



NZ TRANSPORT AGENCY  
WAKA KOTAHI

# CHRISTCHURCH MOTORWAYS

Project Summary Statement  
February 2010



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# ROADS OF NATIONAL SIGNIFICANCE: CHRISTCHURCH MOTORWAYS

## 1. PURPOSE OF DOCUMENT

The purpose of this paper is to provide information on the context, strategic benefits and implementation plan for the completion of the Christchurch Motorways project, one of the seven Roads of National Significance (RoNS).

## 2. STRATEGIC CONTEXT

### *2.1 Population, employment and growth*

Christchurch City is the second largest urbanised area in New Zealand, both in terms of population and contribution to the national economy. The Greater Christchurch area is expected to grow from a population of 414,000 in 2006 to around 501,000 by 2026, and 549,000 by 2041. In particular, the Waimakariri and Selwyn Districts are currently experiencing very high residential growth rates.

Christchurch is the key transport hub for Canterbury and the South Island. Christchurch International Airport (the second largest in New Zealand after Auckland) and the Port of Lyttelton (the country's second largest exporter by gross weight) provide key connections to international markets, which are vital for the large primary production sector in Canterbury. Ensuring efficient access to the city from both the north and south is essential to maintain international competitiveness.

Growth in Christchurch City, the Waimakariri District and Selwyn District is being managed through the Greater Christchurch Urban Development Strategy (UDS), a 35-year development plan that was established by the respective Councils and the NZTA.

The UDS recognises that effective integrated planning offers the greatest opportunities for a multi-modal approach to managing Greater Christchurch's transport needs.

It emphasises the importance of integrated land use and transport solutions around key activity centres within Greater Christchurch, including the CBD, Northlands, Riccarton, Hornby and Eastgate. The road network in these areas serves both a strategic through-traffic and local transport function, but congestion on this network is restricting growth.

An important section of the UDS is related to future land-use patterns, which are currently being embedded in Plan Change 1 of the Regional Policy Statement (RPS). This identifies the metropolitan urban limits for the city that reinforce key policies of intensification and consolidation around existing townships and activity centres.

The Christchurch Motorways project provides strategic infrastructure which is identified in the RPS growth sequencing, to ensure that growth is generally aligned with infrastructure provision. The Christchurch Motorways project serves to bypass the key growth and economic nodes of Belfast (western Corridor) and Hornby (southern access), which will improve accessibility and enhance options for walking, cycling and public transport within these centres.

## **2.2 Existing routes**

The existing state highway system in Christchurch is primarily a series of urban arterial roads. These roads provide access to the Port, airport, CBD and key activity/freight areas. Currently these routes experience traffic congestion, leading to poor travel time and reliability. High traffic volumes in these corridors also contribute to social severance, and safety and amenity issues in the township areas that they pass through.

The Christchurch Motorways project comprises a number of state highway improvements for the Southern Access, Northern Access and Western Corridor of Christchurch's road network.

The Northern Access includes a four lane Northern Arterial motorway and serves the Christchurch central business area (CBD), the Port and industrial hubs on the eastern side of Christchurch. While the RoNS project ends at Queen Elizabeth II Drive, further intersection upgrades along SH74 are being implemented through the wider State highway improvement programme. Other associated activities exist south of Queen Elizabeth II Drive.

The Western Corridor starts from the north and serves as a multi-purpose urban arterial route to the airport and large industrial hub in Hornby. Most of the traffic on the corridor has a destination at these locations, with only around 10% of the traffic travelling further to the south. Hence the focus of the RoNS project is to four lane SH1 to the centre of Hornby. A number of other local arterial roads also provide access and connectivity in the area. Since the through movement on SH1 is relatively small, use of an existing limited access road (Pound Road) is proposed with selected junction improvements programmed – this effectively provides a bypass of Hornby and reconnects to SH1 in the south. In the longer term improvements to the connectivity between Russley Road (the Western Corridor) and Pound Road will be investigated.

