions	• Strategies to reduce traffic volumes and growth	• Alternative realignment options, carriageway widening
Auckland	Newmarket Viaduct	Additional Lanes	• Reduces travel delay between economic nodes • Reduces congestion on heavily-trafficked corridors and at network pinch points • Improved travel time reliability. • Vehicle operating costs (fuel) may decrease	• Reduces accidents caused by congestion	• Reduces congestion	• Improved air pollution impacts via reduced congestion and therefore emissions • Potential reduction in injury-related accidents	• Improved vehicle emission performance from reduced congestion	• Strategies to reduce traffic volumes and growth	• Various TDM options
	Newmarket Viaduct to Greenlane Auxiliary Lane								
	Kopuku Realignment								
	Warkworth Stage 1								
	Te Atatu to Royal 6L	Auckland Western Ring Route	• Reduces congestion and delay through central Auckland by assisting to provide a real alternative to SH1 between Albany and Manukau City • Improved travel times/access between all four cities and from the west to the airport • Travel time reliability is improved • Vehicle operating costs (fuel) may decrease	• Reduces accidents caused by congestion	• Improves accessibility by providing more direct route • Improves mobility by reducing congestion	• Improved air pollution impacts via reduced congestion and therefore emissions	• Improved vehicle emission performance from reduced congestion	• Strategies to reduce traffic volumes and growth	• Bypass routes, and various TDM options
	Rosebank to Te Atatu 8L								
	Waterview Connection								
	Hobsonville Deviation								
	Waterview to Rosebank 8L								
	Auckland Harbour Bridge Moveable Lane Barrier	Barriers	• Reduction in accident rate would: - Reduce travel delay between economic nodes - Improve travel time reliability	• Reduces head-on accidents	• Improves mobility by reducing accident-related travel delays	• Potential reduction in injury-related accidents	• Reduces the risk of adverse environmental impacts from vehicle crashes	• Strategies to reduce traffic volumes and growth	• Alternative engineering options, and carriageway widening
	Papakura Interchange Upgrade Stage 1	Intersection Improvement	• Reduces travel delay between economic nodes • Reduces congestion on heavily-trafficked corridors and at network pinch points • Improved travel time reliability • Vehicle operating costs (fuel) may decrease • Assists adjoining land development	• Reduces risk of intersection crashes	• Improves mobility by reducing congestion and accident-related travel delays	• Improved air pollution impacts via reduced congestion and therefore emissions • Potential reduction in injury-related accidents	• Improved vehicle emission performance from reduced congestion • Reduces the risk of adverse environmental impacts from vehicle crashes	• Strategies to reduce traffic volumes and growth	• Bypass routes and various TDM options
	Punganui Stream Bridge	Bridge Renewal	• 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	• Minimises safety risks from structural failure • Can reduce accidents caused by substandard alignment, congestion	• Preserves current level of access	• May reduce injury-related accidents. • Potential health benefits from improved walking and cycling opportunities	• Reduces the risk of adverse environmental impacts from vehicle crashes	• Provision of alternative routes	• Alternative engineering options
	Advanced Traffic Management Systems Stage IV – Stage 2	Traffic Management	• Reduces congestion and delay on the Auckland Motorway network by providing up to the minute driver information	• Assists emergency services personnel in reacting to incidents more quickly • Potential to reduce accidents caused by congestion or incidents	• Reduces Congestion • Provides for greater choice in travel	• May reduce risk of injury related accidents	• Improves energy efficiency and vehicle emission performance from reduced congestion • Enables prompt responses to incidents such as hazardous spills	• Do nothing	• None
Waikato	Long Swamp to Rangiriri 4L	Additional Lanes	• Reduces travel delay between economic nodes • Reduces congestion on heavily-trafficked corridors and at network pinch points • Improved travel time reliability • Vehicle operating costs (fuel) may decrease	• Reduces accidents caused by substandard alignment and inadequate passing opportunities	• Reduces congestion	• Improved air pollution impacts via reduced congestion and therefore emissions • Potential reduction in injury-related accidents	• Improved vehicle emission performance from reduced congestion	• Strategies to reduce traffic volumes and growth	• Bypass routes, and various TDM options
	Te Rapa Bypass	Bypass	• Reduces travel delay between economic nodes • Reduces congestion on heavily-trafficked corridors and at network pinch points • Improved travel time reliability • Vehicle operating costs (fuel) may decrease • Potential for localised economic gains resulting from improved local retail/main street conditions on bypassed route	• Reduces accidents caused by congestion and sub-standard alignment	• Reduces congestion	• Reduces noise, vibration and air pollution impacts by shifting through traffic away from existing communities	• Provides improved levels of amenity to properties on the existing State highway route • Improves energy efficiency and localised air quality by reducing congestion and emissions on bypassed route	• Strategies to reduce traffic volumes and growth	• Alternative realignment options, carriageway widening, bypass routes and various TDM options
	Huntly Bypass								
	Hamilton Bypass								
	Rangiriri Bypass								
	Ngaruawahia Bypass								
	Hamilton Southern Links								
	Piarere – Oak Tree Bend Realignment	Rural Realignment (Safety)	• Reduces travel delay between economic nodes • Provides greater time reliability	• Reduces accidents caused by substandard alignment	• Improves mobility by reducing accident-related travel delays	• Potential reduction in injury-related accidents • Air quality improvements from decreased congestion and vehicle emissions can reduce respiratory illnesses	• Reduced travel delay may improve energy efficiency and localised air quality by reducing emissions	• Strategies to reduce traffic volumes and growth	• Alternative realignment options, carriageway widening
	Maramarua Deviation								

