**STAGE 4 REPORT**

# Arterial Traffic Study
# Determination of Preferred Arterial Transport Configuration

Prepared for Nelson City Council

JUNE 2011

## QUALITY ASSURANCE STATEMENT

| PROJECT MANAGER | REVIEWED BY |
|---|---|
| Phil Peet | Stuart Woods |
| **PREPARED BY** | **APPROVED FOR MWH ISSUE BY** |
| Sylvia Allan, Phil Peet | Phil Peet |
| **DECISION MAKING TEAM** | **NZTA ACCEPTANCE BY** |
| Andrew James, Martin Workman, Chris Ward, Selwyn Blackmore, Les Milligan, Gary Clark, Alan Nicholson, Sylvia Allan, Di Buchan, Geoff Ward, Stuart Woods and Phil Peet | Dave Brash |

**WELLINGTON**
Level 1, 123 Taranaki Street, Wellington 6011
PO Box 9624, Te Aro, Wellington 6141
TEL +64 4 381 6700, FAX +64 4 381 6739

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# NELSON CITY COUNCIL

## Arterial Traffic Study
## Determination of Preferred Arterial Transport Configuration

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# Executive Summary

The objective of the Nelson Arterial Traffic Study (the Study) is to determine the best transport configuration between Annesbrook and the QEII/Haven Road roundabouts that would improve the city as a whole. This report, "Determination of preferred arterial transport configuration" is the fourth and final stage of the Study.

## Background

Reports for Stages 1-3 of the Nelson Arterial Traffic study have been completed. Their key conclusions can be summarised as follows:

- Stage 1: *"Evaluation of existing arterial traffic routes"*
  This stage found that there is not a significant peak period congestion problem on the arterial routes and one is not currently forecast to develop over the next 25 years.

- Stage 2: *"Selection of best arterial route options"*
  This stage identified a long list of options for testing against the study objectives and reduced this down to four options that warranted further consideration. These were: Peak Hour Clearways, Southern Arterial, SH6 Four Laning, and Waimea Road / Rutherford Street Four Laning.

- Stage 3: "*Evaluation of the best arterial route options"*
  This stage investigated the above four options considering them against social, environmental, economic and cultural criteria. It concluded that while each option could deliver a range of benefits, each also had significant disadvantages.

## Stage 4: Determining of preferred transport configuration

While the earlier stages had found that there is not currently a significant traffic congestion problem, the purpose of Stage 4 is to determine if a clear preferred arterial transport configuration could be identified. The methodology included an option comparison that supported and informed the Multi Criteria Analysis and consideration of transport investment criteria.

**Multi Criteria Analysis and Option Comparison**

Multi Criteria Analysis (MCA) is commonly used in assessments of major infrastructure in complex settings, including under the Resource Management Act to compare and assess options where multiple objectives exist and where there are diverse adverse and beneficial effects from different proposals. The MCA was undertaken on the four options investigated in Stage 3 against social, environmental, cultural and economic aspects.

The MCA concluded that, on balance, the best relative outcome taking into account the full range of potential effects associated with each option was Option A: Peak Hour Clearways. At the end of the MCA process, the Decision Making Team decided to discard Option H: SH6 Four Laning and Option I: Waimea Road / Rutherford Street Four Laning but retain Option A: Peak Hour Clearways and Option B: Southern Arterial for further comparisons.

A summary of major positive and negative aspects from both the MCA and the option comparison for Option A and Option B are provided in the table below:

| Option | Major positive aspects | Major negative aspects |
|---|---|---|
| A: Peak Hour Clearways | • Increased capacity in the peak hour in the peak direction for arterial traffic<br>• Improved facilities for pedestrians and cyclists and therefore an increase in people using these modes<br>• Improved amenity along the waterfront | • Impacts on historic seawall and fence along the waterfront<br>• Severance and access impacts to existing residences and businesses along the corridors<br>• When taking the whole day into account, the travel time dis-benefits from associated safety and intersection improvements result in a BCR of less than 0<br>• There will remain a significant demand for truck movements along SH6 |
| B: Southern Arterial | • Increased capacity at all times<br>• Potential for economic benefits from a new transport corridor | • Additional particulate discharge in an area with poor dispersal characteristics. However, it is acknowledged that the existing poor background air quality in this location (in terms of PM10) is improving.<br>• Severance and social impacts on a recognised community with a particular structure and character<br>• Noise impacts (although these should be able to be mitigated)<br>• Economic analysis shows a BCR of 1.3 which doesn't meet current investment criteria<br>• There will remain a significant demand for truck movements along SH6 unless other changes are implemented concurrently |

The MCA and the option comparison found that no one option would deliver a clear "fit for purpose" solution. For example, while Option A would deliver peak period improvements to arterial traffic flows the associated safety improvements such as signalising intersections would increase travel times and delays during off peak periods. Conversely, while Option B would deliver improved traffic flows on both arterial and local networks, it has significant adverse social and environmental impacts.

**Transport Investment Criteria**

Both Option A and B were assessed against New Zealand Transport Agency's (NZTA) investment criteria (refer to Stage 3 report for detail).

The NZTA uses 'Strategic Fit, Efficiency and Effectiveness' criteria to rank projects to determine whether they should receive funding under the National Land Transport Programme (NLTP). A project must be of sufficient priority to receive funding when considered against other projects in the NLTP.

As noted in the Stage 3 report, under current investment criteria, neither Option A nor B has a funding profile of sufficient priority to receive NLTP funding. While the Strategic Fit and Effectiveness of each option are similar, in terms of their Efficiency, their Benefit Cost Ratio (BCR) is either negative (Option A) or low (Option B). The key reason for this is that there is not an existing significant peak period congestion problem, nor is one currently forecast over the next 25 years. Therefore neither Option A nor B would deliver significant travel time benefits. Nor are there significantly shorter or fewer trips associated with either option which might otherwise generate savings.

NZTA investment criteria would not apply should the Council choose to fund a particular project completely from rates, or if alternative public or private sources were found. However, the projects do

come at a large cost which could have significant implications on rates should the Council proceed independently to fund the projects via rates solely or in large part.

**Uncertainties**

It is recognised that there is a significant amount of uncertainty associated with a number of factors which affect analysis of future conditions, including the population projections, land use forecasts and fuel price projections. There are also uncertainties relating to climate change and sea level rise. In the medium to long term, these uncertainties could mean that any option adopted now may not actually provide the best solution for the future.

Given the uncertainties, regular monitoring is proposed to periodically test the predictions and assumptions used in this study, and the options should be kept open for future flexibility in case of changes in the predictions and assumptions. There are also a range of other measures that can be undertaken to optimise the existing transport system and these are detailed in the recommendations below.

## Conclusion

The aim of Stage 4 of the Study is to determine the best long term transport configuration. However, a key finding of the earlier stages was that as a consequence of recent changes in land use and population growth projections, no significant arterial traffic problem exists – nor is one forecast to develop over the modelled time period. This is an important change from previous transport studies.

Notwithstanding this new information, Stage 4 seeks to further assess the refined options to see if a clear long term solution existed for long term planning purposes. As part of this process, four options were taken through a MCA process, and whilst Option A scored the best, all options had significant positives and negatives against the wide range of criteria.

The lack of significant congestion, or possibility of significant network operating improvements, results in low project benefits in the economic analysis of the options, which means that neither option would currently qualify for NLTP funding.

If or when an arterial traffic problem emerges in the future then the benefits of either option may change. That is, if traffic volumes are greater at a future start point, and traffic continues to grow thereafter, then the BCRs of the options are likely to increase (using current economic analysis criteria).

It is considered too early to choose between Options A and B as the best long-term arterial traffic configuration. Therefore NCC/NZTA should optimise the existing state highway and local road network in the short-term. NCC should ensure both options remain viable in the long term while monitoring land use, demographic and traffic trends with a view to periodically testing the feasibility of Options A and B.

## Recommendations

The recommendations for Nelson City Council from this study are set out below. Actual implementation of the projects and measures would be subject to securing any necessary funding.

1. Retain the existing arterial network configuration and operations, and progress the individual intersection improvements and other projects in the Do Minimum, as appropriate.

2. Incorporate relevant provisions in the City's policy and planning documents that identify State Highway 6 as the main arterial route and provide for its protection and efficient use. Also provide for the protection of the Southern Arterial corridor as a transport route (walking and cycling, roading or otherwise) with specific associated explanation and policy.

3. Implement Travel Demand Management Measures such as travel plans, car-pooling and changes to the cost and availability of public parking immediately. Other measures such as TravelSmart and the implementation of Phase A public transport should be put on hold and the feasibility of these measures reviewed again in around 10 years time. In the interim, it is recommended that investigations be undertaken to determine what improvements could be made to the current public transport services in terms of number and frequency of trips within the current constrained financial environment.

4. Proceed with the investigation of a walkway/cycleway around the waterfront, noting that the construction of such a facility is likely to hinge on obtaining adequate funding.

5. Undertake regular monitoring and reviews of the population projections and land use assumptions used in the transport model, as well as traffic volumes, public transport usage, sea level rise predictions and funding policy changes, and assess the implications of any changes from the projections and predictions used in this study. This should be undertaken every five years in line with the release of Census information.

6. Do nothing that would prevent the implementation of either the Peak Hour Clearways or the Southern Arterial at some stage in the future. Consider implementing either option only when:
    a. the above monitoring and review programme identifies a need to address transport issues;
    b. it can be economically justified; and
    c. it can be shown that it would improve the City as whole.

# 1 Introduction

## 1.1 Study Objective

The objective of the Nelson Arterial Traffic Study is to determine the best transport configuration between Annesbrook and the QEII/Haven Rd roundabouts that will improve the city as a whole.

This includes an assessment, not just of transport related impacts, but also of other economic, social, environmental and cultural impacts. This stage of the study has involved detailed analytical work by the study consultants and particularly by the Decision Making Team.

The final deliverable from this study is the identification of a preferred transport system configuration and recommendations as to the next steps to be undertaken to progress the preferred configuration.

## 1.2 Study Structure

This study methodology is divided into four distinct stages, as follows:

- Stage 1: Evaluation of existing arterial traffic routes[1]
- Stage 2: Selection of best arterial route options
- Stage 3: Evaluation of best arterial route options
- Stage 4: Determination of preferred arterial transport configuration.

Stages 1, 2 and 3 have already been completed and published. This Stage 4 report should be read on the basis of the extensive work undertaken prior to, and in earlier stages of, the study.

## 1.3 Stage 4 Report

This report covers the fourth stage of the study; that being the determination of the preferred transport configuration. This document is structured in line with the study terms of reference as follows:

- Determination of Preferred Transport Configuration (see Section 2), which includes:
  - the multi criteria analysis;
  - a qualitative and quantitative comparison of options;
  - a discussion on funding, forward planning and other uncertainties; and
  - determination of the preferred configuration.
- Determination of an Implementation Plan (see Section 3), which includes:
  - comparison of the preferred configuration with the existing situation;
  - further discussion around funding and other issues in regards to timing; and
  - development of an outline implementation plan of the actions required to work towards the preferred configuration.

[1] This was published in two separate reports: Stage 1 and Stage 1B.

# 2 Determination of Preferred Transport Configuration

## 2.1 Introduction

The determination of the best long term arterial transport configuration for Nelson can never be considered to be a straight forward task. It has been a long standing issue with no simple or obvious solution. There are a large number of factors in play that result in making a choice of a preferred option fraught with difficulty. Not least of these is determining whether there is actually the need for any significant improvements in the short to medium or even long term.

The definition of short, medium and long term varies considerably. In transportation planning, long term is typically up to 30 years. Time periods greater than this are usually not modelled or analysed as uncertainties relating to population and land use, as well as national and global economic and environmental factors, mean that resulting traffic forecasts are very uncertain and may not reflect what will actually occur.

For this Arterial Traffic Study, modelling extends to 2036 and therefore traffic patterns past this date can only be estimates based on trends as no modelling exists.

Network analysis and on-ground observations indicate that there are currently short periods where lower levels of service exist on parts of the network, but there is not a significant congestion problem. This is typical of road networks in city areas where localised capacity issues arise and are usually addressed through the introduction of isolated improvements.

In terms of future years, the Stage 1 report presents all current modelling information which provides an indication of the likely traffic patterns up to 2036. On the basis of population and land use forecasts, the modelling shows that congestion is unlikely to increase significantly. This is reflected by the predicted peak traffic volumes in 2036 being similar to those predicted in 2016[2].

The Stage 3 modelling of the options shows very little overall travel time benefit for any option over the base case for the modelled time periods. This is due to a number of factors, including the need to add additional signalised intersections for access and safety. However, the key reason that large benefits are not obtained is because the model shows that there is not a significant capacity issue with the existing arterial routes and one is not going to develop over the modelled time period.

Accordingly, based on the modelling results, there is no need to provide additional arterial capacity for traffic at least in the short to medium term.

Despite the above discussion, the aim of this report is to determine a preferred option for long term planning purposes, based on the information reported in the previous Arterial Traffic Study reports, whilst also taking into account previous studies in the region, and the Health Impact Assessment undertaken by the Nelson Marlborough District Health Board.

A range of evaluations has been undertaken to achieve this. These evaluations take into account the modelling information, but also consider the other benefits and adverse impacts of the options to determine the outcome which would “improve the city as a whole”.

## 2.2 Public Transport Focussed Option

During the Community Workshops, an additional option (“Option 5”) was raised, which focussed on additional public transport, walking, cycling and travel demand management without any improvement to

[2] Notwithstanding this, there is noticeable traffic growth predicted to occur in the non-peak hours and in the non-peak directions, albeit that none of the resulting volumes exceed the peak period flows.

the arterial road network for general traffic. Following much consideration and initial analysis, the Decision Making Team confirmed that the option was not to be proceeded with further in this study. This was because there was a public transport and travel demand management (TDM) component included in all other options and an option that just provided public transport and TDM measures would not achieve the study intention of providing benefits to arterial traffic (too few trips would be diverted to public transport or modified by TDM measures to affect the traffic flows sufficiently). Furthermore, the four other options do not preclude future public transport development. This position was summarised as:

- an option that relied only on enhanced public transport did not lead to an outcome that could meet the requirements of the study;
- the outcome of the study would not preclude further public transport improvements, if the public transport and travel demand component in the other options led to a major adjustment in peoples' travel behaviour;
- TDM would be an important aspect of the option (to encourage behavioural change) and there are issues around how well the model reflects actual behavioural decisions between modes (the modelling of TDM could only be approximate and the estimated levels of effectiveness are likely to be higher than reality, particularly where congestion exists and is reduced); and
- there are high levels of uncertainty with regard to the acceptability of "Option 5" across the whole community, as public transport would still serve only a small proportion of trips.

## 2.3 Multi Criteria Analysis

### 2.3.1 Introduction

The Multi Criteria Analysis (MCA) methodology is a key element of analysis, and an aid to decision-making within the study. Multi Criteria Analysis (MCA) is commonly used in assessments of major infrastructure in complex settings, including under the Resource Management Act (RMA) and Local Government Act (LGA), to compare and assess options where multiple objectives exist and where there are diverse adverse and beneficial effects from different proposals.

MCA provides a traceable and justifiable means of exploring preferences amongst different options. The Stage 1 and 1B reports outline the basic methodology along with the criteria to be scored and the weight to be placed on each criterion, as developed by the Decision Making Team.

The final scores for each option against each criterion were determined by the Decision Making Team at MCA Workshops after gaining all information from the technical experts and the consultation process.

This section outlines the content of the workshops and the scores assigned to each option.

It is noted that MCA analysis does not replace NZTA investment criteria; they actually inform one another. Some aspects of the NZTA investment criteria under Strategic Fit and Effectiveness, as well as the Economic Efficiency criteria, are used in the MCA analysis, along with a wide range of other criteria. In addition, the information used in the MCA analysis and the outcome of the process can also be considered as part of the Effectiveness criteria when determining how well the project meets the stated objectives.

It is important to note that whilst MCA is a key tool in the comparison of options and the assessment under the RMA and LGA, it is the investment criteria which determine whether or not the NZTA contributes funding for an option.

### 2.3.2 Multi Criteria Analysis Workshop

The Workshop[3] largely followed the Agenda and pre-circulated notes (see Appendix A). The order of discussion and scoring of some attributes was changed during the course of the workshop from the order in Stage 1B report and the pre-circulated notes, and was undertaken in the order set out in this report. A list of participants is provided in Appendix B.

Most participants were present for the whole of both sessions of the Workshop[4]. Materials including notes and scoring sheets, and details of the criteria, were provided. The two participants who were unable to attend the second session were given the chance to review and discuss the scoring of the attributes prior to analysis of the results.

The Workshop commenced with a brief recap of the project to date and the present state of the study. At that stage it was again confirmed that the additional option ("Option 5"), focusing on additional public transport, which had been raised at the Community Workshops, was not to be proceeded with.

A short presentation on the MCA approach was made (see Appendix C) at the start of the Workshop, and it was confirmed that all participants were comfortable with the process and familiar with the various background studies.

There was then a brief discussion on the four options to be evaluated. In particular it was noted that the options for which a cost estimate had been prepared were the basis for the evaluation. While there were variants, any with additional unaccounted costs were not part of the analysis at this stage. Where there were variants at no or very low cost, which provided some mitigation, these could be taken into account. The descriptions in the Stage 3 report, "Arterial Traffic Study, Evaluation of Best Arterial Route Options" were referred to.

**Option A:** Part time clearways. It was noted that a large part of the cost of this option is creating the additional space required, particularly the cantilever along Rocks Road to provide for cyclists and pedestrians. There was a question around the provision for cyclists/pedestrians which was 4m in Option A compared with 3m on the Southern Arterial Option B[5]. This was considered to be a marginal cost (comparing 3 and 4 metres on the cantilever on Rocks Road). It was also suggested that there may be equally acceptable design options other than a cantilever within the same cost estimate, or at lower cost. A number of other questions around operational aspects were also discussed, including the duration of the clearway period (initially 1 hour, but could be extended if demand required).

