

---

# SH60 Motueka Investigation

Andrew Maughan, Mike van Enter, Sarah Connolly (Stantec)

June 2017

SH60 Motueka Investigation – Detailed Business Case Draft for Public Engagement



# Contents

SH60 Motueka Investigation .....	1
PART A – THE CASE FOR THE PROJECT .....	1
1 Background.....	1
2. Problems, evidence and Constraints .....	3
3. Outcomes .....	28
4. Stakeholders .....	34
5. Draft Option Assessment .....	35
Appendix A: Minutes of Key Stakeholder meeting .....	45
Appendix B: Explanations for options included or excluded .....	54
Appendix C: Short list of options .....	72
Appendix D: King Edward/Old Wharf/High Streets .....	74
Appendix E: Whakarewa/Woodland/High Streets .....	75
Appendix F: Parker/Fearon/High Streets .....	76
Appendix G: Centre (Tudor to Greenwood Streets).....	77

---

# PART A – THE CASE FOR THE PROJECT

## 1 BACKGROUND

This single stage Detailed Business Case investigates short to medium term improvements aimed at improving safety and journey time reliability on a short stretch of SH60 through Motueka town centre within the 50km/hr urban speed zone.

### 1.1 Work completed to date

In 2014, Tasman Regional Transport Committee resolved to support the Transport Agency determine a programme of work to address short to medium term safety and congestion matters on High Street.

In 2016 the Transport Agency completed a Strategic Case for SH60 through Motueka. The Strategic Case confirmed that poorly designed pedestrian crossing infrastructure was resulting in crashes and that key High Street intersections have the potential for design and layout improvements to improve journey time reliability and safety for all road users. The evidence showed that a bypass is not urgently required, and proposed that this be considered as part of the SH60 Richmond to Collingwood investigation.

It was confirmed that the next step towards making a set of short to medium term improvements to improve safety and journey time reliability was to complete a Single Stage Detailed Business Case.

## 1.2 Site description

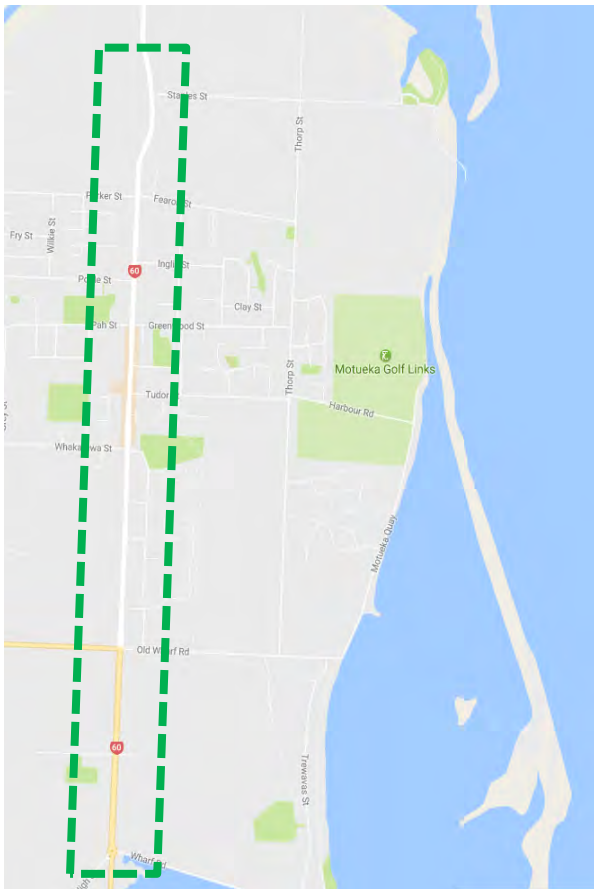


Motueka is located between Richmond and Collingwood, as shown in Figure 1. It is principally a service town, with a population at the 2013 census of 7,593. Growth is expected, mainly as a result of the Wahanga Limited development to the west of SH60.

SH60 passes through Motueka town centre. A mixture of residential and commercial development occurs along SH60 through the town. The road performs a critical role in supporting wider regional economic growth in the key industries of horticulture, viticulture, forestry, seafood, farming and tourism. Significant volumes of freight and tourist vehicles rely on SH60.

**Figure 1: Location Map**

The SH60 Single Stage Detailed Business Case covers the urban 50km/hr speed zone along High Street, from the southern approach to Motueka, to north of the Parker Street/Fearon Street intersection, as outlined in green in Figure 2. This is a distance of 3.3km.



**Figure 2: Motueka Investigation Study Area (outlined in green)**

The main road within the study area is High Street (SH60), a two lane road with on-street parking on both sides. This road traverses the length of Motueka from north to south. There are numerous intersections with local roads and access ways. Through the centre there are three zebra crossings and sizeable street trees, which contribute to the look and feel of the centre. There are high levels of pedestrian activity in the centre.

High Street carries an average of approximately 13,000 vehicles per day. There is considerable seasonal variation in traffic, with around 16,000 vehicles per day in summer, and 12,000 in winter.

## 2. PROBLEMS, EVIDENCE AND CONSTRAINTS

The Strategic Case that was completed in 2016 has been reviewed and additional data collected and analysed. Stakeholders were consulted through a workshop in March 2017. This process has allowed further investigation and confirmation of the problems and opportunities, and development of a short list of options for wider consultation.

The problems on High Street arise from a conflict between through traffic and local access/community functions, along with deficiencies in pedestrian crossing facilities and intersection design. This results in increased risk for pedestrians, safety issues at some intersections and difficulty turning in and out of side roads and access ways. Use of the zebra crossings adds to congestion, and the crossings are severely affected by shading from adjacent street trees, which increases risk for pedestrians.

### 2.1 Problems and evidence

Three problems were identified at a key stakeholder workshop in 2015, as part of the Strategic Case for this project. Weightings are shown in brackets.

- Problem 1: Growth and competing interests<sup>1</sup> in the town centre result in delays and through traffic using suburban roads (50%)
- Problem 2: Pedestrian crossing movements are creating confusion, congestion and safety issues (30%)
- Problem 3: Traffic volumes and intersection layouts are encouraging drivers to take risks with resulting safety issues or use alternative routes (20%)

The problems were revisited at a stakeholder workshop on 24 March 2017 (refer Appendix A:

Minutes of Key Stakeholder meeting), attended by representatives from:

- Tasman District Council (staff and elected member)
- Motueka Community Board
- Automobile Association
- NZ Police
- NZ Transport Agency.

The stakeholders confirmed the problem statements, and reviewed the evidence. On reviewing the evidence it was agreed that the safety problems (Problem 2 and 3) were more significant than the travel time reliability problem (Problem 1), and the weightings were changed. The problems, evidence and changes in weightings are presented below.

---

<sup>1</sup> Competing interests are defined here as the desire for efficient through traffic flow and good local accessibility to the commercial and retail sectors of High Street, Motueka.

**Problem 1: Growth and competing interests in the town centre result in delays and through traffic using suburban roads (weighting reduced from 50% to 30%)**

This problem was investigated by looking at evidence for traffic growth, and understanding more about different competing interests, such as through traffic versus side road access, parking activity, pedestrians crossing and cycling. Delays were investigated by looking at travel time through the centre, and travel speeds through the day. The diversion of through traffic onto suburban roads was explored.

**Traffic Growth**

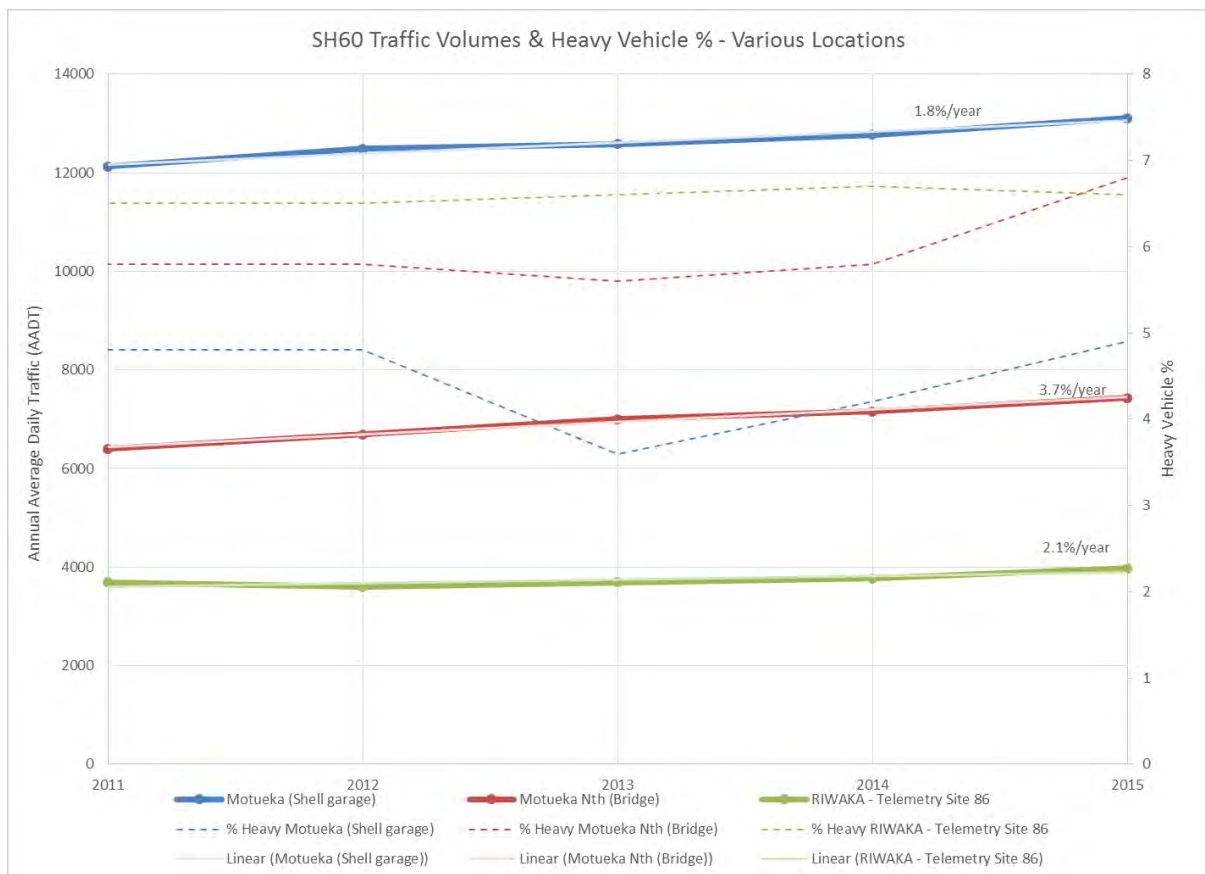
Traffic data is available for three sites in the vicinity of the study area:

- Motueka (Shell Garage)
- Motueka North (Bridge)
- Riwaka (Telemetry site)

The Motueka Bridge and Riwaka figures are provided for comparative purposes, and to give an indication of through traffic volume, which makes up approximately half the traffic on High Street, on an average day.

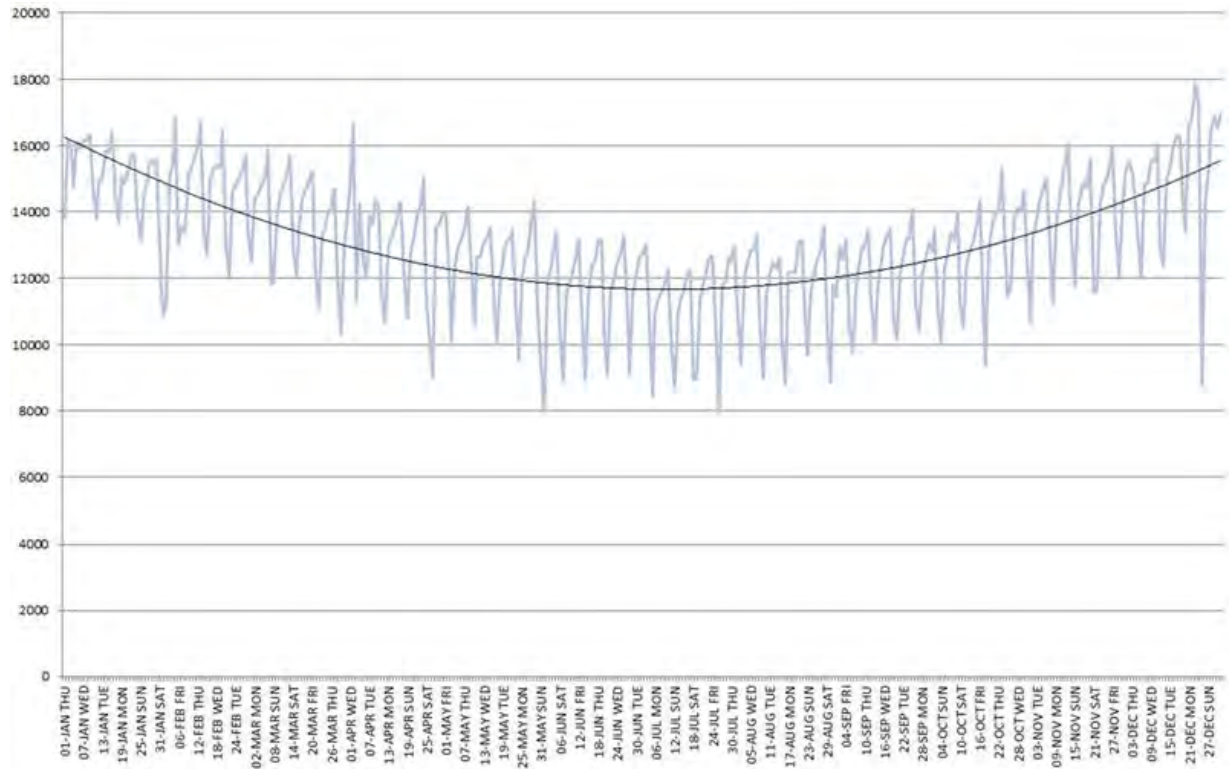
Evidence of growth in both heavy vehicle and other traffic is shown in **Figure 3**. Since 2011, average annual daily traffic volumes on High Street have been increasing steadily at all three sites, with growth rates indicated on the graph. The dashed lines on the graph show the percentage of heavy vehicles at each site. The percentage of heavy vehicles was relatively static but has been increasing since 2013, particularly at the Motueka North site in 2015.

**Figure 3: Annual average daily traffic volume (2011-15)**



There is a strong seasonal traffic pattern, with more traffic in summer, as shown in **Figure 4**. In winter there are approximately 12,000 vehicles per day, and in summer an additional 4,250 vehicles per day.

