

SECRETS TO DEVELOPING A SUCCESSFUL LAND TRANSPORT PACKAGE

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ABSTRACT

This presentation and technical note is based around the work carried out and lessons learned from developing a \$286 million multi-agency and multimodal NZTA Board endorsed package of transport infrastructure for the future northern access to Christchurch. It will highlight the difficulties encountered and the solutions used in developing the study macroscope, developing the options, optimising the package and reaching a multi-agency agreement. The note shows that moving forward to prosperity requires a multimodal approach that fully integrates transport with land use planning and that this integration is essential to provide the economic efficiencies required for successful funding for future transport infrastructure

INTRODUCTION

The Christchurch Northern Access Package (CNAP) was developed in 2009 through the study titled Christchurch Northern Access Transport Investigation (CNATI), the completed package was developed under the guidelines of the NZTA’s Planning programming and funding manual (PPFM). It is a multimodal group of synergistic projects that has been endorsed by the NZTA Board. The package provides a complete transport solution for access to Christchurch for those arriving from north of city’s boundary on State Highway 1 and the adjacent local roads. Figure 1 shows the geographic study boundary which contains the transport activities that make up the package, along with the general location of the morning peak travel demand heading over the Waimakariri River.



Figure 1: Location Plan

The study was developed by the following partner agencies: The New Zealand Transport Agency (NZTA), Environment Canterbury (ECan), Christchurch City Council (CCC) and Waimakariri District Council (WDC). NZTA was represented on the study by the Highway and Network Operations (HNO) and Regional Partnerships and Planning (RPP) Groups. MWH were employed to help the partner agencies develop the optimised package for submission to the board and to provide a draft board paper to the NZTA’s RPP Group.

NZTA’s PPFM provides guidance to approved organisations (those that can receive national transport funding through the NZTA) to prepare and plan infrastructure projects and service activities for funding request, within NZTA’s overall funding allocation process framework. The concept of packages was introduced¹ to encourage integrated land transport solutions. A package endorsement is an important step, assisting funding requests for later individual activity phases.

BACKGROUND

Access into Christchurch from the north is experiencing congestion on the arterials, Main North Road and Marshlands Road. This adversely affects the travel time reliability for all transport users, especially public transport, travelling to and from the city as well as freight getting to the Port of Lyttelton. The high level of traffic on State Highway 1/74 through urban areas including Belfast also raises issues of social severance and safety concerns for walking and cycling, especially for children travelling to the schools adjacent to the highway.

¹ August 2008 PPFM

The Greater Christchurch Urban Development Strategy 2007 (UDS) seeks to consolidate land-use development within existing townships such as Belfast, and to the north of Christchurch around the three established towns of Rangiora, Kaiapoi and Woodend (see Figure 1). This includes the aim of providing more self-contained settlements to reduce the need for commuter travel between Waimakariri District and Christchurch.

A number of historical transport studies, the Northern Roding Options Scoping Study (NROSS), Greater Christchurch Strategic Transport Study, Greater Christchurch Public Transport Futures Study and Public Transport Corridor Study provided the strategic base to develop the package. A new four stage multimodal transport model² was available to test the transport network effects of package options. The Canterbury Transport Regional Implementation Plan (TRIP), which was the driver behind the Regional Land Transport Program, provided the starting case for the infrastructure components.

The agreed objectives of the CNATI study were to:

- Provide an assessment that defines the optimum package of activities for Northern Christchurch to 2041 based on the UDS land use forecasts as defined by the Metropolitan Urban Limits in Plan Change 1 to the Canterbury Regional Policy Statement (RPS). It is expected to compliment the proposed Greater Christchurch Travel Demand Management Strategy (GCTDMS), other local transport strategies and not preclude future sustainable transport options beyond 2041.
- Define the macroscope for the Activities within the optimum package that accommodate the forecast travel demand from the person based, 2006 Christchurch Transportation Model using the UDS land use and growth forecasts. It also considers the effects of proposed Activities outlined in the Canterbury Transport Regional Implementation Plan (TRIP), such as park and ride sites, that lie outside the package boundary.
- Ensure the identified package shall comprise of fully multimodal, affordable and integrated transport Activities that take cognisance of the mode share targets of the New Zealand Transport Strategy (NZTS) and the current Government Policy Statement on land transport funding (GPS).
- Provide an implementation plan that details proposed timings for Activities, linked to UDS land use growth and staging.