**Option B:** Southern Arterial. No grade separation was included in this option but it does include a 3m wide separate shared walkway/cycleway along the railway reserve adjacent to the road . Questions were raised about the cost of this option, the design specification, and whether the cost of the land (already available or purchased earlier) was included[6].

**Option H:** SH6 four-laning. The design provides a four-lane route with a raised median, shoulder and cycleway (requiring a new sea wall and substantial property acquisition on Tahunanui and Annesbrook Drives).

**Option I:** Waimea/Rutherford four-laning. This includes a four-lane route with a raised median, with widening on the east side of Rutherford Street. Questions were raised as to the need for Rutherford Street to be widened at all, due to the dispersal of central city traffic.

[3] Due to unforeseen circumstances (the diversion of a flight because of the closure of Nelson Airport due to fog), the start of the Workshop was delayed. This resulted in it taking place over two days – 29th September 2010 in Nelson and 18th October 2010 by video conference.
[4] Selwyn Blackmore (NZTA) and Gary Clark (TDC) were unavailable for the second session. Note that Martin Workman and David Jackson (NCC) both attended the second session.
[5] This was to provide additional recreation space along the waterfront whereas the Option B route is a transport corridor only
[6] It was determined that relatively little land could be released were Option B not the preferred option. An allowance of $5M has been made in the BCR analysis to cover this aspect.

The description of the Options which were analysed is as provided in the Stage 3 report.

### 2.3.3 Scoring of Options

As noted in the Stage 1 and 1B reports, the scoring stage of the MCA process is very important. The Decision Making Team had earlier agreed the scoring system to be applied at the workshop. This was a five-level scoring system which awarded a "1" when an option performed very well in terms of a criterion, and a "5" when it performed very poorly. Details of the scoring system are set out in section 3.3 of the Stage 1B report, and are included in Appendix A to this Stage 4 report.

The workshop proceeded along the lines set out in the pre-circulated notes, with an initial presentation by a nominated "champion", a group discussion and scoring. Scores were, as far as possible, subject to discussion and consensus. In reality, scores on all but one attribute (City Future) were reached by consensus (see discussion later).

In discussing the attributes, participants took into account, wherever possible, information with measurable, factual predictable bases, and the findings of the brief analysis of the existing situation and do-minimum situation, set out in Table 3-3 of the Stage 1B report.

Note that not all "champions" had provided Power-Point presentations. Where they had not, the discussion below is provided in fuller form. Relevant Power-Point presentations are included as Appendices C to H to this report.

The order of the attributes below follows the order set out in the Stage 1B report.

#### *2.3.3.1 Cultural and Heritage*

The presentation and discussion on this aspect related to the material in the Heritage Assessment Report[7]. It was noted that there had been limited consultation with iwi, and NCC did not request a cultural impact assessment from iwi. However, sufficient information was available to understand likely iwi preferences.

Key considerations were effects on Historic Places Trust and Resource Management Plan listed items, known cultural and heritage values and preferences as follows:

**Option A:** Adverse effects on the seawall structure (from strengthening and cantilever) and the relocation of chains were noted, although it was also noted that the seawall structure and chains had been moved/modified in the past. The Boatshed and Boathouse were not required to be moved and the Basin Reserve was unaffected. It was also noted that iwi prefer Option A.

**Option B:** There are adverse effects on 92 Beatson Road, Bishopdale Station and the Railway Reserve, and the Globe Hotel. This is iwi's second preference.

**Option H:** The same as Option A, but greater effect on the seawall, the Boatshed and Boathouse when compared with Option A. This was not supported by iwi, but considered by them as "less worse" than Option I.

**Option I:** Affects Bishopdale Station and a group of pre-1900 dwellings north of Nelson College (but mitigation is possible). The shoreline at Anzac Park and Auckland Point are more affected than by other options.

The overall analysis awarded a score of 4 to Option H, 3 to Options A and I, and 2 to Option B. (Note, all scores are shown in Table 2-1 at the end of this section).

[7] Reports referred to in this section were prepared as part of Stage 3 of the overall study, and were available to the Team in draft.

*2.3.3.2 Impacts on the Natural Environment*

This was a complex criterion, which the "champion" had broken down into the four aspects of air quality, water quality (including coastal water), bio-diversity and naturalness[8]. The workshop agreed with this breakdown.

Amongst sources of information referred to were the reports on air quality and water quality prepared for the overall study, as well as other information available to the Council.

For air quality, the background air quality (currently improving in terms of PM10), the extent and nature of emissions, the nature of the receiving environment and the ability for the emissions to be dispersed were all taken into account. Combining these considerations, Option B received the worst score, followed by Option A, with Options H and I considered to be similar (H slightly worse than I).

In terms of water quality, Option A was considered similar to the present situation, Options B and I to have minor adverse effects, and Option H to have the worst effects during the construction stage due to extensive coastal disturbance.

Bio-diversity similarly was considered to score worst for Option H with moderate destruction of current coastal bio-diversity expected, minor to moderate destruction along the water course within the length of Option B, and minor effects associated with Options A and I.

The quality of "naturalness" was considered to be unchanged with Option A, most affected by Option H with the widening of Rocks Road over the short length of existing coastal rock reef area and Option B where a relatively natural stream course and adjacent valley sides would be modified, and affected to a minor extent by Option I, which affects only highly modified areas.

Overall, combining all these considerations, the workshop awarded a score of 4 to Option B and 2 to all other options.

*2.3.3.3 Co-benefits*

The workshop considered four types of co-benefits potentially arising from the options. These were land use opportunities, health benefits, multi-use transport benefits and benefits for emergency services.

Land use opportunities were felt to be similar and equal for Options A, B and H, as whichever option was chosen, land and associated opportunities would remain available or be freed up on the other options for other uses (Option H slightly less so than Option A or B). In contrast, while Option I does free up or provide access to other land on discarded options, it also involves a significant land take and restriction of access on the two roads it most affects.

The health benefits of Options A and H were considered similar, with improved walking and cycling facilities around the waterfront where there is good air quality and superior to the opportunities associated with Options B and I, while recognising that Option B included a 3m wide separated shared walkway / cycleway along the railway reserve.

Multi-use transport options were felt best served by Option H and I where there could potentially be dedicated public transport or high occupancy vehicle lanes. Option B has some potential to provide an additional public transport route (possibly as part of an express Nelson-Richmond service) so does achieve some slight benefit. Option A, does provide some benefit by providing a clearway lane but considered neutral overall when considered against the other options.

Option B was considered to be the best provider of emergency service benefits as both the fire service and the ambulance depot have direct access onto St Vincent Street to quickly access the southern

[8] Naturalness includes landscape effects.

suburbs. Option I provides an excellent route back to the hospital and the other options were considered neutral in this respect.

Under this attribute, none were considered to score well. Options A, B and H were scored as 3, with Option I as a 4.

#### *2.3.3.4 Impacts on the City's Future*

This attribute required an overall scoring as to how effectively each option achieved the stated policy of the City through the range of its policy statements and plans. It was noted in discussion that, as well as the policy outlined in the presentation (see Appendix D), the Air Plan has relevant policy which would tend to favour options that remedy existing areas of lower air quality and avoid adding new areas adversely affected by vehicle-related air pollution. The Council's social wellbeing policy was also noted, with areas of existing social deprivation being associated with all options.

A broad overview was taken in the analysis, with Option A scoring as 2, Options B and H as 3, and Option I as 4. It was noted that none of the options was able to achieve all policy, and that all provided some contribution to achievement of policy (the latter at least in terms of meeting peoples' transport needs). Option A scored marginally better than other options in terms of efficient use of resources and less adverse effects overall (it was also likely to be more effective in fostering TDM, and still enabled public transport development in future). Option B brought additional traffic into the CBD and reduced the ability to achieve some policies there, and affected an area currently unaffected by traffic. Option H and I were considered to be not a particularly effective use of resources, with Option I having a greater adverse effect on the CBD through four-laning.

Some workshop participants considered that Option H should also score 4. It was agreed that any effect of this difference would be examined later, as part of the sensitivity analysis.

#### *2.3.3.5 Community Impacts - Physical*

This attribute took into account the aspects of air, noise, safety and visual impact and the physical impacts on the wider community and its constituent parts[9]. All options were considered to have some negative impacts although Option A was considered to have minimal negative impact in terms of noise and visual impact.

Overall, Option B scored poorly in terms of air quality[10], noise and visual impact and was scored 4 overall. This is because the extent of negative impacts in the vicinity of this route is not offset by the extent of any benefits experienced in the vicinity of the other options. Option I scored poorly in terms of air quality and safety and was scored 3 overall. Option H was scored 2 overall and Option A was awarded a 1.

#### *2.3.3.6 Community Impacts - Social*

A Power-Point presentation covering the social and physical impacts on communities was given (see Appendix E) prior to discussing these two attributes and prior to scoring them separately. The presentation draws on a wide range of material, including the Community Workshops, the Social Impact Report and the Noise Assessment. It was clarified that aspects which were covered under the heading of effects on the physical environment (such as natural and landscape values) were different from those in the current attribute which looked at the social effects in the receiving environment, rather than the environment itself. It was also noted that mitigation opportunities raised in the Power-Point presentation could not be taken into account if they involved an additional cost (such as pedestrian /cycle underpasses) or if they could not be achieved (e.g. restricting heavy traffic on the State Highway at night).

[9] This aspect differs from the more abstract criterion of impacts on the physical environment, as it involves assessing direct physical effects on communities.
[10] The Workshop noted the increasing use of diesel and the potential health impacts, particularly where dispersal was poor. (This effect applied to people rather than the natural environment).

Social implications were considered in terms of the Tahunanui/Rocks Road community, the Waimea/Rutherford Roads community and the Victory community, including businesses and their customers, community facilities and services, and schools. The social implications in terms of the city as a whole were also considered.

Overall, significant adverse effects were identified on the Waimea/Rutherford Roads community from Option I, with only slightly less impacts on the Tahunanui/Rocks Road community from Option H and the Victory community from Option B. All of the separate communities are likely to be adversely affected by one or other of the options, with Victory gaining most from a choice of another option than Option B. The benefit of the improved coastal walkway and cycleway associated with Option A (and to a lesser extent, Option H where the loss of some favoured social venues offset the benefits), were influential in the "whole city" evaluation.

A score of 5 was awarded to Option I, with 4 for Options B and H and 3 for Option A. This reflects the social impacts associated with all of the options.

*2.3.3.7 Community Impacts - Economic*

A presentation was made on this aspect, taking into account the report on Economic Impacts prepared by Brown, Copeland and Co Ltd along with information used in the model, including information on the city and region's employment, economic activity and economic drivers (see Appendix F).

This attribute was considered primarily on a city-wide basis, as the wider economies of the city and region were considered to have far more weight than the relatively few businesses directly adversely affected by any specific option. However, adverse effects on local established businesses were also taken into account. In addition, while it was acknowledged that different options may create different opportunities in the future, these were opportunities yet to occur (i.e. that may be taken up, but equally may not be). The Workshop noted the importance of the productive rural economy and the port to the regional and city's economy, and the economic importance of the regional freight aspects of the network, including within the study area.

The three components considered under this attribute were access to the port and ease of freight handling, direct effects on businesses, and potential effects on tourism.

Access to the port and freight impacts were considered to be best served by Option H, followed by Options A and B with equal effectiveness. (It was noted that the State Highway route would be preferred over Option B by freight companies but, in Option A, has the disadvantage of being an improvement limited to certain hours only). In terms of direct effects on local businesses, Option I was the most negative, followed by Option H. It was considered that Options A and H offered some slightly improved tourism and cycling opportunities along the waterfront (because of expanded walking and cycling facilities), whereas Options B and I were neutral[11].

Overall, Option I was scored 4 under this attribute and all other options were scored as 2.

*2.3.3.8 Robustness/Future-proofing*

This complex criterion was discussed under a range of topics (see Appendix G). In particular, discussions centred around capacity to cope with higher levels of traffic than predicted; peak oil risks (or other similar economic or societal changes) resulting in lower levels of traffic; climate change effects (such as rising sea levels and more frequent storm events), and generic adaptability aspects (reversibility, forgone opportunities and ability to undertake further physical modifications in the future).

In terms of capacity, Options A and I were considered to perform worse, followed by Options H and B which were rated somewhat better. Issues which resulted in less traffic in future were rated worst in terms of Option I because of the unnecessary disruption and cost, followed closely by Option B and H at similar

[11] Note that Option B would involve limited access to businesses on the upgraded St Vincent Street.

levels, with Option A as the best. Climate change considerations favoured Options B and I, with H and A rating poorly (particularly Option A). The adaptability considerations noted above were most poorly served by Options H and I, with Options A and B somewhat more favoured. Overall, putting these sometimes disparate considerations together, the workshop agreed on scores of 4 for both Options H and I, and scores of 2 for both Options A and B.

*2.3.3.9 Degree of Difficulty*

This attribute was considered under technical complexity, and legislative issues and consentability (see Appendix H). There was discussion around affordability (which had also been included in the original description of the criterion), but it was considered that this item could not be taken into account separately from the evaluation already undertaken in terms of Economic Efficiency, so this consideration was excluded from the scoring of this attribute.

Option H and Option A both contained levels of technical complexity around the work required adjacent to Rocks Road, with Option H being more complex than Option A in this respect. Otherwise there were no known significant technical challenges. Option H was also felt to be the most difficult in terms of achieving all necessary approvals, followed by Options I, B and A in that order.

Overall, Options H and I were both awarded scores of 5, with Option B scoring 3 and Option A scoring 2.

*2.3.3.10 Economic Efficiency/Benefit Cost Ratio*

This criterion was scored on the basis of the formal analysis method used by NZTA (see last slide in Appendix H). In transferring to a score under the MCA approach, Options A, H and I were awarded a score of 5, and Option B scoring 4.

It is noted that NZTA generally do not contribute funding towards transport projects that have negative BCRs. Options A and H have BCRs less than 0 and Option I has a BCR of 0.2. Accordingly, on the basis of current investment criteria, the options do not have a sufficient funding profile to enable them to be funded by NZTA currently. This aspect is further discussed in Section 2.5.2 of this report.

*2.3.3.11 Summary of Scores*

The scores for the options and the ten criteria are tabulated in Table 2-1 below.

Note that there was only one situation where there was not an agreed score. That was in the City Future criterion, where the majority agreed on a score of 3 for Option H but some felt that it should be scored 4.

**Table 2-1: Multi Criteria Analysis, Scores for Criteria (1=performs well, 5=performs poorly)**

| Option | Cultural/ Heritage | Natural Environment | Co-Benefits | City Future | Community Impacts – Physical | Community Impacts - Social | Community Impacts - Economic | Robustness/ Future-proofing | Degree of Difficulty | Economic Efficiency |
|---|---|---|---|---|---|---|---|---|---|---|
| Option A: Peak Hour Clearways | 3 | 2 | 3 | 2 | 1 | 3 | 2 | 2 | 2 | 5 |
| Option B: Southern Arterial | 2 | 4 | 3 | 3 | 4 | 4 | 2 | 2 | 3 | 4 |
| Option H: SH6 Four Laning | 4 | 2 | 3 | 3 (4) | 2 | 4 | 2 | 4 | 5 | 5 |
| Option I: Waimea / Rutherford 4L | 3 | 2 | 4 | 4 | 3 | 5 | 4 | 4 | 5 | 5 |

### 2.3.4 Application of Weightings

#### *2.3.4.1 Base Weighting Scheme*

The Decision Making Team had developed its preferred weighting of the various criteria in Stage 1 of the study. This was set out in Figure 3-1 of the Stage 1B report.

These Base Weights were applied to the scores, and the outcome, as shown in Table 2-2, was a strong preference for Option A, followed in order by Options B, H and I (note, because the scoring gave low scores to "best" options under each criterion, the overall analysis prefers the lowest score).

**Table 2-2: Analysis under Base Weighting Scheme**

| | Option A | Option B | Option H | Option I |
|---|---|---|---|---|
| Weighted Outcome | 2.50 | 3.22 | 3.54 | 4.06 |

A simple sensitivity analysis was undertaken by examining the outcome in terms of the difference in scores between Options A and B. In order to change the preference between these two options, the individual scores would need to change in a consistent direction by at least eight (i.e. the scores for A would need to be increased[12] by at least eight across all the criteria, or the scores for Option B would need to be reduced[13] by at least eight across all the criteria, or a combination of both). The chance of this level of "error", given that the MCA Workshop process, involving a wide range of professional interests, had reached consensus score on all but one criterion, is considered to be very low. The one circumstance where consensus was not fully achieved, Option H for City Future, as shown in Table 2-1, would therefore not affect the outcome.

Thus, the preferred option, Option A, can be said to be preferred by a considerable margin on the basis of this analysis. The result is not sensitive to marginal modifications of the scoring of the individual criteria.

#### *2.3.4.2 Alternative Weighting Schemes*

In order to further examine the outcome of the multi-criteria analysis undertaken by the Decision Making Team, a range of alternative weightings has been applied. These take into account the types of considerations that may be applied under the RMA, and also the quadruple bottom line factors that relate to the Local Government Act.

The different weighting schemes are shown in graphical form in Appendix I[14]. They are briefly described as follows:

- Base Weighting – As determined by the Decision Making Team (described in the Stage 1B report).
- RMA Section 6 Weighting – This scheme of weighting reflects the matters of national importance set out in section 6 of the RMA. This places heavy emphasis on impacts on cultural and heritage values and impacts on the natural environment (particularly effects on coastal and river and stream margins and important landscapes and natural features). Some weight is also placed on the policy criterion, as this also reflects RMA priorities, and on physical impacts on communities as this includes direct impacts on some section 6 matters such as coastal access. The degree of difficulty is also included, as this includes statutory considerations, such as Section 6 matters.
- RMA Part 2 Weighting – Part 2 of the RMA overarches all RMA decisions, and requires a balanced consideration of social, economic and cultural wellbeing, health and safety, effects on the environment, mitigation of effects, and the needs of future generations. A weighting scheme reflecting this balance approach placed greater (equal) weight on heritage and cultural aspects,

[12] I.e., for example, a score of 3 would need to become a score of 4; etc.
[13] I.e., for example, a score of 2 would need to become a score of 1; etc.
[14] Note that these were not developed by the Decision Making Team, but as part of the later technical analysis of the information from the multi-criteria analysis.

the natural environment, city future policy and robustness/future-proofing, closely followed by the three criteria relating to community considerations. The remaining criteria were moderately weighted.