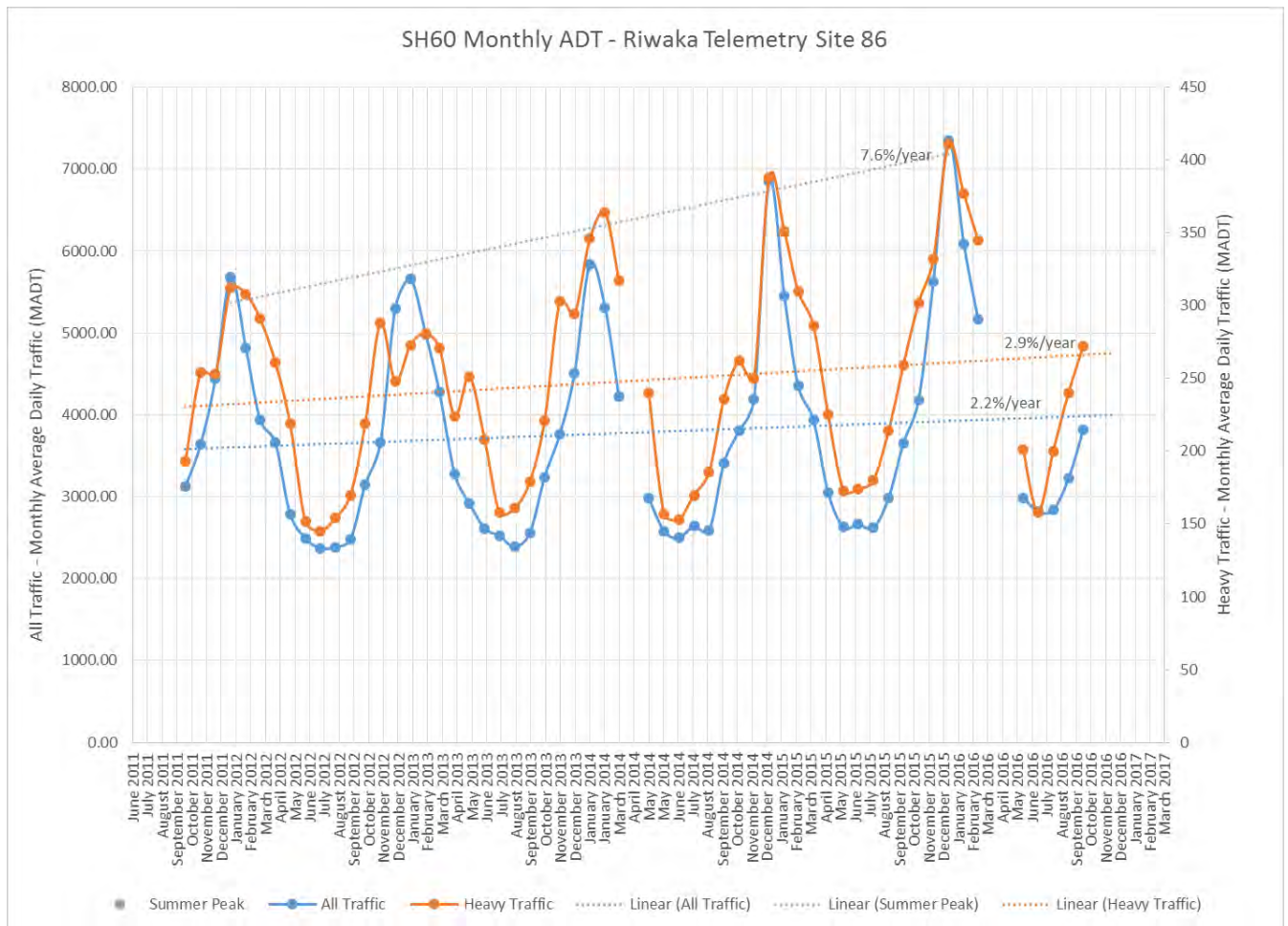
**Figure 4: Motueka Shell garage daily traffic data (2015)**





More detailed data is available for Riwaka. Monthly average daily traffic volumes are shown in **Figure 5** from 2011 to 2017. This graph also shows the trend since 2011 for both heavy traffic and all traffic as well as the summer peak trend for heavy traffic. The heavy traffic volumes are increasing at a faster rate than the overall traffic volume (3.1% per annum, compared to 2.3% per annum). Also notable are the increases in the summer peak for the last 3 years (7.6%).

**Figure 5: Monthly average daily traffic volumes - Riwaka**



It is clear that High Street is performing an important function as a strategic route in the transport network. The consequence of steady traffic growth on High Street is that any problems that are being experienced now, with regard to conflict between through traffic and local accessibility, are likely to become worse in the future, as traffic volumes rise.



## Competing Interests

Against this background of steady growth in traffic on High Street are a number of competing interests. Competing in this sense refers to the desire for efficient through traffic movement, as well as the need to provide for local community accessibility. Evidence is presented relating to the conflict between through traffic movement and:

- side road access onto and off High Street
- parking in the area
- pedestrians crossing
- cyclists on High Street.

## Side Road Access

All the side roads and accesses on to High Street give way to traffic on High Street. Movements are controlled by give way or stop signs. This means that on the whole, traffic on High Street is reasonably free flowing, whereas turning out into the traffic stream at busy times can be difficult, and result in long delays and sometimes, risk taking as drivers become frustrated.

The ease with which traffic passes through each intersection was assessed using a measure called level of service. In this context, level of service (LOS) is a quantitative measure describing delays at each leg of an intersection. Levels of service go from A to F, with A being free flowing and F being undesirable with intervention generally warranted to make improvements. Level of service D or E may be acceptable and expected at peak times.

A key issue is determining the level of service that is deemed acceptable. There are a different set of LOS criteria for each the different types of intersection being considered (signal control, roundabout or give way/stop). This is primarily because different types of intersection create different driver expectations. Drivers are more tolerant of longer delays at traffic signals, as long as it is likely that they will pass by on their next green phase.

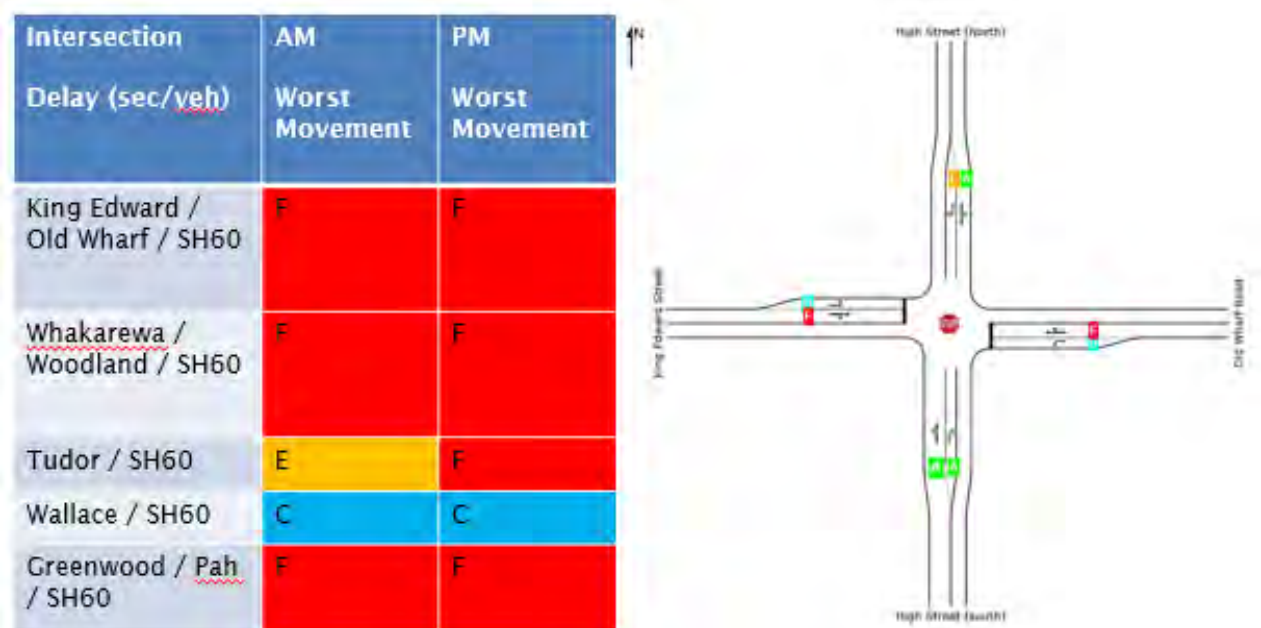
Because of this, at signals, a delay of up to 80 seconds is described as LOS E. However a driver waiting at a stop sign for that same length of time is likely to become frustrated, so LOS E at a stop/give way controlled intersection is a delay of up to 50 seconds. **Table 1** shows the Level of Service definitions for the different intersection forms.

**Table 1: Level of service definitions (LOS)**

LEVEL OF SERVICE	AVERAGE DELAY PER VEHICLE IN SECONDS		
	TRAFFIC SIGNALS	ROUNDABOUT	SIGN CONTROL (stop or give way signs)
A	□ 10	□ 10	□ 10
B	□ 20	□ 20	□ 15
C	□ 35	□ 35	□ 25
D	□ 55	□ 50	□ 35
E	□ 80	□ 70	□ 50
F	80 <	70 <	50 <

To understand the levels of service at the main intersections in the study area, turning movement counts at five intersections were completed in January 2017. These were used to build models of the intersections so that the levels of service at intersections on High Street could be understood. The levels of service for the worst performing approach at each intersection in the morning and evening peak is shown in **Figure 6**. The diagram shows typical results, with level of service shown for each movement allowed at the intersection.

**Figure 6: Side road levels of service (2017)**



The investigation showed that the right turns from side roads on to High Street are mostly experiencing level of service F in the morning and evening peak periods. This is a concern because when drivers have to wait they become frustrated and take risks, being more likely to accept smaller gaps in traffic when pulling out. The situation will be similar at accesses such as from the New World car park.

On the other hand, through traffic on High Street experiences level of service A at most intersections. The diagram shows typical results, with level of service shown for each movement allowed at the intersection. The diagram shows that some of the right turns from High Street have a lower level of service, such as the right turn from High Street into King Edward Street, which has level of service E.

The analysis also showed that the observed queue lengths at King Edward Street and Old Wharf Road were less than typically expected by the traffic model. This indicates that drivers may already be taking smaller gaps in traffic than normally expected. This may be due to frustration.

At Tudor and Wallace Street intersections the observed queue lengths were longer than the typically expected queue lengths. This may be because drivers are not taking “normal” gaps in traffic. Often this is an indication of a busy, confused or complex intersection environment as drivers hesitate or are uncertain to take gaps in traffic.

Overall the evidence shows that there is competition between through traffic and side road traffic. Currently through traffic is flowing well through intersections, whereas side roads which provide for local accessibility are experiencing delays. The consequences of this are risk taking leading to safety issues, use of alternate routes (avoiding High Street and using residential streets instead), and increased journey times.

### Parking and Loading

Parking and loading activities can also be in conflict with through traffic movement on High Street. Parking manoeuvres can disrupt through traffic flows, and conversely, a steady stream of through traffic can make it difficult to park safely on High Street.

There are parallel parking spaces on both sides of High Street. The majority of spaces between Whakarewa and Poole Streets are P60s. There is also a bus stop, 3 disabled P60s, motorbike parking, cycle parking, a P10 loading zone, 4 P10s, and a taxi rank.

The greatest demand for parking in the centre is for the P60s on High Street. During December to January 2015 occupancy surveys at midday on Fridays showed the High Street spaces (between Whakarewa and Poole Streets) were operating at between 75-90% occupancy, side streets at between 40-50% and the Decks Reserve off-street car park (P120s and all day parking) at between 40-70%, as illustrated in **Figure 7**.

**Figure 7: Parking summary**



The on street parking spaces on High Street experience high turnover, with an average stay of 34 minutes<sup>2</sup>. This high turnover affects through traffic creating delays and safety issues as parking vehicles manoeuvre in the live traffic lanes to access parking spaces. There are also issues with parking alignment, as shown in **Figure 8**. Poor parking alignment impinges on the live traffic lane and creates risk and delays, particularly for trucks which may need to wait for a gap in opposing traffic before being able to pass, and for cyclists, as the parked vehicle would be occupying the road space they would normally use.

**Figure 8: Poor parking alignment**



Parking on High Street also has the effect of generating random pedestrian crossing movements as people exit their car into the live traffic lane, wait for a gap in traffic and then cross to the other side. This adds to safety risk and congestion. Door opening in to the live traffic lane also puts cyclists at risk, as they will often be travelling in this zone.

Part of the problem is that off street parking areas are less attractive to drivers and underutilised. This is because:

- The High Street spaces are more convenient for people wanting to access the shops than having to turn off the main road and then walk further and back again
- Signage to off street parking areas is limited
- Access to off street parking areas is difficult for right turning vehicles as there is no right turn bay at Wallace Street. Access from off street parking areas back on to High Street can be difficult if vehicles need to turn right on to High Street
- Parking management tools (eg. time restrictions, cost/free) are not being used to attract people to use off street or side street parking, rather than spaces on High Street.

On-street motorcycle parking spaces are underutilised with motorcyclists using regular P60 parking spaces that are more conveniently located outside the motorcycle dealer's premises, adding to parking pressure. Cycle parking is provided on High Street on the carriageway with no protection for cycles being clipped by passing traffic.

---

<sup>2</sup> Richmond and Motueka Town Centre Parking Strategies 2015, Tasman District Council.

The consequence of having on street parking on High Street, combined with high turnover of these parking spaces leads to safety issues and delays on High Street.

### Pedestrians Crossing

There are large numbers of pedestrians crossing High Street, as shown in **Table 2**. These counts show the numbers crossing at the zebra crossing facilities, where these are provided, or, as is the case for Tudor Street, where no pedestrian facilities are provided. The data shows the zebra crossings are busy, and sometimes the traffic flow on High Street is almost constantly disrupted by pedestrians crossing. Queues were observed forming on High Street when the zebra crossings were in use. The use of the zebra crossings is contributing to delays on High Street. In addition pedestrians cross informally, which can lead to delays for traffic and risk for the pedestrians.

