

Appendix E: Workshop Presentations

WHAT WILL THE FUTURE BRING?

- Basis for the transport modeling for this study
- Key considerations - future population
 - future landuse
 - future employment
 - future education
 - future freight
 - modal split
- How big an area?

NELSON/RICHMOND AREA



NELSON/RICHMOND PLANNING

- Two local authorities – one housing and employment market, one economy
- In 1990s, significant urban growth in Richmond, Nelson BAU
- In 1990s, RMA not seen as having a planning function, so little/no strategic planning undertaken

NELSON/RICHMOND PLANNING

- LGA 2002, LTMA 2003
- In early 2000s, recognition of shortage of housing land; severe shortage of industrial land
- Coastal Tasman Study, Richmond Growth Study
- Nelson Urban Growth Strategy

CHARACTERISTICS OF NELSON/TASMAN POPULATION/ECONOMY

- Past high growth: currently static
- High migration in/out
- Low average income
- Economic activity/employment still dominated by rural production
- More older people, gap in 15-35 age group

BASIS FOR POPULATION PROJECTIONS

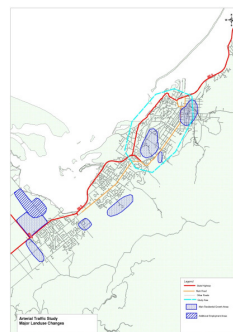
- Department of Statistics, Census Area Unit 5-yearly medium growth projection (2006 basis + migration, mortality assumptions)
- Adjustments made for known/anticipated future availability of housing (under-developed + new areas)
- Allocated to transport model areas (smaller than CAUs), taking into account capacity and likely staging.

BASIS FOR EMPLOYMENT PROJECTIONS

- Information/assumptions on land availability, employment “density” for different “industries” (Nelson/Tasman different circumstances)
- Assumptions on CBD, existing centres, growth
- Informed by a range of economic reports, including TDC Property Economics Model



AREAS OF MAJOR CHANGE



POPULATION ESTIMATES

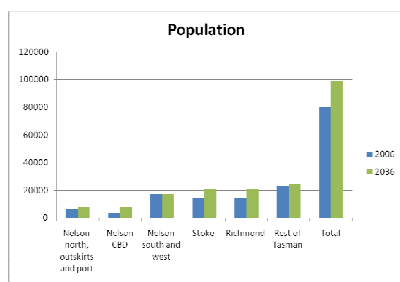


Figure 2-2: Population estimates used in current transport model



EMPLOYMENT ESTIMATES

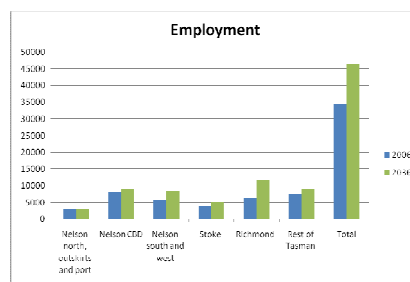


Figure 2-4: Employment estimates used in current transport model



TABLES OF CHANGE

Table A3: Population Changes from 2006 to 2036

Area	Persons			
	2006	2036	Increase	% Increase
Nelson north, outskirts and port (zones 479-528)	6587 (8%)	7871 (8%)	1184	18%
Nelson CBD (zones 1-160)	3879 (5%)	7606 (8%)	3727	96%
Nelson south and west (zones 161-304)	17319 (22%)	17437 (18%)	118	1%
Stoke (zones 305-400, 529-540, 625-632)	14055 (18%)	20586 (21%)	6531	46%
Richmond (zones 401-478, 541-579, 633)	14427 (18%)	20752 (21%)	6325	44%
Rest of Tasman (zones 580-624)	23499 (29%)	24627 (25%)	1128	5%
Total	79866	98879	19013	24%

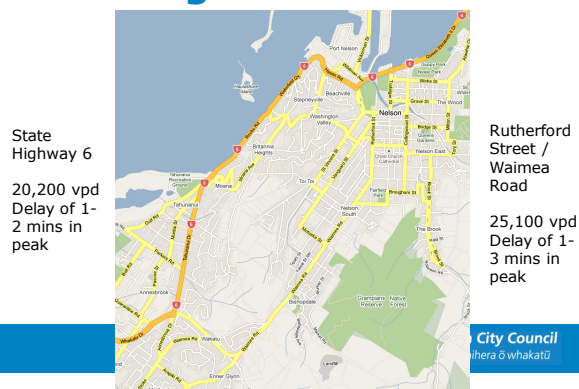
Table A5: Employment Changes from 2006 to 2036

Area	Jobs			
	2006	2036	Increase	% Increase
Nelson north, outskirts and port (zones 479-528)	2914 (6%)	2997 (6%)	83	3%
Nelson CBD (zones 1-160)	8162 (24%)	9116 (20%)	954	12%
Nelson south and west (zones 161-304)	5620 (16%)	8424 (18%)	2804	50%
Stoke (zones 305-400, 529-540, 625-632)	3972 (11%)	4994 (11%)	1022	26%
Richmond (zones 401-478, 541-579, 633)	6352 (18%)	11719 (25%)	5367	84%
Rest of Tasman (zones 580-624)	7552 (22%)	9147 (20%)	1595	21%
Total	34572	46397	11825	34%



ARTERIAL TRAFFIC TRENDS AND MODELLING OF FUTURE TRAFFIC DEMANDS

Existing Arterial Routes



Existing Arterial Routes

State Highway 6

- 2 lane, 2 way road
- Range of land uses
- 5.6km long
- 20,200 vpd
- c.0% growth last 10 yrs
- 1200 vph AM peak NBD
- 1100 vph PM peak SBD
- Delays of 1-2 mins in peak

Rutherford / Waimea

- 2 lane, 2 way road
- Range of land uses
- 6.3km long
- 25,100 vpd (Waimea Rd)
- c.0% growth last 10 yrs
- 1500 vph AM peak NBD
- 1700 vph PM peak SBD
- Delays of 1-3 mins in peak