- Social Weighting – This weighting scheme is the first of the quadruple bottom line analyses. It weights the criteria according to their relevance to social wellbeing, with lowest weight being placed on natural environment and degree of difficulty criteria.
- Environmental Weighting – This reflects environmental wellbeing, with greatest weight on the physical environment, but some weight on factors which included some component of the natural environment (e.g. the component of heritage and culture which relates to the physical environment) and physical impacts on communities. It is recognised that there was an environmental component in several other criteria, so low weight was given to all other criteria except degree of difficulty and economic efficiency.
- Economic Weighting – This weighting system, the third of the quadruple bottom line assessments, strongly weighted economic efficiency and economic impacts on communities, followed by degree of difficulty. A small economic component in all other criteria led to a low weighting being placed on them.

Normally a cultural weighting system would also be applied, to complete the quadruple bottom line assessment. In this case, it is noted that only one criterion addresses cultural aspects, and that no formal cultural impact assessment has been undertaken that would provide sufficient confidence in terms of the attributes that the cultural bottom line assessment would normally include (particularly tangata whenua values). For this reason, a cultural weighting system has not been applied, but the raw scores for the criterion relating to impacts on cultural and heritage values would indicate the order of preference of such an analysis – that is, Option B preferred, followed by Options A and I (equally) and then Option H.

The analysis in terms of these six weighting schemes is shown in
Figure 2-1 below.

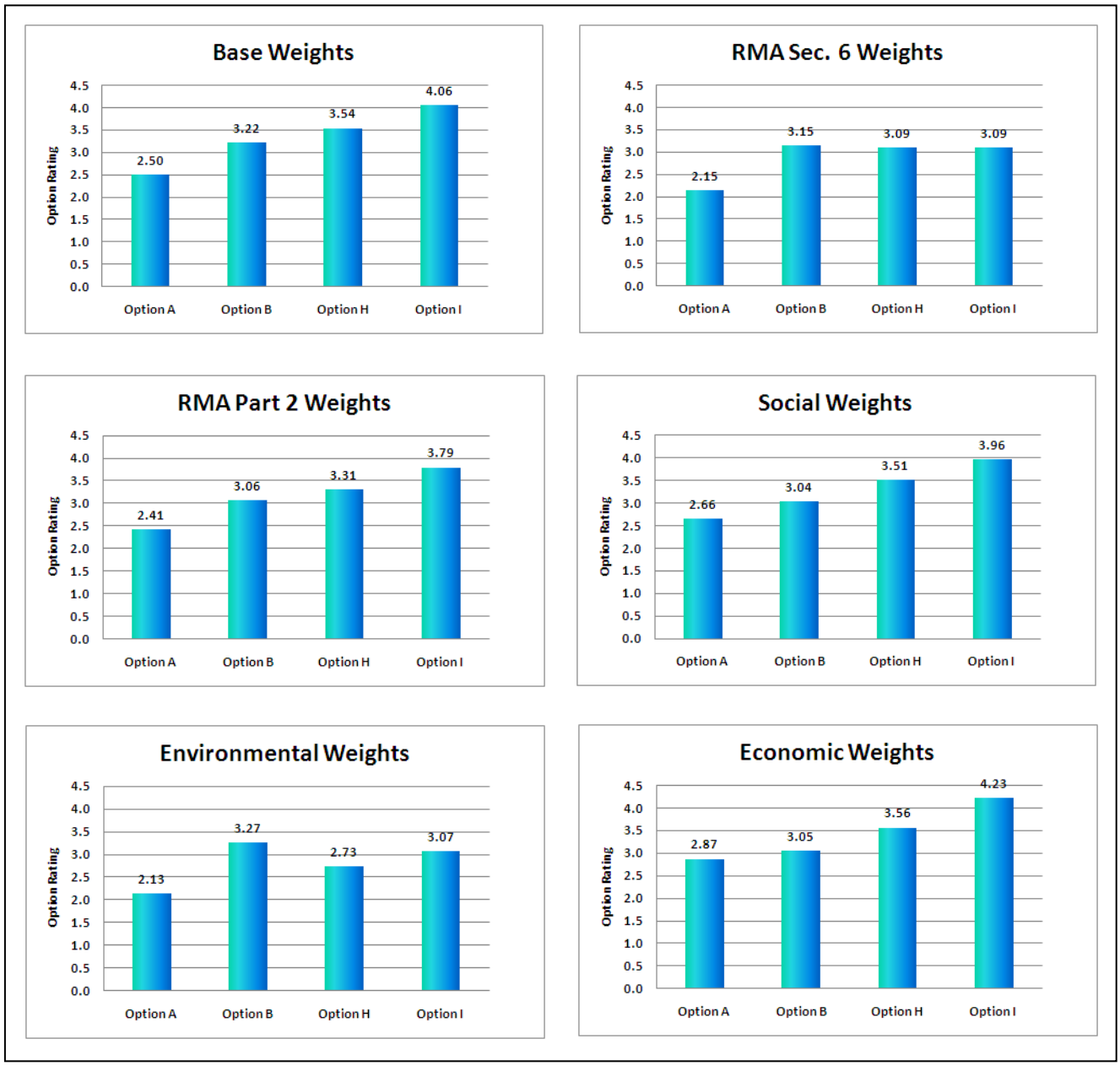



**Figure 2-1: Outcome of Analysis of Options under Six Weighting Schemes**

Addressing each in turn:

- The RMA Section 6 weighting scheme shows Option A being favoured by quite some margin over the other options, which all score similarly. Option B performs poorly under this scheme due to the high weighting placed on the 'natural environment' and 'community impact – physical' criterion
- The RMA Part 2 weighting scheme shows a similar profile to the base weighting scheme which reflects the fact that all criteria are represented over a relatively narrow range, reflecting a more balanced approach.
- The high emphasis on 'cultural/heritage' and 'community impact – social' does not change the outcomes under the social weighting scheme, although the differences between the options is reduced.

- One area where a large change is seen is in the environmental weighting scheme. As with the RMA Section 6 scheme, this is primarily due to the high weights given to the 'natural environment' and 'community impact – physical' criteria
- The economic weighting scheme narrows the gap between Options A and B due to the emphasis placed on 'community impact – economic' and 'economic efficiency'. The scores for Options H and I increase.

The above shows a preference for Option A under all analyses. Generally, Option B is the second preference, although the RMA section 6 and Environmental Weighting schemes show Option B as less preferred than the other two Options (H and I).

### 2.3.5 Conclusion under Multi-Criteria Analysis

The Multi Criteria Analysis indicates Option A as the best option when examined from a wide range of perspectives[15]. To endeavour to actively proceed with any other Option at the present time would raise complications in terms of consenting and in terms of the Council's responsibilities under the LGA. Option B is, generally, the second preference, although this second preference is not conclusive.

This finding must be seen in the context that, for the analysed years, little or no change is needed in terms of the capacity of the arterial routes.

## 2.4 Comparison of Two Options

Two options have been brought forward from the above deliberations; Option A and Option B, as these are the two projects that have future potential.

Option H: SH6 Four Laning and Option I: Waimea Road / Rutherford Street Four Laning have been discarded, due to the results of the MCA analysis, their high cost, their low (or negative) BCRs and the significant impacts they would have on adjacent properties and communities. This also reflects the views and outcome of the Community Workshops which were held during Stage 3 of the study.

A comparison of Options A and B against each other, and also against the existing situation both now and in 2036 should no major works be undertaken, is presented in the table on the following pages. This table presents quantitative information where available and qualitative information for all other areas. This comparison enables better determination of the significance of each of the impacts.

From this table, some key conclusions can be drawn to help determine a preferred option:

- The existing situation is not likely to experience additional adverse impacts during the modelled time period of 25 years.
- Both Options A and B meet the study objectives
- Both options improve access to the CBD
- Option A's major positive aspects are:
    - Increased capacity in the peak hour in the peak direction for arterial traffic;
    - Improved facilities for pedestrians and cyclists and therefore an increase in people using these modes; and
    - Improved amenity along the waterfront.
- Option A's major negative aspects are:
    - Impacts on historic seawall and fence along the waterfront;
    - Severance and access impacts to existing residences and businesses along the corridors; and

[15] Note that the Community Workshops identified similar positive and negative aspects of these options. Note that this finding is also consistent with the findings of the provisional draft Health Impact Assessment being undertaken by the Nelson Marlborough District Health Board.

  - When taking the whole day into account, the travel time dis-benefits from associated safety improvements result in a BCR of less than 0.
  - There will remain a significant demand for truck movements along SH6.
- Option B's major positive aspects are:
  - Increased capacity at all times; and
  - Potential for economic benefits from a new transport corridor;
- Option B's major negative aspects are:
  - Additional particulate discharge in an area with poor dispersal characteristics. However, it is acknowledged that the existing poor background air quality in this location (in terms of PM10) is improving;
  - Severance and social impacts on a recognised community with a particular structure and character;
  - Noise impacts (although these should be able to be mitigated); and
  - There will remain a significant demand for truck movements along SH6 unless other changes are implemented concurrently.

The options comparison found that no one option delivered a clear "fit for purpose" solution. For example, while Option A delivered peak period improvements to arterial traffic flows the associated safety improvements such as signalising intersections would increase travel times and delays during off peak periods. Conversely, while Option B would deliver improved traffic flows on both arterial and local networks, it has significant adverse social and environmental impacts.

| | | | | Existing Situation - Current | | Existing Situation - Future (2036) | | Option A: Peak Hour Clearways - Future (2036) | | Option B: Southern Arterial - Future (2036) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **No.** | **Criterion** | **Sub-Criterion** | **Aspect** | **SH6** | **Waimea/ Rutherford** | **SH6** | **Waimea/ Rutherford** | **SH6** | **Waimea/ Rutherford** | **SH6** | **Waimea/ Rutherford** | **Southern Arterial** |
| 1 | Impacts on cultural and heritage values | - | Heritage | Maintenance issues associated with the historic seawall, fence and other items implemented by early settlers. | No specific known current issues | No additional issues | No additional issues | Potential direct impacts on historic seawall and fence along Rocks Road. | No significant issues identified | No additional issues | No additional issues | Impacts on railway reserve and potentially two pre 1900 buildings |
| | | | Cultural | Some cultural sites nearby but unaffected by operation of road. | Some cultural sites nearby but unaffected by operation of road | No additional issues | No additional issues | Cultural Impact Assessment by iwi needed, but consultation to date indicates that Option A is preferred. | | Cultural Impact Assessment by iwi needed, but overall Option B would probably be acceptable. | | |
| 2 | Impacts on the natural environment | - | Air Quality (CO and fuel consumption) | CO emissions from model in tonnes: 2006 AM 1.51, IP 0.94, PM 1.32<br>Fuel consumption from model: 2006 AM 12, IP 10, PM 13 | | 0%-37% increase in CO emissions from model: 2036 AM 1.50, IP 1.29, PM 1.72<br>25-40% increase in fuel consumption from model: 2036 AM 15, IP 14, PM 18 | | 0-3% decrease in CO emissions c.f. 2036 base : 2036 AM 1.48, IP 1.28, PM 1.66<br>0-7% increase in fuel consumption c.f. 2036 base: 2036 AM 16, IP 14, PM 18 | | 2-5% decrease in CO emissions c.f. 2036 base : 2036 AM 1.47, IP 1.23, PM 1.67<br>0-7% decrease in fuel consumption c.f. 2036 base: 2036 AM 15, IP 13, PM 17 | | |
| | | | Water Quality | Existing routes have little impact on water quality compared to urbanisation. | | Will be increase in run-off contaminants due to increase in traffic volumes on the arterial routes. | | Little different from the existing situation in the future. | | Minor impacts on Jenkins Creek and York Stream provided appropriate mitigation measures implemented. | | |
| | | | Biodiversity | Existing situation is neutral, as existing. | | Existing situation remains so neutrality retained. | | Little different from the existing situation in the future. | | Some minor to moderate impacts along the water courses affected by this option. | | |
| | | | Naturalness | RMA S6 matter re natural character of the coastal environment. Some natural character values, but affected by existing road/port/residential development. | No significant naturalness values, other than valley form, topography and existing open space. | No significant changes are predicted in this category. | No significant changes are predicted in this category. | Changes along this corridor will not affect the naturalness category due to existing level of modification. | Changes along this corridor will not affect the naturalness category due to existing level of modification. | No significant changes are predicted in this category. | No significant changes are predicted in this category. | Some modification of the valley sides and stream course would be required. |
| 3 | Co-benefits | - | | N/A | | N/A | | Health benefits due to improved walking and cycling facilities | | Potential to provide another public transport route along the Southern Arterial alignment. Also provides better access for emergency services to and from the fire station and hospital. | | |
| 4 | City Future | - | | Existing situations are neutral in terms of the relevant policies and plans. | | No change, as existing situation is retained. | | Overall is an efficient use of resources and has less overall adverse effects than other options. | | Brings additional traffic into the CBD and reduces the ability to achieve some policies. Affects an area of the city currently not greatly affected by traffic. | | |
| 5 | Impacts on communities | Physical | Air Quality (particulate) | PM10 Airshed B 2009 average 24.9 with 33 exceedences. | PM10 Airshed A 2009 average 22 with 7 exceedences. | Low / moderate background concentrations. Predicted vehicle contribution: 1.58 µg/m3 into a area with good / moderate dispersal characteristics and moderate level of human exposure | Moderate background concentrations. Predicted vehicle contribution: 1.57 µg/m3 into a area with moderate dispersal characteristics and moderate-high level of human exposure | Low / moderate background concentrations. Predicted vehicle contribution: 1.59 µg/m3 into a area with good / moderate dispersal characteristics and moderate level of human exposure | Moderate background concentrations. Predicted vehicle contribution: 1.59 µg/m3 into a area with moderate dispersal characteristics and moderate-high level of human exposure | Low / moderate background concentrations. Predicted vehicle contribution: 1.30 µg/m3 into a area with good / moderate dispersal characteristics and moderate level of human exposure | Moderate background concentrations. Predicted vehicle contribution: 1.26 µg/m3 into a area with moderate dispersal characteristics and moderate-high level of human exposure | High (but reducing) background concentrations. Predicted vehicle contribution: 1.30 µg/m3 into a area with poor dispersal characteristics and moderate-high level of human exposure |
| | | | Noise | Some noise sensitivity is likely adjacent to the current route due to current land uses. | Some noise sensitivity is likely adjacent to the current route due to current land uses. | Predicted LAeq [24hr] 10m from road edgeline: 66.9dB | Predicted LAeq [24hr] 10m from road edgeline: 67.8dB | Predicted LAeq [24hr] 10m from road edgeline: 67.5dB. Change unlikely to be noticeable. | Predicted LAeq [24hr] 10m from road edgeline: 68.6dB. Change unlikely to be noticeable. | Predicted LAeq [24hr] 10m from road edgeline: 65.8dB. Change may just be noticeable. | Predicted LAeq [24hr] 10m from road edgeline: 66.8dB. Change may just be noticeable. | Predicted LAeq [24hr] 10m from road edgeline: 66.3dB. Change will be significant and erode acoustic amenity. Should be able to be mitigated. |

| No. | Criterion | Sub-Criterion | Aspect | Existing Situation - Current | | Existing Situation - Future (2036) | | Option A: Peak Hour Clearways - Future (2036) | | Option B: Southern Arterial - Future (2036) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | SH6 | Waimea/ Rutherford | SH6 | Waimea/ Rutherford | SH6 | Waimea/ Rutherford | SH6 | Waimea/ Rutherford | Southern Arterial |
| | | | Physical Safety | Current issues for pedestrians crossing SH6, narrow shoulders or lack of facilities for cyclists. High traffic volumes encourage “rat running” on local streets. | Red light running, pedestrian safety and “rat running" are concerns. | Increase in traffic volumes will exacerbate the current issues on SH6. | Increase in traffic volumes will exacerbate the current issues on Waimea Road and Rutherford Street. | Peak period lane would increase potential for crashes. Separate footway / cycleway will benefit vulnerable road users. Intersection alterations should reduce injury crashes. | Peak period lane would increase potential for crashes. Intersection alterations should reduce injury crashes. | Decrease in traffic volumes would reduce the number of crashes along this corridor. | Decrease in traffic volumes would reduce the number of crashes along this corridor. | Although the new road would be free from many hazards, any new road will have some crashes associated with it. Also an increase in crashes on St Vincent Street due to higher traffic volumes. |
| | | Social | Severance | Amount of traffic past Tahunanui School.<br>Severance through Tahunanui.<br>Difficult access across Rocks Road especially for pedestrians and cyclists. | Difficulty crossing Waimea Road in the vicinity of schools due to amount of traffic and limited crossing facilities. | Increase in traffic volumes will exacerbate the current issues on SH6. | Increase in traffic volumes will exacerbate the current issues on Waimea Road and Rutherford Street. | The clearway lane, whilst operational, will increase severance. Additional signalised intersections will allow more locations for pedestrians to safely cross and vehicles to access arterial. Possibly more difficult to access properties at pinch points on Rocks Road. | The clearway lane, whilst operational, will increase severance. Additional signalised intersections will allow more locations for pedestrians to safely cross and vehicles to access arterial. | Reduction in traffic volumes but this could increase traffic speeds. | Reduction in traffic volumes but this could increase traffic speeds. | Significant increased severance for the Victory community area. |
| | | | Accessibility | In general the current routes provide good accessibility. However, the limited number of public transport services and associated infrastructure limit the number and range of people able to access/utilise facilities. Severance may play a part in accessibility however this is covered above. | | In general the routes will continue to provide good accessibility, with an increase in public transport services and infrastructure improving accessibility. | | As with the "existing situation- future" public transport increases accessibility. The clearway lanes reduce accessibility to businesses along the route where this removes parking. However the clearway lane provides parking at all other times, which increases accessibility where no parking currently exists. | | As with the "existing situation - future" public transport increases accessibility. The southern arterial doesn't increase accessibility as it does not provide access for a greater range of people to an increased number of goods or services. However the reduced traffic on other roads may allow these to be crossed more easily. | | |
| | | | Mobility | In general the current routes also provide good mobility as they provide for all traffic movements and a range of modes. | | In general the routes will continue to provide good mobility as they provide for all traffic movements and a range of modes. | | Public transport improvements also assist mobility, as does the improvements to the walking and cycling facilities along the waterfront. | | Public transport services also assist mobility. No change is expected for walking and cycling as these facilities are still provided with the Southern Arterial. Better access to southern areas for emergency services. | | |
| | | | Amenity | Waterfront has high amenity value which is affected by traffic volumes/types. Tahunanui also perceived to be a high amenity area which is also affected by the current arterial route. | Limited amenity impacts in comparison to SH6 route. | Increasing traffic volumes (particularly heavy traffic) on Rocks Road could impact on the potential of this area to be developed for passive recreation and as an area with high aesthetic values. | No significant changes are predicted in this category | Proposed walkway / cycleway around the waterfront would increase the amenity of this area. | No significant changes are predicted in this category although the clearway lane will bring traffic closer to some residences. | Potential future opportunity to enhance waterfront. Reduction in vehicles may have some amenity benefit. | No significant changes are predicted in this category although a reduction in vehicles may have some amenity benefit. | Reduced air quality, increased noise, notably at schools and community facilities. Reduced amenity in shopping area and Victory square. |
| | | Economic | Employment | Current arterial routes are not considered to have a significant effect on employment either in local communities or in the region as a whole as congestion is not at a level which would impact these decisions. | | Future modelling shows that congestion is unlikely to significantly increase in peak periods. Accordingly, the routes are not considered to constrict the growth policies of NCC and TDC. | | As with the existing situation, congestion is unlikely to significantly increase in peak periods. Accordingly, the routes are not considered to constrict the growth policies of NCC and TDC. | | This option does present some opportunity to improve the waterfront and potentially therefore stimulate economic activity in the tourism sector and therefore employment. However, the extent of this cannot be quantified as there are a large number of other factors involved. | | |