Table continues overleaf

APPENDIX I – STATE HIGHWAYS ACTIVITIES FOR 2007/08 (LAND TRANSPORT PROGRAMME), CONTRIBUTION TO LTMA OBJECTIVES

	Large Activities (2007/08)		Economic Development	Safety and Personal Security	Access & Mobility	Public Health	Environmental Sustainability	Alternatives Considered	Options Considered
Bay of Plenty	Katikati Bypass	Bypass	• Reduces travel delay between economic nodes • Reduces congestion on heavily-trafficked corridors and at network pinch points • Improved travel time reliability • Vehicle operating costs (fuel) may decrease • Potential for localised economic gains resulting from improved local retail/ main street conditions on bypassed route	• Reduces accidents caused by congestion • Reduces accidents caused by local/through traffic conflicts • Improves safety for pedestrians and cyclists on bypassed routes	• Reduces congestion	• Improved air pollution impacts via reduced congestion and therefore emissions	• Improves energy efficiency and localised air quality by reducing congestion and emissions on bypassed route	• Strategies to reduce traffic volumes and growth	• Various TDM options
	Pyes Pa Bypass								
	Tauranga Central Corridor TDM	Travel Demand Management	• Reduces travel delay between economic nodes • Provides greater travel time reliability • Reduces congestion on heavily-trafficked corridors	• Dedicated and/or purpose-built facilities reduce the accident risk for pedestrians and cyclists	• Reduces congestion • Improves mobility by providing choice of viable transport modes for short/medium trip • Improves transport choices for transport disadvantaged	• Improved air pollution impacts via reduced congestion and therefore emissions. • Health benefits of walking and cycling	• Improved vehicle emission performance from reduced congestion • Reduces vehicle related emissions by reducing dependency on motor vehicles • Reduces reliance on non-renewable sources of energy	• Do nothing	• Alternative TDM strategies and options
	Omokoroa Roundabout	Intersection Improvement	• Reduces travel delay between economic nodes (particularly for Heavy Commercial Vehicles) • Improves travel time reliability • Vehicle operating costs (fuel) may decrease	• Reduces risk of intersection crashes • Enables diversion of Heavy Commercial Vehicles from local road network (including residential areas)	• Improves mobility by reduce accident-related travel delays	• Potential reduction in injury-related accidents	• Enables the diversion of Heavy Commercial Vehicles from environmentally sensitive areas • Reduces the risk of adverse environmental impacts from vehicle crashes		
	Tauranga Eastern Motorway	New Links	• Reduces travel delay between economic nodes • Reduces congestion on heavily-trafficked corridors and at network pinch points • Travel time reliability is generally improved • Vehicle operating costs (fuel) may decrease	• Reduces accidents caused by congestion and sub-standard alignment	• Reduces congestion	• Improved air pollution impacts via reduced congestion and therefore emissions	• Improved vehicle emission performance from reduced congestion	• Strategies to reduce traffic volumes and growth	• Alternative realignment options, and TDM options
Gisborne	Tolaga to Gisborne Seal Widening	Rural Realignment (Safety)	• Reduces travel delay in rural regions, provides greater time reliability	• Reduces accidents caused by narrow seal width and alignment	• May improve conditions for cycling and walking	• May improve conditions for cycling and walking	*No significant contribution*	• Strategies to reduce traffic volumes and growth	• Various different alignments within the existing corridor
Hawke's Bay	Waipukurau Overbridge Realignment	Rural Realignment (Safety)	• Reduces travel delay between economic nodes, provides greater time reliability	• Reduces accidents caused by substandard alignment	• Improves mobility by reducing accident-related travel delays	• Potential reduction in injury-related accidents	• Reduced travel delay may improve energy efficiency and localised air quality by reducing emissions	• Strategies to reduce traffic volumes and growth	• Various different alignments within the existing corridor
	Matahorua Gorge Realignment		• Reduces travel delay in rural regions • Reduces vehicle operating cost (fuel) • Travel time reliability is generally improved	• Reduces accidents caused by congestion and sub-standard alignment	• Improves mobility by reducing accident-related travel delays	• Potential reduction in injury-related accidents	• Reduces travel delay may improve energy efficiency and localised air quality by reducing emissions	• Strategies to reduce traffic volumes and growth	• Alternative realignment options, carriageway widening and bypass routes
	Hawke's Bay Expressway Southern Extension	Bypass	• Reduces travel delay between economic nodes • Reduces congestion on heavily-trafficked corridors and at network pinch points • Improved travel time reliability • Vehicle operating costs (fuel) may decrease	• Reduces accidents caused by congestion and sub-standard alignment	• Improves mobility by reducing congestion	• Reduces noise, vibration and air pollution impacts by shifting through-traffic away from existing communities • Air quality improve-ments from decreased congestion and vehicle emissions can reduce respiratory illnesses	• Provides improved levels of amenity to properties on the existing State highway route • Improves energy efficiency and localised air quality by reducing congestion and emissions on bypassed route	• Strategies to reduce traffic volumes and growth	• Alternative realignment options, carriageway widening, bypass routes and various TDM options
	Prebensen Drive/ Hyderabad Rd	Intersection Improvement	• Reduces travel delay between economic nodes (particularly for Heavy Commercial Vehicles) • Improves travel time reliability • Vehicle operating costs (fuel) may decrease	• Reduces risk of intersection crashes • Enables diversion of Heavy Commercial Vehicles from local road network (including residential areas)	• Improves mobility by reduce accident-related travel delays	• Potential reduction in injury-related accidents	• Enables the diversion of Heavy Commercial Vehicles from environmentally sensitive areas • Reduces the risk of adverse environmental impacts from vehicle crashes		
Manawatu/Wanganui	Papatawa Realignment	Rural Realignment (Safety)	• Reduces travel delay in rural regions, provides greater time reliability	• Reduces accidents caused by narrow seal width and alignment	• Improves mobility by reducing accident-related travel delays	• Potential reduction in injury-related accidents • Air quality improvements from decreased congestion and vehicle emissions can reduce respiratory illnesses	• Reduced travel delay may improve energy efficiency and localised air quality by reducing emissions	• Strategies to reduce traffic volumes and growth	• Various different alignments within the existing corridor