Essential to achieving endorsement of the package by NZTA was a clear understanding by the study partners of the PPFM definitions of Package, Activity, and Macroscopic, as noted:

- Package, this consists of a set of interdependent and complementary Activities that produces synergies between the activities. A package is not restricted to a single work category or activity class. A package may involve different kinds of activities, more than one organisation and a range of time periods.
- Activity, this is an individual project or service provision with an implementation cost expected to be greater than \$250,000 (e.g. Cycleway Corridor – Bus Service – Road – Bus Priority Corridor – Park and Ride Site – TDM measure).
- Macroscopic, a high-level definition of what the preferred alternative and option for the package or project will and will not deliver. The macroscopic of land transport activities includes:
 - the activities that are proposed (eg new passenger transport service, new road, new demand management scheme)
 - the functionality (eg number of lanes, passenger transport frequencies and route, on- or off-road active mode facilities, at grade or grade-separated intersections)
 - the high-level design features (eg design speed, level of service standard, environmental and urban design qualities)
 - the detail of alignment for infrastructure projects.

These definitions provided parties with an understanding of the level of detail required from them for each activity to make the optimisation assessment.

² The 2006 Christchurch Transportation Model (CTM)

PROCESS TO DEVELOP A MULTIMODAL PACKAGE

This followed the following eight key steps:

1. Determine an agreed Terms of Reference (ToR) with all parties for the scope of the investigation

While taking longer than envisaged it was the foundation to the delivering the completed optimised and agreed package of activities. It set the study partners working together to deliver the ToR creating the communication links between the parties that would continue into subsequent stages.

2. Develop a programme and cost for delivering the investigation

A work breakdown structure and corresponding programme was prepared to deliver the agreed ToR. However, despite agreeing on the ToR, the study partners considered that the programme was too long and that to deliver on the terms of reference was too costly. The key lesson here was to develop costs and program in tandem with reaching agreement on the ToR. Each study partner took some work tasks in house to help reduce costs.

3. Providing a succinct summary of previous work to set the scene

Providing a short summary report of the previous studies was very useful, especially for getting those new to Christchurch up to speed with all the information from background studies; removing the need to read a number of large detailed reports. A five page limit made the report very concise.

4. Identify the initial selection of activities that make up the package

The main difficulty here was developing the macroscope for each activity in line with PPFM. This had to be developed by the study partner(s) who would drive the implementation of the activity. While some activities had a clearly defined macroscope, others required considerably more work to achieve sufficient definition. Some considered that leaving an activity macroscope vague would make it easier to modify later. However, this made identifying synergies and costs more difficult. A key point to note is that a package activity can be substantially changed even after it is endorsed.

5. Initial workshop to identify the issues and gather data for an optimisation workshop

This workshop had all parties and their advisors around the table, twenty people in all. It enabled each study partner to set out their preferred position and identified activity and macroscope gaps.

6. A facilitated optimisation workshop, run over three days

Being such a large group, giving sufficient time to this (three days) helped to clearly define each activity macroscope and reach a general consensus on the package optimisation. Only a couple of activities were left over for some further analysis. The first day set the scene. On the second and third day the clarification of activity macroscope and package optimisation was carried out by groups comprising: public transport, active transport, private vehicles and freight. This was carried out by using a comparison of differing activity macroscopes by importance relative to each group. Following this all groups together determined the agreed optimum package from the range of activity options by importance.