Heavy Vehicle Movements

Road	Location	% HCV's	Daily Volume
Rocks Rd	South of Port	6%	1200
SH6	Hira	15%	400
SH6	Wairoa Bridge	19%	1500

Heavy Vehicle Movements

Rocks Road - 2006

	AM Peak (8am-9am)	Interpeak (12pm-1pm)	PM Peak (4pm-5pm)
Northbound	98	67	52
Southbound	70	70	85

Rutherford Street - 2006

	AM Peak (8am-9am)	Interpeak (12pm-1pm)	PM Peak (4pm-5pm)
Northbound	15	24	7
Southbound	14	29	8

Model overview

- Using TRACKS model, updated 2009
- 3 / 4 stage model, 3 periods
- Calibrated to 2006
- "Typical day" flows
- Trip Generation by Household
- Trip Distribution by HH and Employment allocations

Modelling Results

AM peak	2006	2036
Number of Trips (whole model)	37,000	46,000
Kilometres travelled (study area)	110,000	144,000
Average trip length (study area)	6.96	6.85
Mean speed - kph (study area)	45.7	44.4

Arterial Route Results

Volumes 2006 / 2036

Hourly Traffic	AM	IP	PM
Rocks Road Northbound	1128/1007	862/980	685/902
Rocks Road Southbound	480/694	784/1001	1162/1263
Waimea Road Northbound	1585/1582	1114/1226	1068/1154
Waimea Road Southbound	682/827	1072/1122	1765/1651
Total Screenline	4146/4449	4025/4594	4972/5416

Arterial Route Results

- Percentage increase 2006 - 2036

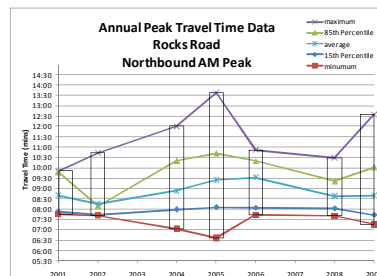
Hourly Traffic	AM	IP	PM
Rocks Road Northbound	-11%	14%	32%
Rocks Road Southbound	45%	28%	9%
Waimea Road Northbound	0%	10%	8%
Waimea Road Southbound	21%	5%	-6%
Total Screenline	7.3%	14.1%	8.9%

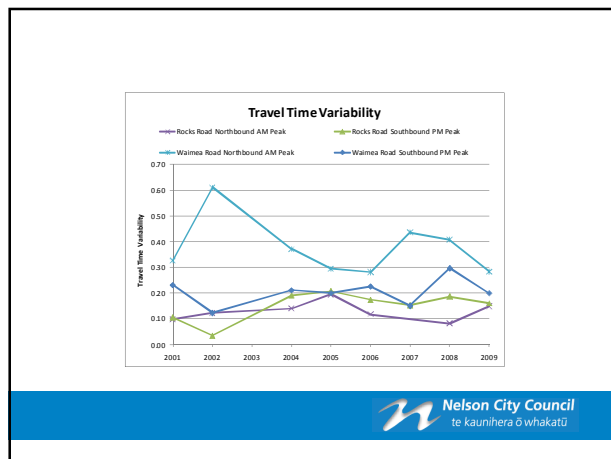
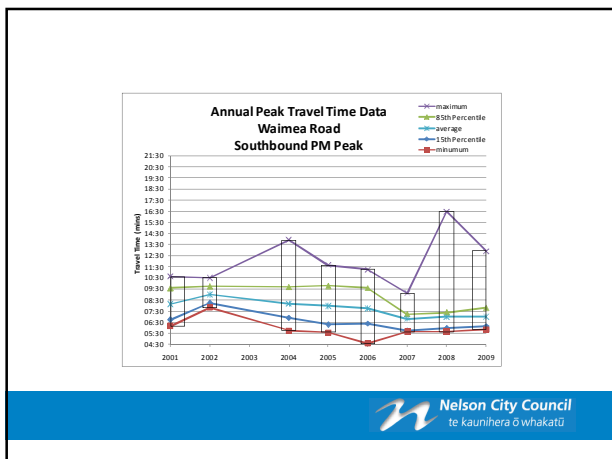
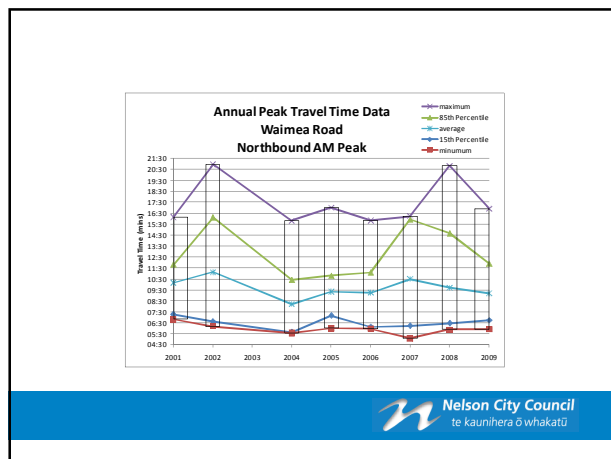
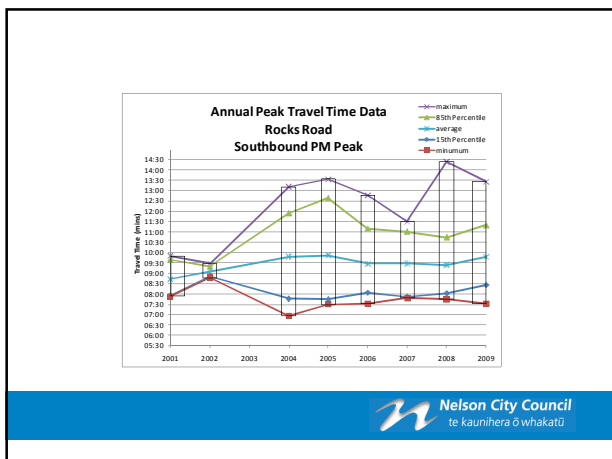
Public Transport Model Demands

