Transit New Zealand, Nelson City Council and Tasman District Council

North Nelson to Brightwater Strategic Study
Executive Summary

April 2008
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1 Background

In 2004, Nelson City Council (NCC) and Tasman District Council (TDC) agreed to form a joint Regional Land Transport Committee and work with Transit New Zealand on transport planning for the Nelson and Richmond urban areas. This was primarily in response to the rejection of the Southern Link Road designation by both the NCC commissioners and the Environment Court, and the resulting need to determine possible alternatives for the future road network through this growing urban area.

The purpose of this study was to identify the present and future transport needs along the corridor and in the associated transport network.

The study area generally spans from Hira (Teal Bridge) in the north to Wairoa Bridge and Pea Viner Couner in the south. The principal urban centres are Nelson, Stoke and Richmond.

2 Study Area Characteristics

At present there are two main parallel routes in the Corridor between Nelson CBD and Richmond. One route is SH 6 under the control of Transit New Zealand. The other route involves roads under the control of NCC and TDC, comprising Rutherford Street, Waimea Road, Main Road Stoke, Salisbury Road and Queen Street. In addition to these main routes there are some sections of Arterial roads that link the two routes to each other and the remainder of the road network.

Two main bus companies currently run in Nelson; SBL commercial services between Nelson and Richmond and ‘The Bus’ subsidised services on local Nelson routes. Nelson SBL Services (SBL) currently provides bus services between Richmond and Nelson via two routes. ‘The Bus’ runs four subsidised routes within Nelson City.

The current percentage of all trips in the urban areas which are walking or cycling trips varies between 12% for Richmond and 17% for Nelson. About 1% of the travel to work trips are by motorcycle and a mere 0.5% travel by bus. Overall in the urban areas about 45% drive to work and 4.5% are passengers, indicating that the vast majority of vehicle trips are single driver trips with an average vehicle occupancy of less than 1.1, much lower than in larger cities.

3 Transport Modelling

A TRACKS transport model was developed to assess the impact of a wide variety of options on this complex urban network. The model enabled assessment of the complex interactions occurring within the road network and the interaction between land use and demand for travel. The Strategic Transport Model was developed for three time periods (AM, inter peak, PM) and four study years (2001, 2011, 2021, 2031). A four stage model was developed to determine the split between different transport modes in the AM peak period, while the standard three stage model was used for other time periods.
The future land use values used in the Transport Model were based on population projections adopted within the Nelson Urban Growth Study (NUGS) and the Richmond Development Study (RDS). For future years it proved necessary to change the land use “Green Fields take up as usual” to “Intensification supported by Green Fields development” in recognition of the NUGS feedback. This necessity arose from the finding that the former land use produced a demand unable to be accommodated by the existing network or a perceived realistic future network. The effect this intensification produces is fewer car trips, increased number of shorter trips, more walk and cycle trips, and greater promotion of the use of public transport.

For the 2001 AM peak the Do-Minimum network was modelled as having 3.4 km of links operating at or close to capacity. However, no intersections were assessed as operating at this level. The worst route was along Waimea Road, with other routes approaching capacity including SH 6 route from Whakatu Drive to Queen Elizabeth II Drive and Salisbury Road between William Street and the schools.

For the 2031 AM Peak the Do-Minimum network was modelled as having 14.1 km of links operating at or close to capacity, more than four times that for 2001. In addition, 17 intersections were assessed as operating at or close to capacity. The worst routes were SH 6 from Whakatu Drive to Queen Elizabeth II Drive, Waimea Road and Salisbury Road.

The increased traffic volumes and congestion result in a massive increase in forecast travel time between Richmond and Nelson, as shown in the table below.

<table>
<thead>
<tr>
<th>Route</th>
<th>Travel Time (Mins)</th>
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<tr>
<td></td>
<td>2001</td>
</tr>
<tr>
<td>Richmond Deviation / Whakatu Drive / Tahunanui Drive / Rocks Road / Wakefield Quay / Haven Road</td>
<td>15.4</td>
</tr>
<tr>
<td>Salisbury Road / Main Road Stoke / Waimea Road / Rutherford Street</td>
<td>23.0</td>
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Accordingly, unless changes are made, the key roads and intersections in Nelson and Richmond will be subject to increased pressure with travel times increasing and becoming less reliable.