**Table 2: Pedestrian crossing counts (each period was counted for an hour in January 2017)**

	HIGH STREET AT PAH/ GREENWOOD STREETS	GREENWOOD STREET	HIGH STREET NORTH OF TUDOR STREET	TUDOR STREET	HIGH STREET NORTH OF WALLACE STREET	WALLACE STREET
Morning Peak	89	56	62	49	114	146
Inter Peak	114	89	123	148	148	197
Evening Peak	91	61	196	143	140	142

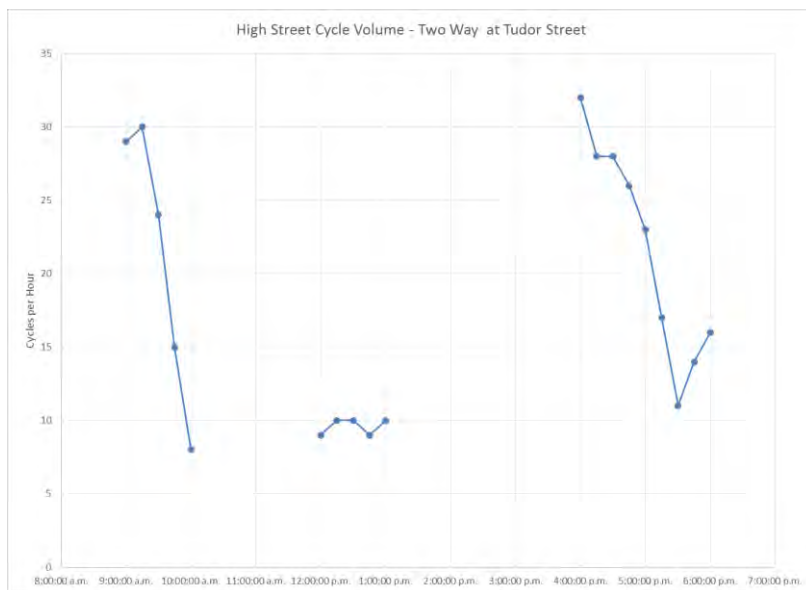
### Cycling

A further competing interest on High Street is the effect of cyclists on through traffic, and the effect of traffic and road layout on cycle safety. Observations in March 2017 on a weekday showed a considerable number of adults and children cycling on High Street, on both the carriageway and the footpath. The results of a one-off survey are shown in **Figure 9**, with around 30 cyclists in 15 minutes recorded at 9am and 4pm.

**Figure 10** shows images of cyclists using High Street. It is noticeable that the shading from the street trees makes it difficult to see the cyclists. The relatively narrow carriageway, high percentages of heavy vehicles, and on street parking all combine to make this a risky environment for cyclists. The presence of cyclists on High Street adds to the complexity of the environment for drivers, leading to increased risk. In addition, drivers can become 'stuck' behind a cyclist, adding to delays.



**Figure 9: One-off cycle count (January 2017)**



**Figure 10: Cyclists on High Street**



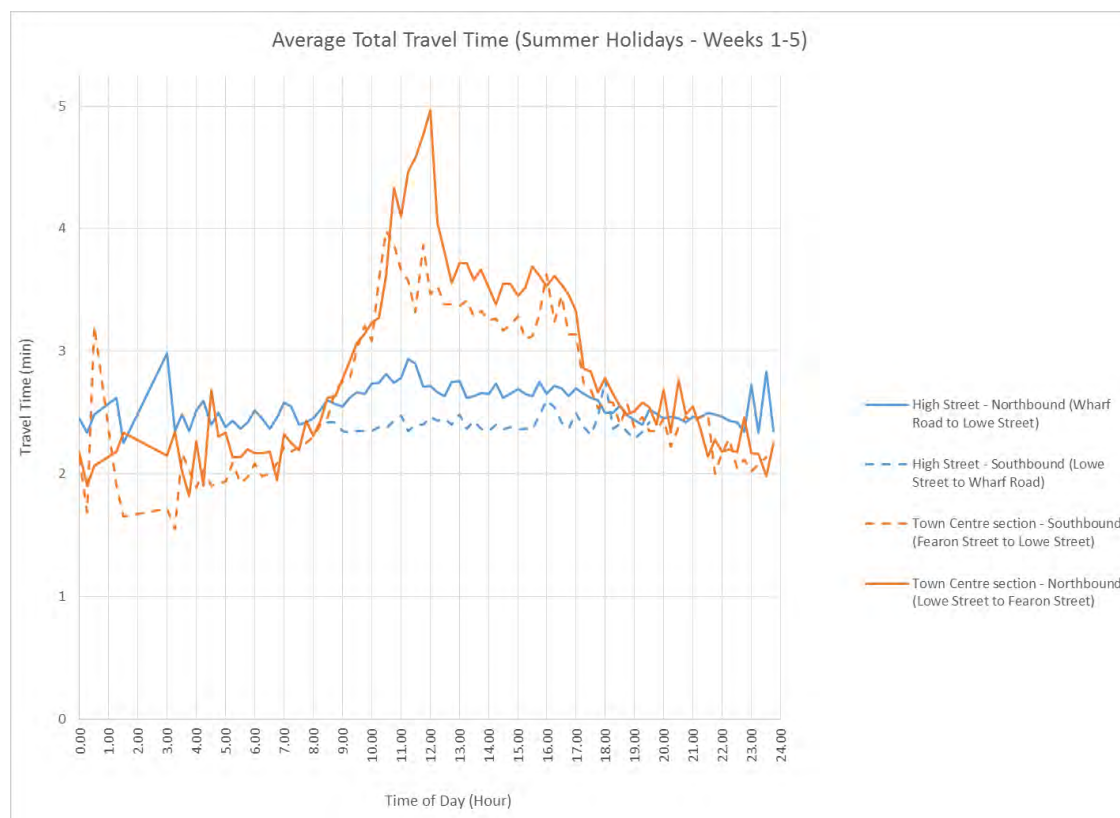
### Travel Time

Evidence for delays on High Street and side streets/access ways caused by the competing interests outlined above is provided by data from Bluetooth sensors installed in December 2016. Travel time data for the summer holiday period of 2017 (Weeks 1-5) is shown in **Figure 11**. This graph shows how long it takes to travel north or south from Lowe Street according to the time of day, and demonstrates that:

- Delays are primarily experienced by traffic travelling in the northern part of the town centre (north of Lowe Street) between 10am and 5pm in the holiday period
- The longest delays are when travelling north from Lowe Street. At midday this might take an average time of 5 minutes, compared to 2 minutes in the evening
- Travelling south towards Lowe Street is also slower in the middle of the day, taking around 4 minutes compared to 2 minutes in the evening
- Delays are minimal in both directions south of Lowe Street.



**Figure 11: Travel Time (Bluetooth data), weeks 1-5 2017**



Data for term time (weeks 7-13 of 2017) has also been considered. The pattern of delay in term time was similar to summer holiday time. However delays were not so significant, with 3-3.5 minutes being typical during the 8am to 5pm period.

The average travel time during the day has been compared to evening/overnight off-peak periods for both school holidays and term times, as shown by **Table 3**. The data shows that travel times are slightly longer during the holiday period.

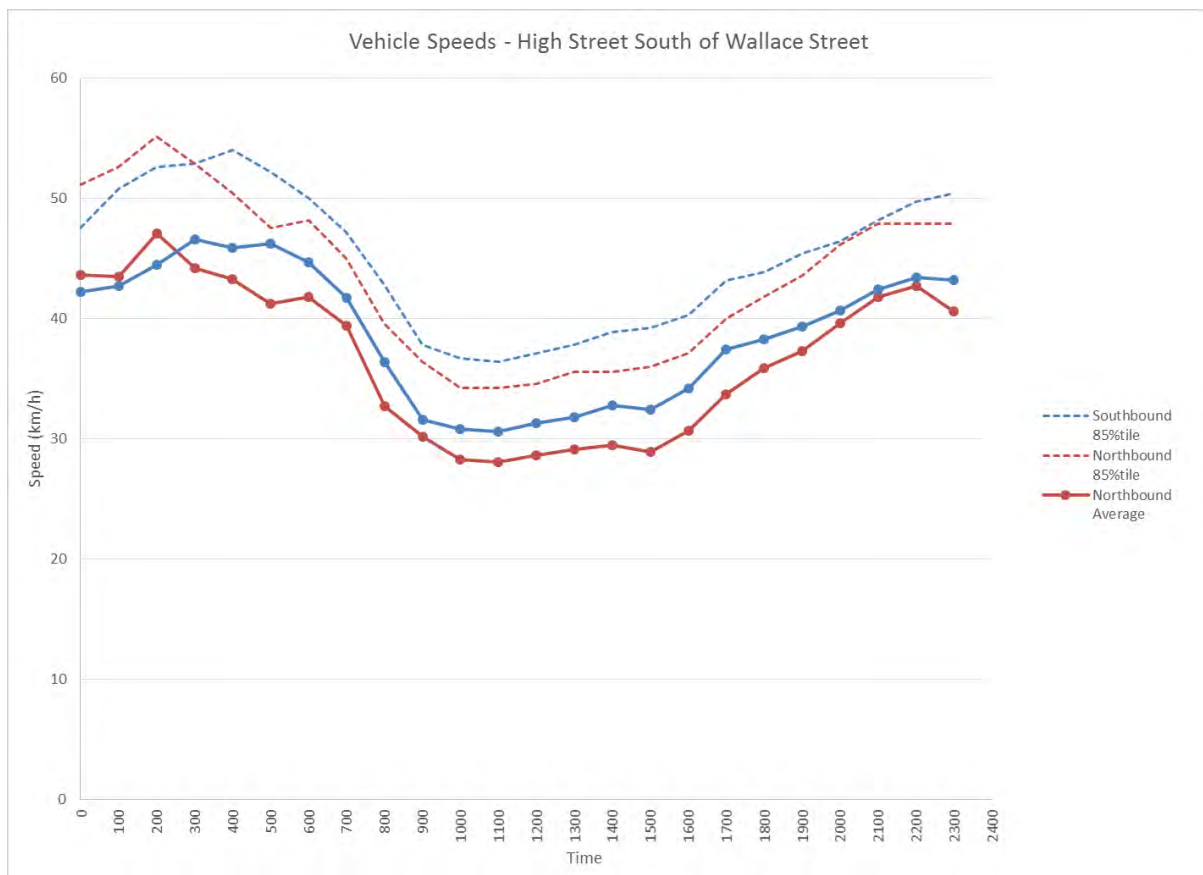
**Table 3: Average travel time delay (minutes)**

		BETWEEN LOWE STREET AND FEARON STREET	BETWEEN WHARF ROAD AND LOWE STREET
School Holidays	0-6am	2.1	2.5
	9am-5pm	3.5	2.6
Term time	0-6am	2.0	2.7
	9am-5pm	3.1	3.0

### Vehicle speeds

The effect of competing interests on vehicle speeds has also been investigated. **Figure 12** shows the variation in vehicle speed on High Street through the day. This graph is based on data from September 2014. The graph shows that between 8am and 5pm there are delays, with average travel speeds in both directions of around 30km/hr. The 85<sup>th</sup> percentile speeds are around 35km/hr. This is a relatively low speed environment during the daytime.

**Figure 12: Variation in vehicle speeds through the day (September)**



### Alternative Routes

Anecdotally residents report avoiding High Street and using local roads wherever possible to complete their journeys. The reason given is that it is too hard to turn right on to High Street from side roads. This leads to more traffic on residential streets as well as longer, more circuitous routes being taken by drivers.

To investigate this further, traffic counts were obtained for the key roads in the study area as shown in **Table 4**. The data shows that traffic volumes are relatively high on High Street through the Motueka town centre study area, when compared to traffic volumes to the north and south. The busiest intersections are King Edward Street, Whakarewa Street, Pah Street and Tudor Street, with traffic volumes between 2,000 and 5,000 vehicles per day, which is within the normal range for local roads. This evidence alone is not sufficient to support the anecdotal use of alternative routes by residents.

The data does show a higher than expected percentage of heavy vehicles on Queen Victoria Street, and suggests this may be being used by some through traffic to avoid High Street. Swamp Road may be performing a similar function for Riwaka.

**Table 4: Traffic volumes in the study area**

SITE		DATE	%HV	ADT
HIGH STREET SH60	Ruby Bay Bypass (south)	2015	9%	5,956 (AADT)
	Shell Garage	2015	5%	13,105 (AADT)
	Motueka Bridge (north)	2015	8%	7,433 (AADT)
	Wharf Road	4/7/2016	8%	1,644
	High Street South	4/7/2016	7%	2,128
	King Edward Street	11/1/2017	10%	4,618
	Old Wharf Road	26/9/2016	8%	2,404
	Whakarewa Street	7/3/2016	4%	3,549
	Woodland Avenue	27/5/2011	3%	630
	Tudor Street	26/9/2016	5%	2,723
	Wallace Street	24/11/2014	7%	1,088
	Pah Street	15/8/2016	5%	2,903
	Greenwood Street	26/9/16	4%	2,058
	Thorp Street	26/9/2016	2%	2,284
	Queen Victoria Street	7/3/2016	9%	2,807
	Swamp Road (Riwaka)	16/3/2016	8%	1,498

### Conclusions from evidence for Problem 1

Overall, there is compelling evidence to support Problem 1, in particular:

- There is evidence of competing interests leading to delays and anecdotally to use of alternative routes. There is also evidence that competing interests are leading to safety issues. This is discussed further under Problems 2 and 3
- There has been traffic growth since 2011, particularly in the summer peak. If growth continues any current problems are likely to become worse. There is evidence of heavy traffic growth, which adds to risk
- Turning right out of side roads and accesses is already an issue with delays likely to be leading to driver frustration, risk taking and use of alternative routes
- There is high parking turnover on High Street and parking manoeuvres take place in the live traffic lane leading to congestion and risk. Drivers also exit their cars in to the live traffic lane, and often will then cross the road immediately rather than use the zebra crossings, increasing risk and delays
- There are higher than expected numbers of cyclists. Cyclists can delay through traffic. There are no cycling facilities and a number of risks for cyclists
- Competing interests such as pedestrians crossing and parking manoeuvres are leading to delays in the holiday period when travelling between Lowe Street to the north. These delays are in both directions. They are worse in the middle of the day, in the summer holiday period. There are also delays during the day in term time
- In September, average traffic speeds are around 30km/hr in both directions between 8am and 5pm but higher outside these times

- The evidence for use of alternative routes by residents is anecdotal. The data suggests that if this is occurring, it is not presenting a particular problem in transport terms. However the higher than expected numbers of heavy vehicles on Queen Victoria Street may suggest that through traffic is using this route as an informal bypass of Motueka town centre.

**Problem 2: Pedestrian crossing movements are creating confusion, congestion and safety issues (weighting increased from 30% to 35%)**

This problem has been investigated in terms of location and design of pedestrian crossings, the number of people using them, and locations of crashes involving pedestrians and cyclists.

**Pedestrian Crossings - Observations**

The formal pedestrian crossing facilities in the main shopping area of High Street are zebra crossings, and are between 130m and 185m apart. Zebra crossings offer the highest level of service to pedestrians, giving them priority and freedom to cross without significant delay, although they are known to carry a high level of risk as there is no protection to pedestrians if vehicles fail to adhere to pedestrian crossing rules.

There are five zebra crossings in the town centre, three on the High Street, and two on side streets near to intersections with High Street. The locations are shown in **Figure 13**.

**Figure 13: Location of pedestrian crossings**



In 2010<sup>3</sup>, issues with the zebra crossings were identified, as follows:

**Site 1: Zebra crossing on High Street just south of intersection with Pah/Greenwood Streets.**



Crossing located within a right turn bay at a priority controlled cross roads intersection.

Street lighting and visibility of pedestrians waiting to cross reduced by street tree.

Street furniture, bollards, bins, verandas, sandwich boards and street signage combine to make a busy roadside environment.