Year	AM Peak		Interpeak	
	Existing PT	Phase A	Existing PT	Phase A
2006	143	197	72	91
2016	136	230	78	151
2036	134	256	82	182

Modelling Summary

- Overall a 26%-28% increase in peak hour trips in 30 years
- Increase in vehicle kilometres travelled
- Reduction in average trip length
- Increase in traffic in interpeak and off-peak directions along current arterial routes
- Little or no increase in peak hour peak direction traffic
- Slight decrease in mean speed





Nelson Journey to Work Mode Split (2006 Census)

Mode	Nelson (incl Stoke)	Richmond
Drove car/truck	75%	78%
Vehicle passenger	6%	5%
Bus	1%	1%
Motorcycle	1%	1%
Bicycle	7%	6%
Walk	10%	9%

Study Area Person Trips

TRIPS (whole network)	2006 base calibration			2016 with PT Phase A			2036 with PT Phase A		
	AM	IP	PM	AM	IP	PM	AM	IP	PM
Total person trips (2 or 3 hours)									
Car driver	37037	39433		40881	43425		45888	50427	
Car passenger	6836	12775		7236	13873		7805	15999	
PT : Richmond ↔ Nelson	143	72		230	151		256	182	
PT : Other Nelson services	95	84		121	156		127	158	
Walk / cycle	14120	21609		15106	23897		16310	27613	
Private cars trips (1 hour)									
Total driver trips (incl. park)	24638	20823	26713	27253	22862	29581	31024	26645	33970
Increase relative to 2006	-	-	-	10.6%	9.8%	10.7%	25.9%	28.0%	27.2%

No.	Road	Location	Dirn	2006 Calibrated			2016 with PT Phase A			2036 with PT Phase A			Key
				AM	IP	PM	AM	IP	PM	AM	IP	PM	
2.6a	Wakefield Quay	Sth of Haven Rd	n/b	522	403	334	529	537	448	492	552	516	vph: Vehicles per hour PT: Public Transport AM: Morning peak hour IP: Interpeak hour PM: Evening peak hour n/b: northbound s/b: southbound Red text denotes travel in the peak direction in the peak hour i.e. northbound in the AM peak and southbound in the PM peak.
			s/b	225	357	527	269	441	653	360	542	655	
2.6b	Russell St	Sth of Haven Rd	n/b	157	111	120	138	151	174	161	219	258	
2.6c	Mason Road	Sth of Haven Rd	s/b	118	112	134	166	153	162	246	222	197	
2.6d	St Vincent St	Sth of Haven Rd	n/b	639	416	348	625	289	271	645	414	430	
			s/b	296	391	578	225	328	450	395	375	474	
2.6e	Vanguard St	Sth of Haven Rd	n/b	168	160	166	116	141	170	96	108	233	
			s/b	142	166	163	198	209	196	188	229	246	
2.6f	Rutherford St	Sth of Bridge St	n/b	316	327	331	365	384	401	423	449	462	
			s/b	300	320	408	283	275	345	408	331	373	
Screenline total flow			n/b	1767	1417	1269	1773	1469	1464	1817	1739	1840	
			s/b	1081	1346	1880	1121	1406	1846	1517	1693	1943	
% increase with respect to 2006			n/b	-	-	-	0.3%	5.8%	12.7%	2.8%	22.1%	41.6%	
			s/b	-	-	-	9.7%	4.5%	-1.8%	40.3%	25.5%	3.4%	

No.	Road	Location	Dirn	2006 Calibrated			2016 with PT Phase A			2036 with PT Phase A		
				AM	IP	PM	AM	IP	PM	AM	IP	PM
2.2a	Rocks Road	North of Bislely	n/b	1128	862	685	1137	915	740	1007	980	902
			s/b	480	784	1162	531	899	1304	694	1001	1263
2.2c	Princes Drive	North of Moana	n/b	207	107	110	206	116	165	197	134	209
2.2d			s/b	64	86	182	107	108	223	142	131	237
2.2b	Waimea Road	North of Beatonz	n/b	1585	1114	1068	1639	1164	990	1592	1226	1154
			s/b	682	1072	1765	706	1059	1654	827	1122	1651
Screenline total flow			n/b	2920	2083	1863	2982	2195	1895	2786	2340	2265
			s/b	1226	1942	3109	1344	2056	3181	1653	2254	3151
% increase with respect to 2006			n/b	-	-	-	2.1%	5.4%	1.7%	4.5%	12.3%	21.6%
			s/b	-	-	-	9.6%	6.4%	2.3%	35.6%	16.1%	1.4%

Land Use Projections

- Nelson 2009-2019 Community Plan
- Tasman Growth, Supply-Demand Model
- Nelson Urban Growth Strategy
- Nelson Resource Management Plan
- Tasman Resource Management Plan

Land Use - Population

- Previous Model (includes Richmond etc)
 - 2006 76,000
 - 2036 117,600
- Current Model (includes Richmond etc)
 - 2006 79,900
 - 2036 98,900
- Changes between land use forecasts
 - Significantly less in Richmond and
 - More in Nelson CBD

Land Use - Employment

- Previous Model (includes Richmond etc)
 - 2006 29,900
 - 2036 47,471
- Current Model (includes Richmond etc)
 - 2006 34,600
 - 2036 46,397
- Changes between land use forecasts
 - Slightly less in Stoke, Richmond and
 - More in CBD and Nelson south

Road Capacity (I)

Road capacity is not well defined:

- it is not like the capacity of a glass;
 - road capacity cannot be measured precisely;
 - a few more vehicles will not suddenly cause over-flow;
- a road is not like a 'camel's back';
 - a few more vehicles will not result in a catastrophic failure.

Road Capacity (II)

As traffic density (veh./km) increases:

- average veh. speed decreases;
- flow rates increase up to a point;
- that point ('the capacity') can be increased by:
 - better traffic management & traffic calming;
 - better driver behaviour (less rapid acceleration & deceleration).