4 Stage 1 Consultation

The purpose of the first stage of consultation was to advise the community of the study and provide the community with the opportunity to tell us their views on the transport issues, options and alternatives. A total of 54 copies of the Stage 1 Consultation Document were posted out to key stakeholders in November 2004.

A total of 63 people and organisations responded with the following significant issues being raised:

- Public Transport
- Integrated Design
- Growth and associated traffic congestion
- Traffic Management improvements (e.g. carriageway widening, bus priorities)
- Southern Link Road
- Land Use Planning
The stakeholders were also asked which type of strategy they would like to see implemented. They responded as follows:

- Traffic Management improvements (30%)
- Travel Demand Management (25%)
- Roading Infrastructure (24%)
- Public Transport investment (21%)

5 Package Development

The deficiency analysis and consultation findings were used to identify projects and their selection into combinations of projects, or packages. This was essentially an iterative process, with the types of packages were determined first, based on the inherent different approaches to meeting the component elements of the New Zealand Transport Strategy. Four basic types of packages were considered, differing by their emphasis or bias towards Public Transport (PT) or roading

- Package A: Public Transport Focus with Traffic Restraint
- Package B: Maximise Efficiency of Existing Network
- Package C: Basic Roading Improvements (reduce congestion)
- Package D: Enhanced Roading Improvements (for improved Level of Service)

Associated with the four types of packages, four basic types of projects were identified:

- Project Type 1: Road Infrastructure
- Project Type 2: Traffic Management
- Project Type 3: Public Transport
- Project Type 4: Travel Demand Management

All packages developed contained some Public Transport provision (at least equivalent to the existing level of bus services), some forms of travel demand management, and some traffic management measures.

For each of the project types, a large number of individual projects were proposed. These were then considered by a panel of experts against the NZTS objectives in the Planning Balance Sheet approach, and some of the projects were eliminated from further consideration. The packages were then modelled using the Strategic Transport Model to determine the effect of the packages on the number of trips, the volume of travel, the mean network speed as well as determining whether key intersections and links were still subject to congestion.

Cost estimates and benefits calculations were also undertaken to determine the economic efficiency of the packages. The findings of all the above were included in the documentation sent out for Stage 2 consultation.

6 Stage 2 Consultation

The objectives for the Stage 2 consultation, undertaken in October 2005, were:

- to provide information to interested parties on the alternative scenarios and the evaluation process; and
- to provide an opportunity for the community to express its views and preferences on the scenarios being considered.
Five key questions were asked on the following topics:

- Overall preferred Package (A, B, C, D);
- Preferred sub-options in Packages B, C and D;
- Projects to be added to the preferred Package;
- Projects to be excluded from the preferred Package; and
- Projects with greatest benefit to the region.

A total of 474 submissions were received, 308 of these on pro-forma response forms. The submissions showed the following general trends:

- The main preferences of respondents was for either public transport emphasis (Package A) or enhanced roading improvements (Package D);
- The ‘Southern Link’ received high support from the 308 pro-forma responses plus other responses supporting the route as part of Package D;
- There was high support among those who supported Package D for Waimea Road and Rocks Road widening/improvements;
- There was high support for tidal flow on Waimea Road and Rocks Road;
- The variable tidal flow option (three-laning of Waimea and Rocks Roads with tidal flow to provide four lanes northbound and two lanes southbound in the morning peak, reversed in the evening peak) were generally preferred over four-laning either Rocks Road or Waimea Road;
- Of those who favour the four-laning options, the preference is for four-laning Rocks Road rather than Waimea Road;
- There was high support for cycling projects, which were included in all packages;
- There was more unfavourable than favourable reaction to the possible introduction of a ferry service between Mapua and Nelson;
- There was more unfavourable than favourable reaction to the possible construction of the ‘south Nelson bypass”, and little support for the tunnel sub-option between Tahunanui Drive and St. Vincent Street; and
- Additional comments received favour adopting the TravelSmart programme, further investigating Rail options, taking account of ‘Peak Oil’ implications, and considering population trends/demographics.