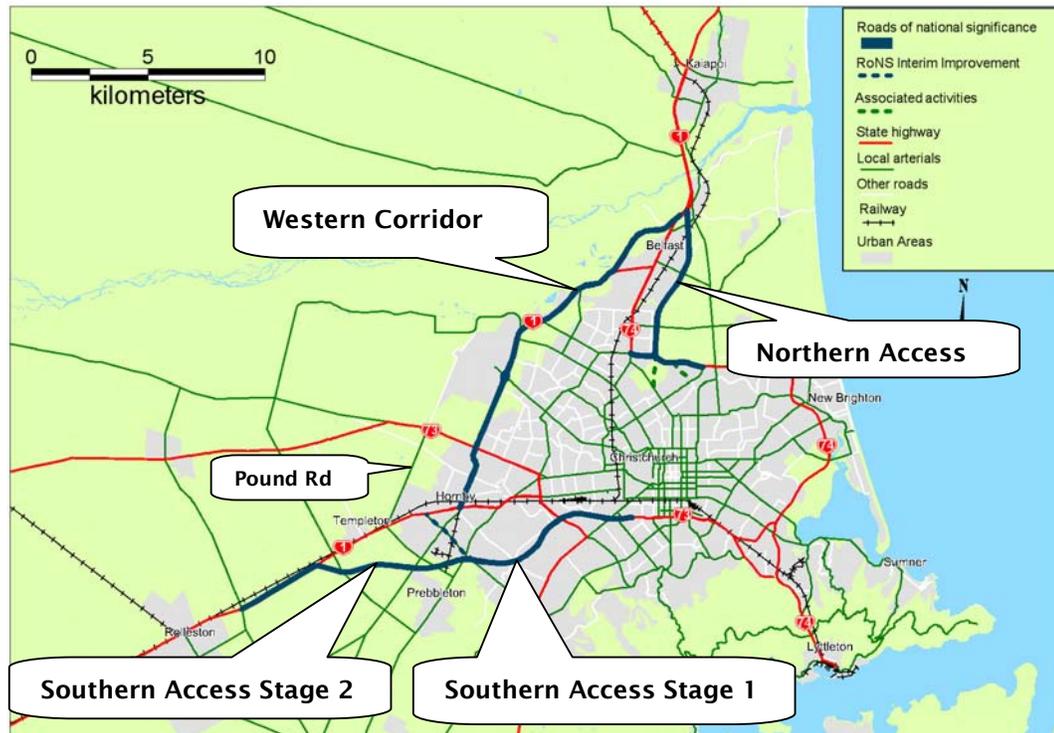
The Southern Access includes the four lane extension of the Christchurch Southern Motorway to serve the CBD, the Port and industrial hubs in the south and east of the city. Approximately half of the traffic currently entering Hornby from the south will divert to the new Southern Access route.

## **2.3 Objectives of the Christchurch Motorways RoNS**

The objectives of the Christchurch Motorways project are to:

- To enhance inter regional and national economic growth and productivity
- Improve travel time and reliability to the Port, airport and CBD;
- Enhance access to key activity and industrial areas (Hornby, Sockburn and Belfast);
- Making best use of existing roads where possible such as catering for trips passing through Christchurch on the western corridor
- Improve road safety;
- Ensure better access for public transport, walking and cycling in the UDS growth node of Belfast;
- Improve land-use integration, safety and social amenity in UDS township areas, thereby giving effect to broader UDS outcomes.

**Map 1: Proposed and existing routes**



### **3. BENEFITS**

#### **3.1 National network benefits**

The Christchurch Motorways project is expected to deliver significant benefits to the national network when it is complete:

- Improving travel times through the northern and southern access to Christchurch; and
- Improving journey reliability through the northern and southern access to Christchurch.

Evaluations of the Christchurch transport network show a high level of travel time variability on the existing routes in the area. By 2016, this variability is expected to be between 23 and 53 minutes, which will impact on economic efficiency. By 2041 the variability will increase to between 26 and 75 minutes.

The Christchurch Motorways project is expected to improve travel times and reduce the level of variability to between 20 and 39 minutes by 2016. It is anticipated that this travel time improvement will deteriorate slightly in the future, but the expected range of travel time by 2041 will be between 22 and 50 minutes - better than what is projected for the existing network in 2016.

### **3.2 Regional growth benefits**

The Christchurch Motorways project is also expected to deliver growth benefits to the region when it is complete by:

- Increasing the economic efficiency and productivity of the Canterbury Region by improving access to international and domestic markets; and
- Increasing business access to Hornby, Belfast and the wider Christchurch area.

Changes to the Christchurch Southern Access, including the Christchurch Southern Motorway (CSM) extension, will result in improved travel times and increased reliability for traffic travelling to the Port of Lyttelton and Christchurch CBD. In addition, this part of the project will help to relieve congestion in the Hornby area, thereby improving safety and access to the existing and expanding industrial areas around Waterloo Road, Shands Road, and Parkhouse Road. Stage 2 of the CSM extension from Halswell Junction Road to Waterholes (beyond Templeton) will further improve this access and address safety and amenity issues in the Templeton and Hornby areas.