Transport Modelling

The modelling done for this study is best practice for such studies;

- there are uncertainties, but they do not undermine the results;
- the greatest sources of uncertainty are the population & employment forecasts;
- Statistics NZ forecasts are the most reliable available.

Nelson Arterial Traffic Study

Response to Questions

Freight Demand

- 1200 heavy vehicles on SH6 (6%)
- 20% increase from 2000 to 2010 c.f. 0% total traffic growth
- To 2036 model predicts additional 15-25%

Fuel Price Sensitivity

AM peak	2006	2036	2036 +100% Fuel Cost
Number of Trips (whole model)	37,000	46,000	41,000
Kilometres travelled (study area)	110,000	144,000	115,000
Average trip length (study area)	6.96	6.85	6.18

Fuel Price Sensitivity

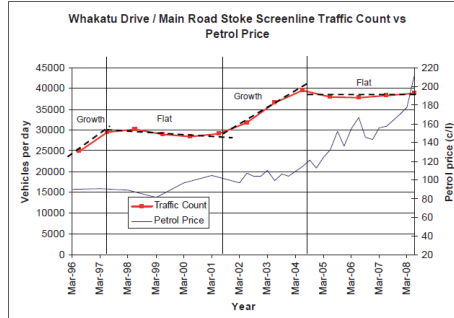
- Percentage increase for 100% fuel price increase 2036

Hourly Traffic	AM	IP	PM
Rocks Road Northbound	-34%	-31%	-18%
Rocks Road Southbound	-32%	-31%	-22%
Waimea Road Northbound	-14%	-19%	-11%
Waimea Road Southbound	-24%	-19%	-9%

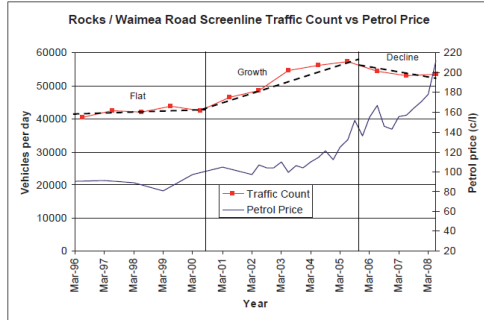
Recession vs Traffic Vol

- Even though historically 0% over last 10 years this has not affected modelling
- Model has 2006 as base year
- Model predicts 30 years in the future long time period which would include recessions and growth periods

Recession vs Traffic Vol



Recession vs Traffic Vol



Nelson Arterial Traffic Study

Long List of Options

Long List of Options

- Four categories
 - Rooding Infrastructure
 - Rail Infrastructure
 - Public Transport
 - Travel Demand Management

Fatal Flaw Analysis

- Benefit Arterial Traffic
 - Primarily commuters and freight
 - Reduces travel time
- Cost of Option
 - Funding availability
 - Less than \$100M - \$200M

Long List of Options

ROADING INFRASTRUCTURE

Arterial Traffic Test

- Options not carried forward
 - Option B variants with exclusive links
 - Option C: Route via Marsden Valley
 - Option G: Princes Drive extn
 - Option J: Freight Rail
 - Option L: Public Transport
 - Option M: Travel Demand Mgmt

Freight Rail

- Would not attract freight as:
 - Not long enough distance for efficiencies
 - Likely to involve double handling
 - Costs borne by operators who are already paying for road transport
- Even if it did attract some freight, would not result in benefits for commuters

Public Transport

Year	AM Peak		Interpeak	
	Existing PT	Phase A	Existing PT	Phase A
2006	143	197	72	91
2016	136	230	78	151
2036	134	256	82	182

- Increase of 120 compares with >4,400 vehicles across screenline in 2036 AM peak
- Not capacity restrained
- No travel time benefits
- Increase in patronage would occur with TDM
- Provides minimal arterial traffic benefits but a range of other social and accessibility benefits so should be implemented with all options

Travel Demand Management

- Includes:
 - School travel plans
 - Workplace travel plans
 - TravelSmart
 - Car-pooling
 - Tele-working infrastructure
 - Promotion of alternative forms of travel
 - Road Pricing
 - Parking pricing and availability
 - Resource Management Plan changes

Funding/Cost Test

- Options not carried forward
 - Option B with Viaduct to Haven Road
 - Options D, E, F Tunnels
 - Option K: Light Rail

Light (or Heavy) Rail

- Discarded because too expensive.
- Cost needs to take account of:
 - Property purchase
 - Rail lines on formed and unformed land
 - Railway stations / terminals
 - Grade separation of rail
 - Intersection treatments
 - Trains
 - Maintenance depot
 - Ongoing operations and maintenance

Variant B1: Exclusive Links

Additional Cost <\$20M

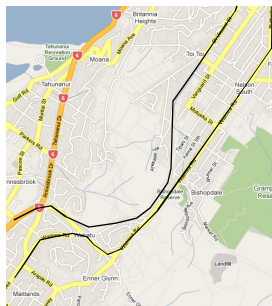
Establish exclusive links between Main Road Stoke and Waimea Road and between Annesbrook roundabout and Option B.

Pros

- Inexpensive addition
- Some decrease in travel times
- Some increase in safety

Cons

- Does not mitigate any Southern Arterial issues
- Introduces accessibility and connectivity issues
- Could result in capacity issues on Main Road Stoke
- Benefits not significant



Variant B2: One Way Links

Additional Cost ~\$20M

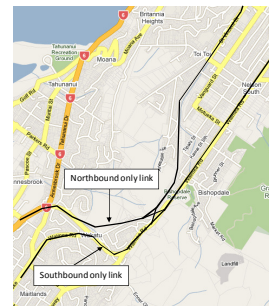
Establish one way links between Whakatu Drive and the intersection of Waimea Road and Beatson Road.