| | | | | Existing Situation - Current | | Existing Situation - Future (2036) | | Option A: Peak Hour Clearways - Future (2036) | | Option B: Southern Arterial - Future (2036) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **No.** | **Criterion** | **Sub-Criterion** | **Aspect** | **SH6** | **Waimea/ Rutherford** | **SH6** | **Waimea/ Rutherford** | **SH6** | **Waimea/ Rutherford** | **SH6** | **Waimea/ Rutherford** | **Southern Arterial** |
| | | | Tourism | Some tourism activities around Tahunanui and Wakefield Quay at the northern end of Rocks Road. | Some motel development on this route. | Increased traffic volumes along the waterfront throughout the day may result in tourism and hospitality opportunities deciding not to locate in this area. However, it is probable that they will still locate around the Nelson region thereby not having an overall economic impact. | Some motel development on this route. Effects similar to SH6. | New cycleway / walkway could increase activity along the waterfront, especially if it is connected to the Tasman Link Cycle Trail. However, traffic volumes may result in tourism and hospitality opportunities deciding not to locate along this route. | Effects similar to Existing Situation - Future | Depending on the future plans for this route, there is potential for increased tourism activity along the waterfront. | Effects similar to Existing Situation - Future | No specific tourism impacts. |
| | | | Port and Airport | Some travel time delay and travel time variability in peak periods on SH6 under current situation. | N/A | Some slight deterioration in travel times on SH6 in future years especially in the interpeak and off-peak directions. | N/A | The clearways will provide better access to the port and airport but only in the AM peak period. | The clearway lane will provide better access to the Airport from the CBD but only in the PM peak. | Removal of traffic from the current State highway will result in improved access to the port and airport for freight operators that continue to use the SH6 route. | No impact. | Provides another route for traffic to/from the airport and port. Heavy vehicles are likely to continue to use SH6 as it is shorter and along flat topography. |
| 6 | Robustness/ Future proofing | - | Capacity across screenline | Capacity approx 2400vph | Capacity approx 2800vph | Capacity approx 2400vph | Capacity approx 2800vph | Capacity approx 3200vph in AM peak and approx 2400vph at other times | Capacity approx 3700vph in PM peak and approx 2800vph at other times | Capacity approx 2400vph | Capacity approx 2800vph | Capacity approx 2400vph |
| | | | Traffic Volume across screenline | AM (2006): 1617<br>PM (2006): 1851 | AM (2006): 2257<br>PM (2006): 2747 | AM (2006): 1578<br>PM (2006): 2035 | AM (2006): 2521<br>PM (2006): 2971 | AM (2006): 1485<br>PM (2006): 1862 | AM (2006): 2568<br>PM (2006): 3129 | AM (2006): 1114<br>PM (2006):"1442 | AM (2006):1694<br>PM (2006):"2070 | AM (2006): 1303<br>PM (2006):"1538 |
| | | | Is it future-proof? | N/A | | The current situation does not provide for any simple upgrading to provide additional capacity. SH6 also susceptible to sea level rise and extreme weather events. | | The clearway lanes could be used at times other than the stated AM and PM peaks to provide additional capacity, but this does raise associated safety and access concerns. The clearway lanes as investigated are not designed to be used as full time lanes. Also potential sea level rise and extreme weather event issues in the long term with Rocks Road. The option is easily reversible if future traffic volumes decrease. | | The Southern Arterial does provide a future-proof solution for potential increasing traffic volumes. It also provides a third route to/from the CBD in case of other routes being unusable. However, this option is not easily reversible if future traffic volumes decrease. | | |
| 7 | Degree of difficulty | - | Technical complexity | N/A | | N/A | | The cantilever footway / cycleway is the most technical complex aspect of the two options. There are a number of other minor aspects such as intersection upgrades and the design at pinch points. | | This option has minor technical aspects such as intersection upgrades and the grade separation of pedestrians and cyclists at Jenner Street and Beatson Road. | | |
| | | | Affordability (Cost) | N/A | | N/A | | $28.8M plus ongoing operation, maintenance and monitoring costs of around $350k per annum | | $32.1M plus ongoing maintenance costs | | |
| | | | Legislative Issues | N/A | | N/A | | Designation may need to be altered as some extension out of road corridor. Resource consents needed as widening into coastal marine area. Building consent needed incl. historic fence which does not comply with building codes for fall protection. Little land purchase needed so Public Works Act may not need to be enacted. Historic Places Act approval needed. | | Designation needed, and although already signalled in District Plan, this is still a relatively high risk due to previous Environment Court decision. Resource consents needed. Little land purchase needed so Public Works Act may not need to be enacted. Historic Places Trust approval probably not needed. | | |

| | | | | Existing Situation - Current | | Existing Situation - Future (2036) | | Option A: Peak Hour Clearways - Future (2036) | | Option B: Southern Arterial - Future (2036) | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **No.** | **Criterion** | **Sub-Criterion** | **Aspect** | **SH6** | **Waimea/ Rutherford** | **SH6** | **Waimea/ Rutherford** | **SH6** | **Waimea/ Rutherford** | **SH6** | **Waimea/ Rutherford** | **Southern Arterial** |
| | | | Consentability | N/A | | N/A | | Largest risks to consent seen to be the installation of a cantilever structure in coastal marine area and Historic Places Act approval for modifications / relocation of fence and seawall | | Previous Environment Court decision noted proximity of the schools, potential effects on pedestrian safety, issues of social coherence, air quality, and inadequate consideration of alternatives as the main reasons for cancelling the notice of requirement. Whilst some of these issues have been addressed, others remain. | | |
| 8 | Economic Efficiency (BCR) | - | Travel Time Costs | 2006 Model Outputs for Total Travel Time (min):<br>AM 145350, IP 118810, PM 164998 | | 2036 Model Outputs for Total Travel Time (min):<br>AM 195080, IP 167578, PM 230483 | | 2036 Model Outputs for Total Travel Time (min):<br>AM 196668, IP 167167, PM 229400 | | 2036 Model Outputs for Total Travel Time (min):<br>AM 191711, IP 165028, PM 224943 | | |
| | | | Vehicle Operating Costs | 2006 Model Outputs for Total Travel Distance (km):<br>AM 109958, IP 93596, PM 122721 | | 2036 Model Outputs for Total Travel Distance (km):<br>AM 144255, IP 128665, PM 163128 | | 2036 Model Outputs for Total Travel Distance (km):<br>AM 144701, IP 129079, PM 163223 | | 2036 Model Outputs for Total Travel Distance (km):<br>AM 143995, IP 128199, PM 162405 | | |
| | | | BCR | N/A | | N/A | | <0 | | 1.3 | | |

It should be noted that the table above varies slightly from that presented in the Stage 1B report due to further information now being available.

## 2.5 Funding, Forward Planning and Other Uncertainties

### 2.5.1 Discussion

The various analyses carried out indicate no clear path forward. In the short to medium term, it is not necessary to make any major changes. Whilst Options H and I can be dismissed as long term options under any analysis, Options A and B are worthy of further discussion.

The Multi Criteria Analysis clearly shows that Option A is the preferred option of the four improvement options in terms of the comprehensive criteria adopted. However, in the medium term, it may not actually meet the study objective of providing benefits to arterial traffic as the model predicts travel time dis-benefits from implementing this option. These are primarily associated with installing signalised intersections on the arterial routes to more safely manage turning flows and the operational requirements of the clearway lanes.

The option comparison table clearly shows that, when compared to the existing situation, Option A does not have major adverse impacts but provides little overall transport benefit (consistent with the modelling information). Conversely, Option B would provide some measureable transport benefit but has other potentially significant adverse impacts.

There are a number of factors which need to be discussed prior to confirming a preferred option. These relate to funding, forward planning and climate change, amongst others. These aspects are discussed further below.

### 2.5.2 Funding

Funding is a very significant issue for any option. Option A currently has a negative BCR which would mean that the necessary investigations and works would not be funded by NZTA. As explained below, Option B (the Southern Arterial package of works) at least meets the minimum funding criteria for economic efficiency by obtaining a BCR greater than 1; (i.e. the benefits exceed the costs), although it is considered that this project is also unlikely to warrant NZTA funding under its current investment criteria.

Nelson City Council released a memo at the stakeholder workshops in August 2010 (and later on the Council's website) discussing a number of funding issues. This memo is attached as Appendix J. This raises a number of important issues in regard to the likely fundability of any arterial transport solution[16].

The funding profiles for Options A and B in the table below were presented in the Stage 3 report. The funding profile considers the criteria presented in the NZTA's Planning Programming and Funding Manual, which provides a national context for NZTA financial support.

**Table 2-3: Funding Assessment Profile**

| Option | Strategic Fit | Effectiveness | Economic Efficiency |
|---|---|---|---|
| Option A: Peak Hour Clearways | Low | Medium | -[17] |
| Option B: Southern Arterial | Low | Medium | Low |

Based on the above, funding for either option is not likely to be approved by the NZTA as the funding profiles are below the funding threshold contained in the Investment and Revenue section of the Planning, Programming and Funding Manual.

[16] Since this memo was released an engagement document on the new GPS was released stating that officials are developing funding mechanisms for any future continuation of regional (R) funding and these will be considered before the current R funding mechanisms end in March 2015.
[17] This project does not obtain a rating for this criterion as it is below the minimum value for a Low economic efficiency rating of 1.

Accordingly, as current indications are that no national funding is available for the foreseeable future (and Nelson City Council is unlikely to fully fund any options), implementation of any arterial transport option will need to be delayed until funding is likely to become available (from whatever source).

It is noted that the calculated BCRs assume that the option would be constructed in the short term. If an option was not to be constructed until the long term, then the BCR would need to be revised closer to the time to take into account the traffic patterns and volumes at that time; if traffic volumes are greater at a future start point, and traffic continues to grow thereafter, then the BCR is likely to increase (using current economic analysis criteria).

### 2.5.3 Forward Planning

Nelson City Council has indicated that they need a preferred option to assist their future city planning and to reduce uncertainty in the community. There are a number of projects and strategies on hold pending a decision on the arterial traffic routes strategy. These include:

- Development of a city wide strategy as the basis for a review of a range of planning documents (including the review of the Regional Policy Statement and the Resource Management Plan)
- Progression of a strategic framework for development of Port Nelson in the area of Akersten Street
- Determination of the long term use of St Vincent Street so decisions can be made on future land use and access requirements
- Determination of the long term use of Vanguard Street so decisions can be made on future land use and intersection layouts
- Determination of layout for the KB Quarries subdivision to the north of Bishopdale Hill, and in particular how this would connect to the future road network
- Construction of the Snows Hill retaining wall on Waimea Road beside the Girls College playing fields; this would need to be built differently if Option A was to be progressed.

In addition to the above, NCC and NZTA also own a number of properties along the Southern Arterial route which could be sold should the Southern Arterial not be required in the future. However, it is recommended that this land be retained in public ownership and used for public purposes. This could then facilitate a major project along the Southern Arterial alignment at some stage in the future, if required.

Uncertainty within the community was discussed in the Social Impact Assessment as having a particular affect on those people who live in areas which would be subject to considerable additional impacts with one or more of the options. This uncertainty could lead to adverse effects related to “urban blight” and under-investment, difficulty in community development and health issues in some parts of the city.

While these issues are all important to the community and city, they are typical of the issues that face most urban areas. In many ways, the “window” of at least 25 years (which is available, on current projections, before any major change is necessary or justifiable) provides for a good level of certainty for all communities. In considering these concerns and the above list of held projects:

- Development of a long term city wide strategy, in very general terms, should be based on an analysis of opportunities and an assessment of risk. At the level of the Regional Policy Statement and the Resource Management Pan, it is increasingly typical for an urban area to look towards at least a 40-year horizon. The NUGS and other studies have used such a framework. In this context, it is reasonable to protect options provided there is no significant cost, and defer major decisions until a need (for example for an alternative arterial route or alternative mass transport system) is proven.
- Decisions in detail, such as the second to sixth bullet points above, will have cost consequences and opportunity costs in the long term if they are found to be wrong. A careful analysis of the short, medium and long term consequences of each option will need to be made within the framework of the plans and policies noted in bullet point 1 and/or specific area-based studies. Again, the emphasis needs to be on costs, benefits and long-term consequences of decisions.
- In terms of community uncertainties, it is noted that communities always experience uncertainty to some degree and a 20-year horizon for major changes is not unusual. There are a range of

techniques for managing all of the potential issues noted (which range from interim use of land to adequate compensation).

- In terms of property which may be surplus, a consequence assessment similar to that described above will be needed. Most of the land parcels associated with Option B have a current transport use (as cycle and walkway) and/or amenity value. The remaining land parcels which may be surplus could be put to temporary or interim use.

### 2.5.4 Other Uncertainties

As discussed previously, risks and uncertainties are inherent in the assumptions of population and land use change used as inputs into the modelling. Such uncertainties are normal in any transport modelling and long term land use planning.

It is noted that there are also a number of risks and uncertainties in determining a preferred option; particularly for a solution that is not required within the modelled time period. The largest of these is the possibility that population and land use may change significantly from what is provided for and assumed in the modelling (i.e. that in the current Nelson City and Tasman District plans) and therefore a sub-optimal solution might be implemented.

Such uncertainties lead to a range of scenarios. For example, Option A could be chosen as the preferred option for construction at some stage in the future and parts of the land needed for the Southern Arterial corridor could be sold for alternative uses. However, if in the intervening period, Nelson has a population boom and/or a significant increase in employment within the CBD results in a large increase in traffic on the existing arterials, additional all-day capacity would be needed either via road or an alternative transport option such as a busway or light rail. However new development along the Southern Arterial corridor on any surplus land could mean that construction of such a link would be more expensive and have many more impacts than if the corridor had been protected from development.

The above discussion is particularly applicable in the very long term i.e. 50 to 100 years.

Conversely, another example is if Option B were chosen for construction at some stage in the future and, in the meantime, a walkway/cycleway was constructed along the waterfront without future consideration of a peak hour lane. Population and land use changes may result in no need for a new route along the Southern Arterial corridor, but require peak hour lanes to move people on buses and for freight. However, the placement of the new walkway / cycleway would mean that creation of the clearway lanes would be much more expensive than if Option A was left available.

A further “unknown” that relates to Option A is climate change and the potential implications of sea level rise. While the analysis has taken into account all information available, and reflects present central government advice, there is some indication that present predictions of sea level rise may be an underestimation and may be revised in the next report from the international organisation providing the scientific consensus on such matters (the Intergovernmental Panel on Climate Change).[18]

Finally, while numerous issues around the present funding situation have been noted in Section 2.5.2, funding circumstances do change over time – both in terms of sources of funding (such as road user charges, and long-term potential for locally raised funds) and in terms of policy and prioritisation via central government. This is a further source of uncertainty which may lead to different preferences in the future, including altered funding priorities for different transport modes.

Based on the above discussion, it is considered that the risks around retaining more than one option at this stage would not result in serious or expensive consequences, and may be sensible in terms of both economics and the long-term interests of the community of Nelson. Whilst this approach appears to not give certainty or clear direction, with the probable length of time before significant improvements are required and the nominal cost of protecting two alternatives, it is considered better to not preclude future

[18] Sea level rise will, in any case, result in increased frequency of inundation of SH6 Rocks Road due to storm surges. It is noted, however, that this would not just affect this section of highway but others north of Nelson and around the Tasman Bays

options or pre-empt future decision-making when the context could be significantly different to that predicted today.

### 2.5.5 Planning Position

In the course of the study it became clear that, while all studies and analyses indicate the adequacy of Option A as a route that will meet predicted transport demands, and thus no need for major changes in the short to medium term, there is merit in protecting the Option B corridor for possible future use.