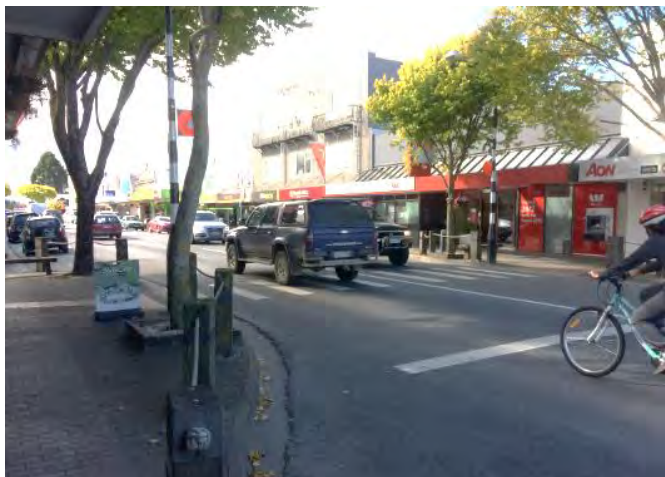
**Site 2: Zebra crossing on High Street north of intersection with Wallace Street.**



Significant shade effect from trees on both sides, reducing visibility of pedestrians waiting to cross and those crossing.

Parallel parking within the preferred no parking zone, parked cars may obscure pedestrians waiting to cross.

Street furniture, bollards, bins, verandas, sandwich boards and street signage combine to make a busy roadside environment.



Kerb build out provides space for pedestrians to congregate without impeding pedestrian through traffic on the relatively narrow footpaths. May make it difficult for drivers to distinguish between pedestrians waiting to cross and those congregated on the footpath.

No advance warning signage.

<sup>3</sup> Motueka Transport Study 2010 (MWH).



**Site 3: Zebra crossing on High Street north of intersection with Tudor Street.**



Significant shade effect from trees on both sides, reducing visibility of pedestrians waiting to cross and those crossing.

Crossing located beside give way controlled intersection where turning drivers are focussing on manoeuvring onto High Street, and not always on pedestrians using the crossing.

**Site 4: Zebra crossing on Wallace Street close to High Street intersection.**



Tasman District Council recently altered this zebra crossing located approximately 6m from the High Street intersection, to achieve a narrower crossing distance and increased separation from High Street to allow a car entering Wallace Street to stop clear of High Street.

There is angle parking downstream of crossing.

**Site 5: Zebra crossing on Greenwood Street close to High Street intersection.**



Crossing is located approximately 6m in advance of limit line.

Crosses two intersection approach lanes and one departure lane.

Street tree shades crossing.

A further deficiency is that crossing facilities at intersections are not consistent.



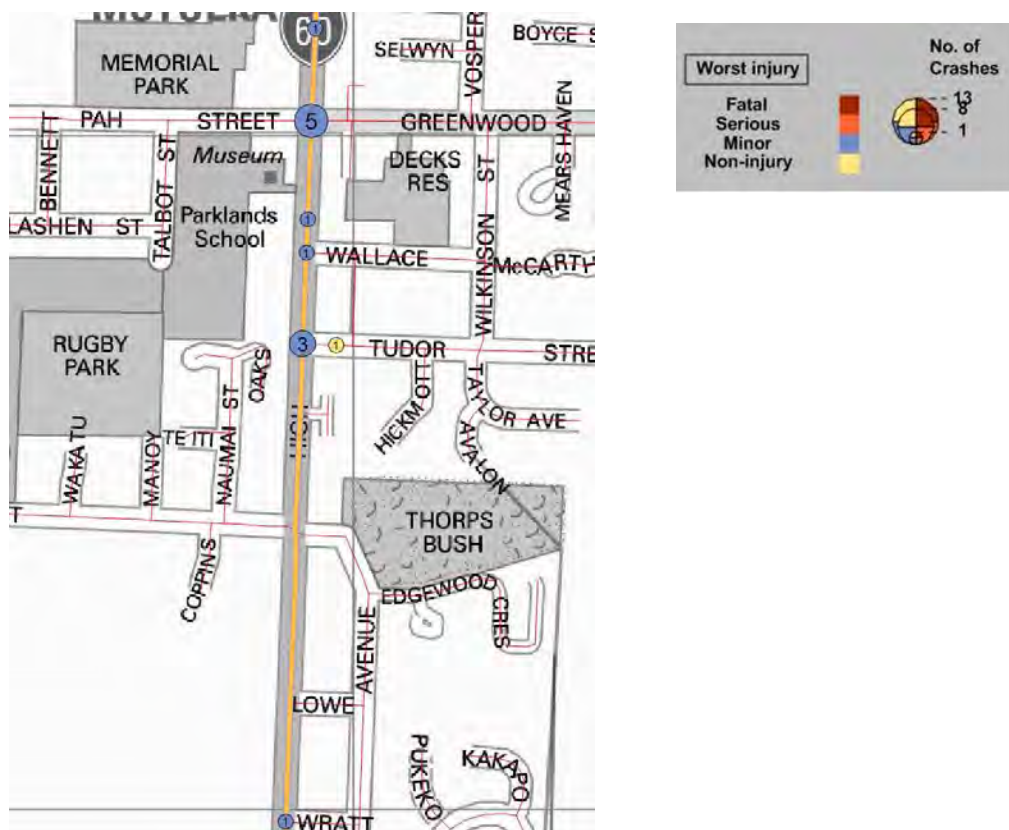
## Pedestrian and Cyclist Safety

In the period 2012-16 there have been a total of 11 crashes in the study area involving pedestrians, and one involving a cyclist, with severity as indicated in Table 5. The location of these crashes is shown in Figure 14.

Table 5: Vulnerable road user crashes by severity (2012-16)

SEVERITY	PEDESTRIANS	CYCLISTS
Non-injury	1	0
Minor	10	0
Serious	0	1
Fatal	0	0
TOTAL	11	1

Figure 14: Location of vulnerable user crashes (2012-16)



The crash data indicates most risk for pedestrians crossing at the following intersections:

- Greenwood/Pah/High Street (5 crashes)
- Tudor/High Street (3 crashes)

The cyclist accident resulted in a serious injury. The cyclist was using the footpath 50 metres south of Poole Street and a turning driver did not see the cyclist and vice versa.

## **Pedestrian Crossing Movements**

A survey of pedestrians crossing in January 2017 gave the results in **Table 2** (previous section) which indicate there are high number of pedestrians using the facilities, suggesting they are well located.

Observations suggest there are also a number of pedestrian movements between the formal pedestrian crossings on Motueka High Street. There are several factors contributing to the observed random crossings<sup>4</sup>:

- shops and businesses spread along both sides of the road
- narrow width of the road
- on-street parking where people exit their cars into the live lane and immediately try and cross to/from their car to the other side
- low speeds of vehicles on High Street.

## **Conclusions from evidence for Problem 2**

Overall there is compelling evidence to support Problem 2, as follows:

- There are known deficiencies with the existing formal pedestrian crossings
- There have been a number of minor injury crashes involving pedestrians
- There are high numbers of pedestrians crossing
- When zebra crossings are in use, long queue lengths were recorded on High Street.

## **Problem 3: High traffic volumes and poor intersection layouts are encouraging drivers to take risks with resulting safety issues or use of alternative routes (weighting increased from 20% to 35%)**

The evidence relating to high traffic volumes and side road levels of service has already been presented under Problem 1. Problem 3 has been further investigated by analysing crash data for intersections.

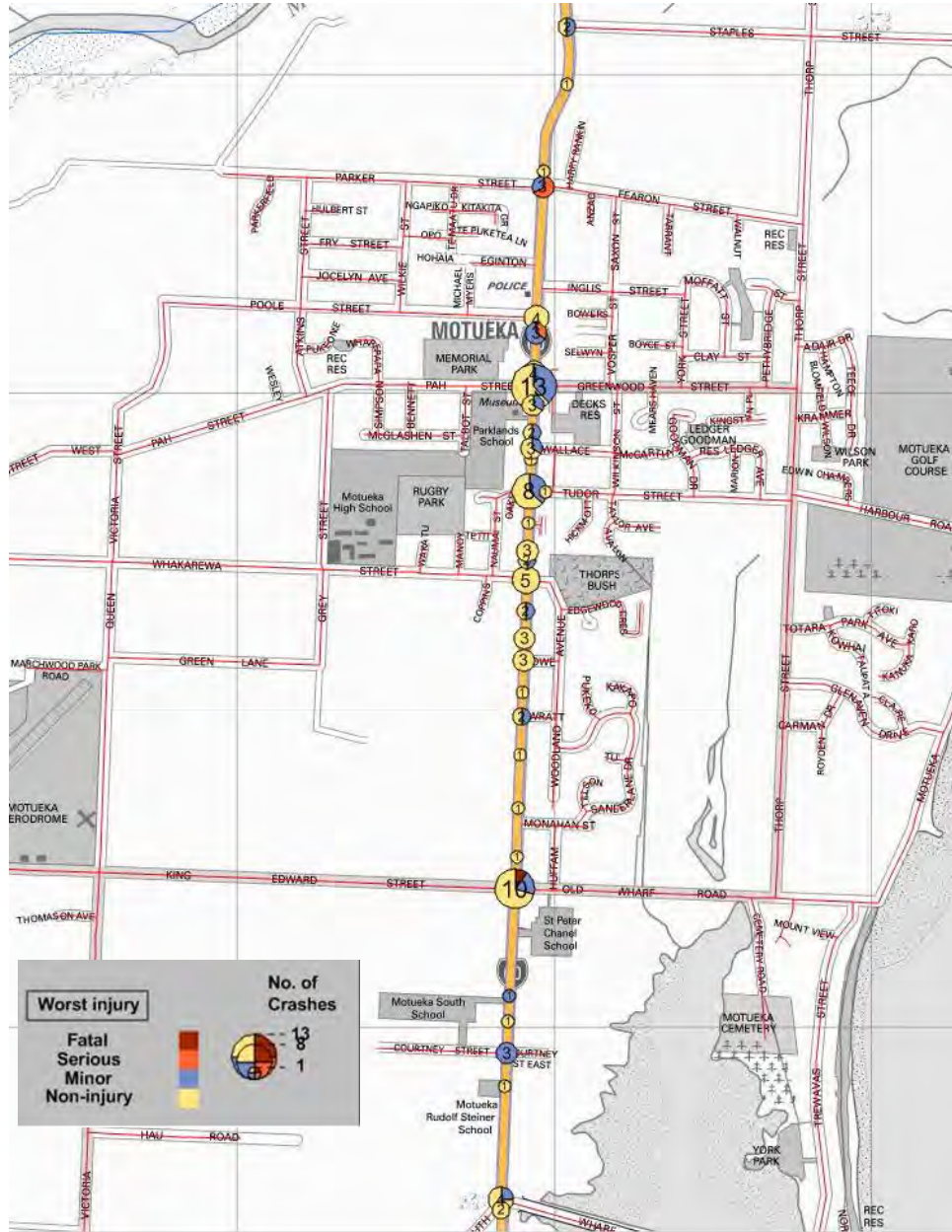
---

<sup>4</sup> Motueka Transport Study 2010

## Crash Data

The location of crashes on High Street during the period 2012-16 is shown in Figure 15.

**Figure 15: Crash locations (2012-16)**



There are crash clusters at the following intersections:

- Pah/Greenwood/High Street – 13 crashes.
- King Edward/Old Wharf/High Street – 10 crashes, including one fatality.
- Tudor/High Street – 8 crashes.

Although based on data from 2011-15, the Urban KiwiRAP risk map indicates a similar pattern of risk, as shown in **Figure 16**. This map shows the collective risk for each intersection and link. Collective risk is a measure of road safety performance of a road based on crash numbers per kilometre. The collective risk is categorised into a five-tiered risk threshold classification, from low to high. The thresholds have been determined by analysing the safety performance of thousands of intersections in New Zealand, and set so that intersections with a 'High' or 'Medium-High' Collective Risk profile (ie. high-risk) make up fewer than 5% of all intersections in New Zealand.

This again points to the highest risk intersections being Pah/Greenwood/High Street and Tudor/High Street.

**Figure 16: Urban KiwiRAP corridor and intersection collective risk**



A crash analysis has been undertaken using NZ Transport Agency's crash database for the period from 2011 to 2017 for the entire study area. Available data for 2016 and 2017 may not be complete as there is typically a reporting delay of around three months, particularly for minor-injury and non-injury crashes. This could result in incomplete data for 2016 and 2017.

Analysis of this data shows that the most recent five year period (2012-16) has a higher overall social cost than the previous five year period (2007-11) even though it is expected that some minor and non-injury crashes have not yet been added to the database. **Table 6** shows a summary of crashes and severity. While 2012-2016 period has seen a marginal decrease in the total number of crashes, the number of fatal and serious crashes has seen a slight increase.

**Table 6: Distribution of crashes (5 and 10 year periods)**

PERIOD	FATAL	SERIOUS	MINOR	NON-INJURY	TOTAL
2007-11	0	1	21	67	89
2012-16	1	3	16	53	73
Total	1	4	37	120	162

The ten sites with the highest crash costs are presented in Table 7.

**Table 7: Crash sites (Five Year Period 2012-2016), ranked in order (highest ranking first)**

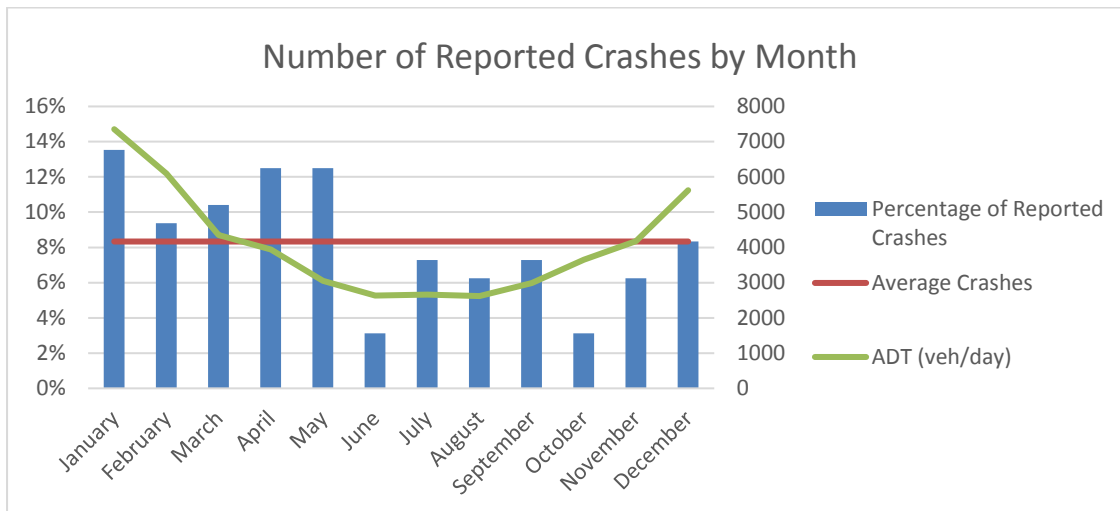
Location
High Street/King Edward Street
High Street/Fearon Street
High Street 50m south of Poole Street
High Street/Pah Street
High Street/Pah Street
High Street/Tudor Street
High Street/Staples Street
High Street 60m south of Greenwood Street
High Street/Wallace Street
High Street 60m north of Whakarewa Street
High Street/High Street South

An investigation into crash type found a high number of rear end and crossing/turning crashes, which reflects the urban nature of the study area. There were also, however, a significant proportion of pedestrian crashes which have a higher probability of serious injury. Poor observation is the highest listed crash cause, followed by failed to give way/stop, incorrect lane/position and poor judgement. Again this is reflective of the complex urban environment.