Pros

- Some decrease in travel times

Cons

- Does not mitigate any Southern Arterial issues
- Relatively expensive addition
- Benefits not significant



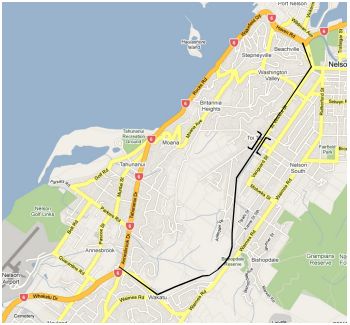
Variant B3: Toi Toi Flyover/Underpass
Flyover Cost \$20-\$50M
Underpass Cost \$50-\$100M
 Construction of a 400m long flyover/underpass at the intersection of Toi Toi Street

Pros

- Decreases travel times
- Safety benefits for Victory pedestrians and cyclists as less traffic at grade

Cons

- Expensive addition
- Flyover visually intrusive
- Flyover socially intrusive
- Many Southern Arterial issues remain
- Constructability issues
- Underpass has funding issues
- Potential land requirement



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Variant B4: Viaduct
Additional Cost \$50-\$100M
 Construction of a viaduct from Haven Road to south of Victory School

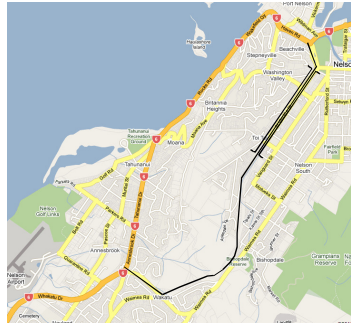
Pros


- Decreases travel times
- Safety benefits for pedestrians and cyclists as less traffic on St Vincent Street

Cons

- Very expensive addition
- Visually intrusive
- Air quality still an issue
- Constructability issues
- Potential land requirement
- Local connectivity issues
- Takes traffic past city centre

Does not provide significant additional benefits compared to (shorter) flyover



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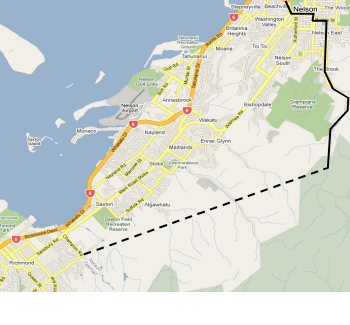
Option C: Southern Route via Marsden
Cost \$100M - \$200M
 New two-lane road to connect Richmond (Hill Road) with Brook Street


Pros

- Purpose built by-pass route with few intersections
- Decrease in traffic volumes on Waimea Road and Rocks Road

Cons

- Very expensive
- Available only to traffic from Richmond south
- Consent and land issues
- Increase in traffic volumes in residential areas and through the CBD
- Terrain issues therefore likely to be long and windy
- Ecological issues



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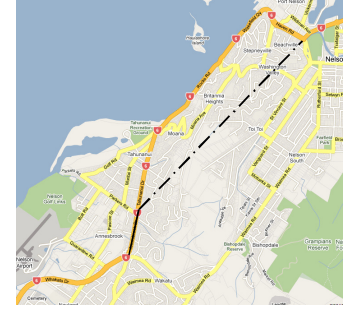
Option D: Tahuna to Haven Dr Tunnel
Cost >\$200M
 A tunnel through the Port Hills from Tahunanui Drive to Haven Road


Pros

- Direct access to the Port from south of Tahunanui thus reduced freight and lower traffic volumes on Rocks Road
- Decreased travel times

Cons

- Extremely high cost
- Constructability issues
- Funding issues



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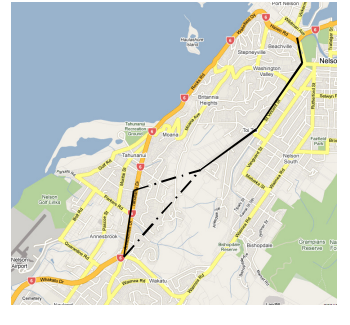
Option E: Annesbrook to Emano St Tunnel
Cost ~\$200M
 A tunnel through the Port Hills from Annesbrook to Emano Street, or a tunnel from Tahunanui to Emano Street


Pros

- Decreased travel times
- Decrease in traffic volumes on Waimea Road and Rocks Road

Cons

- Very expensive
- Increased traffic volumes for the Victory community
- Constructability issues
- Funding issues



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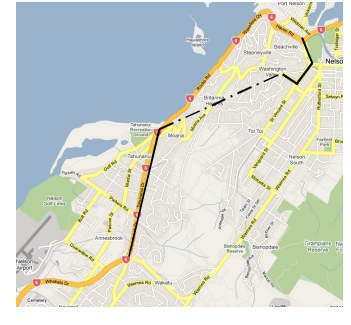
Option F: Tahuna to Washington Valley Tunnel
Cost >\$200M
 A tunnel between Tahunanui and Washington Valley


Pros

- Decreased travel times
- Direct access to the Port Hills suburbs

Cons

- Very expensive
- Increased traffic volumes for Washington Valley and surrounding suburbs, and in Tahunanui
- Constructability issues
- Funding issues



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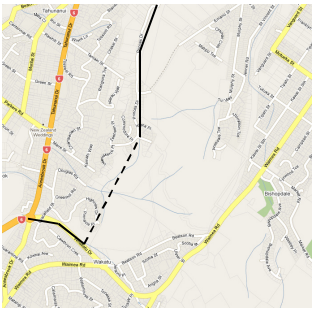
Option G: Princes Dr to Whakatu Dr
Cost ~\$20M
 A link between Princes Drive and Whakatu Drive


Pros

- Provides link for local Port Hills traffic
- Removes some local traffic from Rocks Road
- Relatively inexpensive

Cons


- The route to the city centre from Princes Drive is through winding (non-arterial standard) residential streets
- Significant terrain issues
- Does not provide benefits for arterial traffic



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Long List of Options

RAIL INFRASTRUCTURE

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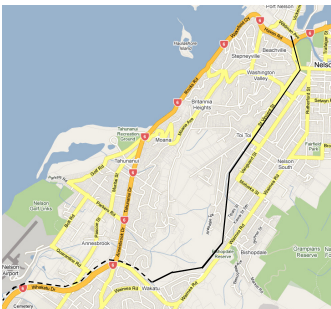
Option J: Freight Rail on Railway Res
Cost >\$200M
 This option looks to establish a freight rail service from Richmond to the Port via the old railway reserve