Table continues overleaf

APPENDIX I – STATE HIGHWAYS ACTIVITIES FOR 2007/08 (LAND TRANSPORT PROGRAMME), CONTRIBUTION TO LTMA OBJECTIVES

	Large Activities (2007/08)		Economic Development	Safety and Personal Security	Access & Mobility	Public Health	Environmental Sustainability	Alternatives Considered	Options Considered
Wellington	SH2/58 Grade Separation	Intersection Improvement	• Reduces travel delay between economic nodes • Reduces congestion on heavily-trafficked corridors and at network pinch points • Improved travel time reliability • Vehicle operating costs (fuel) may decrease	• Reduces risk of intersection crashes • Removes existing traffic signals and cross traffic flows	• Improves mobility by reducing congestion and accident-related travel delays	• Improved air pollution impacts via reduced congestion and therefore emissions. • Potential reduction in injury-related accidents	• Improved vehicle emission performance from reduced congestion • Reduces the risk of adverse environmental impacts from vehicle crashes	• Strategies to reduce traffic volumes and growth	• Bypass routes and various TDM options
	Basin Reserve Improvements								
	Transmission Gully	Bypass	• Reduces travel delay between economic nodes • Reduces congestion on heavily-trafficked corridors and at network pinch points • Improved travel time reliability • Vehicle operating costs (fuel) may decrease	• Reduces accidents caused by congestion • Reduces accidents caused by local/through traffic conflicts • Improves safety for pedestrians and cyclists on bypassed routes	• Improves mobility by reducing congestion	• Reduces noise, vibration and air pollution impacts by shifting through-traffic away from existing communities • Air quality improvements from decreased congestion and vehicle emissions can reduce respiratory illnesses	• Provides improved levels of amenity to properties on the existing State highway route. • Improves energy efficiency and localised air quality by reducing congestion and emissions on bypassed route	• Strategies to reduce traffic volumes and growth	• Alternative realignment options, carriageway widening, bypass routes and various TDM options
	Rimutaka Corner Easing (Muldoon's)	Rural Realignment (Safety)	• Reduces travel delay between economic nodes • Provides greater time reliability	• Reduces accidents caused by congestion and substandard alignment	• Improves mobility by reducing accident-related travel delays	• Potential reduction in injury-related accidents • Air quality improvements from decreased congestion and vehicle emissions can reduce respiratory illnesses	• Reduced travel delay may improve energy efficiency and localised air quality by reducing emissions	• Strategies to reduce traffic volumes and growth	• Alternative realignment options, carriageway widening
Nelson	Hope Saddle	Rural Realignment (Time)	• Reduces travel delay in rural regions • Improves travel time reliability • Vehicle operating costs (fuel) may decrease	• Reduces accidents caused by congestion and substandard alignment	• Improves mobility by reducing accident-related travel delays	• Potential reduction in injury-related accidents	• Reduces travel delay may improve energy efficiency and localised air quality by reducing emissions	• Strategies to reduce traffic volumes and growth	• Various different alignments within the existing corridor
Canterbury	Memorial Ave Intersection	Intersection Improvement	• Reduces travel delay between economic nodes • Reduces congestion on heavily-trafficked corridors and at network pinch points • Improved travel time reliability • Vehicle operating costs (fuel) may decrease	• Reduces accidents caused by congestion • Reduces risk of intersection crashes	• Improves mobility by reducing congestion and accident-related travel delays	• Improved air pollution impacts via reduced congestion and therefore emissions • Potential reduction in injury-related accidents	• Improves vehicle emission performance from reduced congestion • Reduces the risk of adverse environmental impacts from vehicle crashes	• Strategies to reduce traffic volumes and growth	• Bypass routes and various TDM options