## 7 Preferred Package Development

As a result of the consultation, planning balance sheet workshop, modelling and economic analysis, three alternative preferred strategies were developed (January 2006):

- Alternative A: Including New Route along the Railway Reserve;
- Alternative B1: Including tidal flow on Waimea Rd & SH6 routes – Extra lanes available to all vehicles; and
- Alternative B2: Including tidal flow on Waimea Rd & SH6 routes – Extra lanes available to buses & HOV vehicles only.

All three Alternatives included the same projects and measures, with the exception of whether to introduce a new route on the Railway Reserve (i.e. a Southern Link) or tidal flow lanes on the SH6 and Waimea Road routes.

As a result of the analysis and consultation, the RLTC approved Strategy B2 (Tidal Flow on Waimea Road & SH6 routes – extra lanes available to buses & HOV vehicles only) as the provisional preferred package for consultation.
However, in April 2006 Nelson City Council announced that they required two alternative strategies to be presented for Stage 3 consultation; one including the clearways on SH6 and Waimea Road/Rutherford Street and one including the Southern Link. At its May 2006 meeting, the RLTC therefore instructed the project team to investigate the feasibility of providing the Southern Link with a tunnel at Victory Square to mitigate the severance and noise impacts at this location.

A preliminary cost estimate was produced for the tunnel, which determined that the additional cost would be approximately $41.5M. The high cost, and significant political opposition, resulted in the tunnel being discarded from further consideration.

Despite the high cost of the tunnel, the requirement to consult on two options was confirmed by the Council at its August 2006 meeting. At this stage, NCC requested that a lower cost at-grade option be developed.

A new Southern Corridor Local Arterial Road (SCLR) option was consequently developed which involved:

- Removal of the Victory Square Tunnel and the uphill passing lane, and the cross section limited to two lanes with narrow shoulders to reduce the project’s cost;
- At grade roundabout intersection at the southern end;
- Banning of the right turn from Waimea Road;
- Allowing all vehicles on the route (i.e. it would not be restricted to HOV or public transport); and
- Only pursuing this option once NCC resolved the poor air quality issues along the Southern Link route through its Air Quality Plan.

The first three points would also help restrict demand on the route to less than 15,000 vehicles per day.

The SCLR differs from the original Southern Link proposal in that the road would only be two lanes with narrow shoulders and no grade separated interchange at the southern end of the route.

As a result of NCC’s decision, additional modelling and analysis was required. The key findings of the modelling were:

- Both packages show significant improvements over the Do-Minimum network across all measures in the 2031 AM Peak;
- Package 1, with HOV clearways, shows higher numbers of trips by walking and cycling during the study period; and
- Package 2, with the SCLR, shows better speeds and reduced travel times when compared to the clearway package.

The preferred package of projects includes ‘Access Strategies’ on the SH6 and Waimea Road/Rutherford Street corridors between Nelson and Stoke. These access strategies comprise intersection treatments and pedestrian facility improvements to improve the flow of traffic along these arterial routes. However, these access strategies will differ depending on which option is chosen.

The cost for the preferred package was estimated to be approximately $140 million over the 25 year timeframe, with an ongoing cost of approximately $1.6 million per annum. The HOV clearway project was estimated to cost $15 million and the SCLR $34 million.
Package 1 and Package 2 were predicted to yield benefit cost ratios of 2.3 and 2.9 respectively based on the modelled outputs of travel time and vehicle operating costs. These calculations did not include benefits associated with reducing crashes, providing walking and cycling facilities or reducing congestion as these need to be evaluated on a project basis.

An assessment of the packages was undertaken against the Land Transport Management Act (LTMA), the Resource Management Act (RMA) and Land Transport New Zealand’s Programme and Funding Manual (PFM).

The LTMA assessment concluded that both packages performed reasonably well in terms of most of the considerations of the LTMA. However, it was noted that the major roading options (the clearways or the SCLR) will bring local environmental deterioration, affecting different parts of the city. The ability to achieve the SCLR was noted as being dependent on a relatively short-term and significant improvement in air quality in the airshed through which the new road will pass, which was considered to be a significant programming risk. It was the reviewer’s opinion that the clearways option offers the better long-term outcome, in that it provides better long-term inner-city traffic management options for Nelson City, and the chance of enhanced environmental quality in this area. However, it was noted that this does come at a cost, particularly in terms of accessibility and environmental quality along Rocks Road.