Pros

- Reduces volumes of trucks using Rocks Road
- Could be used to also provide passenger services

Cons

- Very expensive
- Land purchase
- Affects many intersections
- Double handling of freight
- Increase freight cost
- Minimal impact on private vehicle travel times
- Passenger service unlikely to attract people from cars



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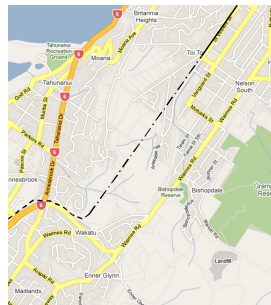
Variant J1: Rail in Port Hills Tunnel
Additional Cost >\$200M
 This option creates a tunnel through the Port Hills for the rail service


Pros

- Cycle facilities retained on old rail reserve

Cons

- Very expensive addition
- No additional benefits for arterial traffic or freight movement



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Option K: Light Rail
Cost \$100M-\$200M
 This option creates a light rail service between Richmond and Nelson


Pros

- Less traffic on Rocks Road
- Good express public transport service

Cons

- Very expensive
- Limited patronage demand
- Likely lower frequency service compared to buses
- Land requirements
- Does not remove freight from Rocks Road
- Impacts on road network, especially St Vincent Street and Main Road Stoke



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Rail

- Discarded because too expensive.
- Cost needs to take account of:
 - Property purchase
 - Rail lines on formed and unformed land
 - Railway stations / terminals
 - Grade separation of rail
 - Intersection treatments
 - Trains
 - Maintenance depot
 - Ongoing operations and maintenance

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Long List of Options

PUBLIC TRANSPORT



Public Transport

- Taken from Passenger Transport Network Plan in the current Regional Land Transport Strategy
- Increasing in intensity from Phase A to Phase D
- Current patronage around 220,000 trips per annum



Phase A

- One express service and two secondary services
- 30 min frequency per service in peak
- Monday to Saturday 6:30am – 6:30pm
- The Bus services to remain
- Modelling shows patronage up from 220,000 p.a. currently to 380,000 in 2016
- \$2.1M - \$3.1M per annum



Phase B

- As per Phase A plus
 - Hourly services from 6:30pm to 11:30 pm Monday to Saturday
 - Hourly services on Sunday
 - The Bus upgraded to hourly services Monday to Saturday
- RLTS estimates would increase patronage to 625,000 p.a
- \$3.5M - \$5.3M per annum



Phase C

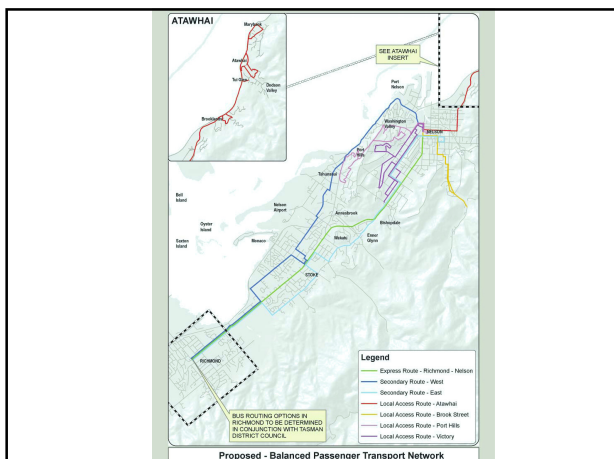
- As per Phase A plus
 - Additional express service operating at least every 20 mins from 7am to 6pm
 - Earlier services from Monday to Saturday
- RLTS estimates would increase patronage to 730,000 p.a
- \$4.2M - \$6.3M per annum



Phase D

- As per Phase B plus
 - Additional express service operating at least every 20 mins from 7am to 6pm
 - The Bus upgraded to 30-60 min services Monday to Saturday with some evening and Sunday services
- RLTS estimates would increase patronage to 855,000 p.a
- \$5.7M - \$8.8M per annum





Public Transport

Year	AM Peak		Interpeak	
	Existing PT	Phase A	Existing PT	Phase A
2006	143	197	72	91
2016	136	230	78	151
2036	134	256	82	182

- Increase of 120 compares with >4,400 vehicles across screenline in 2036 AM peak
- Increase in patronage would occur with TDM
- Provides minimal arterial traffic benefits but a range of other social and accessibility benefits so should be implemented with all options

Long List of Options

TRAVEL DEMAND MANAGEMENT

Travel Demand Management

- Includes:
 - School travel plans
 - Workplace travel plans
 - TravelSmart
 - Car-pooling
 - Tele-working infrastructure
 - Promotion of alternative forms of travel
 - Road Pricing
 - Parking pricing and availability
 - Resource Management Plan changes

Long List of Options

STAGE 3 OPTIONS

Stage 3 Options

- Option A: Peak Hour Clearways
- Option B: Southern Arterial
- Option H: Rocks Road 4 laning
- Option I: Waimea/Rutherford 4 laning
- All options include Phase A public transport and TDM

Option A: Peak Hour Clearways

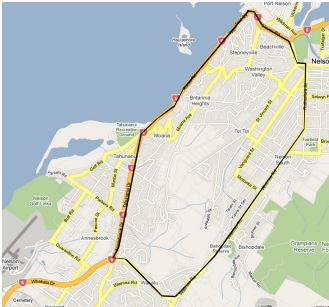
Install peak hour clearways on Rocks Road and Waimea Road. Northbound Rocks Road AM peak. Southbound Waimea Road PM peak


Pros

- Relatively inexpensive
- Decreases travel times

Cons

- Benefits only in peak period
- Property access difficulties
- Removal of features in road
- Impacts on the historic fence
- Sea level rise
- Some community opposition
- Parking enforcement



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Option A: Peak Hour Clearways