	Christchurch Northern Arterial Rural	Bypass	• Reduces travel delay between economic nodes • Reduces congestion on heavily-trafficked corridors and at network pinch points • Improved travel time reliability (especially for Public Transport) • Vehicle operating costs (fuel) may decrease	• Reduces accidents caused by congestion and sub-standard alignment	• Improves mobility by reducing congestion	• Reduces noise, vibration and air pollution impacts by shifting through-traffic away from existing communities • Air quality improvements from decreased congestion and vehicle emissions can reduce respiratory illnesses	• Provides improved levels of amenity to properties on the existing State highway route • Improves energy efficiency and localised air quality by reducing congestion and emissions on bypassed route	• Strategies to reduce traffic volumes and growth	• Alternative realignment options, carriageway widening, bypass routes and various TDM options
	Christchurch TDM	Travel Demand Management	• Reduces travel delay between economic nodes • Provides greater travel time reliability • Reduces congestion on heavily-trafficked corridors	• Dedicated and/or purpose-built facilities reduce the accident risk for pedestrians and cyclists	• Reduces congestion • Improves mobility by providing choice of viable transport modes for short/medium trip • Improves transport choices for transport disadvantaged	• Improved air pollution impacts via reduced congestion and therefore emissions. • Health benefits of walking and cycling	• Improves vehicle emission performance from reduced congestion • Reduces vehicle related emissions by reducing dependency on motor vehicles • Reduces reliance on non-renewable sources of energy	• Do nothing	• Alternative TDM strategies and options
West Coast	Arahura Bridge Replacement	Bridge Renewal	• 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	• Minimises safety risks from structural failure • Can reduce accidents caused by substandard alignment, congestion	• Preserves current level of access	• May reduce injury-related accidents. • Potential health benefits from improved walking and cycling opportunities	• Reduces the risk of adverse environmental impacts from vehicle crashes	• Provision of alternative routes	• Alternative engineering options
	Gates of Haast	Rural Realignment (Safety)	• 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	• Minimises safety risks from structural failure • Can reduce accidents caused by substandard alignment, congestion • Improves safety and personal security of pedestrians/tourists	• Preserve current level of vehicle access • Improves pedestrian/tourist access	• Potential reduction in injury related accidents	• Road realignment and bridge designed to minimise impacts on sensitive receiving environments (National Park)	• Do minimum • Strategies to remove landslide mass and other alternative engineering solutions	• Alternative engineering options
Otago	Kawarau Falls Bridge Replacement	Bridge Renewal	• Reduces travel delay in rural regions, provides greater time reliability • Enhances route security	• Reduces accidents caused by substandard bridge	• Improves mobility by reducing accident-related travel delays	• Potential reduction in injury-related accidents	• Reduces travel delay may improve energy efficiency and localised air quality by reducing emissions	• Strategies to reduce traffic volumes and growth	• Alternative bridge and realignment options
	East Taieri Bypass	Bypass	• Reduces travel delay between economic nodes • Reduces congestion on heavily-trafficked corridors and at network pinch points • Improved travel time reliability • Vehicle operating costs (fuel) may decrease	• Reduces accidents caused by congestion and sub-standard alignment	• Improves mobility by reducing congestion	• Reduces noise, vibration and air pollution impacts by shifting through-traffic away from existing communities • Air quality improvements from decreased congestion and vehicle emissions can reduce respiratory illnesses	• Provides improved levels of amenity to properties on the existing State highway route • Improves energy efficiency and localised air quality by reducing congestion and emissions on bypassed route	• Strategies to reduce traffic volumes and growth	• Alternative realignment options, carriageway widening, bypass routes and various TDM options