The RMA assessment concluded that the overall consenting issues with the two packages are generally similar with the exception of the issues associated with the roading proposals of the clearway system and the SCLR. The consenting risks associated with the SCLR were thought to be a higher risk than the HOV clearways primarily due to the previous Environment Court decision.

The PFM assessment concluded that Package 1 was likely to have a higher funding profile than Package 2.

At its April 2007 meeting, the RLTC voted to consult on both packages including both the clearway option and the SCLR option, noting that its preferred package was Package 1, including HOV clearways. For the purposes of reporting and consultation, it was decided to separate the roading options away from the preferred package.

The North Nelson to Brightwater Corridor Plan now consisted of:
- The Preferred Package (excluding the two roading options); and
  - Option 1: peak hour clearways Waimea Rd & SH6 routes – extra lanes available to buses, HGVs & HOV vehicles only; or
  - Option 2: Southern Corridor Local Arterial Road.

8 Stage 3 Consultation

A total of 6000 copies of the Consultation Document were printed and were available from various Nelson City Council and Tasman District Council offices, service centres and libraries. Open days were held in Nelson on 17 July 2007 and in Richmond on 31 July 2007.

A total of 5,628 responses were received, of which 52% were on pro-forma response forms.

The number of comments made on the preferred package was quite low in comparison to the total number of submissions received. This is mostly due to the majority of the feedback form and the photocopied form
respondents not commenting on the measures within the preferred package. However, respondents who commented on the package were generally supportive of the proposed measures.

Approximately two thirds of respondents favoured the Southern Corridor Local Arterial Route as the preferred option to provide for additional capacity between Nelson and Stoke. Just fewer than 30% favoured peak hour clearways on SH6 and Waimea Road/Rutherford Street, 5% supported neither option and 0.2% requested that both options be progressed.

9 Conclusion of Study

On 23 August 2007, at a special Council meeting during the Stage 3 consultation period, the Tasman District Council resolved to withdraw from the joint RLTC and the Corridor Study. TDC advised that the main driver for their withdraw was fact that the RLTC’s recommendation on the preferred option (Option 1) was unacceptable to NCC. TDC considered that both NCC’s and TDC’s goals could be achieved more efficiently by having separate regional strategies.

Subsequently, Nelson City Council decided that a Transport Forum be convened to discuss the substantive issues surrounding the Nelson to Stoke transportation options with a view to providing assistance to the Nelson Regional Land Transport Committee on the way forward. The organisations selected to sit on the forum were obtained from the list of submitters based on their level of representation within the community and influence upon the various modes of transport.

The objectives of the transport forum were to:

- Review the Corridor Study submissions report by MWH and identify and discuss the substantive issues;
- Where possible provide assistance on the way forward for the substantive issues; and
- Identify differences, explore alternatives and work towards a solution.

The transport forum met twice in November 2007 to discuss the study, with all organisations asked to identify their five key issues for discussion at the Forum. The forum discussed the preferred package as well as the two roading options between Nelson and Stoke.

Whilst no unanimous decision on a way forward was obtained, it was generally agreed that the preferred package should be progressed, noting that there was sufficient time to enable the two roading options to be parked for five years.

10 Recommended Strategy

The final recommended North Nelson to Brightwater Corridor Strategy is presented below.

The strategy provides a long term vision to beyond 2026 in terms of five categories of projects and measures:

- Public Transport;
- Cycling;
- Traffic Management;
- Travel Demand Management; and
• Roading Improvements.

Projects have been divided projects into Immediate, short-term, medium-term and long-term priorities taking into account when they are needed. The immediate priority projects are being progressed before 2011. Short term projects are proposed for introduction before 2016, Medium term between 2016 and 2026 and Long term after 2026.

A diagrammatic representation of the projects in the preferred package is attached.