This would provide a contingency option in the following circumstances:

- if there was substantial (currently unpredicted) growth in the city and region and a related increase in vehicular travel;
- if sea level rise exceeded current predicted rates and led to significant problems in using and maintaining Rocks Road;
- if private vehicle transport significantly reduced[19] and/or funding for public transport changed, and a dedicated new public transport route was justified.

Taking a long-term perspective, the route of the Southern Arterial is a community asset which justifies recognition and protection as a future transport corridor. Whether this use remains in its current form as a well-used cycle and pedestrian connection, is upgraded as a dedicated public transport link in the future, or whether full transformation to a multi-purpose arterial route becomes necessary, cannot be determined currently. However, the present use and future potential of the land held for transport-related purposes at the present time[20] is considered to justify its retention and ongoing recognition in plans and policies.

As discussed in the following sections of the report, the planning position involves a range of considerations and potential actions. There is a need to reflect the overall approach in a range of policy documents, including the Regional Policy Statement, Regional Land Transport Strategy and the Resource Management Plan, as outlined in section 3.2.5.

## 2.6 Preferred Configuration

### 2.6.1 Roading

#### *2.6.1.1 Arterial Transport Route*

It is recommended that the existing arterial network be retained for the current time. This is due to many factors, including the lack of significant congestion on the existing roads, the low traffic growth rates that are predicted, the uncertainties in regards to the assumptions and predictions used in the study and the fact that no one option would deliver a clear “fit for purpose” solution.

Option A provides the most appropriate solution if the model input assumptions accurately describe the future, or if they overestimate the number of future vehicle trips, as this option makes best use of the existing infrastructure and provides a solution that can be easily scaled back to the current situation in terms of traffic lanes. This is important in terms of the physical, social, environmental and economic components of the decision. It would be inappropriate for the community to incur the costs and adverse impacts of the other options if there is no traffic demand growth requiring additional capacity, or if traffic is less than predicted from the present modelling exercise.

However, the economic analysis shows that Option A does not provide travel time benefits when taking the whole day into account due to the incorporation of associated safety improvements (such as traffic signals at key intersections to facilitate turning movements across clearway lanes). Furthermore, if the

[19] Due to presently unpredicted factors such as very high costs or social changes.
[20] Approximately on the alignment of the proposed former “Southern Link” designation, currently shown in the Resource Management Plan as a “Proposed Road (indicative alignment)”

study's assumptions have resulted (at any stage) in a significant underestimation of the number of vehicle trips and future changes result in the need for additional capacity to cater for large increases in vehicle trips, Option A does not provide for a situation that can readily be scaled-up. Similarly if sea level rise is currently underestimated, Option B could provide for part of an alternative route.

Whilst Option B does provide additional capacity for a marginal increase in costs when compared to Option A, the social and environmental consequences of realising that additional capacity are significant. The consequences may be able to be justified if the current network was reaching capacity and the economic wellbeing of the city was being affected. However, the current forecasts show that this is simply not the case and the additional capacity will not be required over the modelled time period.

Accordingly, it is not recommended that either option be progressed further at this stage.

However, it is recommended that the opportunity is retained for a potential transport connection along the railway reserve at some future date. Additionally, there is the need for greater controls along St Vincent Street and Haven Road to ensure that the potential future function of these roads are not compromised or their use further constrained (e.g. access controls, permissible land uses etc.). The scope of any facility along the entire corridor and its timing need not be determined now. Retaining this corridor would continue to provide the opportunity to add further vehicular traffic lanes or a fixed public transport infrastructure (such as busway etc) at some point in the future. For the reasons outlined above, this opportunity should not be lost. The opportunity cost of retaining this potential link is not considered to be high, and the link is recognised as an important component of the city's walking and cycling network at present and in the medium term, which should be retained and potentially further developed and connected.

#### *2.6.1.2 Other Roading Projects*

It is recommended that the other roading projects included in the Do Minimum and options packages are progressed. These are:

- By 2016: New signals along Waimea Road at Market Road / Boundary Road and Motueka Street as well as intersection improvements at Waimea Road / The Ridgeway
- By 2016: Intersection improvements at Haven Road / Halifax Street intersection in Nelson
- By 2016: Extension of Bridge Street to a Give Way controlled intersection at Vanguard Street with upgraded signals at Rutherford Street in Nelson (note that this is part of the Heart of Nelson Strategy)
- By 2036: Upgrade of the roundabouts at Whakatu Drive / Annesbrook Drive and Whakatu Road / Waimea Road / Beatson Road intersections
- By 2036: New signals at the Vanguard Street / Gloucester Street and St Vincent Street / Gloucester Street / Washington Road.

In addition, the discussion in the Stage 3 report also suggests that if signals are installed at Vanguard Street / Gloucester Street and St Vincent Street / Gloucester Street / Washington Road intersections that signals also be installed at the Vanguard Street / Hardy Street intersection due to its close proximity.

The LOS plots in the Stage 3 report also suggest that intersection improvements will be required at the Waimea Road / Tukuka Street intersection in the short to medium term.

The timing of the above improvements is discussed as part of the implementation plan later in this report.

### 2.6.2 Public Transport

There are a wide range of benefits for increased public transport such as mode choice, social mobility, accessibility and resilience to fuel price changes, which have been discussed in the previous reports.

All options included Phase A Public Transport improvements. This was taken from Nelson's Regional Land Transport Strategy and includes the provision of one express bus service and two secondary bus

services between Nelson and Richmond operating at least every 30 minutes in the peak, with a lesser frequency outside these times, Monday to Saturday 6.30am to 6.30pm. One secondary service will operate to the west and one will operate to the east of the corridor. The existing local access service (branded "The Bus") is to retain its existing level of service, subject to regular review of routes and timing. These proposals are contained in the current National Land Transport Programme (2009/12) but NZTA has signalled that it will not be contributing towards them.

The modelling does not show a significant mode shift towards public transport when the Phase A improvements are implemented. The predicted number of passenger trips using public transport remains very low.

Accordingly, a more cautious approach to implementation of Public Transport is recommended, especially considering the low growth rate over the next 25 years in peak hour peak direction travel, which is typically where the greatest economic benefits for Public Transport are gained.

It is recommended that Phase A Public Transport be retained as the preferred option for public transport, but transitional improvements are investigated to provide greater travel choice and social mobility for the community at an earlier date.

The timing of the above improvements is discussed as part of the implementation plan later in this report.

### 2.6.3 Travel Demand Management

Travel Demand Management measures are best implemented when there is a congested network and a good choice in alternative travel modes. Nevertheless, whilst they will not be as effective in Nelson as other locations where such situations exist, they will still have positive benefits on traffic.

In addition, and as discussed in the Stage 3 report, there are other benefits from TDM, including improved health and social benefits from more people walking and cycling, and environmental benefits from decreased emissions.

It is therefore recommended that Travel Demand Management measures are implemented in accordance with the Regional Land Transport Strategy but in a staged manner consistent with the travel demand on the network and the implementation of public transport. These include:

- Undertake a CBD parking study to investigate the cost and availability of public parking spaces
- Undertake and regularly review school travel plans
- Ensure workplace travel plans are undertaken at large workplaces and those where mode shift is more likely
- Improve the car-pooling programme
- Regular review of Resource Management Plan rules, in particular those relating to parking requirements, access and provision for pedestrians and cyclists.
- Promotion of alternative forms of travel
- 'TravelSmart' targeted travel choices programme

The timing of the above improvements is discussed as part of the implementation plan later in this report.

### 2.6.4 Other Aspects

Due to the significant impact that population and land use changes have on traffic volume projections, and the possibility of these aspects changing over time, it is recommended that a regular monitoring and review process is implemented. This needs to consider the population projections and land use assumptions used in the transport model as well as traffic volumes, public transport usage, sea level rise projections and funding policy changes. This data should be used to assess the implications of any changes from the predictions and projections used in this study in relation to the current

recommendations. This should be undertaken every five years in line with the release of Census information.

Another aspect which has been a prominent theme in undertaking this study is the effect of heavy vehicles on the other users of, and the communities adjacent to, State Highway 6. The Stage 3 report noted that, even with the implementation of Option B, heavy vehicles are still likely to use the waterfront route to access the port and airport. Additional measures would be required to make the Southern Arterial attractive, and/or the waterfront route unattractive or prohibited to heavy vehicles. It would also require the new route to be designated as a State highway. Due to the results of this study, it is currently not appropriate to make these decisions.

Nevertheless, there may be opportunities to reduce the impact of freight transport on the local environments adjacent to SH6. Discussions will be needed between NCC, TDC, NZTA, Port Nelson, Nelson Airport and heavy vehicle operators to determine if any changes can be made.

## 2.7 Preferred Transport Configuration

The recommendations for Nelson City Council from this study are set out below. Actual implementation of the projects and measures would be subject to securing any necessary funding.

1. Retain the existing arterial network configuration and operations, and progress the individual intersection improvements and other projects in the Do Minimum (as noted in Section 2.6.1.2), as appropriate.

2. Incorporate relevant provisions in the City's policy and planning documents that identify State Highway 6 as the main arterial route and provide for its protection and efficient use. Also provide for the protection of the Southern Arterial corridor as a transport route (walking and cycling, roading or otherwise) with specific associated explanation and policy.

3. Implement Travel Demand Management Measures such as travel plans, car-pooling and changes to the cost and availability of public parking immediately. Other measures such as TravelSmart and the implementation of Phase A public transport should be put on hold and the feasibility of these measures reviewed again in around 10 years time. In the interim, it is recommended that investigations be undertaken to determine what improvements could be made to the current public transport services in terms of number and frequency of trips within the current constrained financial environment.

4. Proceed with the investigation of a walkway/cycleway around the waterfront, noting that the construction of such a facility is likely to hinge on obtaining adequate funding.

5. Undertake regular monitoring and reviews of the population projections and land use assumptions used in the transport model, as well as traffic volumes, public transport usage, sea level rise predictions and funding policy changes, and assess the implications of any changes from the projections and predictions used in this study. This should be undertaken every five years in line with the release of Census information.

6. Do nothing that would prevent the implementation of either the Peak Hour Clearways or the Southern Arterial at some stage in the future. Consider implementing either option only when:
    a. the above monitoring and review programme identifies a need to address transport issues;
    b. it can be economically justified; and
    c. it can be shown that it would improve the City as whole..

# 3 Implementation Plan

The recommendations from this study have been compared against the existing situation to determine the best timeframes to implement the different elements. However, in addition to the traffic need for the elements, timing is also influenced by funding. This is discussed below.

## 3.1 Funding

Section 2.5.2 discussed the funding profile and determined that the likelihood of gaining funding for either Option A or Option B was very low. This section discusses the influence of funding on further progressing individual elements of the recommendation.

Overall, due to the low funding profile, the low Benefit Cost Ratio and the complexities of the package of elements (i.e. it contains roading works on a State highway, roading works on local roads, travel demand management measures, public transport infrastructure and public transport operations) ongoing discussion is required with NZTA in relation to possible avenues of funding, especially as funding strategies change through future Government Policy Statements.

In terms of individual elements, the intersection improvements as identified could be progressed independently as and when justified economically; these are relatively low cost schemes that should be prioritised with other expenditure primarily based on the site specific safety and efficiency benefits of the improvements.

The elements which will be harder to fund are the walkway / cycleway, public transport improvements and the travel demand management measures.

The Stage 3 report showed that a Low rating for Strategic fit, a Medium rating for Effectiveness and no rating for Economic Efficiency (i.e. a funding profile of L, M, (-)) would apply for Public Transport and Travel Demand Management. Accordingly, it would be difficult to get funding for these elements from national budgets (typically a profile of M, M, M is needed to attract funding).

The walkway / cycleway is likely to have a Medium rating for Strategic fit (as it would be addressing a specific safety concern), a Medium rating for Effectiveness and a Low rating for Economic Efficiency but this needs to be confirmed with NZTA. The project is certainly one which warrants further investigation to provide a more accurate assessment of project costs and an analysis of possible funding sources.

One area which has previously been raised for funding of the options is the use of Regional (“R”) funding. However, as discussed in the NCC memo (see Appendix J), the way in which this fund is allocated has recently changed. The R fund now provides a minimum level of expenditure per region which will be assigned to the highest priority projects in the region, as prioritised by the Regional Transport Committee and confirmed by NZTA investment and revenue criteria (i.e. the funding profile). R funding currently has to be spent by July 2016; however, since the NCC memo was published an engagement document on the new GPS was released stating that officials are developing funding mechanisms for any future continuation of regional (R) funding and these will be considered before the current R funding mechanisms end.

In the Stage 2 report, some comment was made in relation to the likely rates impact if the Council was to fund a large capital project. This stated that $50M of Council expenditure, in today’s market conditions, would likely result in an 8.3% increase in rates. Accordingly, even though the cost estimates for the individual elements are less than this, it does show the likely impact of Council progressing an element independently of national funding subsidy unless Council’s other expenditure is re-prioritised.

It is noted that the Council could provide some expenditure towards development of the preferred option (such as design and consent processes) so that the project is able to proceed rapidly at some stage in the future. This would be a matter for discussion with NZTA.

Public or private funding sources may also be available to contribute to the cost of improvements, particularly the waterfront walkway/ cycleway. This could come from sources such as local organisations and businesses, other government ministries or national cycle route funds.

In summary, it is considered that:

- the intersection improvements can be progressed as "business as usual" projects as and when they justify funding from local and/or national budgets/funds;
- the interim Public Transport improvements would need to be funded locally;
- the Travel Demand Management improvements would need to be funded locally; and
- funding for the Walkway / Cycleway needs to be further discussed with NZTA, other government agencies and local interests to determine the possibility of gaining contributions from other funding sources. The funding profile of M, M, L means that it could qualify for national subsidy, and contributions from other funding sources may lift this profile.

## 3.2 Timing

### 3.2.1 Roading

It is recommended that all improvements be implemented as presented in Section 2.6.1.2. No further modelling was undertaken on these aspects as part of this study and therefore no more accurate timeframes can be given based on the available information.

The only exception to the above was in regards to the three roundabouts in the vicinity of Gloucester Street, Vanguard Street and Hardy Street. SIDRA intersection modelling was undertaken at these locations for the AM peak to determine the effect of the Southern Arterial. The intersection modelling showed that, for the Do Minimum network, the roundabouts would continue to operate well even in future years. Whilst delays are understood to be currently occurring on some approaches in the PM peak, the low traffic growth predicted by the model would mean that the delays are unlikely to increase significantly. Overall it is shown that the signalisation of the intersections would not be required for sometime, nevertheless other drivers exist for the signalisation of these intersections such as safety and connectivity for pedestrians and cyclists. Accordingly, it is recommended that upgrades are programmed for before 2036 (consistent with the Do Minimum network), this also accounts for the uncertainties around the impact of the access to the Warehouse and Countdown due to this access not being represented in the network model.

The Level of Service plots for the Do Minimum network show that the intersection of Waimea Road and Tukuka Street will come under increasing pressure. Accordingly, it is recommended that this intersection be added to the list of intersection improvements to be undertaken prior to 2016; this should be evaluated once the other intersection improvements have been implemented.

### 3.2.2 Public Transport

As discussed previously, the current funding rules around public transport are unlikely to support any NZTA contribution towards a project in Nelson in the short to medium term, especially considering the low fare box recovery likely from the small patronage figures projected.

Given the likely patronage levels and the current national public transport funding situation, it is recommended that Phase A public transport be put on hold and reviewed periodically; possibly with each Regional Passenger Transport Plan review or alternatively in around 10 years time.

In the interim, it is recommended that investigations be undertaken to determine what improvements could be made to the current services in terms of number and frequency of trips within the current constrained environment and discuss alternative local funding mechanisms.

A review period of 10 years is recommended before reviewing Phase A public transport as this gives adequate time for the current land use strategies to be implemented and reviewed, the interim public transport service to be established and reviewed, and after this point in time, better information will probably be available in regards to future fuel types and prices, population projections and the patronage levels of the interim improvements.

### 3.2.3 Travel Demand Management

Whilst the greatest benefit from Travel Demand Management would be realised if significant improvements in Public Transport are in place, there are a number of measures that can be implemented in the short term. These include undertaking a parking review, implementing and improving school and workplace travel plans and improving the car-pooling scheme. In addition, it is understood that a review of the Resource Management Plan provisions (including rules) is currently being undertaken to ensure that any future development is in line with the outcomes sought by the Regional Land Transport Strategy.

Accordingly, it is recommended that the above measures be implemented as soon as possible[21], with other measures such as TravelSmart and promotion of public transport delayed until the public transport proposals have been implemented.

### 3.2.4 Waterfront Walkway / Cycleway

Although presented as part of Option A, a walkway / cycleway around the waterfront could be implemented separately regardless of which option is ultimately progressed.

This would provide a number of positive benefits as identified in the Stage 3 report and the Multi Criteria Analysis, such as safety of vulnerable road users, increased health due to increased uptake of physical activity and increased tourism potential.

Accordingly, it is recommended that investigation of this facility proceed in the short term, noting that the construction of such a facility is likely to hinge on obtaining adequate funding.

The facility need not be constructed to accommodate a future clearway lane as long as the construction does not prevent the future widening at some point in the future. A facility which is partly cantilevered is likely to cost in the order of $5.5M and, as mentioned previously, would have a funding profile of M,M,L which may possibly make it a candidate for obtaining some form of funding from NZTA. The likelihood of funding would be improved if it is part of a wider walking and cycling strategy which has a good funding profile.

### 3.2.5 Implementing the Planning Approach and Protecting Corridors

As noted in Section 2.5.3 many shorter term and day-to-day decisions, as well as short to medium term strategies, are best made or developed in the context of a longer term strategic planning framework.

Nelson City Council is currently developing a City Development Strategy that will, amongst other things, look to integrate land use and infrastructure (including transport) planning. This will offer the opportunity to consider this matter in a broader planning framework and engage further with the community. This work will then inform implementation plans including the Regional Policy Statement (RPS), the Regional Land Transport Strategy (RLTS), the Long Term Plan (LTP), and the Resource Management Plan (RMP). Potential changes to these documents are outlined below."