APPENDIX 2 – CONTRIBUTION OF GENERIC PROJECTS TO 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	• 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	• Minimises safety risks from structural failure • Can reduce accidents caused by substandard alignment, congestion • Can improve safety for cyclists/pedestrians	• Preserves or enhances current levels of access and mobility • Opportunity to provide adequate access for pedestrians/cyclists	• May reduce injury-related accidents • Potential health benefits from improved walking and cycling opportunities	• 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	• Strategies to reduce traffic volumes and growth • Provision of alternative routes	• Alternative engineering options
Carriageway Lighting	• Potential reduction in travel delay between economic nodes (by improving visibility, route definition and reducing accident rates)	• May reduce accidents caused by poor visibility or route definition • Increased visibility may lessen perceived threats to personal security for cyclists and vehicle occupants	• Improves mobility by reducing travel delays • Improves modal choice by improving conditions for cycling	• Health benefits from increased use of 'active' transport modes • Potential reduction in injury-related accidents	• 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	• Do nothing • Strategies to reduce speed, traffic volumes and growth e.g. promotion of alternative existing routes	• Variations in lighting design and location
Crash Reduction Studies	• Reduces accidents from resulting network improvements would: - Reduce travel delay between economic nodes - Improve travel time reliability	• Network improvements likely to reduce accident rates	• Improves mobility by reducing accident-related travel delays	• Potential reduction in injury-related accidents	• 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	• Do nothing - continue to use ad hoc/reactive initiatives	n/a
Maintenance	• 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	• 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	• Preserves current levels of access and mobility • Enables modal choice by maintaining walking and cycling facilities	• 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	• 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	• Do nothing • Strategies to reduce speed, traffic volumes and growth • Promotion of alternative routes that avoid sensitive environments • Advocate for appropriate land use controls to recognise reverse sensitivity (noise)	• Set different levels of service for maintenance
Major Drainage Control	• Minimises damage to private property in flood/heavy rain events • Reduces long term maintenance costs	• No significant contribution	• Assists in preserving current levels of access	• Opportunity to use stormwater treatment devices to reduce pollutants entering drinking water supplies	• Opportunity to use stormwater treatment devices to reduce pollutants entering water bodies	• Do nothing	n/a
Minor Safety Projects: Intersection Improvement	• 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	• Reduces risk of intersection crashes (vehicle and non vehicle related)	• 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	• 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	• 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	• Strategies to reduce traffic volumes and growth	• Alternative interchange upgrade options
Minor Safety Projects: barriers and level crossing warning devices	• Reduction in accident rate would: - Reduce travel delay between economic nodes - Improve travel time reliability	• Reduces risk of head-on and railway crossing accidents	• Improves mobility by reducing accident-related travel delays	• Potential reduction in injury-related accidents	• Reduces the risk of adverse environmental impacts from vehicle crashes	• Strategies to reduce speed, traffic volumes and growth e.g. promotion of alternative existing routes • Advocating for improved coordination between railway timetables and congestion peaks	• Alternative engineering options/ carriageway widening
Minor Safety Projects: General	• Reduction in accidents would: - Generate accident cost savings - Reduce travel delay between economic nodes - Provide greater travel time reliability	• Reduces risk of accidents	• Improves mobility by reducing accident-related travel delays • Opportunity to review provision of walking/ cycling facilities	• Potential reduction in injury-related accidents	• Reduces the risk of adverse environmental impacts from vehicle crashes • Provides opportunity for environmental enhancement through improved environmental mitigation and low impact design	• Strategies to reduce traffic volumes and growth	• Alternative engineering options/ carriageway widening
New Roads and Bridges: Additional / Passing Lanes	• 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 accidents caused by: - congestion - sub-standard alignment - unsafe overtaking manoeuvres - conflicts between road users	• Improves mobility by reducing congestion • Provides opportunity to provide HOV lanes and cycling and walking facilities to improve travel choice and manage demand	• Potential reduction in injury-related accidents • Can reduce respiratory illnesses due to improved air quality from decreased congestion and vehicle emissions	• 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	• Strategies to reduce speed, traffic volumes and growth e.g. promotion of alternative existing routes • Development of bypass routes	• Different alignments
New Roads and Bridges: Bypass	• 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	• Reduces accidents caused by: - congestion - sub-standard alignment - local/through traffic conflicts • Improves safety for pedestrians and cyclists on bypassed routes	• Improves mobility by reducing congestion • Opportunity to improve local connectivity and modal choice (e.g. walking and cycling) on bypassed route	• 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	• 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	• Strategies to reduce speed, traffic volumes and growth e.g. promotion of alternative existing routes	• Alternative realignment options, carriageway widening