The high variation in traffic flows throughout the year as a result of the tourist influx has been investigated in terms of the number of crashes occurring during different months, as shown in **Figure 17**.



**Figure 17: Crash totals by month, and traffic volume**



This graph shows a greater than average crash percentage from December through to May. Monthly traffic data from the continuous traffic count site at Riwaka has been added to show the seasonal traffic variation. The relatively high percentage of reported crashes for April and May are despite a traffic volume decrease for these months.

This graph illustrates that crashes are not closely related to volumes – there is not a clear seasonal variation in crash totals. It is noticeable that as volumes decrease in April and May, crash numbers stay high and are more serious.

### Conclusions from evidence for Problem 3

Overall the evidence supports Problem 3:

- Traffic growth data presented for Problem 1 shows that there is traffic growth, meaning any existing problems are likely to become worse
- The side road access investigation for Problem 1 shows that it is hard to turn right out of side roads, and this is leading to risk taking, crashes and anecdotally, use of alternate routes
- There are crash clusters at the intersections with significant turn movements, implying risk taking is occurring as a result of delays and design of intersections at:
  - Pah/Greenwood Street
  - King Edward/Old Wharf Street
  - Tudor/High Street
- Level of Service F at King Edward/Old Wharf/High Street intersection is leading to risk taking as drivers accept smaller gaps in traffic. This site was ranked highest for cost of crashes in the last 5 years
- Tudor Street and Wallace Street traffic is waiting for larger gaps in traffic before turning than normally be expected for intersections of this type. This could be due to the confusing environment, which includes zebra crossings. This is adding to delays.



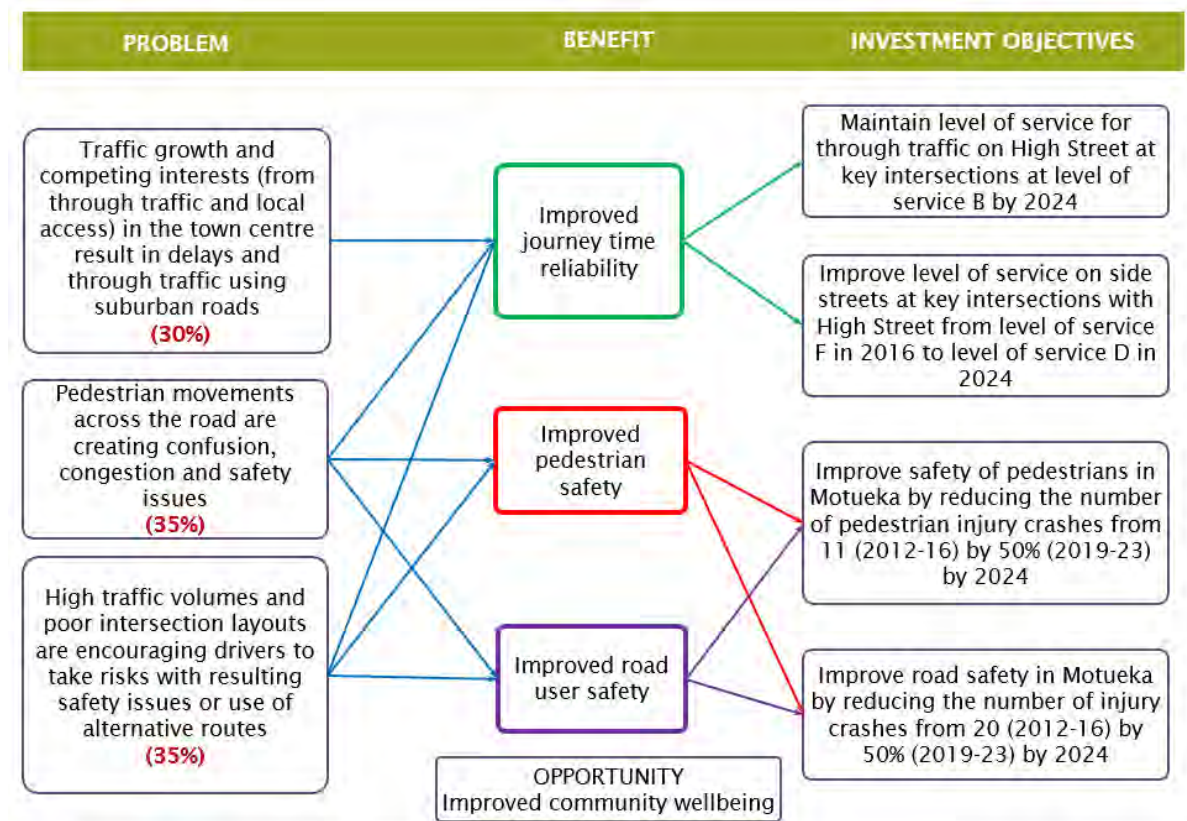
## Investment Logic Map

An Investment Logic Map has been developed which identifies the links between problems, benefits and investment objectives, for this project. The final Investment Logic Map confirmed at the workshop on 24 March 2017 is shown in **Figure 18**.

The stakeholders reduced the weighting given to Problem 1 after reviewing and discussing the evidence presented. They felt that through traffic delays were not as significant as had been expected, and that the safety issues relating to pedestrians and to intersection layouts were more significant and concerning than delays to through traffic.

In addition, 'improved community wellbeing' was reframed as an opportunity, rather than being a benefit. Community wellbeing is difficult to measure objectively, and influenced by many factors other than transport. However the stakeholders still thought it should be recognised that this is an opportunity of addressing the issues on High Street.

**Figure 18: Investment Logic Map**



## 2.2 Issues and constraints

### Transport

The purpose of this phase of work is to identify short to medium term improvements on High Street, Motueka. A bypass for Motueka is not part of the scope, since the Strategic Case found there was not sufficient evidence to indicate urgency in addressing that matter. This will be considered in the SH60 Richmond to Collingwood Corridor Investigation.

The key transport issue for this investigation is that in the short to medium term, High Street Motueka will continue to perform a mix of functions – as an efficient link for through traffic including freight, and a place-making function supporting local town centre activities such as parking, loading/unloading, and pedestrian activity. The form, function and ‘feel’ of High Street also contributes to the character of Motueka. Conflicts associated with these functions will continue, although there is scope to reduce them through improvements arising from this investigation.

### Economic

A constraint to improving pedestrian facilities on High Street is the need to maintain operational efficiency of the road network, particularly SH60, so that it continues to support the regional economy effectively. Providing traffic signals to allow pedestrians to cross, and side roads to gain easier access to High Street, has the potential to reduce the existing level of service for through traffic, adding to delays.

Similarly, improving pedestrian crossing facilities and intersection designs may involve removal of on-street parking which may have an impact on surrounding businesses that rely on passing trade. Parking mitigation is possible, and parking supply and management needs to be considered as part of the investigation.

Turning out of access ways onto High Street can be difficult. It would be beneficial to consolidate the number of access ways, in conjunction with property owners and one way to do this is by consolidating some accesses which are currently separate. Property owners may not be supportive of such proposals.

### Social

Previous studies have identified that street trees are affecting visibility of pedestrians crossing or waiting to cross at zebra crossings. Street trees have a significant positive effect on the ‘look and feel’ of Motueka, and may be of ecological/urban design value but if they are increasing risk for pedestrians the investigation must consider the options for balancing the competing interests.

If zebra crossings are replaced with pedestrian signals, or the intersections fully signalised with a pedestrian phase, this will provide improved safety for pedestrians, but will increase the average time that a person needs to wait to cross the road. This is a lower level of service for pedestrians compared to what is currently provided, although it is safer.

### **Stormwater**

Motueka is flat and prone to flooding so stormwater flow paths will need to be carefully considered in any design especially where new areas of hard surface are being introduced eg. for a roundabout.

### **Services**

There are underground services and these will need to be considered in any designs.

### **Stakeholders**

Different sections of the community may not agree on the solutions to the problems.

## 3. OUTCOMES

This chapter demonstrates clear alignment between the strategic goals of national, regional and local transport strategies and the project investment objectives of improved journey time reliability and improved road safety.

### 3.1 Strategic outcomes

A summary of the strategic outcomes from each organisations' key strategy and policy documents is provided below. Overall, the investment aligns with and will contribute to Government and Transport Agency aims, and to regional and local aims. The detail of how the investment will contribute is provided in the sections below, which take each key strategy document and describe the alignment between the strategy objective/aim and the investment outcomes.

#### 3.1.1 Ministry of Transport

##### Government Policy Statement on Land Transport Funding 2015-25 and Draft for 2018-28

Investing in a scheme to improve safety and improve journey time reliability on Motueka High Street aligns closely with all the objectives of the Government Policy Statement as shown and described in **Table 8**. The objectives are almost identical in the Draft Government Policy Statement for 2018-28, currently under development – one minor change is noted in the table.

**Table 8: Alignment with Government Policy Statement objectives**

OBJECTIVE	ALIGNMENT
A transport system that is a safe system, increasingly free of death and serious injury	The focus of the project is on improving pedestrian and intersection safety.
A transport system that addresses current and future demand for access to economic and social opportunities	Improvements to turning at Whakarewa Street/High Street will allow easier access from proposed new development areas to the west of Motueka; improvements to journey time reliability will improve the level of service on a Regional State Highway, supporting freight and tourism across the region.
A transport system that is reliable and resilient (note 'reliable' is not part of this objective in the draft GPS)	Intersection redesign (e.g. provision of traffic controls, right turn bays) and better management of pedestrians crossing will result in fewer disruptions and improved resilience and travel time reliability.
A transport system that delivers the right infrastructure and services to the right level at the best cost	Using a business case approach ensures decision making is based on evidence which will help to ensure the solution provides the right infrastructure at the best cost.

OBJECTIVE	ALIGNMENT
A transport system that provides appropriate transport choices	Active modes are supported through pedestrian safety improvements, and some provision for cyclists.
A transport system that mitigates the effects of land transport on the environment	Improving journey time reliability and levels of service for side roads at intersections with High Street may reduce traffic using suburban streets.

### 3.1.2 Ministry of Transport

#### Statement of Intent

The proposed investment aligns with the Statement of Intent's focus on providing predictable journeys for urban customers, as shown in **Table 9**. There is also a slight alignment with the urban cycling priority.

**Table 9: Alignment with relevant Statement of Intent priorities**

PRIORITIES	ALIGNMENT
Predictable journeys for urban customers	Intersection redesign (e.g. provision of traffic controls, right turn bays) will contribute to travel time reliability
Make urban cycling a safer and more attractive choice	Intersection improvements will consider safety of cyclists

#### Safer Journeys Action Plan 2016-2020

Investing in Motueka town centre aligns closely with the Safer Journeys Action Plan focus on reducing risk on urban arterial roads, and risk related to intersection crashes and vulnerable road user crashes, as shown in **Table 10**.

**Table 10: Alignment with Safer Journeys Action Plan 2016-20 Objectives**

OBJECTIVE	ALIGNMENT
Reduce risk on highest risk roads, particularly those: <ul style="list-style-type: none"> <li>• on urban arterial roads</li> <li>• related to head on, run off road and intersection crashes</li> <li>• related to vulnerable road users</li> <li>• related to crashes on the open road</li> </ul>	The investigation is focussed on supporting safer travel on urban arterial roads, related to intersection crashes, and related to vulnerable road users (primarily pedestrians, although motorcyclists and cyclists are also likely to benefit from intersection safety improvements)



### 3.1.3 Regional Transport

#### Connecting the Top of the South - Tasman Regional Land Transport Plan 2015-2021

Investing to address the identified problems aligns with the Regional Land Transport Plan focus on supporting economic growth and reducing deaths and serious injuries (Table 11). It also contributes to addressing transport issues identified on Motueka High Street, and progresses the commitment to three intersection upgrade activities identified in the plan, which are within the study area.

**Table 11: Alignment with Regional Land Transport Plan Objectives**

OBJECTIVE	ALIGNMENT
A sustainable transport system that is integrated with well planned development, enabling the efficient and reliable movement of people and goods to, from and throughout the region	Intersection redesign (e.g. provision of traffic controls, right turn bays) will contribute to travel time reliability for people and freight
Supporting economic growth through providing better access to Nelson-Richmond and the two regional ports	Intersection redesign (e.g. provision of traffic controls, right turn bays) will contribute to travel time reliability and better access to the Port of Nelson
Communities have access to a range of travel choices to meet their social, economic, health and cultural need	Improved pedestrian safety may make walking more attractive in Motueka
Communities have access to a resilient and reliable transport system	Intersection redesign (e.g. provision of traffic controls, right turn bays) will contribute to travel time reliability
Deaths and serious injuries on the region's transport system are reduced at reasonable cost	The focus of the investigation is on improving pedestrian and intersection safety

Also included in the Plan is the following commitment to investment in Motueka to address the problems identified:

#### ***Motueka High Street***

*Following the Motueka Transportation Study in 2010, a number of projects were identified. Some of these projects still need to be assessed. Congestion on High Street is made worse by the location of three zebra pedestrian crossings and the lack of dedicated turning facilities for a number of intersections along the road. During the peak tourist period between December and February, High Street, Motueka can come to a standstill. Signalised pedestrian crossings will alleviate some of the issues but there will be a need to implement further improvements. In off peak times of the year, approximately 13,000 vehicles per day travel on High Street, Motueka. This volume increases significantly during the summer peak period.<sup>5</sup>*

---

<sup>5</sup> Tasman Regional Land Transport Plan p36

Activities proposed within the study area by the Transport Agency in the Regional Land Transport Plan are as follows:

- 2017-19: SH60/Pah/Greenwood Street intersection upgrade including traffic signals to improve efficiency (design and construction estimate \$600,000)
- 2018-21:
  - SH60/Whakarewa Street/Woodlands Avenue intersection upgrade
  - SH60/Old Wharf Road/King Edward Street intersection upgrade

The proposed investment will allow the Transport Agency to realise the commitment made in the Plan.

### 3.1.4 Tasman District Council

#### Tasman Amended Long Term Plan 2015-25 (amended in 2016 following consultation)

Investing in the problems identified will contribute to both of Tasman District Council’s community outcomes relating to transport, as shown in **Table 12**.