7. Developing the Economics for a package (BCR) / Preparing draft NZTA Board paper

With the all the project activities and their rough order costs identified, the benefits were worked out in accordance with NZTA's Economic Evaluation Manual. A package BCR of 2.0 was derived. A draft board paper was prepared to the NZTA guidelines. Following acceptance of the draft paper by the study partners it was given to NZTA (RPP) along with the details of the package activities and BCR calculations.

8. NZTA (RPP) Review, Recommendation to the Board and the Board's decision

The first step in the NZTA internal review process was determining if the activities met the requirements to be grouped together as a package. Discussions within the NZTA review team lead to the removal of the cycleway on Old Main North Rd and the cycleway clip-on for the Waimakariri River Bridge from the recommended package as these activities would not provide significant transport benefits and lacked synergy with the other activities. Ideally this issue would have been resolved before the development of the paper for the NZTA Board. This package was the first developed and so it was the first to test the application of the package definition.

Assessment of the package required determination of the funding profile for Strategic Fit,

Effectiveness and Efficiency. The package was assessed as High, High and Medium (HHM) because it will deliver improvements in travel time and reliability on key freight routes and urban arterials, it gives effect to the Government Policy Statement and supports the Greater Christchurch Urban Development Strategy. The benefit cost ratio of 2.0 achieved a medium rating.

In January 2010 the NZTA Board endorsed the Christchurch Northern Access package (CNAP) as shown in Figure 2.