Table continues overleaf

APPENDIX 2 – CONTRIBUTION OF GENERIC PROJECTS TO 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	• Reduces travel delay between economic nodes • Improves travel time reliability • Reduces vehicle operating cost (e.g. fuel consumption) • Improves efficiency for freight movements	• Reduces accidents caused by congestion and sub-standard alignment • Provides opportunity to improve safety for all road users	• Improves mobility by reducing accident-related travel delays	• Potentially reduces injury-related accidents • Air quality improvements from decreased congestion and vehicle emissions can reduce respiratory illnesses	• Road realignments designed to minimise impacts on sensitive receiving environments and significant ecological resources • Reduces 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	• Do nothing • Strategies to reduce speed, traffic volumes and growth • Development of alternative routes	• Alternative realignment options, carriageway widening
New Roads and Bridges: General	• 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	• Reduces accidents caused by congestion and sub-standard alignment • Provides opportunity to improve safety for all road users	• Improves accessibility by providing more direct route • Potential to improve walking and cycling linkages • Improves mobility by reducing congestion	• Potential public health benefits from improved walking and cycling opportunities • Air quality improvements from decreased congestion and vehicle emissions can reduce respiratory illnesses	• 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	• Strategies to reduce traffic volumes and growth e.g. promotion of alternative existing routes	• Alternative realignment options, carriageway widening
Public Transport Roading Improvements: Bus lanes	• Reduces travel delay between economic nodes • Provides greater travel time reliability • Reduces congestion on heavily-trafficked corridors	• Potential to reduce accidents caused by congestion	• 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	• Air quality improvements from decreased congestion and vehicle emissions can reduce respiratory illnesses.	• 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	• Do nothing • Increase roading network capacity	• Other TDM measures
Route Protection (Preventative Maintenance)	• Preserves valuable public assets • Minimises the risk of road closure and associated economic costs of traffic diversion and delay	• Minimises risk of personal injury from vehicle accidents, failing debris etc. in emergency event	• Reduces risk of access and mobility being severely compromised in emergency event	• Reduces risk of injury related accidents	• Reduces risk of erosion and adverse effects of soil dumps on receiving environments e.g. sedimentation	• Do nothing • Develop alternative routes	n/a
Seal Extension	• Reduces long-term maintenance costs • Reduces travel time and delays • Reduced roughness reduces vehicle operating cost	• Improves safety by improving grip (vehicle/cyclists) • Potential reduction in loss of control accidents	• Improves access to remote areas • Improves modal choice by improving conditions for cycling and walking	• Reduces air and water pollution impact by reducing dust • Reduces noise impact • Health benefits of walking and cycling • Potential reduction in injury-related accidents	• Dust reduction improves local air and water quality	• Strategies to reduce speed, traffic volumes and growth	• More extensive realignment and carriageway reconstruction • Increased use of dust suppression measures and low dust generating surfaces