**Table 12: Alignment with Tasman Long Term Plan Community Outcomes**

COMMUNITY OUTCOMES	ALIGNMENT
<p>Our infrastructure is efficient, cost effective and meets current and future needs</p> <ul style="list-style-type: none"> <li>• Our urban communities have a means of travel for pedestrians, cyclists and commuters that is safe and efficient.</li> <li>• Our rural communities have safe and effective access to our transport network</li> </ul>	<p>The focus of the investment is on improving pedestrian and intersection safety. There will also be safety benefits for commuters and cyclists.</p>
<p>Our communities are healthy, safe, inclusive and resilient</p> <ul style="list-style-type: none"> <li>• Our network of roads, footpaths, cycleways and car parks are safe, uncongested and maintained cost-effectively</li> <li>• Our network of roads connects communities across the district</li> </ul>	<p>Intersection redesign (e.g. provision of traffic controls, right turn bays) will contribute to travel time reliability and improve community connectivity.</p>

#### Tasman Transport Activity Management Plan

The Activity Management Plan objective to which this investment will contribute is safety – that the transport network is becoming safer. The Activity Management Plan includes a relevant project ‘Motueka Town Centre Renewal’, described as ‘*upgrade of High Street pedestrian areas to provide for a shared environment. A total of \$861,000 is allocated over 10 years from 2015/16*’. Property designations are noted at Pah Street, Queen Victoria Street, Green Lane and Grey Street, to allow for future transport needs, as well as a car parking designation for Whitwell car park.

## Tasman District Council Open Space Strategy 2015-25

The Open Space Strategy recognises the importance of the extension of Tasman's Great Taste Trail (part of the NZ Cycle Trail, one of NZ's Great Rides) within the Motueka Ward, from Motueka through to Kaiteriteri. Counter data collected for the period January – March 2014 confirms the popularity of this trail with over 3,500 bikes recorded per month. The strategy contains an action to continue to support access to this trail. Providing for cyclists as part of the investment in Motueka town centre issues will help to support the safe operation of the Great Taste Trail, as cyclists from the Trail deviate to visit Motueka.

### 3.2 Programme outcomes (Investment Objectives)

The potential benefits of investing were initially identified by key stakeholders involved in the Strategic Case. The benefits were revisited at the workshop in March 2017 to give the following:

**Table 13: Potential benefits of Investing**

PRIMARY BENEFIT	DESCRIPTION
<b>Improved journey time reliability</b>	This benefit captures the potential to reduce delays along High Street, and also at local road intersections with High Street. This relates to the competing interests problem.
<b>Improved pedestrian safety</b>	This benefit captures the potential to reduce serious injuries for pedestrians. This relates to the pedestrian crossing problem.
<b>Improved road user safety</b>	This benefit captures the potential to reduce deaths and serious injuries from crashes along High Street. This relates to the safety/alternative routes problem.
OPPORTUNITY	
<b>Improved community wellbeing</b>	This opportunity captures the potential to increase community cohesion by reducing severance, improving safety and reducing existing problems with the operation of High Street. This relates to the competing interests problem, and the safety/alternative routes problem.

Four SMART<sup>6</sup> Investment Objectives were discussed with key stakeholders at an Investment Logic Mapping workshop in March 2017, and are shown in **Figure 17** and listed below:

- Maintain level of service for through traffic on High Street at key intersections at level of service B (peak) by 2024 (key intersections: High/King Edward/Old Wharf Streets, High/Whakarewa/Woodland, High/Tudor Streets, High/Wallace Streets, High/Greenwood/Pah Streets), recognising that it is currently level of service A
- Improve level of service on side roads at key intersections with High Street from level of service F in 2016 to level of service D (peak) in 2024 (key intersections: High/King Edward/Old Wharf Streets, High/Whakarewa/Woodland, High/Tudor Streets, High/Wallace Streets, High/Greenwood/Pah Streets)

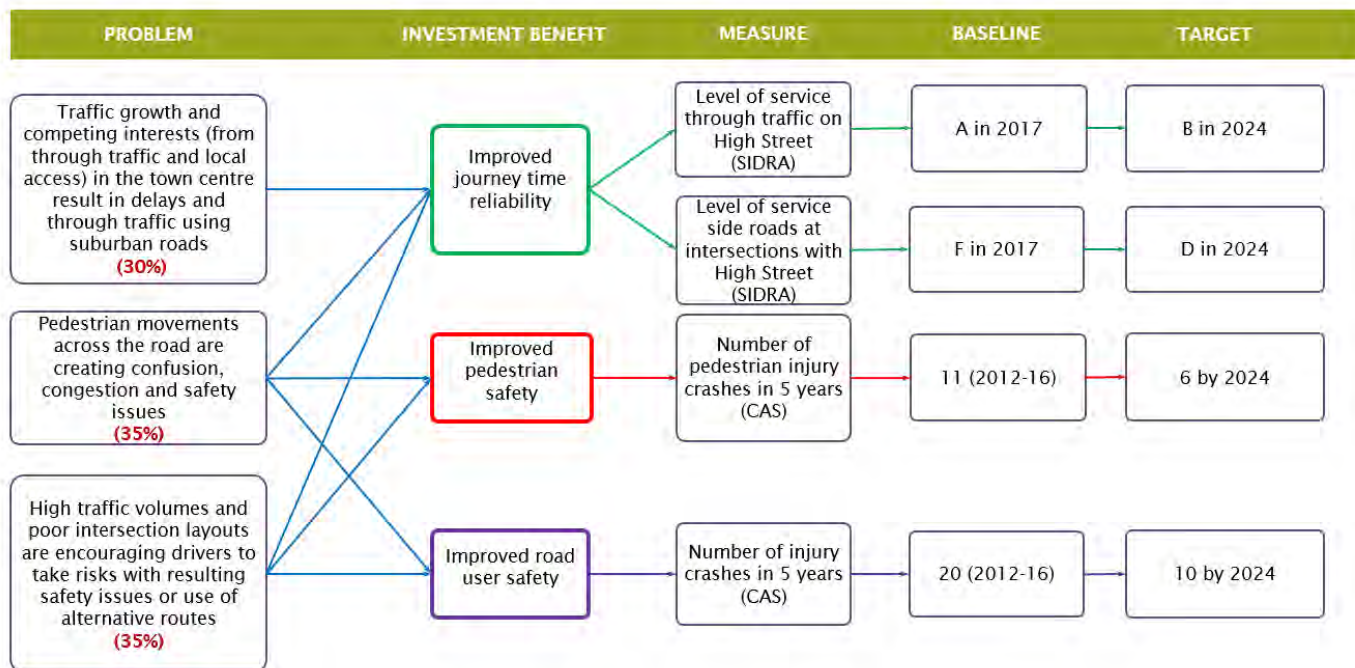
---

<sup>6</sup> SMART = Specific, Measureable, Achievable, Relevant and Time bound.

- Improve safety of pedestrians on High Street Motueka by reducing the number of pedestrian injury crashes on High Street (Staples Street to Wharf Road roundabout) from 11 (2012-16) by 50% (2019-23) by 2024.
- Improve road safety in Motueka by reducing the number of injury crashes on High Street (Staples Street to Wharf Road roundabout) from 20 (2012-16), by 50% (2019-23) by 2024.

A Benefit Map has been developed and is shown in **Figure 19**.

**Figure 19: Benefit Map**



## 4. STAKEHOLDERS

The affected population includes the residents and businesses located in Motueka and the wider Tasman District, tourists passing through or visiting Motueka, and freight/commercial users passing through Motueka.

There is considerable interest in this project from the local community and Tasman District Council are a key partner. Engagement to inform the preferred option and the designs is an essential part of the process.

The key stakeholders consulted to date have been representatives from:

- NZ Transport Agency
- Tasman District Council (staff)
- Tasman District Council (elected members)
- Motueka Community Board
- Automobile Association
- NZ Police.

A summary of consultation at the different project phases is as follows:

**Table 14: Summary of consultation at different project phases**

STAGE	STATUS	ENGAGEMENT
Strategic Case	Complete	Stakeholder workshop
<b>Single Stage Detailed Business Case</b>	<b>In progress</b>	<b>Stakeholder workshops</b> <b>Community engagement</b> <b>Affected party conversations</b>
Pre-Implementation	To be started	Affected party consultation Stakeholder conversations
Implementation	To be started	Affected party consultation Stakeholder conversations

This project is currently at the Single Stage Detailed Business Case stage.



## 5. DRAFT OPTION ASSESSMENT

A long list of options to address the problems was developed. Each option was assessed against a range of criteria. This allowed some options to be excluded and others to be carried forward to a draft short list for consultation.

### 5.1 Options analysed

A long list of options was generated for each problem statement at a stakeholder workshop on 24 March 2017. Additional options that were identified following the workshop were added in. These were options that had previously been identified, or those that arose as the project team were considering the options.

A draft multi-criteria analysis (MCA) was completed for the long list of options. The *NZTA Business Case MCA Guidance* was used to determine the criteria and weightings. A score was given to each option based on:

- Its contribution to each of the four investment objectives
- Its contribution to two of the Implementability criteria from the MCA Guidance
- Its contribution to four of the Assessment of Effects criteria from the MCA Guidance.

A 7 point scale was used, from +3 to -3 as follows:

3	Significant benefit or alignment
2	Moderate
1	Slight
0	Neutral/No impact
-1	Slight
-2	Moderate
-3	Significant dis-benefit or misalignment

Weightings were given to each set of criteria. The base weighting was:

- Objectives 33.3%
- Implementability 33.3%
- Assessment of effects 33.3%

Within those criteria the separate elements were given equal weighting. The scores were then aggregated to give an overall score for the option.

Sensitivity tests were undertaken and included the following:

- Removal of any criteria that double count the investment or activity objectives
- Double the weighting of the objectives criteria
- Double the weighting of the Implementability criteria
- Double the weighting of the assessment of effects criteria.

More detail about the criteria is provided below.

## Investment Objectives:

Each option was assessed against its contribution to the Investment Objectives identified for the project. The Investment Objectives are:

- Maintain level of service for through traffic on High Street at key intersections at level of service B (peak) by 2024 (key intersections: High/King Edward/Old Wharf Streets, High/Whakarewa/Woodland, High/Tudor Streets, High/Wallace Streets, High/Greenwood/Pah Streets), recognising that it is currently level of service A
- Improve level of service on side roads at key intersections with High Street from level of service F in 2016 to level of service D (peak) in 2024 (key intersections: High/King Edward/Old Wharf Streets, High/Whakarewa/Woodland, High/Tudor Streets, High/Wallace Streets, High/Greenwood/Pah Streets)
- Improve safety of pedestrians on High Street Motueka by reducing the number of pedestrian injury crashes on High Street (Staples Street to Wharf Road roundabout) from 11 (2012-16) by 50% (2019-23) by 2024.
- Improve road safety in Motueka by reducing the number of injury crashes on High Street (Staples Street to Wharf Road roundabout) from 20 (2012-16) by 50% (2019-23) by 2024.

## Implementability:

For implementability, the MCA Guidance includes three possible criteria. Only two were considered relevant to this project as outlined below:

- Affordability – What is the likely benefit-cost ratio?
- Stakeholders – How acceptable is the alternative? Are there real or anticipated objections from the community or stakeholders?

The standard ‘feasibility’ criteria was not included because the long list options are straightforward, well established interventions. There are no novel/leading edge technologies or complex options.

## Assessment of Effects:

For assessment of effects, the MCA Guidance suggests six possible criteria. Four of these were considered relevant to this project, as outlined below:

- Safety – To what extent will the option enhance safety for different types of transport users? What is the impact on personal safety/security? What is the impact on fatal/serious injuries?
- Community – Could the option affect accessibility for the public, including access to essential goods and services? How does it impact community cohesion? Will access to and enjoyment of community areas be enhanced or reduced? Will the option reduce noise and air quality effects by redirecting traffic flow through areas with fewer sensitive receivers? How does the option impact on property? Will additional property purchase be required? Are there property risks to delivery and can they be managed?
- System integration – Are there opportunities to enhance the active travel modes and/or linkages to other national or regional recreational cycle networks? Are there travel time savings? Does the option support other modes of transport?

- Economy – How does the option impact economic growth? How well does the option enhance the development potential of adjacent land/attract new jobs/help existing businesses?

The ‘cultural’ criteria was not included because none of the options are expected to impact on cultural and iwi values, and because the majority of proposed options are within the existing road reserve, there is not expected to be an impact on any recorded, scheduled or listed sites of historical, cultural or archaeological importance. The ‘natural environment’ criteria was not included because there are no outstanding landscapes, natural features, ecological areas or coastal marine/water bodies affected by any of the options.

The draft MCA allowed the long list of options to be provisionally reduced to a short list. Appendix B provides an explanation of the draft assessment of each option and identifies those that were carried forward to the draft short list and those that were excluded. Appendix C is a list of all those that have been included in the short list.

## 5.2 Package of options for public engagement

The draft multi-criteria analysis allowed a short list of improvements to be identified for engagement and further investigation. No decisions or commitments have been made about the options at this stage.

The shortlisted options are presented below and are divided into two sets:

- Intersection or road layout improvements located outside the central shopping area, along with treatments that would apply to the whole study area
- Intersection or road layout improvements that fall within the central shopping area. The central shopping area is defined as High Street from the intersection with Tudor Street to the intersection with Pah and Greenwood Streets.

### 5.2.1 Outside central area

More information about these improvements is presented in **Table 16** and a summary given below:

King Edward/Old Wharf/High Street intersection (for plans refer to Appendix D: King Edward/Old Wharf/High Street): This site has the poorest crash record in the study area, with seven crashes in the last five years, including one fatality. There are also considerable delays turning right out of King Edward Street at peak times. It is proposed that this intersection be upgraded to a roundabout. This will make the intersection safer and make it easier to turn out of King Edward and Old Wharf Streets, reducing delays.

Whakarewa/Woodland/High Street intersection (for plans refer to Appendix E: Whakarewa/Woodland/High Street): There have been four non-injury crashes at this location in the past five years. The safety issues at this location are minor, however it is difficult to turn out of Whakarewa Street at peak times, with queues forming. Future development adjacent to Whakarewa Street will make this situation worse. The options are to either make minor improvements to this intersection, or install a roundabout.

A roundabout would have an added benefit in that it would allow the New World access to be relocated from High Street to Woodland Street.

Parker/Fearon/High Street intersection (for plans refer to Appendix F:

Parker/Fearon/High Street): This site was ranked second in the study area for crash history with two serious injury crashes in this location in the last five years. There are two options to improve safety at this intersection, one is to improve sightlines, and the other is to realign the intersection. Poor visibility was a contributory factor in the past crashes.

Sharrows and Advanced Stop Boxes/Lines for cyclists: There are significant numbers of cyclists using High Street. Providing dedicated facilities for cyclists would mean losing parking from one side of High Street. The preferred option is to install sharrows on High Street, which provide a safety benefit by helping cyclists to position themselves correctly by 'taking the lane', reduces the risk of 'dooring' incidents and raises awareness for drivers that cyclists may be present. Sharrows may result in slower traffic speeds as drivers will be required to travel behind the cyclist. These would be installed throughout the study area as appropriate.