Due to a number of external factors including the decision by Tasman District Council to pull out of the study, the division in the community with regards to the options, and the need to progress the non-roading elements of the strategy, the final recommended strategy is being presented without a final decision in regards to the preferred roading option between Nelson and Stoke. It is recommended that these options are further investigated by Nelson City Council at a later date.
### Timeframe

<table>
<thead>
<tr>
<th>Immediate (Before 2011)</th>
<th>Travel Demand Management</th>
<th>Public Transport</th>
<th>Cycling</th>
<th>Traffic Management</th>
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<tr>
<td>• Tahunanui intersection upgrade</td>
<td>• Intensification of residential and employment land-use development around transportation hubs to minimise commuter travel distances and maximise travel by &quot;active modes&quot; (i.e. walking and cycling) and/or public transport.</td>
<td>• SH5 Alawhau to Marybank cycleway / walkway. • Beatson Rd cycle lanes. • Nelson Riverside cycleway.</td>
<td>• Establish monitoring programme – monitor traffic volumes, PT / cycling / walking volumes, vehicle occupancies, delays, etc.</td>
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<td>• Waimai Beattons / Whakatu roundabout improvements. • SH6 / McGillashen Ave scheme • McGillashen Ave / Croucher St / Talbot St realignment • Salisbury Rd / Talbot St roundabout • The Ridgeway Connection, with roundabouts at Songer St and Mansend Valley Rd • Waimau Rd at Hampden St pedestrian bridge or underpass • SH6 / SH60 Three Brothers Corner improvements • SH60 Flush Median (Appleby O-bridge to McShane Rd)</td>
<td>• Promotion of School Travel Plans, including measures such as provision of &quot;walking school buses&quot; and &quot;safer routes to school&quot; programme, to increase walking and cycling to school. • Promotion of Workplace Travel Plans, including measures such as provision of showers and cycle stands and promotion of public transport, car-pooling, teleworking &amp; flexible work hours. • Promotion of area wide car-pooling scheme. • Parking pricing to be significantly increased to reduce all-day &quot;commuter&quot; parking (but without discouraging off-peak &quot;shopper&quot; parking). • Incentives for employers to reduce free-parking for employees and/or to support sustainable forms of transport.</td>
<td>• Local bus services every 15 minute headways in peaks between Nelson and Richmond • Express bus services on Richmond Dev / Whakatu Dr / Annesbrook Dr / Tahunanui Dr / Rocks Rd / Wakefield Quay route every 30 minutes in peaks • Introduction of supporting &quot;feeder&quot; bus services • Bus service quality upgrade – bus stop facilities, vehicle quality/comfort, fare concessions, low floor buses, etc. • Improvement to off-peak shopper bus service frequencies. • Financial support for essential bus services for &quot;transport disadvantaged&quot;. • Airport bus services to Nelson &amp; Richmond CBDs (30 min headways).</td>
<td>Implement high priority elements of NCC/TDC cycle strategies, such as: • Sealing of cycleway / walkway along &quot;Railway Reserve&quot; alignment (from Beatson Rd to Vanguard St). • SH5 Tahunanui Dr &amp; Annesbrook Dr cycle lanes. • Richmond West Waterfront combined cycleway / walkway (Richmond Dev to Sandeman Rd). • Railway Reserve combined cycleway / walkway (Richmond Dev to SH50).</td>
<td></td>
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<tr>
<td>• Establish monitoring programme – monitor traffic volumes, PT / cycling / walking volumes, vehicle occupancies, delays, etc.</td>
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| Short Term (Before 2016) | Option 1: HOV Clearways or Option 2: Southern Corridor Local Arterial Road | Access strategy along Waimua Rd / Rutherford St route, comprising: • Two southbound lanes and one northbound lane on Rutherford Street (Halifax – Nile); • Intersection treatments for capacity and safety; • Pedestrian Improvements • Details and timing dependent on Nelson – Stoke Option | Access strategy along SH6 Annesbrook Dr / Tahunanui Dr / Rocks Rd route, comprising: • Intersection treatments for capacity and safety; • Pedestrian Improvements • Details and timing dependent on Nelson – Stoke Option SH6 / Cable Bay Road intersection – safety improvements SH6 / The Glen intersection – safety improvements SH6 / Quarantine Road intersection improvements | • Bus priority at intersections along Main Road Stoke / Waimua Road route. • Bus priority at key intersections in Nelson CBD. • Consider peak hour clearways on Gladstone Road (SH6) to provide additional traffic lanes in peak direction. |