The RPS (currently under review)[22] needs to contain a policy framework for transport that indicates:

[21] The parking review may be best undertaken after implementation of the PT interim improvements so that a better choice of services is available for people who chose to no longer travel by car.
[22] Changes to the RMA in 2005 elevated the role of Regional Policy Statements, in that all other RMA plans for the region must now "give effect" to the RPS. This has led to the RPS becoming a significant vehicle for management of urban areas, including growth areas and development of transport systems. The RPS needs to be reviewed every 10 years, but should provide for at least a 40 year planning horizon.

- for the life of the RPS, Nelson's arterial transport system will continue to be based around the present SH6 route, with minor roading upgrades over time complemented and supported by strong policies to encourage cycling, walking and public transport.
- Option B remains a long-term route dedicated for transport purposes, initially for cycling and walking, but with the option of increasing this to a more intensive transport corridor.
- depending on the style of the new RPS, it may be appropriate to map these options as large scale transport connections.

The RLTS is currently not inconsistent with the study's recommendation. However, the next review of this document will need to consider the outcomes of this study, in particular, the need to protect routes earmarked for improved arterial connections.

The LTP (previously called the LTCCP) should reflect the recommendations of this report in its policies towards transport expenditure and development.

The RMP will then need to reflect this approach. In particular, the Plan should be amended noting the potential for development of Option A. The current or a similar notation for a dedicated transport corridor for Option B should be retained on the RMP's Planning Maps, and explained in associated text[23].

The best way to achieve adequate representation could be to consider both the RPS and the RMP together, to determine the appropriate level of details and to ascertain how best to reflect Option A and Option B at each level, and how they are best linked in policy terms.

While Option A is largely designated (minor changes may be required[24]), it is considered premature to designate Option B. As a long-term option, with no design detail, a designation would be unlikely to be successful in the short term. The RMA Phase 2 reforms may provide for a "concept designation", but this idea is at an early stage of consultation and cannot yet be relied upon. In any case, well-expressed policy and explanation will in itself provide an appropriate level of protection. Policies should also relate to the need for ongoing monitoring and mitigation of effects, prior to any introduction of traffic on the route.

The land along this corridor currently in public ownership should, as far as possible, be retained. Land is held by both the City[25] and NZTA and used for a range of public purposes including a well-used walkway and cycleway. Their future will need to be the subject of detailed evaluation.

A detailed assessment will need to be undertaken of St Vincent Street and Haven Road. This area has current plans for an enhanced cycleway, and its character is expected to change in accordance with the Heart of Nelson Study towards mixed uses. Similarly, the development potential of all land immediately adjacent to St Vincent Street should be reviewed to ensure that future development will not compromise the efficiency of any future transport corridor.

Preliminary advice to Nelson City Council has stated that specific policies should be developed for the RMP to emphasise the importance of protecting this route from the adverse effects of development and access. New rules should also be implemented to require access from side roads where available, strengthen the subdivision assessment matters and require resource consent for high traffic generators. In addition, new assessment matters could be developed to enable cumulative effects on the strategic role of the frontage road to be considered.

## 3.3 Implementation Plan

The following table outlines an implementation plan based on the projects in the Do Minimum and the discussion in earlier sections. Projects are grouped into three categories, based on the modelled years:

[23] There is some case law that provides support for including indicative roads or transport corridors on planning maps, and such notations are not unusual: the current plan has such a notation for the present Southern Arterial.
[24] Designation of land in the coastal marine area is currently not possible, and works would need consents.
[25] A large part is legal road.

- Before 2016
- Between 2016 and 2036
- After 2036

Investigation at Scheme Assessment level is required on each of the projects and measures in the table below to more accurately determine the best year for progression. This would need to be undertaken a few years in advance of the detailed design and construction or implementation of each element.

Implementation of the elements below is contingent on obtaining the necessary funding approvals.

**Table 3-1: Implementation Plan**

| Elements | Estimate | Responsibility |
|---|---|---|
| **Before 2016** | | |
| **Roading** | | |
| Install new signals at the Waimea Road/Market Road/Boundary Road intersection | $0.8M | NCC |
| Install new signals at the Waimea Road / Motueka Street intersection | $0.8M | NCC |
| Improvements at the Waimea Road / The Ridgeway intersection | $0.8M – 2.0M | NCC |
| Improvements at the Haven Road / Halifax Street intersection | $0.5M | NCC |
| Extend Bridge Street to a Give Way controlled intersection at Vanguard Street with upgraded signals at Rutherford Street | $0.5M | NCC |
| Improvements at the Waimea Road / Tukuka Street intersection | $0.4M | NCC |
| **Walking / Cycling** | | |
| Subject to funding, progress a Walkway / Cycleway around the Waterfront by undertaking a Scheme Assessment Report | $5.5M | NZTA / NCC |
| **Public Transport and Travel Demand Management** | | |
| Undertake investigations to determine how best to improve bus services between Nelson and Richmond in the short term before progressing to Phase A | Unknown | NCC |
| Implement the following TDM measures[26]:<br>• Improve car pooling programme<br>• Prepare and regularly update travel plans for all Schools<br>• Undertake CBD parking study to regulate the cost and availability of public parking spaces (1-2 years after interim PT improvements are implemented)<br>• Regularly review resource management rules | $0.05M p.a. (excludes in-house resource) | NCC |
| **Between 2016 and 2036** | | |
| **Roading** | | |
| Install new signals at the St Vincent Street / Gloucester Street, Vanguard Street / Gloucester Street / Washington Road and Vanguard / Hardy Street intersections | $2.5M | NCC |
| Undertake capacity improvements at the Waimea Road / Beatson Road roundabout | $1.0M | NZTA |
| **Public Transport and Travel Demand Management** | | |

[26] From Appendix B to the Regional Land Transport Strategy

| Elements | Estimate | Responsibility |
|---|---|---|
| Implement Phase A Public Transport[27] | $2.1-$3.1M p.a. | NCC |
| In addition to the ongoing Travel Demand Management measures presented above, undertake the following aspects in response to the increase in public transport services:<br>• Promotion of public transport<br>• Ensure workplaces with over 50 staff develop travel plans<br>• Undertake 'Travel Smart' targeted choices programme for households around Nelson and possibly Richmond | $0.3M p.a. | NCC |
| **Other** | | |
| Monitor and review population projections, land use assumptions, traffic volumes etc approximately every 5 years. | - | NCC |
| **After 2036** | | |
| **Other** | | |
| Monitor and review population projections, land use assumptions, traffic volumes etc approximately every 5 years. | - | NCC |
| **Roading** | | |
| If required, progress implementation of Peak Hour Clearways or the Southern Arterial. | $22.0M/$31.3M[28] | NZTA / NCC |

In addition to the projects and measures outlined above, Nelson City Council and NZTA are considering other projects which affect or compliment the projects identified above within the study area in the next 25 years. For completeness, these items are outlined below:

- *Undertake improvements at the Annesbrook Drive / Parkers Road intersection*
- *Undertake improvements at the Tahunanui Drive / Muritai Street intersection*
- *Install a cycle link between The Ridgeway and the Bishopdale shared path*
- *Install cycle lanes on St Vincent Street*
- *Install cycle link between Rocks Road and Whakatu Drive / Stoke Railway Reserve cycleways*
- *Improve cycle linkages between Rocks Road and CBD*
- *Undertake access improvements on the Victory to Bishopdale shared path*
- *Install additional pedestrian crossing facilities where necessary and practical on SH6 and Waimea Road*

From a transport funding and state highway perspective, NZTA is clearly a major player in Nelson's arterial transport system and its further development, and it is important that the City Council continues to work closely with NZTA. Similarly, the study has demonstrated the interdependence of the two urban areas of Nelson and Richmond, and the importance in economic terms of the productivity, accessibility and vitality of the hinterland of the two areas. The arterial road system has an important function in terms of this interdependence. Thus it is also considered important that Nelson City continues to interrelate closely with Tasman District in terms of the management of transport services and land use.

The individual elements in the table above will need to be investigated in accordance with NZTA and/or NCC policies and procedures and those of significant expenditure will need to be progressed through the Regional and National Land Transport Plan processes, where appropriate, before implementation.

It is also noted that the Regional Policy Statement, the Regional Land Transport Strategy, the Resource Management Plan and the Long Term Council Community Plan will need to be amended should Nelson City Council adopt the recommendations from this study.

[27] From Appendix A to the Regional Land Transport Strategy
[28] These prices exclude the cost of those intersection improvements already undertaken, as well as the cost of the walkway / cycleway for Option A.

# Appendix A: MCA Process - Pre-circulated Background Notes

# NELSON ARTERIAL TRANSPORT STUDY

MCA WORKSHOP
29/10/2010

## CRITERIA

1. **Impacts on cultural and heritage values.** This is defined to include direct impacts on protected items such as trees, buildings and historic sites, along with other physical effects on valued characteristics such as the inherited pattern of streets and open spaces. It also includes less tangible cultural and spiritual values such as effects on any waahi tapu or other values of tangata whenua, and any effects on other cultural sites which may not be historic sites.

2. **Impacts on the natural environment.** This is defined to include general effects on air quality (including particulates and greenhouse gases), water quality (including coastal water), biodiversity values and an associated range of aspects of "naturalness" such as coastal naturalness, and effects on topography, natural landforms, landscapes and seascapes.

3. **Co-benefits.** This criterion provides the ability to take into account any positive contributions to the community that an option may yield, which are not directly associated with transport. Examples of co-benefits could be freeing up of land for other uses, health benefits, or opportunities for multiple use of road or transport facilities.

4. **Impacts on the city's future.** This criterion provides a measure of the extent to which an option contributes to or detracts from the achievement of known policies and plans. It applies to the community as a whole, and involves an analysis of all relevant documents. This will include consideration of areas and facilities which have specific policy recognition such as the port, the airport and the central city. It will also take into account spatial variability and inequalities in levels of service.

5-7. **Impacts on communities.** These are assessed as three separate criteria, which will take into account the presence of geographically identifiable communities, and those in the community with specific needs such as the transport disadvantaged. It covers issues not covered under other criteria. These criteria will be assessed on the basis of the following:

   - physical effects on communities – for example, effects of changes in air quality, noise and physical safety (including safety of road users) on the community;

   - social effects on communities – assessment of concepts such as severance/social cohesion, convenience/loss of access, freedom of movement, amenity values (including

   - effects on open space and recreation) and security, as well as direct effects on community land uses such as schools and meeting venues;

   - economic effects – potential effects on local businesses (such as their development and promotion, local employment, and business convenience).

8. **Robustness/Future-proofing.** This criterion identifies and assesses how well an option will perform if the medium to long-term assumptions turn out to be incorrect due to changes in

demand and/or transport types. It requires consideration of the implications of the physical changes involved (for example to a road corridor), if demand either does not eventuate, or exceeds that predicted, in the medium or long-term. Can the option be scaled up or scaled down in the future? In broad terms, it involves the consideration of physical and economic sustainability and the needs of future generations in a situation where the future is uncertain.

9. **Degree of Difficulty** – this criterion introduces the concept of practicability in terms of achieving an option. It takes into account aspects such as technical ability to undertake the option, affordability, any legislative issues, consentability and complexity.

10. **Economic Efficiency/Benefit-cost ratio.** This criterion applies NZTA's Economic Evaluation procedures to determine the economic efficiency of each option (which recognises, for example, costs associated with travel time, vehicle operation, road safety, and trip time reliability).

# NELSON ARTERIAL TRANSPORT STUDY

## MCA WORKSHOP

## 29/10/2010

## SCORING

| | |
|---|---|
| 1 | Very low negative impacts or degree of difficulty, and/or very high benefits, in terms of the criterion. |
| 2 | Minor negative impacts or degree of difficulty, and/or high benefits, in terms of the criterion. |
| 3 | Moderate negative impacts or degree of difficulty, and/or moderate benefits, in terms of the criterion. |
| 4 | High negative impacts or degree of difficulty, and/or minor benefits, in terms of the criterion. |
| 5 | Very high negative impacts or degree of difficulty, and/or nil or very low benefits, in terms of the criterion. |

# NELSON ARTERIAL TRANSPORT STUDY

MCA WORKSHOP
PARTICIPANT NOTESHEET

**29 October 2010**

| Attribute | Option A: Part-Time Clearways | Option B: Southern Arterial | Option H: SH6 Four-Laning | Option I: Waimea/Rutherford Four-Laning | Do - Minimum Option |
|---|---|---|---|---|---|
| **Impacts on Cultural/Heritage Values** | | | | | |
| **Impacts on Natural Environment** | | | | | |
| **Co-Benefits** | | | | | |
| **City Future** | | | | | |

| Attribute | Option A: Part-Time Clearways | Option B: Southern Arterial | Option H: SH6 Four-Laning | Option I: Waimea/Rutherford Four-Laning | Do - Minimum Option |
|---|---|---|---|---|---|
| **Community Impacts – Physical** | | | | | |
| **Community Impacts – Social** | | | | | |
| **Community Impacts – Economic** | | | | | |
| **Effectiveness (Robustness/ Future-proofing)** | | | | | |
| **Degree of Difficulty** | | | | | |
| **Economic Efficiency** | | | | | |

# Appendix B: MCA Process - List of Workshop Participants

Andrew James

Alan Nicholson

Chris Ward

David Jackson (not part of Decision Team on second day)

Di Buchan

Gary Clark (absent on second day)

Les Milligan (not part of Decision Making Team)

Martin Workman (absent on first day)

Phil Peet

Selwyn Blackmore (absent on second day)

Sylvia Allan

# Appendix C: MCA Workshop Presentation

# NELSON ARTERIAL TRANSPORT STUDY

MCA WORKSHOP

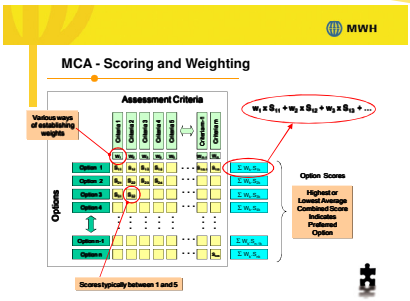
29/10/2010

MWH

## PURPOSE OF DAY

- Reduce 4 Options down to one preferred option
- Carefully consider relevant information obtained to date
- Apply MCA process in structured, defensible manner
- Keep notes of key points

## MCA PROCESS




## PROCESS TO DATE

- Identified and understood our 4 Options (Phil to recap) + do minimum option
- Identified and scoped our 10 criteria (opportunity to refine further now and/or as we go)
- Decided on our scoring system (1 = Good, 5 = Bad)
- Decided on our weighting system (review later in Workshop)

## PROCESS TO DATE

- Identified and understood our 4 Options (Phil to recap) + do minimum option
- Identified and scoped our 10 criteria (opportunity to refine further now and/or as we go)
- Decided on our scoring system (1 = Good, 5 = Bad)
- Decided on our weighting system (review later in Workshop)

## WORKSHOP PROCESS

- Model is:

Presentation by Nominated Person
⬇
Discussion/questions (general)
⬇
Discussion/scoring

- We will work towards consensus in scoring if possible
- Scores = raw data for further analysis
- If there are strongly-held different views, they will be recorded and used in sensitivity analysis
- Key points leading to scores to be recorded

## WORKSHOP PROCESS cont....

- Decisions to be made now:
  - All discussion now then scoring; group attributes and score; or one by one?
  - Any obvious changes to any attributes?
  - Order of attributes?
- Later:
  - Opportunity to quickly review scores
  - Review of weighting

## APPLYING SCORES

- Basically 1 = Good, 5 = Bad
- Each option must be scored for each attribute
- Can't use "0" or NA, as it would have a positive implication
- Don't need to use all scores in range for any (or all) attributes

# Appendix D: City Future Presentation

## NELSON ARTERIAL TRANSPORT STUDY

MCA WORKSHOP

29/10/2010

## "CITY FUTURE" ASSESSMENT

- How an option contributes to or detracts from achievement of known policies and plans
- Applies to community as a whole
- Includes recognition of areas of value (e.g. port, airport, city centre)
- Recognition of different expectations for the future of different areas (e.g. zoning of areas for different uses)
- Recognition of different LOS for different areas (e.g. residential areas different LOS cf industry and commerce, or schools).