Seal Widening	• Reduces travel time by improving traffic speeds/flow	• Potentially reduces accidents caused by narrow seal width and loss of control	• Improves modal choice by improving conditions for cycling and walking (i.e. opportunity to widen shoulder)	• Can promote cycling and walking in rural areas	*No significant contribution*	• Strategies to reduce speed, traffic volumes and growth	• More extensive realignment and carriageway reconstruction
Traffic Management	• Reduces travel delay between economic nodes • Provides greater travel time reliability • Reduces congestion on heavily-trafficked corridors	• Potential to reduce accidents caused by congestion or incidents • Can improve response time for emergency services	• Improves mobility by reducing congestion, identifying incidents and informing motorists of alternative routes	• May reduce risk of injury related accidents	• Improves energy efficiency and vehicle emission performance from reduced congestion • Enables prompt responses to incidents such as hazardous spills	• Do nothing • Develop alternative routes	• Other TDM measures
Transportation and Strategic Studies	• Network improvements resulting from study recommendations may reduce congestion and improve safety along a corridor, which: - Reduces travel delay between economic nodes - Improves travel time reliability - Reduces congestion on heavily-trafficked corridors	• Network improvements resulting from the strategy may: - reduce accident rates along corridor - improve safety and personal security of cyclists and pedestrians	• Network improvements resulting from the strategy may improve access and mobility by: - improving modal choice - reducing congestion - reducing accident rates - providing priority for freight or HOV etc.	• 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	• Resulting strategy can: - 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)	• Do nothing • Ad hoc/reactive initiatives	n/a
Walking and Cycling facilities	• 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	• 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	• Improves mobility by providing choice of viable transport modes for short/medium trips • Improves transport choices for transport disadvantaged	• Health benefits of walking and cycling • Marginal reduction in noise, vibration and air pollution impacts by reducing motor vehicle short trips	• 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	• Do nothing • Advocate to local authorities to provide walking and cycling facilities	• Alternative engineering options e.g. road widening

TRANSIT NEW ZEALAND DIRECTORY

www.transit.govt.nz

National Office
Investment House, Level 9
20 – 26 Ballance Street
PO Box 5084, Wellington 6145
New Zealand
T 04 499 6600
F 04 496 6666

Auckland Regional Office
Qantas House, Level 13
191 Queen Street
PO Box 1459, Auckland 1140
T 09 368 2000
F 09 368 2059

Northland Office
CPO Building, Level 1
Rathbone Street
PO Box 1899
Whangarei 0140
T 09 430 4355
F 09 459 6944

Hamilton Regional Office
BNZ Building, Level 4
354 Victoria Street
PO Box 973
Hamilton 3240
T 07 903 5100
F 07 957 1437

Tauranga Office
405 Cameron Road
PO Box 430
Tauranga 3140
T 07 927 6003
F 07 578 2009

Napier Regional Office
Napier Library Building
22 Station Street
PO Box 740
Napier 4140
T 06 835 1750
F 06 835 0283

Wanganui Regional Office
Seddon House
Park Place
PO Box 345
Wanganui 4540
T 06 345 4173
F 06 345 7151

Wellington Regional Office
Logical House, Level 8
186 – 190 Willis Street
PO Box 27 477, Wellington 6141
T 04 801 2580
F 04 801 2599

Marlborough Roads Office
The Forum, Level 1
Unit 2.4, Market Street
PO Box 1031, Blenheim 7240
T 03 577 1850
F 03 577 5309
0800 MARLRDS (0800 627 573)

Christchurch Regional Office
Education House, Level 7
123 Victoria Street
PO Box 1479
Christchurch 8140
T 03 366 4455
F 03 365 6576

Dunedin Regional Office
Skeggs House, Level 2
62 – 66 Tennyson Street
PO Box 5241, Dunedin 9058
T 03 477 8527
F 03 477 9237