| Medium Term (2016 – 2026) | • SH6 Whakatu Dr 4-laning (Waimua Rd / Beatson Rd Roundabout to Richmond Deviation) • SH6 Richmond Deviation 4-laning. • SH6 Hope Bypass (Richmond Deviation to SH60). • SH6 Whakatu Dr / Annesbrook Dr intersection – grade separation. • SH6 / Queen St intersection – grade separation. | • Continuing intensification of residential and employment land-use development around transportation hubs • Monitoring of TDM effectiveness. • Maintenance / promotion of TDM strategy. | • Bus interchanges at Stoke and Richmond. • Review frequency of core "commuter" bus services. • Review need for additional bus services to new residential areas. | Implement medium priority elements of NCC/TDC cycle strategies, such as: • Lower Queen Street cycle lanes. • SH6 Gladstone Rd cycle lanes (Richmond Dev. to Brightwater). • SH50 cycle lanes (Three Brothers Corner to Pea Viner Corner). |

| Long Term (After 2026) | • SH6 Whakatu Dr / Richmond Deviation / Main Road Stoke twin roundabouts – grade separation. • SH6 Hope Bypass (SH60 to Eden Rd / Aniseed Valley Rd). • SH50 4-laning (McShane Rd to Hope Bypass). | • Continuing intensification of residential and employment land-use development around transportation hubs • Review justification of "congestion pricing" (i.e. tolls). | • Review frequency of core "commuter" bus services. • Review need for additional bus services to new residential areas. | |
NORTH NELSON to BRIGHTWATER CORRIDOR STUDY - PREFERRED PACKAGE

**Travel Demand Management**
- Introduction of Travel Smart Programme
- Promotion of school and workplace travel plans
- Parking pricing changes
- Promotion of car pooling and reduction in staff car parks
- Intensification of development and transport hubs
- Removal justification of congestion pricing

**Public Transport**
- Local bus services Nelson - Richmond @ 15min headways in peaks
- Express bus services Nelson - Richmond @ 30min headways in peaks
- Airport bus services to CBDs
- Additional ‘Reader’ and ‘Stopper’ services/fees
- Bus service quality upgrade
- Financial support for transport disadvantaged
- Bus interchanges at Stoke and Richmond
- Review bus services and frequencies

**Cycle**
- SH6 Alamein to Marybank cycleway/walkway
- Beacon Road cycle lanes
- Nelson Riverside cycleway
- Seeding of bicyleway on Railway Reserve (Beacon to Waimere)
- SH6 Titirangi Creek and Anakiwa Brook cycle cycle lanes
- Richmond West Waterfront combined cycleway/walkway
- Railway reserve cycleway/walkway (Richmond Deviation to SH6)
- Lower Queen Street cycle lanes
- SH6 Glasson Road cycle lanes (Richmond Dev - Brightwater)
- SH6 cycle lanes (Three Brothers Corner - Pies Viter Corner)

**Traffic Management**
- Bus priority at key intersections on Main Road Stoke and Waimere Road
- Bus priority at key Nelson CBD intersections
- Consider peak hour clearway on SH6 Gladstone Road

**Access strategy and intersection improvements on SH6 route**
- SH6: Quarantine Road
- Grade Separation
- SH6/Alamein
- Grade Separation
- 3 Brothers Corner
- Capacity Improvements
- Salston / Taito Roundabout

**SH6: Cable Bay**
- Intersection Improvements

**SH6: The Glen**
- Intersection Improvements

**Waimere/Hamilton Pedestrian Grade Separation**
- Southern Corridor Local Arterial Road (SCLR)
- Waimere / Whakatu / Beacon
- Roundabout Improvements
- Whakatu / Annetstrok Grade Separation
- Ridgeway Connection and Roundabouts
- Whakatu / Richmond / Main Road Twin Roundabout Grade Separation

**Key**
- Immediate Priority
- Short Term (to 2016)
- Medium Term (2016 - 2026)
- Long Term (after 2026)