## REVIEW OF KEY POLICY DOCUMENTS

- Regional Policy Statement
- Resource Management Plan
- Land Transport Strategy
- Nelson LTCCP (Community Plan)
- Heart of Nelson – Central City Strategy
- Tahunanui Structure Plan
- Pedestrian Strategy
- Cycling Strategy

## OVERALL POLICY DIRECTIONS (GENERALISED)

- Promoting a functioning, "well endowed", community
- Strong recognition of natural environment
- Efficient and effective transport system well-tied into national networks (road, port, air)
- A land transport system that avoids, mitigates and remedies adverse effects on people (human health and safety) and on natural and physical resources
- A transport system integrated with land use futures – avoiding sprawl, encouraging compactness, makes "best use" of resources

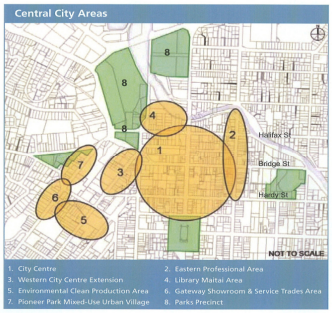
…continued following page

## OVERALL POLICY DIRECTIONS (GENERALISED) continued

….continued from previous page

- A land transport system that reduces resource waste
- Recognition of freight needs, connections to economic future
- Transport policy very strong on walking, cycling networks, public transport
- "City Heart" strategy – also very strong (integrated environmental/economic growth focus)

## "CITY HEART" STRATEGY



## "CITY HEART" STRATEGY

- Land use intentions approximately in line with Resource Management Plan
- Enhancement of central city, building on existing strengths
- Assumes intensification/residential component
- Needs good accessibility to/from rest of city (road, cycle, walking), but discourages through traffic
- Enhanced public transport
- Rationalise/manage parking
- Seeks improved internal connectivity east-west (esp. vehicles and cycles)
- Seeks improved connectivity to river and sea

## OPTION A: PART-TIME CLEARWAYS

- Generally in line with policies for efficient resource use (land and existing roads)
- Continues patterns of access to port, airport
- Because of integrated cycleway/pedestrian provision, meets other transport policy
- Safety?
- Enables central city enhancement as proposed
- Continued peak hour Tahunanui issues (need to implement structure plan)

## OPTION B: SOUTHERN ARTERIAL

- Less aligned with policies for efficient resource use
- Access to port potentially improved (2 routes); airport, no change
- Introduces transport-related adverse effects into a residential/community area (including schools)
- Traffic shared on two near and inner-city arterials (Rutherford/St Vincent Sts) – beneficial for schools, hospitals
- Reduces opportunity for frontage access along St Vincent St and intended direction of central city growth
- Potentially remedies current and future adverse traffic effects on current SH6

## OPTION H: SH6 FOUR-LANING

- Generally in line with policies for efficient resource use (land and existing roads), but adverse effects significantly greater than Option A
- Continues patterns of access to port, airport
- Meets other transport policy (cycleway, pedestrian) although crossings probably more difficult
- Fewer potential safety issues than Option A (?)
- Enables central city enhancement as planned
- Adverse effects on Tahunanui Drive would require reconsideration of structure plan

## OPTION I: WAIMEA/RUTHERFORD ST FOUR-LANING

- Generally in line with policies for efficient resource use (land and existing roads), but adverse effects significantly greater than Option A
- Continues patterns of access to port, airport
- Meets other transport policy (cycleway, pedestrian) although crossings probably more difficult; greater issues than Option H because of schools, hospital, central city environment
- Potential safety issues greater than for Option H because development on both sides, plus more pedestrians in central city
- Disruptive in terms of central city enhancement; some benefits for Tahunanui

# Appendix E: Community Impacts – Social Presentation

## Social impacts of Nelson Arterial Traffic options for MCA workshop

1

### Option A: Negative effects Tahunanui / RR

- Increased severance and reduction in pedestrian safety (currently and issue due to lack of safe crossing places)
- Continuation of dangerous cycling conditions on Tahunanui Drive – already too dangerous for all but experienced cyclists
- Reduction of on-road parking at peaks and potentially longer period – impede use of facilities and commercial operations and visitor parking for residents on TD
- RR residents, no on-road parking during peaks and potentially longer period. Parking nearby difficult to find.

2

### Option A: Negative effects Tahunanui / RR

- RR residents, more difficult access from properties (currently use parking spaces and shoulders to reverse)
- More difficult access to local businesses in TD – presently roadside parking limited, some people find Bisley parking space difficult to access
- No reduction in noise and traffic fumes for TD or RR. Raised by the school as an issue

3

### Option A: Negative effects Tahunanui / RR

- Potentially compromises development of RR as waterfront visitor destination/ regional recreation facility
- Continuing uncertainty: clearways widely seen as a temporary solution with permanent 3-lanes the long-term solution
- Construction effects: noise, dust, vibration, restricted access to properties, delays to motorists. More traffic on RR during Waimea roadworks.

4

### Option A: Negative effects Waimea Rd/ Rutherford St

- Increased severance and reduced safety for pedestrians – 2,300 students at the 3 schools, hospital, health services
- Increased delay at intersections for motorists – right turns more difficult
- Reduced on-road parking at peaks – small number of retail outlets other
- Possible increase in heavy traffic
- Uncertainty
- Construction effects as for TD and RR. More traffic on Waimea and Rutherford during RR roadworks.

5

### Negative effects Victory

- Fire Service and St John Ambulance will continue to have less efficient route to Tasman in case of emergencies

6

## Option A: Positive effects Tahunanui/ RR

- No property needs to be purchased (unless off-road parking areas created)
- Improvement to bus services (particularly beneficial to Tahunanui which is low-income area)
- Increased roadside parking available in off-peak period when most facilities and services on TD and RR being used
- Opportunity to improve access from side streets and properties through light-controlled crossings and intersections

7

## Option A: Positive effects Tahunanui/ RR

- Improved safety for walkers and cyclists along RR leading to reduction in commuter traffic – for students, workers and general recreation – council policy is to encourage this
- Increased opportunity to benefit from the Tasman Cycle Trail – improved cycle facility along RR to CBD would contribute to safe, pleasant continuous cycle link
- Possible reduction in traffic on RR and TD if TDM measures effective

8

## Option A: Positive effects Waimea Rd/ Rutherford St.

- No property purchase required
- Increased roadside parking in off-peaks
- Improved bus services – will particularly benefit hospital staff and visitors and clients of other medical services
- Improved access from side streets and roadside properties if more traffic lights installed
- Possible cycleway on Waimea/Rutherford – altho' on-road
- Possible reduction in traffic if TDM measures effective

9

## Option A: Positive effects Victory

- Increase in property values – currently suppressed by threat of Southern Arterial
- Quality extension from the proposed Rail Trail in Tasman to the Nelson CBD
- Opportunity to further develop area as a model community
- Alleviation of community stress with decision finally made

10

## Option B: Negative effects, Victory

- Loss of amenity for cyclists and pedestrians on Railway Reserve – currently used by commuters & pupils to Nelson Intermediate, Victory Primary and recreation
- Less amenity on rail reserve to attract cyclists from proposed Richmond Cycle Trail
- increased danger for pedestrians and cyclists in St Vincent St – area with highest concentration of children
- Reduced air quality – particular concern for schools, kindergarten and day-care centre

11

## Option B: Negative effects Victory

- Reduced amenity for houses at southern end of route – arterial traffic on both sides of properties
- Induced traffic noise for residents, schools and community facilities particularly those adjoining Rail Reserve
- Reduced amenity in Toi Toi shopping area and Victory Square – especially if heavy traffic uses this route
- Reduction in property values – this area high in first home buyers and families on low incomes

12

## Option B: Negative effects Victory

- Renters wanting to escape may find difficulty getting comparable, alternative accommodation
- Reduced incentive to use public transport and adopt TDM measures could undermine service
- Construction effects – noise, dust, vibration, restricted access to properties, services, facilities

13

## Option B: Negative effect Auckland Point School

- Increase in heavy traffic past Auckland Point School if heavy traffic to port uses this route

14

## Option B: Negative effects on TD/RR

- Possible increase in number of cars on RR if becomes free of heavy traffic
- Cars may travel faster on TD/RR – more difficult to cross, increased severance
- No improvement in cycling and pedestrian facilities on RR

15

## Option B: Positive effects TD/RR

- Opportunity to enhance cultural, social and recreational attributes of Wakefield Quay and waterfront
- Increased property values along RR if traffic reduced
- Smaller reduction in traffic on TD/RR (motorists choosing scenic route, heavy traffic preferring more direct route to port)
- Possible removal of heavy traffic from TD and RR – reduction in noise and fumes – would particularly benefit Tahunanui Primary school

16

## Option B: Positive effects Waimea/Rutherford

- Reduction in traffic levels on Waimea Road, Rutherford Street – improved environment for schools and health services
- Increased traffic speed - more difficult to cross = increased severance
- Improved bus services and TDM could also reduce traffic
- Improved bus services would benefit hospital staff and visitors

17

## Option B: Positive effects Victory

- Improved bus services, but limited uptake could undermine – improved services particularly beneficial for low-income households
- Cycle-lane constructed on St Vincent Street (albeit on-road)
- Creation of a direct, more efficient route for Nelson Fire Service and St John Ambulance to Stoke and Tasman in case of emergency

18

## Option H: Negative impacts Tahunanui / RR

- Significant property purchase – residential and commercial along TD and north end of Annesbrook Dr incl. at least 20 homes
- Renters will not receive compensation – may have difficulty finding comparable, affordable rental
- Significant reduction in amenity for remaining home owners – proximity to traffic, loss of vegetation – no compensation, lower property values
- Loss of Suburban Club & Nightingale Library

19

## Option H: Negative effects Tahunanui / RR

- Removal of shops and facilities south of Bisley Ave – compromise achievement of town centre vision
- Traffic closer to classrooms at Tahunanui School
- Removal of buildings on seaward side of RR & reduction of Wakefield Quay development area
- Permanent access difficulties for residents on RR (as per permanent clearways)
- Increased physical and social severance esp. on TD for residents accessing facilities, services and neighbours

20

## Option H: Negative effects TD/RR

- No reduction in traffic effects on TD and RR – in fact likely to increase due to increased capacity
- Faster traffic speeds – more difficult to cross = increased severance. Raised median strip could address this by providing a pedestrian refuge
- Reduced effectiveness of measures to encourage modal shift (bus, walking, cycling)
- Construction impacts – more severe and longer duration

21

## Option H: Negative impacts Waimea Road/ Rutherford St

- Increased traffic during construction period including heavy traffic – increased danger and severance and pollution

22

## Option H: Negative effects Victory

- Fire Service and St John Ambulance will continue to have less efficient route to Tasman in case of emergencies

23

## Option H: Positive effects: TD/RR & Waimea

- Improvement to bus services (particularly beneficial to Tahunanui which is low-income area, hospital patients and schools)
- Opportunity to improve access from side streets and properties through light-controlled crossings and intersections
- Improved safety for walkers and cyclists along RR leading to reduction in commuter traffic – for students, workers and general recreation – council policy is to encourage this
- Increased opportunity to benefit from the Tasman Cycle Trail – improved cycle facility along RR to CBD would contribute to safe, pleasant continuous cycle link
- Possible reduction in traffic on Waimea Rd

24

## Option H: Positive effects Victory

- Increase in property values – currently suppressed by threat of Southern Arterial
- Quality extension from the proposed Rail Trail in Tasman to the Nelson CBD
- Opportunity to further develop area as a model community
- Alleviation of community stress with decision finally made

25

## Option I: Negative effects TD/RR

- Increased traffic during construction period (avoiding Waimea Road)
- No reduction in heavy traffic

26

## Option I: Negative effects Waimea Rd/ Rutherford St

- Property purchase – about 50 homes between Beatson Rd and hospital, & buildings (homes, commercial premises, community services and facilities) between Hampton and Halifax Sts would be removed or significantly compromised
- Loss of residential amenity for remaining homes – proximity of traffic, removal of vegetation
- Disruption to Bronte community – due to number of households relocated
- Removal of some health services, road closer to health administration in Braemar buildings

27

## Option I: Negative effects Waimea Rd/ Rutherford St

- Road closer to Hampden St School and Nelson College, removal of vegetative buffer
- Removal of swimming pool & playing courts at Nelson Girls
- Road would be much closer to Nelson College- increased noise and fumes
- Loss of small retail outlets

28

## Option I: Negative effects Waimea Rd/ Rutherford St

- Motels between Hampton and Bronte St would lose front buildings and road closer to remaining accommodation
- Faster traffic speeds – more difficult to cross = increased severance. Raised median strip could address this by providing a pedestrian refuge
- Adverse impact on viability of alternative transport modes

29

## Option I: Negative impacts Victory

- Fire Service and St John Ambulance will continue to have less efficient route to Tasman in case of emergencies

30

## Option I: Positive effect TD/RR

- Possible reduction in traffic – likely to be limited given driver preference for scenic route and heavy traffic preferring RR

31

## Option I: Positive Effects Waimea Rd/ Rutherford

- Provision of cycle lanes – albeit on-road, not safe for children
- Improved bus services

32

## Option I: Positive effects Victory

- Increase in property values – currently suppressed by threat of Southern Arterial
- Quality extension from the proposed Rail Trail in Tasman to the Nelson CBD
- Opportunity to further develop area as a model community
- Alleviation of community stress with decision finally made

33

# Appendix F: Community Impacts - Economic Presentation

## Nelson Arterial Transport Study:
### Impacts on Community ~ Economic

**Alan Nicholson**
Department of Civil & Natural Resources Engineering
University of Canterbury

## Community and Port

The 'community' should be the Nelson/Tasman Region.

Nelson & Tasman economies are very closely linked:

- 31% of regional GDP directly from horticulture, forestry, seafood, farming & tourism;
- additional indirect contribution from industries servicing these top five industries;
- 30% of regional GDP from bulk commodity exports;
- complete reliance on road transport;
- commodity exports via port account for >60% of road freight;
- commodity imports via port as well;
- port & roads to/from port (especially from/to Tasman District) have an absolutely crucial role;
- beware of increasing road freight transport costs.

## Wealth Transfers

Economic impacts of options will vary between parts of the community:

- differential impacts (winners and losers);
- transfers of wealth ~ often excluded from consideration;
- both regional & differential impacts important in democracy;
- equity is an important issue.

Some businesses rely on kerb-side parking:

- should an option be rejected or 'marked down' because of a need to remove kerb-side parking;
- should the community subsidise businesses which rely on kerb-side parking;
  - if they close, other businesses would benefit.

## Encouraging Stagnation

Some businesses have conflicting desires:

- they want to be alongside busy roads to maximise 'passing trade';
- some of their customers want a quite environment (i.e. traffic-related noise and pollution undesirable);
- some businesses can and will adapt (e.g. installing sound-proofing, re-locating);
- should those that can't or won't adapt be given special consideration (effectively be subsidised)?
- should 'stagnation' be encouraged?

Business/house/land value increases along one road might be at expense of lower business/house/land value increases elsewhere.

# Appendix G: Robustness/Future Proofing Presentation

## Nelson ATS – MCA Workshop. Criterion 8

## Robustness / Future-proofing

## Criterion 8 Robustness / Future-proofing

To consider:-

- Physical and economic sustainability
- Needs of future generations
- How well the options perform if assumptions prove to be wrong

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**Statements to consider**:-

- How certain are we that population growth won't increase faster than modelled?
- How will peak oil affect transport and the local economy (refer The next oil shock Parliamentary research paper, Oct 2010)?
- Will peak oil influence air quality concerns on the options?
- Will it be politically acceptable and affordable to stimulate mode shift **significantly** through parking charges and provision of quality PT? In reality how effective can TDM measures really be in the future?
- Will it be politically acceptable to strengthen the urban boundaries and effect increased urban density to a significant level?
- What weight do we put on the impacts of climate change, in particular in this case, sea level rise?
- Is it politically and economically realistic to justify rates funding in the medium to long term
- Is it politically and economically realistic to justify government (NZTA) funding in the medium to long term

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## Transport 101

- That it is impossible to predict with accuracy the nature of cities 50 years into the future
- That streets and movement corridors last a long time
- That the quality of movement corridors deteriorate without positive strategic support
- We can help Nelson's future generations by avoiding situations that are difficult to adapt
- Optimum transport networks don't constrain cities economic competitiveness

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# Appendix H: Degree of Difficulty/Economic Analysis Presentation

Nelson Arterial Traffic Study

Degree of Difficulty
and
Economic Impacts

Multi-Criteria Analysis Workshop

## Degree of Difficulty

- Technical Complexity
- Affordability
- Legislative Issues
- Consentability

## Technical Complexity

- Option A: Peak Hour Clearways
  - Serious: Cantilever footway/cycleway
  - Minor: Intersection upgrades
  - Minor: Manoeuvrability at driveways along waterfront
  - Minor: Pinch points along waterfront
  - Minor: Pinch point at sports field at top of Waimea Road
- Option B: Southern Arterial
  - Minor: Intersection upgrades
  - Minor: Grade separation of peds / cyclists at Jenner St and at southern roundabout

## Technical Complexity

- Option H: SH6 Four Laning
  - Serious: New seawall and widening around waterfront
  - Minor: Intersection upgrades
  - Minor: Widened bridges and culverts
  - Minor: Demolition of buildings
- Option I: Waimea / Rutherford Four Laning
  - Minor: Intersection upgrades
  - Minor: Widened bridges and culverts
  - Minor: Demolition of buildings

## Affordability

- Option A $25M
- Option B $32M
- Option H $100M
- Option I $55M

- NZTA current funding environment and RONS
- $50M local share would require 8.3% increase in annual property rates for decades

## Legislative Issues

- Option A
  - Designation may need to be altered as some extension out of road corridor
  - Resource consents needed as widening into coastal marine area
  - Building consent needed incl. historic fence which does not comply with building codes for fall protection
  - Little land purchase needed so Public Works Act may not need to be enacted
  - Historic Places Trust approval needed

## Legislative Issues

- Option B
  - Designation needed, although already signalled in District Plan
  - Resource consents needed
  - Little land purchase needed so Public Works Act may not need to be enacted
  - Historic Places Trust approval probably not needed

## Legislative Issues

- Option H
  - Alteration to designation needed
  - Resource consent needed incl for widening into coastal marine area
  - Building consent needed incl. seawall
  - Large number of properties need to be purchased so Public Works Act very likely to be enacted
  - Historic Places Trust approval will be required

## Legislative Issues

- Option I
  - Alteration to designation needed
  - Resource consent needed incl. for widening culverts
  - Large number of properties need to be purchased so Public Works Act very likely to be enacted
  - Historic Places Trust approval will be required

## Consentability

- All options likely to go to Environment Court
- Differing levels of risk of approval

- Consentability related to all other criteria, so currently few aspects and more to be added during workshop

## Consentability

- Option A
  - Cantilever structure in coastal marine area
  - Historic Places Trust approval for fence and seawall

## Consentability

- Option B
  - Previous designation for Southern Link turned down due to aspects of, inter alia, air quality and severance

## Consentability

- Option H
  - Widening into coastal marine area
  - Historic Places Trust approval needed
  - Severance
  - Significant impacts on landowners may not be justified by benefits for traffic

## Consentability

- Option I
  - Severance
  - Significant impacts on landowners may not be justified by benefits for traffic