Access way improvements: Turning out of access ways onto High Street can be difficult. It would be beneficial to consolidate the number of access ways, in conjunction with property owners and one way to do this is by consolidating some accesses which are currently separate.

Parking: On-street parking spaces on High Street are the most popular place to park. There is high turnover, with an average stay of 34 minutes. This affects through traffic causing delays and safety issues as parking vehicles manoeuvre in the live traffic lanes.

The main off street public parking areas are underutilised, and the preferred option is to encourage more people to use these spaces through improvements to signage and access. Another option that will be explored through consultation is to make the on-street spaces on High Street longer, so that they are easier to park in. This would mean the overall number of spaces would be reduced, however there would be safety benefits and improved convenience for users. Parking options encompass the whole study area.

Speed Limit: The NZ Transport Agency's Speed Management Guide (2016) has been used to assess the safe and appropriate speed for Motueka, and concluded that it would be 40km/h. In Motueka the posted speed limit is 50km/h, but average speeds during the day are around 30km/h. The guidance for this scenario, where the posted speed limit is higher than the safe and appropriate speed, but where road users are already travelling at the safe and appropriate speed, is that lowering the speed limit would be self-explanatory and credible to road users. The Guide identifies such changes as high benefit opportunities which help to improve community understanding of safe and appropriate speeds, and improves the credibility of speed limit settings. It also helps to explain roads better to visiting drivers. Lowering the speed limit would also support the safety benefit of the sharrows for cyclists. Sharrows work best when the speed difference between cyclists and vehicles is lower. For these reasons, a 40km/h speed limit is proposed on High Street from south of the intersection with Whakarewa/Woodland Street to north of the intersection with Poole Street.

## 5.2.2 Central area

Within the central shopping area, three different options have been identified for consultation. These are described below, and summarised in Table 17. The plans are in Appendix G:

Centre (Tudor to Greenwood StreetS).

**Option 1 (Do minimum)** (High Street between Tudor and Poole Street): The do minimum option would address the primary safety issues in the town centre by removing the zebra crossings and replacing them with pedestrian signals. Minor improvements would be made at each intersection with High Street. These would include a right turn bay at Tudor Street so that right turning traffic does not disrupt through traffic flow, and yellow hatching so that queues on High Street do not block turning movements at the intersections. Pedestrian signals, rather than zebra crossings, would also make it slightly easier for vehicles to turn out of side roads on to High Street, as the signals would create gaps in traffic. The yellow hatching would ensure drivers would be able to take advantage of this opportunity.

Through traffic flows on High Street would be expected to improve slightly compared to the current situation, as currently the zebra crossings cause queues for traffic. This would also happen with pedestrian signals, but modelling suggests there would be less disruption to traffic flows as the timing of pedestrian crossing movements would be controlled. There would be more delay for pedestrians crossing compared to the current situation, as pedestrians would need to wait for the green crossing phase. However crossing would be safer.

A pedestrian refuge would be installed on High Street between Poole and Pah Streets as there are no pedestrian crossing opportunities on the block of High Street between Pah and Poole Streets. A refuge would improve safety for pedestrians and make it easier to cross the road.

**Option 2** (High Street between Tudor to Poole Street): Option 2 would address the primary safety issues in the town centre by removing the zebra crossings and replacing them with signalised crossings. However, Option 2 goes further by introducing full signals at the Tudor and Pah/Greenwood Street intersections. This would mean that safety would be improved for pedestrians crossing not just High Street but side streets as well.

Safety would also be improved for all road users at the Tudor and Pah/Greenwood Street intersections as turning movements would be controlled by the signals. Both these intersections have a history of minor and non-injury vehicle crashes over the last 5 years. These intersections are the third and fourth busiest in the study area. Levels of service would also be improved at these intersections making it easier for vehicles to turn out of side roads on to High Street and improving journey time reliability. Average delays for through traffic would be expected to be slightly worse than the current situation, but level of service B at intersections would still be expected.

At the current zebra crossing location just north of Wallace Street, the zebra crossing would be removed and a pedestrian refuge provided instead. The refuge would provide a facility for pedestrians to cross the road and ensure traffic continues to flow, however it would provide a far lower level of service for pedestrians than is currently provided by the zebra crossing.



No pedestrian refuge would be required on High Street between Pah and Poole Streets, as there would be a signal controlled crossing at the Pah/Greenwood intersection.

**Option 3** (High Street between Tudor and Poole Streets): Option 3 includes the same elements as Option 2 except instead of a pedestrian refuge just north of Wallace Street, pedestrian signals would be provided in this location. The signals would provide a better level of service for pedestrians than provided with a refuge under Option 2, are safer and meet the guidelines for distances between pedestrian crossings. However they would introduce additional delay for through traffic compared to Option 2, which may be stopped three times. Currently traffic is potentially stopped three times at the zebra crossings.

The impact on parking is different with each option. Estimates of parking impact are provided in **Table 15**, for High Street between Whakawera and Poole Streets. This assumes parking spaces on High Street remain at their current length.

**Table 15: Parking impact**

Parking type	Existing	Option 1	Option 2	Option 3
High Street car parks	119	92	80	80
Motorcycle parking spaces	2	1	0	0
Cycle rack	2	0	0	0
Tudor Street		No change	5 less	5 less
Pah/Greenwood Streets		No change	14 less	14 less

## 5.3 Option selection

The results of the community consultation and further discussions with stakeholder will feed in to the selection of the recommended option for further analysis. No decisions or commitments to any of the options have been made at this stage.

## 5.4 Next steps

Feedback will be collated and presented to key stakeholders to consider as part of the ongoing evaluation of options.

**Table 16: Improvements located outside the central shopping area, or which apply throughout**

THEME		IMPROVEMENTS		ADVANTAGES	DISADVANTAGES
<b>Intersection Improvements</b>	Transformational upgrade at King Edward/High Street intersection e.g. roundabout	Minor improvements to sight lines or intersection realignment at Parker/Fearon/High Street intersection	Roundabout or minor improvements at Whakarewa/Woodland/High Street intersection (signals not feasible in this location). Roundabout is required if New World access to be adjusted	<ul style="list-style-type: none"> <li>Improvement to levels of service for side roads at King Edward/High Street and Whakarewa/ Woodland/ High Street intersections</li> <li>Addresses known safety issues at King Edward/High Street</li> <li>Addresses known safety issues at Parker/Fearon/High Street</li> <li>Roundabout at Whakarewa/ Woodland/ High Street intersection would allow improvements to New World access to go ahead, and would provide better level of service for turning traffic from new development on Whakarewa Street.</li> </ul>	<ul style="list-style-type: none"> <li>Improvements at Parker/Fearon may involve property purchase</li> <li>Transformational upgrade at King Edward/High Street and/or Whakarewa/Woodland/ High Street will cause delays to traffic on High Street.</li> </ul>
<b>Pedestrian and Cycling Improvements</b>	Pedestrian enhancement on High Street between Pah and Poole Streets e.g. refuge	Sharrows on High Street to help cyclist placement and priority	Provide for cyclists at intersections e.g. Advance Stop Boxes	<ul style="list-style-type: none"> <li>Safety benefits for pedestrians crossing High Street north of Pah Street</li> <li>Minor safety benefit to cyclists of sharrows and intersection provisions (reduce risk of being hit by an opening car door; raising awareness for drivers that cyclists may be present, head start at signals).</li> <li>Sharrows may encourage more cyclists to use the road rather than the footpath, with safety benefits for pedestrians, and perhaps for cyclists as there was a serious injury crash for a cyclist using the footpath 50m south of Poole Street.</li> </ul>	<ul style="list-style-type: none"> <li>Sharrows encourage cyclists to take the lane, which may delay traffic</li> <li>Sharrows may encourage more cyclists on to the road (many currently use the footpath).</li> </ul>

THEME	IMPROVEMENTS		ADVANTAGES	DISADVANTAGES	
<b>General safety</b>	Control new subdivision access to SH, explore relocating/consolidating accesses	Explore 40km/h speed limit	Incorporate TDC urban design in safety improvements	<ul style="list-style-type: none"> <li>• Potential minor safety and level of service benefits from access changes.</li> <li>• Including urban design can increase impact of safety interventions.</li> <li>• Lowering the speed limit to be in line with operating speeds is in line with the self-explaining roads concept from the Speed Management Guide.</li> </ul>	<ul style="list-style-type: none"> <li>• May be difficult to achieve a change in accesses – those affected need to be comfortable with changes.</li> <li>• A lower speed limit will mean that during quiet periods e.g. evening/overnight, vehicles will need to travel more slowly even though there may be little activity in the centre at these times.</li> </ul>
<b>Parking</b>	Parking information: -Parking interpretation board at entrances to town centre -Better direction signs	Better use of off-street parking: -Better access -Encourage short term parking off street and side streets -Explore development of additional off street car parking	Make on-road parking spaces longer to ease manoeuvring time in live traffic lane	<ul style="list-style-type: none"> <li>• Encouraging use of off street parking, through signage, improving access and increasing supply, will make this parking more attractive, reducing vehicles circulating looking for a space and bringing safety benefits and reducing delays to through traffic.</li> <li>• Making the High Street parking spaces longer so that they can be entered and exited in a forward direction will reduce the amount of time manoeuvring in the live traffic lane, with safety benefits and a reduction in delays to through traffic.</li> </ul>	<ul style="list-style-type: none"> <li>• Making on-road spaces longer will reduce the overall number of spaces on High Street. This loss should be offset by additional parking on side streets or off street, to ensure parking supply is maintained to support the attractiveness of the town centre as a destination.</li> </ul>

**Table 17: Options for improvements within the central shopping area (High Street between Tudor and Pah/Greenwood intersections)**

NO	PROGRAMME NAME	TUDOR/ HIGH ST	WALLACE/ HIGH ST	PAH/ GREENWOOD	ADVANTAGES	DISADVANTAGES
1	Option 1 (Do minimum)	Mid-block Pedestrian signals + minor improvements (e.g. right turn bays, yellow hatching, remove parking), pedestrian enhancement on High Street between Pah and Poole Streets e.g. refuge			<ul style="list-style-type: none"> <li>• Prioritises pedestrian safety and through traffic movement.</li> <li>• Addresses concerns about pedestrian safety on High Street.</li> <li>• Improvement to level of service for through traffic on High Street by controlling pedestrian crossing events.</li> <li>• Slight improvement to level of service for vehicles turning out of side roads as there will be gaps in traffic as a result of traffic signals, and minor improvements will provide more opportunities for exiting side roads.</li> <li>• Pedestrian refuge on Pah-Poole Street block provides for safer crossing.</li> </ul>	<ul style="list-style-type: none"> <li>• Minimal improvement to levels of service for side roads (Tudor, Wallace, Pah and Greenwood) due to gaps created in traffic. LOS remains poor.</li> <li>• Does not address issues for pedestrians crossing roads adjoining High Street e.g. Tudor Street.</li> <li>• Parking signage package likely to have less impact without real time parking information signs.</li> <li>• Access to/from side road parking areas remains difficult.</li> </ul>

2	Option 2	Signalise intersection	Pedestrian refuge on High Street near Wallace Street, and minor improvements at Wallace/High.	Signalise intersection	<ul style="list-style-type: none"> <li>• Prioritises pedestrian safety and local access.</li> <li>• Addresses known pedestrian crossing issues on High Street, Tudor and Pah/Greenwood/High Street – and provides improvements for pedestrians crossing side streets.</li> <li>• Signals at Pah/Greenwood addresses safety concerns and significantly improves levels of service on side roads, plus provides better access to off street parking</li> <li>• Real time parking information signage may create real behaviour change and lead to more people parking off street rather than on High Street, with safety improvements and reduction in delays.</li> </ul>	<ul style="list-style-type: none"> <li>• A pedestrian refuge on High Street just north of Wallace Street would not be as safe or provide as good a level of service for pedestrians as pedestrian traffic lights in this location (Option 3)</li> <li>• Through traffic potentially stopped twice.</li> <li>• More parking is likely to be affected than for Option 1.</li> </ul>
3.	Option 3	Signalise intersection	Pedestrian signals	Signalise intersection	<ul style="list-style-type: none"> <li>• As for Option 2, plus improves safety and level of service for pedestrians north of Wallace Street. Pedestrian signals just north of Wallace Street ensures pedestrian crossing facilities are provided 100-130m apart, which is in line with guidance.</li> </ul>	<ul style="list-style-type: none"> <li>• As for Option 2, but through traffic is potentially stopped three times, compared to Option 2 where it is stopped twice.</li> </ul>



## APPENDIX A: MINUTES OF KEY STAKEHOLDER MEETING

<b>Meeting Name</b>	NZ Transport Agency Workshop 1: SH60 Motueka Investigation Detailed Business Case		
<b>Meeting Venue</b>	Meeting Room, Motueka Service Centre, <a href="#">7 Hickmott Place, Motueka</a> , 7143		
<b>Date</b>	Friday 24 March 2017	<b>Time</b>	10am - 1pm
<b>Chairperson</b>	Andrew Maughan	<b>Recorder</b>	Sarah Connolly

<b>Name</b>	<b>Organisation</b>
Andrew James	NZ Transport Agency
Sarah Downs	NZ Transport Agency
Andrew Maughan	STANTEC
Sarah Connolly	STANTEC
Mike Van Enter	STANTEC
Stuart Bryant	Tasman District Council
David Ogilvie	Tasman District Council
Barry Dowler	Motueka Community Board
Jamie McPherson	Tasman District Council
Jenna Neame	Tasman District Council
Richard Kirby	Tasman District Council
Paul Heyward	AA
Rob Ballentyne	NZ Police

	Item
1	Welcome/introductions
2	Strategic case
3	Option identification
4	Option preferences
5	Next steps
6	Workshop close

Workshop notes below are to be read alongside **confidential** workshop presentation in Attachment 1.

### 1. WELCOME/INTRODUCTIONS

MWH now part of Stantec (STANTEC) and NZ Transport Agency (the Transport Agency) provided an introduction about the day, Stakeholders reflected their interest from the day and the business case:

- Stuart Bryant:
  - There has been a lot of talk, want to see some actions come out of this investigation.
  - Interested in both the urban and the wider area.
  - Frustrated nothing has happened in the last 18 years, feel the Transport Agency can work day and night when they need to such as keeping the Lewis Pass open following the earthquakes, want to see a degree of priority given to Motueka.
- Barry Dowler:
  - Has been to all meetings on this study area since 2010.
  - Want to see something happen and move forward with improvements.
- Rob Ballentyne:
  - Want to see some action to improve things.
- Sarah Downs:
  - Listen and report back to the Transport Agency (funding group, Planning and Investment).
  - Was involved in Strategic Case.
- Paul Heyward:
  - Local AA representative.
  - Think Motueka has been short serviced.
  - Its time something was done.
  - Want a funding and timeframe commitment.
  - Need something soon.
- Richard Kirby:
  - Council Engineering Services Manager.
- Jamie McPherson:

- Want to see the right things happening.
- The Council has in its LTP to complete streetscaping in next couple of years.
- Some things outside of traffic to be done but want to see it done in an integrated way.
- Jenna:
  - Involved in early designs.
  - Interested to see something happen.
  - Involved in strategic case workshop.
  - Responsible for strategic infrastructure planning at Council.
  - First detailed business case, want to see how this affects what the Council needs to do.
- Andrew James:
  - Project manager for this investigation on behalf of the Transport Agency.
- David Ogilvie:
  - Been with the local authority since 1971.
  - Motueka has had issues particularly since the 1980s.
  - Has seen very little action.
  - Particular intersections are more urgent (Pah/Greenwood, Clock Tower corner).
  - Key issues include crossings, parking and improving efficiency of flow and safety of crossings.
  - Want to see something happen in the next 12 months.