Philosophy

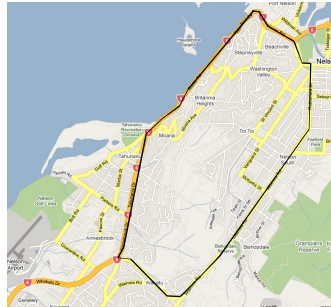
Use existing space along current routes. Clearway in peak hour and peak direction only


Intersections

No major intersection changes. Some minor modifications

Property

Aim is for none



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Option B: Southern Arterial

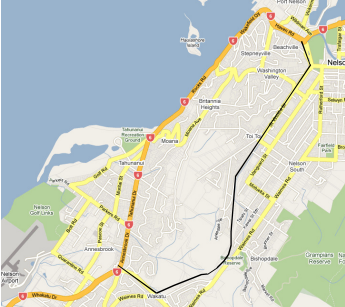
New two-lane road between St Vincent St and Beaton Road

Pros

- Reasonable costs
- Increase in capacity
- Removes traffic from Rocks Rd

Cons

- Consent issues including air quality and noise
- Community severance
- Some community opposition
- Could introduce more vehicles into the CBD and reduce attractiveness of Public Transport



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Option B: Southern Arterial

Philosophy

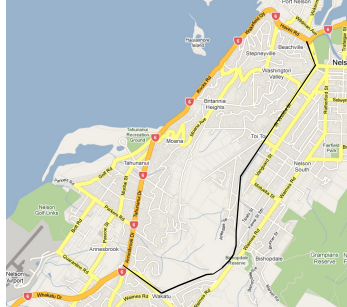
Create new road on new corridor with at-grade intersections.


Intersections

New roundabout at southern end of the route.
New traffic signals at Toi Toi and Washington/ Gloucester.

Property

Vast majority of land already in public hands. Some minor pieces may be required at intersections.



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Option H: Rocks Road Four Laning

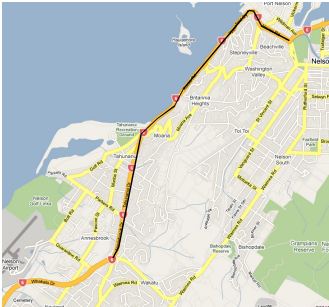
This option involves constructing a dual carriageway, including a new seawall along Rocks Road


Pros

- Decreased travel times
- Pedestrian / cycle facilities

Cons

- Very expensive
- Land requirements
- Increased traffic on Rocks Rd
- Constructability issues
- Impacts on facilities and heritage (e.g. Boat Shed, Boathouse, seawall, historic fence).
- Local access issues
- Sea level rise



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Option H: Rocks Road Four Laning

Philosophy

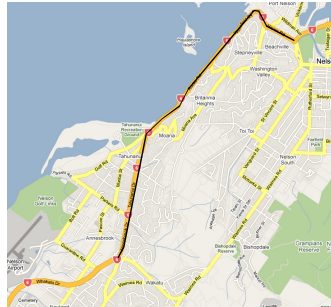
Create new four lane median road on existing alignment. Widen on one side of road only; western side except between Tahunanui intersection and Rawhiti Street.


Intersections

Right turns rationalised to reduce turns over two lanes. New traffic signals at Richardson, Muratai, Parkers/Maire.

Property

Upwards of 80 properties affected to varying degrees.



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Option I: Waimea / Rutherford 4Laning

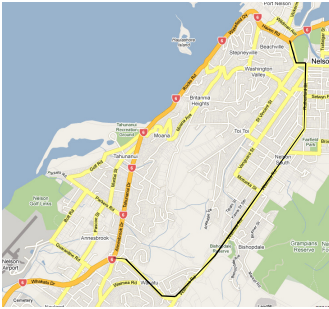
This option involves constructing a dual carriageway, including a new seawall along Rocks Road

Pros

- Decreased travel times
- Less traffic on Rocks Road,

Cons

- Expensive
- Increased traffic on Waimea Road
- Accessibility/Severance issues
- Local driveway access and parking issues
- Land requirements
- Air quality issues
- Decreased pedestrian / cycle connectivity



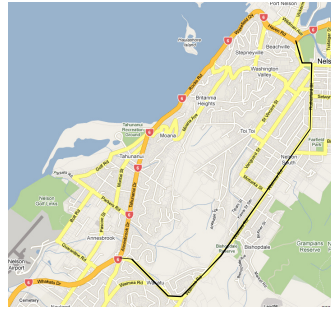
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Option I: Waimea / Rutherford 4Laning

Philosophy
Create new four lane median divided road on existing alignment. Widen on western side except between Selwyn and Bronte Street (both sides) and from Hampden to Motueka (eastern side).

Intersections
Right turns rationalised to reduce turns over two lanes. New traffic signals at Van Diemen, Motueka, Market.

Property
Upwards of 150 properties affected to varying degrees.



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Cost of Options

- Option A: \$25-\$30M
- Option B: \$30-\$35M
- Option H: \$80-\$120M
- Option I: \$50-\$70M

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Modelling Results

AM peak	Do Min	Opt A	Opt B	Opt H	Opt I
Number of Trips	46,000	46,000	46,000	46,000	46,000
Kilometres travelled	144,300	144,700	144,000	144,400	144,600
Total travel time	195,100	196,700	191,700	196,200	192,800

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Modelling Results

- Option A
 - Negligible change in traffic volumes on arterial routes
- Option B
 - 20-35% reduction in trips on SH6
 - 30-40% reduction in trips on Waimea/Rutherford
- Option H
 - Negligible change in traffic volumes
 - Travel time not decreasing as little current congestion and additional signalised intersections
- Option I
 - Slight move onto Waimea/Rutherford in peak times

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Benefit Cost Ratio

- Option A: Less than 0.1
- Option B: Less than 1.0
- Option H: Less than 0.1
- Option I: Less than 0.1

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Funding Profile

- NZTA funding based on:
 - Strategic Fit
 - Effectiveness
 - Benefit Cost Ratio
- High, Medium or Low in each category