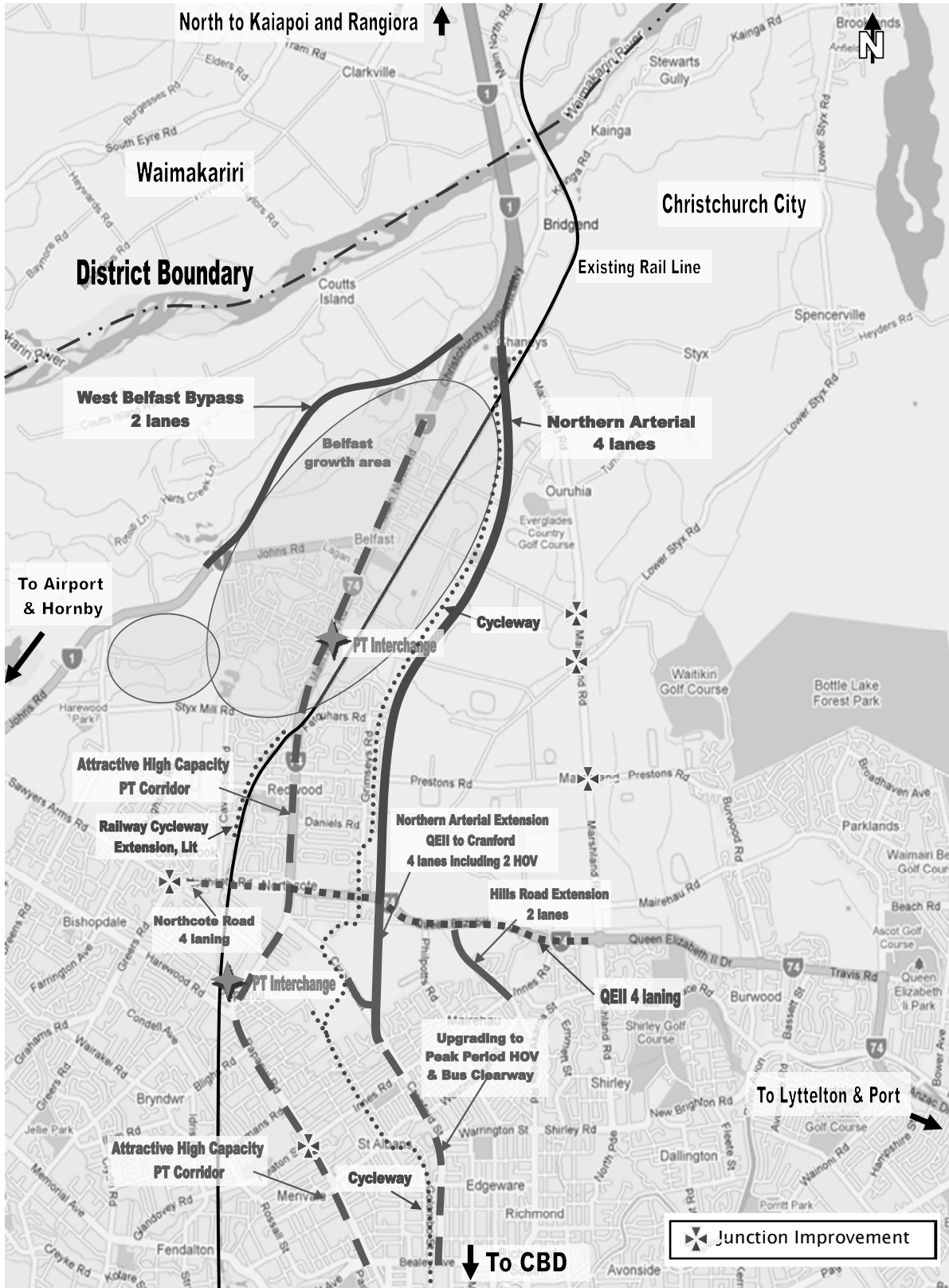


Figure 2: The package as endorsed by the NZTA Board

CHALLENGES/SOLUTIONS

There were a number of significant challenges in developing the \$286 million optimised package of transport infrastructure and services for northern Christchurch. Some of the challenges and solutions are described below:

- The number of study partners involved along with all their advisors was the most significant challenge in developing the package. Open and frequent communication was essential in keeping everyone involved on track. Each study partner also had a particular focus:
 - NZTA (HNO), Strategic transport routes, ensuring freight transport efficiency, Roads of National Significance.
 - ECan, ensuring provision for public transport priority, reducing single occupancy vehicles, providing road capacity restraint.
 - CCC, reducing the impact of travel demand growth on the local road network, alignment with the Belfast and Upper Styx Area Plan Transport Assessment, determining the implications for Main North road becoming a local road. A major challenge for CCC was in having all new staff from the start of the project.
 - WDC ensuring no adverse effects on general traffic, public transport and active transport connections across the Waimakariri River.
- Developing the terms of reference that was agreed by all study partners was the key to commencing the study. If terms of reference could not be agreed on, then the development of the package would not have been able to commence. It also provided an anchor point to go back to when issues relating to scope occurred.
- Definitions of what constitutes a package, an activity and what is meant by optimum were essential to achieving agreement on the terms of reference. The package and activity definitions came from the PPFM and the definition of optimum was developed from discussions with NZTA (RPP).
- The organisational challenges within each partner organisation were significant, as while agreement could be reached at officer level, it was all subject to formal organisation approval. The process around this was to reach officer level agreement on the draft package and draft report to give to NZTA (RPP). Following the NZTA Board's decision it would then be reported to the other parties' decision makers to make their resolutions on what was adopted.
- Despite keeping NZTA (RPP) involved throughout the process there was an active transport element of the package that wasn't carried into the recommendation to the board.
- The advancement of the RoNS impacted on this programming, affecting both the State Highway and local road timelines. To maximise the economic benefits of the package requires a change in programming for some Christchurch City projects.

CONCLUSION

The key "secrets" to the success of developing this land transport package were:

- Getting all the study partners to work in together with the primary focus of achieving an optimal multimodal transport solution.
- The facilitated workshop was essential for refining the significant range of macroscopes and activities to reach something manageable and that all study partners could agree on.
- Having an independent study coordinator to pull everything together and work with each study partner to provide the draft board paper and information to NZTA (RPP).

NEXT STEPS - DELIVERY

Activities need to be further developed so that they can become funding requests. Each activity still needs to show how it will make a worthwhile contribution to the overall package. As at December 2010 funding has been approved for the investigation and design of the Northern Arterial (NZTA HNO) and the investigation of the associated local road extensions (CCC).

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