The Christchurch Northern Access, which will include a new four-lane Northern Arterial route and QEII four-laning (NZTA), as well as upgrades to Cranford Street and Hills Road (Christchurch City Council), will improve access to the Port, the CBD and enable further development of the Belfast area as proposed in the UDS and RPS.

The Western Corridor connects the northern and southern Canterbury areas with Christchurch International Airport, serves other key activity centres and is a key part of our premier national network - SH1. Improvements along the Western Corridor include a new Western Belfast Bypass and four-laning of the Johns/ Russley/ Masham/Carman sections of SH1. This work will be implemented in stages working out from the Memorial Ave intersection

### **3.3 Local network connectivity**

There are a number of local projects that will further improve the effectiveness of the Christchurch Motorways project.

For the northern access to the CBD, the Northern Arterial and QEII improvements need to connect via new links to the proposed Cranford Street and Hills Road improvements (Christchurch City Council associated activities). Public transport bus priority measures are currently being built along the key demand corridor of Main North Road (NZTA) and Papanui Road (Christchurch City Council) that connects with the Christchurch PT Exchange (the hub of the Christchurch public transport system).

The Christchurch Southern Motorway passes through the area covered by the South West Area Plan that identifies the framework for future development of this area including local road upgrades of Dunbars/Awatea Road and Wigram Road, and links to Magdala Place. Halswell Road (SH75) and Lincoln Road are proposed to be upgraded to four lanes, with provision for bus priority measures.

#### 4. PROJECT SCOPE AND ECONOMICS

The Christchurch Motorways Project involves the construction of new four-lane motorways and four-laning of existing state highways.

The forecast outturn costs of the RoNS corridor (in 2009 dollars) at the most likely level is \$730 million within a confidence range of \$660 million to \$800 million.

The final costs of the RoNS corridor will include future years escalation (normally three percent) due to increases in input costs largely following national economic inflationary pressures. The actual amount of escalation attributed to individual sections depends on the time frame for the construction. If a section is constructed earlier than predicted then the amount of escalation would be lower. Equally if construction is later than predicted the cost of escalation would be higher. However, at a RoNS corridor level the individual section effects are less marked. Thus the forecast outturn cost of the RoNS corridor would be \$830 million with a confidence range of \$750 million to \$910 million.

The standard benefit cost ratio (BCR), as currently calculated is based on an 8 percent discount rate. Some would argue that this discount rate leads to investment that is too focussed on short term projects at the expense of large long term infrastructure. To review the impact of the discount rate the BCR with discount rates at 6 percent and 4 percent were also tested.

The standard BCR measures the direct transport benefits arising from the road. The scale of these corridor investments means that it is appropriate to include wider economic benefits (WEBs); that is, the flow-on effects from the transport improvements. The result is to increase the BCR. The results of the analysis are set out in the table below.

Discount Rate	Standard NZTA BCR	BCR inc WEBs
8%	2.0	2.4
6%	2.6	3.2
4%	3.5	4.4

#### 5. IMPLEMENTATION PLAN

##### 5.1 Current status

The three aspects of the Christchurch Motorways project are at various stages of development:

- The Christchurch Southern Access is at build stage, with the Stage 2 extension at a preliminary scope stage;
- The Christchurch Northern Access is at preliminary scope stage;
- The Western Corridor is at a design stage.

##### *Christchurch Southern Access*

A contract for the full construction of the Christchurch Southern Motorway Extension Stage 1 is currently at tender stage and a number of consortiums bidding. We expect to award this tender by early 2010. The Stage 2 extension is in the scoping stage and

a preferred option will be determined in 2010. This project may be “called in” under the Resource Management Act (RMA).

The SH1 four-laning from Waterholes to Weedons (Rolleston) has been added to the RLTP, so that investigation around this section can be undertaken concurrently with the Stage 2 extension investigation. The desirable construction completion of the Stage 2 extension is 3 years after completion of stage 1 in order to mitigate the impact of congestion on Halswell Junction Road.

#### *Christchurch Northern Access*

The current focus for this part of the project is an option selection process, which will result in a decision on the preferred scheme for designation. This work will most probably be called in under the RMA; however, discussions with the Christchurch City Council will be needed in relation to their associated improvements at the southern connections. Construction of the Northern Arterial is seen as being a greater priority than construction of the Western Belfast Bypass. However, construction of the Northern Arterial must be staged to fit with City Councils adjacent network improvements as downstream capacity improvements are required for the Northern Arterial to operate effectively.