## Economic Efficiency

- Option A <0
- Option B 1.3
- Option H <0
- Option I 0.2

# Appendix I: Alternative Weighting Schemes

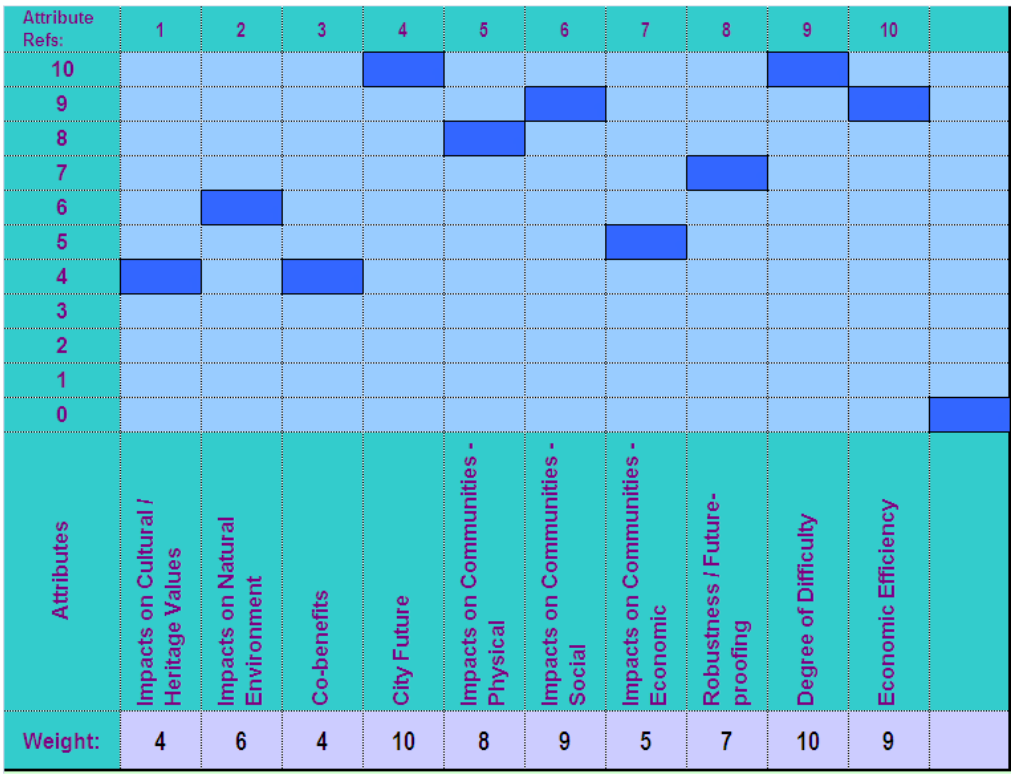


**Figure AI-1. Base Weightings**

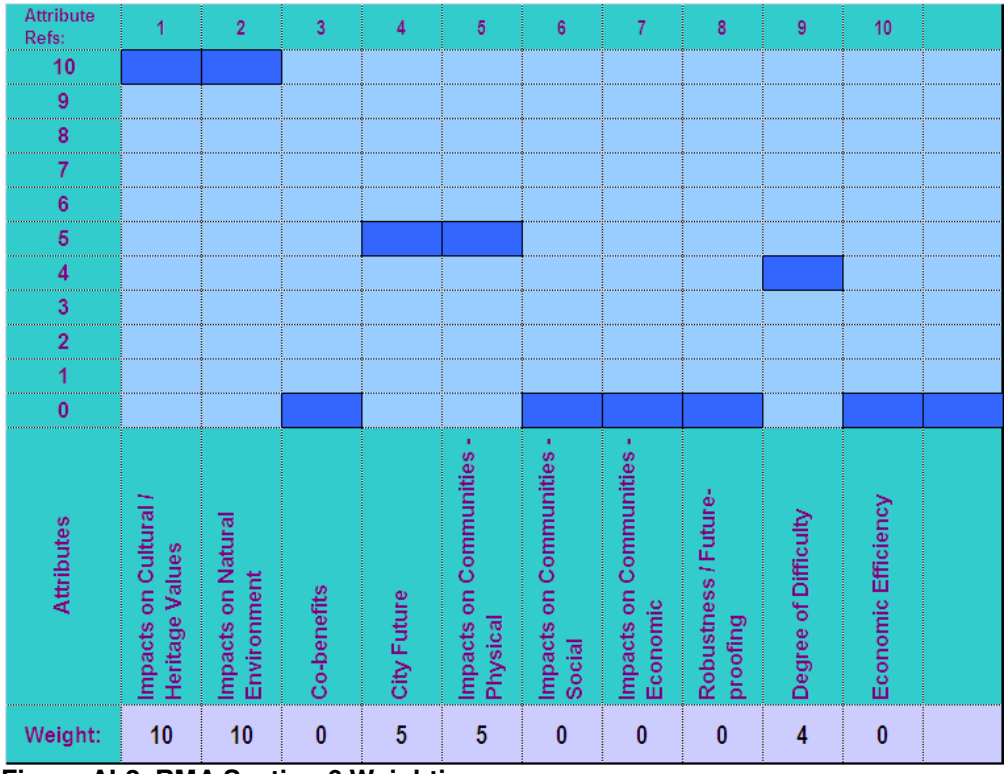


**Figure AI-2. RMA Section 6 Weightings**

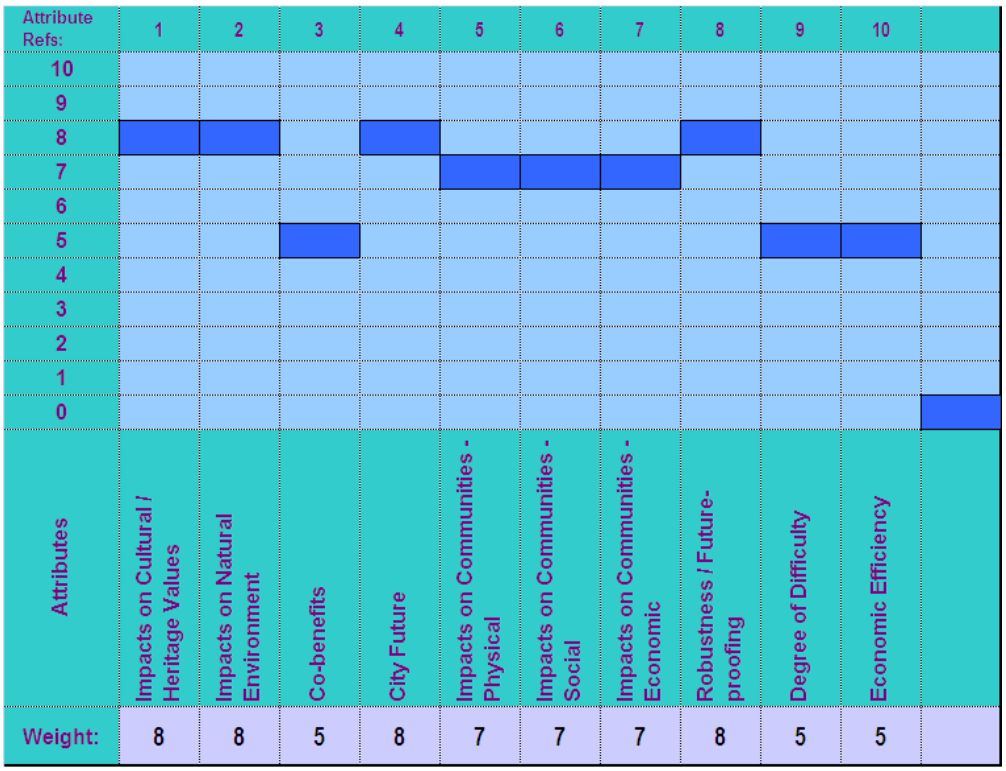


**Figure AI-3. RMA Part 2 Weightings**

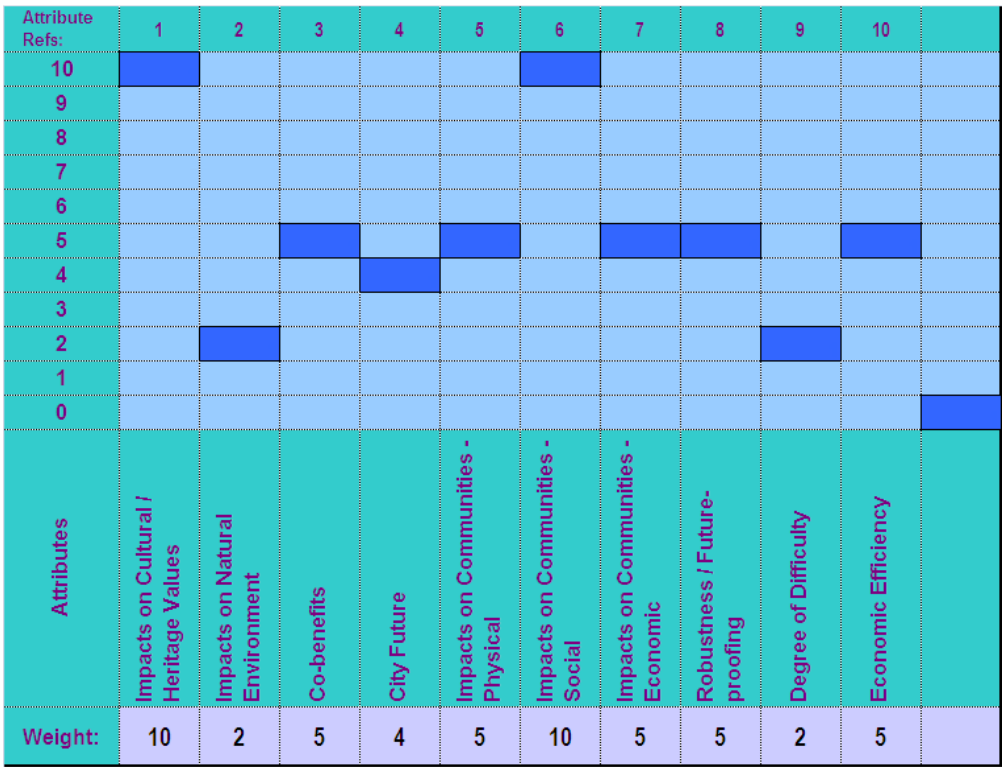


**Figure AI-4. Social Weightings**

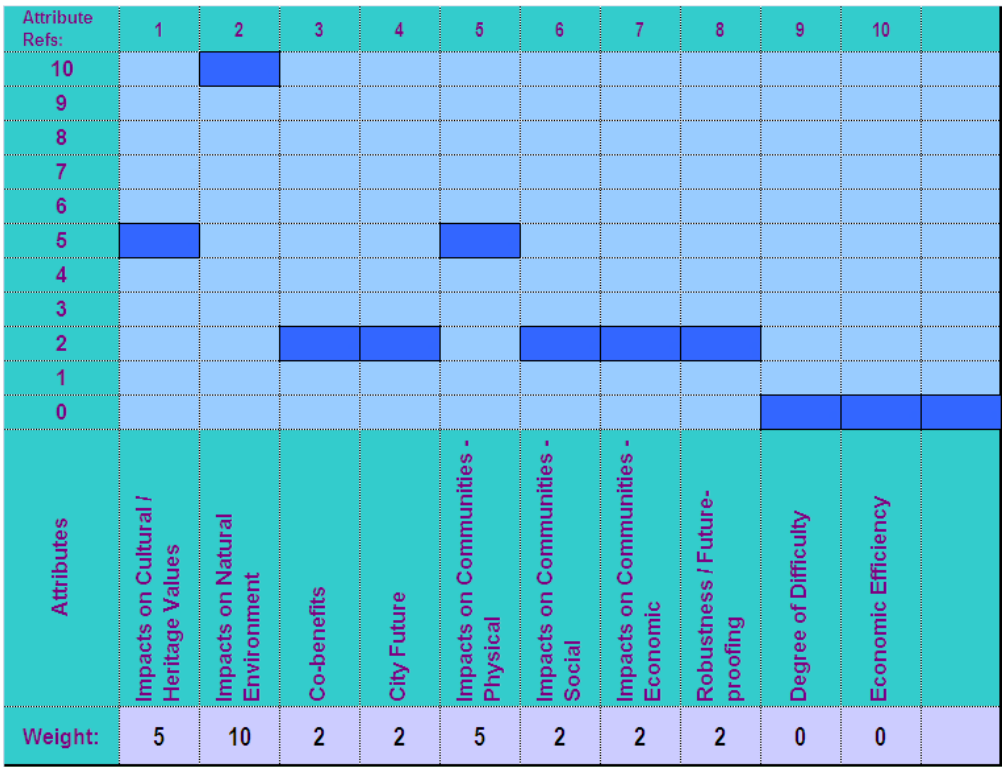


**Figure AI-5. Environmental Weightings**

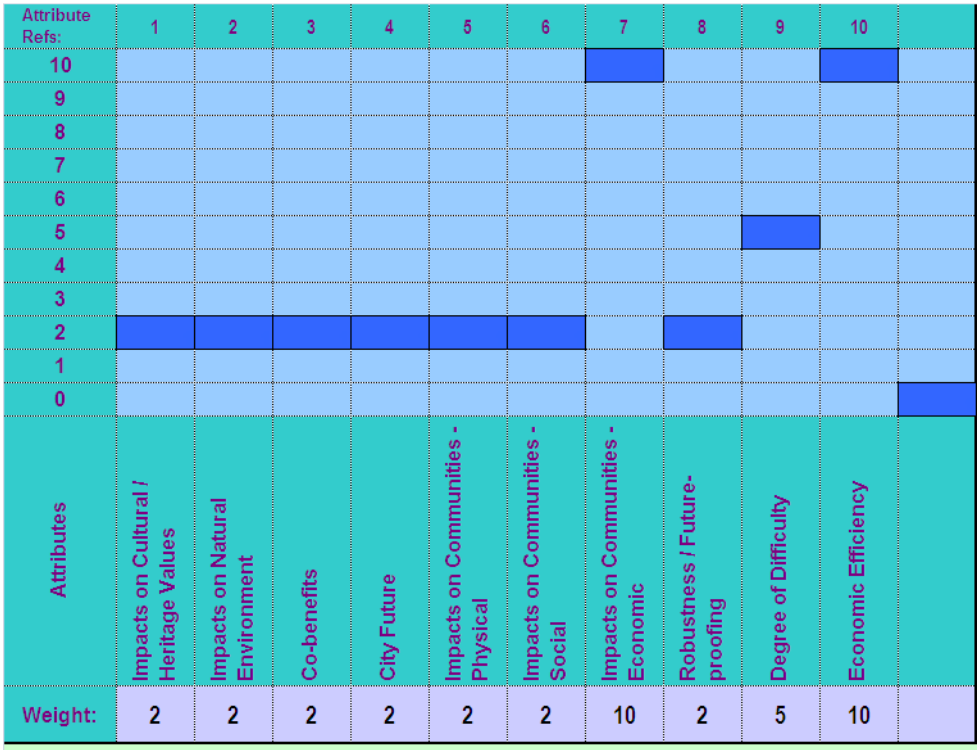


**Figure AI-6. Economic Weightings**

# Appendix J: NCC Funding Memo

File Ref: 963565

When calling
please ask for:
Direct Dial Phone:
Email: andrew.james@ncc.govt.nz

17 August 2010

Memo To: Attendees at Key Stakeholder Workshop

Memo From: Andrew James, NCC Transport Manager

**Subject: ARTERIAL TRAFFIC STUDY - BRIEFING NOTES FROM A. JAMES PRESENTATION TO 11/8/10 COMMUNITY WORKSHOP**

Please find below key points from my presentation.

1. The Government Policy Statement (GPS) identifies how transport infrastructure funding is allocated by the New Zealand Transport Agency (NZTA). Government issues a GPS every three years, with the next scheduled for release by 1 July 2012. NZTA is required to 'give effect' to the GPS, and Regional Land Transport Programmes are required to 'be consistent with' it. Selwyn Blackmore (NZTA representative on the Decision Making Team) advises that generally, the GPS directs and prioritises funding to those activities that are most effective in supporting economic growth and productivity. Specific rules are identified in the NZTA's Planning, Programming and Funding Manual (PPFM).

   Some 88% of passenger transport funding is allocated to Auckland, Wellington and Christchurch, and the PT activity class that covers both capital and operational expenditure remains heavily over-subscribed. All indicators suggest this will happen again for the next NLTP. This is the reason why Council was not able to expand its passenger transport service to the transitional service budgeted in 2010-2012.

2. Effectively, the bar for projects to be eligible for funding has risen as a large proportion of the national ('N') fund is being utilised for the seven roads of Roads of National Significance (RoNS). A rough and ready interpretation for walking and cycling projects is that funding will only be forthcoming where congestion can be reduced, significant safety issues / risks.

3. Funding for State Highway infrastructure does not generally require a local authority contribution.

4. Funding for Nelson's local authority infrastructure attracts a contribution from NZTA subject to the PPFM rules. For the major activities, where approved:

   - maintenance is funded at 43%,
   - capital at 53%,
   - safety programmes at 75% (under review),
   - passenger transport and total mobility at 50%,

5. Indications from NZTA at this time are that the next GPS (identifying funding priorities from July 2012) will not alter its view on passenger transport funding.

6. NCC is required to adopt a Regional Public Transport Plan by the end of 2011 which is to include a farebox recovery policy which aims for a 50% cost recovery, or provide extensive justification if a lesser amount is proposed as a long term target.

7. The funding criteria for Travel Demand Management initiatives are currently under review. It is unlikely that Nelson would be eligible for funding under this activity should it remain.

8. A change in the rules around the regional ('R') fund has been introduced by the new Government. This change requires that the 'R' fund be used ahead of 'N' funding for all proposed improvement activities in the region. To date $5M of the regional $23M 'R' fund has been allocated to state highway projects in the National Land Transport Programme. The remainder has yet to be allocated but needs to be committed by June 2015 (consents approved and construction contracts tendered). Any remaining 'R' funds will be absorbed into the 'N' fund and will become nationally prioritised. The 'R' funds do not belong to the Council, and will only be allocated to projects that meet current NZTA requirements

9. A key factor in prioritising funding is the economic efficiency of projects. The benefit cost ratio (BCR) provides a basis to determine this as follows:-

    a. BCR $\geq$ 4 is High

    b. BCR $\geq$ 2 and < 4 is Medium

    c. BCR < 2 is Low

    In 2006 The Nelson to Brightwater Corridor Study determined the BCR of the Southern Corridor Local Arterial Road (SCLAR) as 3.7. This is likely to reduce considerably in light of the updated transport model.