Funding Profile

- Strategic Fit
 - High if RONS or “Major Contribution to National Economic Growth”
 - Medium if “Significant Improvements in...”
 - Safety
 - Journey Time Reliability
 - Congestion in “Main Urban Areas”
 - Capacity Constraints
 - Network security and resilience (no alternative route and route demonstratively susceptible)
- Likely to be **Low**

Funding Profile

- Effectiveness
 - Measure of the contribution towards the potential identified in the Strategic Fit assessment
 - Difficult to measure for “Low” Strategic Fit Road projects
- At this level of development, projects often rated **Medium**

Funding Profile

- Economic Efficiency
 - $BCR \geq 4$ is High
 - $BCR \geq 2$ and < 4 is Medium
 - $BCR \geq 1$ and < 2 is Low
- Likely to be **Low** at best

Funding Profile – Opt 5

- Strategic Fit
 - Not RONS or “Major Urban Area” so **Low**
- Effectiveness
 - **Medium**
- Economic Efficiency
 - Likely to be **Low**

Nelson Arterial Traffic Study

Long List of Options

Long List of Options

- Four categories
 - Rooding Infrastructure
 - Rail Infrastructure
 - Public Transport
 - Travel Demand Management

Fatal Flaw Analysis

- Benefit Arterial Traffic
 - Primarily commuters and freight
 - Reduces travel time
- Cost of Option
 - Funding availability
 - Less than \$100M - \$200M

Arterial Traffic Test

- Options not carried forward
 - Option B variants with exclusive links
 - Option C: Route via Marsden Valley
 - Option G: Princes Drive extn
 - Option J: Freight Rail
 - Option L: Public Transport
 - Option M: Travel Demand Mgmt

Freight Rail

- Would not attract freight as:
 - Not long enough distance for efficiencies
 - Likely to involve double handling
 - Costs borne by operators who are already paying for road transport
- Even if it did attract some freight, would not result in benefits for commuters

Public Transport

Year	AM Peak		Interpeak	
	Existing PT	Phase A	Existing PT	Phase A
2006	143	197	72	91
2016	136	230	78	151
2036	134	256	82	182

- Increase of 120 compares with >4,400 vehicles across screenline in 2036 AM peak
- Not capacity restrained
- No travel time benefits
- Increase in patronage would occur with TDM
- Provides minimal arterial traffic benefits but a range of other social and accessibility benefits so should be implemented with all options

Travel Demand Management

- Includes:
 - School travel plans
 - Workplace travel plans
 - TravelSmart
 - Car-pooling
 - Tele-working infrastructure
 - Promotion of alternative forms of travel
 - Road Pricing
 - Parking pricing and availability
 - Resource Management Plan changes

Funding/Cost Test

- Options not carried forward
 - Option B with Viaduct to Haven Road
 - Options D, E, F Tunnels
 - Option K: Light Rail

Light (or Heavy) Rail

- Discarded because too expensive.
- Cost needs to take account of:
 - Property purchase
 - Rail lines on formed and unformed land
 - Railway stations / terminals
 - Grade separation of rail
 - Intersection treatments
 - Trains
 - Maintenance depot
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Stage 3 Options

- Option A: Peak Hour Clearways
 - Option B: Southern Arterial
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- All options include Phase A public transport and TDM

Option A: Peak Hour Clearways

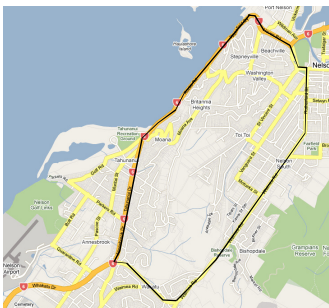
Install peak hour clearways on Rocks Road and Waimea Road. Northbound Rocks Road AM peak. Southbound Waimea Road PM peak

Pros

- Relatively inexpensive
- Decreases travel times

Cons

- Benefits only in peak period
- Property access difficulties
- Removal of features in road
- Impacts on the historic fence
- Sea level rise
- Some community opposition
- Parking enforcement



Option A: Peak Hour Clearways

Philosophy
Use existing space along current routes. Clearway in peak hour and peak direction only

Intersections

No major intersection changes. Some minor modifications

Property

Aim is for none

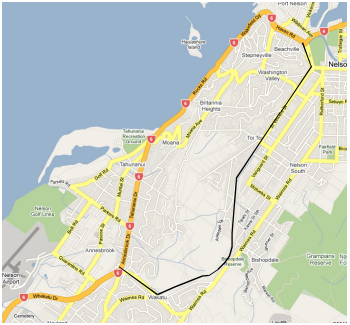



Option B: Southern Arterial

Philosophy
Create new road on new corridor with at-grade intersections.

Intersections
New roundabout at southern end of the route.
New traffic signals at Toi Toi and Washington/ Gloucester.

Property
Vast majority of land already in public hands. Some minor pieces may be required at intersections.



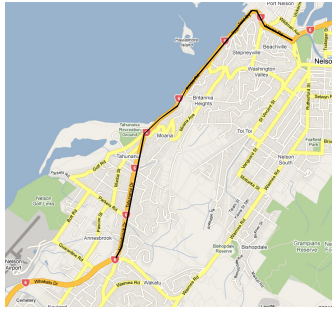
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Option H: Rocks Road Four Laning

Philosophy
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Intersections
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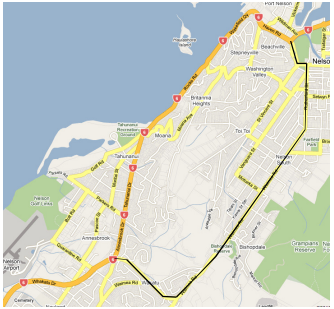
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-  Nelson City Council
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Funding Profile

- Economic Efficiency
 - BCR ≥ 4 is High
 - BCR ≥ 2 and < 4 is Medium
 - BCR ≥ 1 and < 2 is Low
- Likely to be **Low** at best

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.