#### *Western Corridor*

The Western Corridor has two key sections which are at different stages of development:

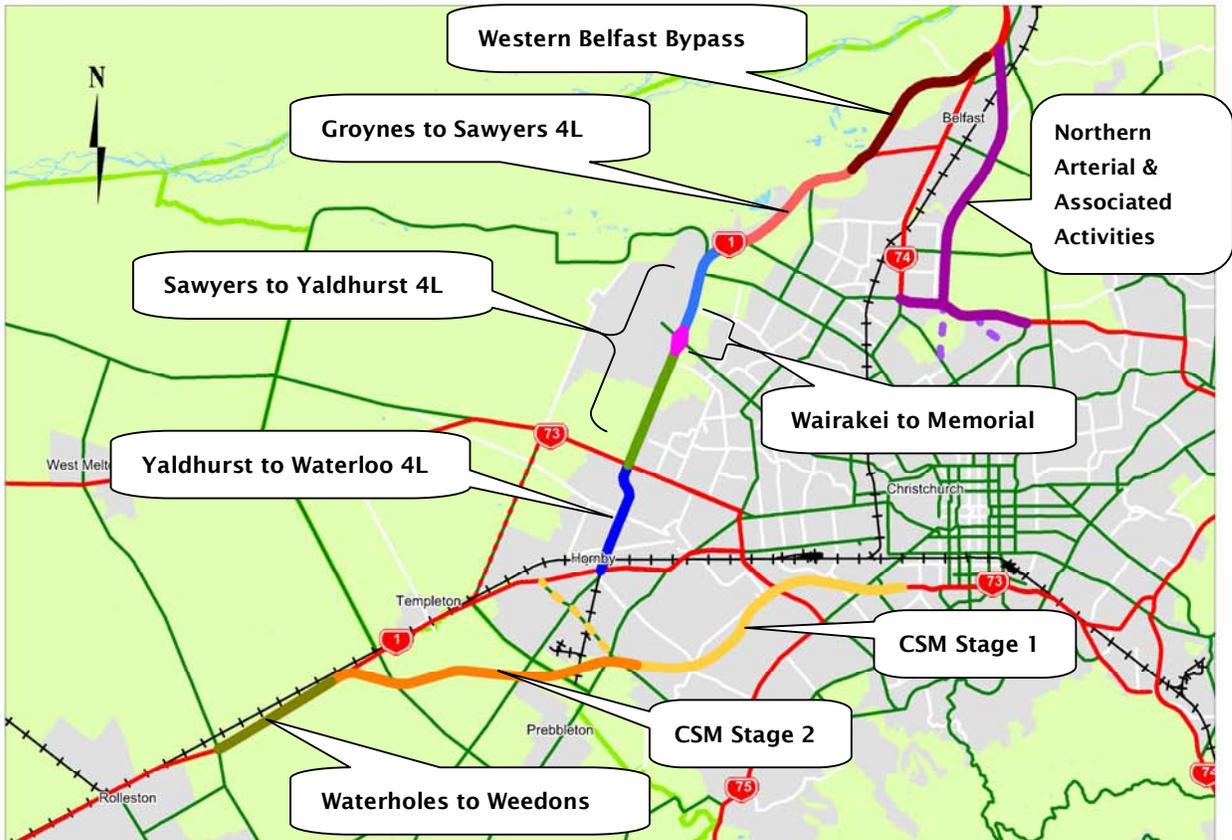
The Western Belfast Bypass which is currently in the investigation stage. The timing for construction of this section is complicated by ongoing discussions with the developer who may be contributing to the cost of construction and a yet to be determined priority order with Christchurch Northern Access.

The SH1 widening from two-lanes to four lanes encompasses a number of elements at different stages of development and property acquisition. We anticipate that to ensure the quickest delivery of this section it will be constructed in broadly concurrent stages radiating from Memorial Avenue – where demand is greatest, as follows:

Sawyers Arms Road to Yaldhurst Road (including Memorial Ave intersection)  
Yaldhurst to Waterloo Road (Design phase just started)  
Groynes to Sawyers Arms Road (Design phase being tendered)

Within the Sawyers Arms to Yaldhurst stage, there is opportunity to achieve an early start to construction between Wairakei Road and Memorial Ave intersection, as this can be achieved within the existing designation.

**Map 2: Implementation Sections**



## 5.2 Stretch targets

The key section to progress is the Wairakei Road to Yaldhurst Road section of the Western Corridor. At this stage we think that a possible stretch target would be to commence construction of the Wairakei Road to Yaldhurst Road section by September 2010. We are also seeking to advance the Memorial Avenue Intersection grade separation to be constructed as soon as possible.