## 2. STRATEGIC CASE

This follows the presentation made by STANTEC

- The strategic case was overviewed:
  - Conflicts were identified/understood (Strategic Case overview).
  - Safety, congestion, pedestrians, in and out of side roads.
  - Presented problem statements and investment Logic Map (ILM) from the strategic case.

Problem 1 discussion:

- Annual Average Traffic Volumes
  - Note:
    - Riwaka traffic count site is limited by a lot of traffic bypassing using an alternative local route (Swamp Road).
  - Question.
    - Is traffic count graph meaningful as a result of Riwaka data?
  - Answer:
    - Offers context; volume of traffic coming in to Motueka versus how much traffic goes through.
    - Noted action and will follow through regards traffic counts on alternate route.
  - Conclusion:
    - There has been consistent traffic growth in last few years.

- Review the local traffic volume trends through 2010/2011 against national trends over same time period required to understand step in data.
- Monthly average daily flows:
  - Note:
    - High summer versus winter flows.
- Travel time:
  - Question:
    - Is there more data?
  - Answer:
    - Yes. There is new continuous data from Bluetooth, this does not cover all traffic but a representative sample.
    - The Transport Agency will keep Bluetooth survey going for one to two years.
  - Observations from stakeholders:
    - A lot of people avoid the High Street, use Queen Victoria Street; plus Swamp Road, Riwaka. Holiday makers are getting smarter and know alternative routes too.
    - Traffic backed up to Toad Hall for the first time this year.
  - Question:
    - Can we look at the whole transport network and transport system, not just traffic on the High Street in considering options?
- Competing interests – intersections:
  - Observations from stakeholders:
    - See a lot of risk taking at intersections.
    - A lot of passing through traffic stops to let traffic out onto High Street.
    - Sometimes pedestrian crossings help create gaps.
- Competing interests – parking:
  - Observations from stakeholders:
    - P60s most popular.
    - Parking problems and difficulties with people opening doors for cyclists.
    - The Council is improving information signs for off street car parking choices soon.
    - Parking is generating pedestrian movements outside crossing areas.
    - Cyclists need to be considered in solutions.
  - Question:
    - Does team have any comments on cycling in Motueka?
  - Answer:
    - There will be more cyclists if the road is made better.
    - More education is required around cycling through Motueka.
- Problem 1 Summary:
  - Evidence appears to support problem statement.
  - Stakeholders agree problem statement is relevant for consideration.

#### Problem 2 discussion:

- Observations from stakeholders:

- When approaching pedestrian crossings often don't see pedestrians or even crossings themselves as a result of distractions, for example shade from trees across road and contrast with bright sunshine.
- Questions:
  - Can crossings be made more obvious?
  - How do you measure Frustration?
- Question:
  - Can you describe Wallace Street issue?
- Answer:
  - Taking longer gap than you would expect or they should.
- Problem 2 summary:
  - Evidence appears to support problem statement.
  - Stakeholders agree problem statement is relevant for consideration.

#### Problem 3 discussion:

- Presented, discussed and agreed that problem statement is relevant for consideration.

#### Benefits statements:

- Question:
  - If we target improved journey time doesn't this increase risks?
- Answer:
  - Target is about reliability not necessarily reducing journey time; so it is focused on reducing variability of journey time.

#### ILM SMART (Specific, Measurable, Achievable, Relevant, Time bound) investment objectives discussion:

- Comment:
  - Consider have a % reduction in crash rates or reducing trend as opposed to a specific number target.
- Level of service for intersections:
  - Provide stakeholders (and include in business case) a description of what each level of service means.
  - The Council doesn't feel a level of service E is a good enough target.
  - The Transport Agency also feel should aim for a higher level of service than LoS E.
  - Need to be careful of flow on effects of changes to these intersection on other parts of the road and transport network.
- Comment:
  - Feel that if there were signals at intersections this would reduce level of frustration by increasing certainty and therefore reduce risk.
  - Clock Tower and Pah/Greenwood would seem to be good intersections to target signals for, giving certainty that you can travel through safely.
- Summary:

- Stakeholders broadly comfortable with investment objectives, but need to understand trade-offs too.
- Weighting of problems:
  - Felt that the weighting should be changed:
    - Safety 30%.
    - Pedestrians and Intersections 70% combined, possibly 35% each.

### 3. OPTIONS

Two options generating workstations were set up covering:

- a. Safety, and
- b. Delays.

See Attachment 2 for options generated.

### 4. PREFERENCES

STANTEC reflected the options identified for each workstation theme back to the whole group.

Stakeholders were asked to:

- consider evidence presented and options identified, and
- identify their preferences or priorities in these options.

Priorities/preferences identified by stakeholders were (number in brackets indicates number that voted that this was a priority action):

- Install roundabout at King Edward/ Clock Tower corner (10).
- Install signals at King Edward/ Clock Tower corner (10).
- Replace zebras with signalised pedestrian crossings – co-ordinate lights (5).
- Keep Pah/Greenwood and Tudor crossings in same location but signalise intersections (5).
- Provide alternative route for through traffic – add signage to existing roads, and safety check (2).
- Address issues with loading zones – loading causes delays (2).
- Optimise access to on road parking by introducing longer spaces (2).
- Signalise Pah/Greenwood intersection (1).
- King Edward intersection roundabout (1).
- Public relations exercise to help public acceptance about congestion – sign of thriving centre (1).
- Improve visibility of crossings eg. better warning signage, remove parking around crossings, add colour to zebra (1).
- Close New World access on to High Street (1).
- Develop strategic plan for cyclists/pedestrians (1).



- Eliminate cyclists in town centre – provide alternative routes on side roads to east and west of centre eg. Manoy/Talbot – could be walk and cycle paths (1)
- Take out parking by Wallace Street intersection (1).

#### **5. NEXT STEPS**

- Next steps of business case process were presented.
- Overall timing aim to:
  - Go to Community mid-year with shortlisted options; check in with stakeholders prior to this.
  - Next workshop after community engagement, to confirm preferred options to recommend and investigate in more detail.
  - Have draft detailed business case to present to the Transport Agency governance later in the year.

#### **6. WORKSHOP CLOSE**

Workshop closed 1.00pm.

**ATTACHMENT 2 – OPTIONS IDENTIFIED BY STAKEHOLDERS** (number in brackets indicates number that voted that this was a priority action):

Problem 1 – Delays:

- Signalise pedestrian crossings.
- Move pedestrian crossings to where they need to be.
- Remove pedestrian crossings.
- Use yellow hatching at intersections to allow right turn movements.
- Optimise signalised crossings using SCATS.
- Improve zebra crossings, make them self-explaining and remove clutter around them, use red colour on road.
- Signalise Pah/Greenwood intersection (1).
- King Edward intersection roundabout (1).
- King Edward intersection signals.
- King Edward intersection treatment.
- Tudor intersection right turn bay.
- Tudor intersection restrict right turn in/out.
- Tudor intersection signalise.
- Provide alternative route for through traffic – add signage to existing roads, and safety check (2).
- Provide truck bypass via Queen Victoria/Wildman and Thorp St.
- Remove car parking spaces to add turn lanes at blockage areas.
- Address issues with loading zones – loading causes delays (2).
- Remove parking.
- Optimise use of alternative parking.
- Optimise access to on road parking by introducing longer spaces (2).
- Reduce number of accesses on to High Street.
- Whakarewa/Woodland intersection treatment, right turn lane, restrict turn movement.
- Public relations exercise to help public acceptance about congestion – sign of thriving centre (1).

Problem 2 – Pedestrian Safety:

- Move/optimize location of pedestrian crossings, away from trees and intersections
- Take out street trees/furniture.
- Keep Pah/Greenwood and Tudor crossings in same location but signalise intersections (5).
- Improve visibility of crossings eg. better warning signage, remove parking around crossings, add colour to zebra (1).
- Replace zebras with signalised pedestrian crossings – co-ordinate lights (5).
- New pedestrian refuge at Tudor Street.
- Pedestrian refuges at Woodland/Whakarewa.

### Problem 3 – General Safety:

- Ban right turn out of Woodland Ave.
- Widen footpaths to provide for cyclists, mobility scooters – by removing parking on one side.
- Ban sandwich board advertising.
- Allow cyclists to use the footpath.
- Make cycle bells compulsory.
- Slow cycle speeds.
- Close New World access on to High Street (1).
- Improve cycle facilities to encourage tourists into town centre bringing economic benefits.
- Do streetscape improvements at same time as safety improvements.
- Better parking interpretation signage at entrances to town centre.
- Petrol station queues on to High Street, relocate accesses.
- Develop strategic plan for cyclists/pedestrians (1).
- Longer car parking spaces.
- Install roundabout at King Edward/ Clock Tower corner (10).
- Install signals at King Edward/ Clock Tower corner (10).
- Provide right turn bays eg. Wallace.
- Restrict right turn movement especially at Woodland Ave.
- Provide facilities for cyclists.
- Eliminate cyclists in town centre – provide alternative routes on side roads to east and west of centre eg. Manoy/Talbot – could be walk and cycle paths (1).
- Reduce traffic speed to cycling speed, cyclist to take lane by installing sharrows.
- Minimise accesses on to High Street.
- Remove parking on one side or both for safety, cyclists and traffic flow.
- Take out parking by Wallace Street intersection (1).
- Take out all parking between Tudor and Wallace on one side (refer David Ogilvie notes for specifics).
- Encourage through traffic to bypass High Street by providing signage of ‘alternative route’, and minor improvements to make route easy and safe.
- Ban right turn out of Tudor Street.

## APPENDIX B: EXPLANATIONS FOR OPTIONS INCLUDED OR EXCLUDED

Alternative	Strategic Response	No.	Option	Short List	Explanation
Motor Vehicles	Intersection Improvements - SH60/King Edward/Old Wharf (Clocktower corner)	1	Install roundabout	Y	A roundabout would introduce a slight delay on SH60 but would improve the access on to SH60 from King Edward Street and Old Wharf Road. There is a known safety issue at this intersection which a roundabout will address. This is also the busiest intersection in the study area. There would be positive community effects and improved system integration as safety issues for drivers are addressed and it is easier to turn out of side streets. Safety risk for pedestrians would remain at a similar level as roundabouts can be difficult for cyclists and pedestrians however, vehicle speeds would be slower. A roundabout will be considered alongside options 2 and 4 as a Transformational Upgrade for the intersection.
		2	Install signals	N	Similar to option 1, but signals would introduce more delay to through traffic on SH60 than a roundabout. Pedestrians would be better provided for than with a roundabout as they would have their own crossing phase, but there is low demand for crossing here.
		3	Install pedestrian refuges	N	On its own, this option does not affect traffic flows and would provide only a minor improvement to pedestrian and overall safety.

Alternative	Strategic Response	No.	Option	Short List	Explanation
		4	Install roundabout with pedestrian refuges	Y	As for option 1, but this option has a higher score because it also provides a pedestrian safety benefit, which supports community cohesion and system integration.
	<b>Intersection Improvements - SH60/Whakarewa/Woodland</b>	5	Close Woodland Avenue access to make Whakarewa/High Street a T intersection	N	This would have only minor benefits for safety and would not improve journey time reliability, community cohesion or system integration. Changing to a T intersection would not bring journey time reliability benefits to SH60 or traffic turning out of Whakarewa Street. Turning traffic accessing Woodland Avenue residential area and Thorp Bush would be shifted to Lowe or Wratt Street intersections. There is also off street parking at 1 Woodland Avenue which would be affected - access to this could be achieved via private property to the north, or via Lowe/Wratt Streets.
		6	Minor improvements eg. provide right turn bay into Woodland Ave, line marking	Y	Minor improvements at this intersection would reduce delays on SH60 when a vehicle is waiting to turn right into Woodland Avenue. A minor safety benefit would be likely from minor improvements.
		7	Install roundabout, keep all legs open	Y	A roundabout in this location would have similar impact to option 1, however there is no crash history supporting installation of a roundabout in this location. This option will be considered alongside options 8-10 as a Transformational Upgrade. A Transformational Upgrade is required

Alternative	Strategic Response	No.	Option	Short List	Explanation
					in this location for option 27 (relocate New World access) to be feasible.
		8	Install roundabout with pedestrian refuges, all legs open	Y	As for option 7, but with added safety benefits for pedestrians. Pedestrians were observed crossing here on a site visit. They were primarily school children.
		9	Install signals	N	Signals in this location would significantly increase delays on SH60. The geometry of the intersection means that trucks movements would not be catered for, which is a significant negative impact on the economy and particularly on facilitating traffic movements from the proposed development on Whakarewa Street. Safety benefits would be provided for pedestrians who would have a separate crossing phase.
		10	Install roundabout, close Woodland Avenue	N	This option would have the benefits of option 8 and the negatives of option 5. Overall the negative effects of closing Woodland Avenue on the integration of the network outweigh any additional minor safety benefit.
		11	Ban right turn out of Woodland Avenue	N	This option alone would have only minor safety benefits and would not contribute to improving accessibility from side streets on to SH60. The right turn would be shifted to Lowe/Wratt



Alternative	Strategic Response	No.	Option	Short List	Explanation
					Streets, both of which would experience the same issues as Woodland Avenue.
		12	Ban right turn into Woodland Avenue	N	This option alone would have only minor safety benefits and as for option 11 would move the problem to Lowe/Wratt Streets.
		13	Provide pedestrian refuges on Woodland Avenue and Whakarewa Street (assume lose a traffic lane to provide space)	N	Refuges would provide a minor safety benefit for pedestrians but one of the traffic lanes on Whakarewa Street would be needed to provide the space for the refuge, and this would significantly increase delays on Whakarewa Street, when turning on to SH60.
	<b>Intersection Improvements - SH60/Tudor</b>	14	Signalise Tudor/High Street intersection (investigate optimised layout, remove High Street zebra crossing just north of Tudor Street)	Y	This offers significant benefits to levels of service for drivers turning into/out of Tudor Street, and safety benefits to pedestrians crossing both SH60 and Tudor Street. It would also improve travel times on SH60 during peak periods minimising delays associated with turning vehicle blocking through traffic and pedestrian crossing movements would be co-ordinated along the street. Replacing the zebra crossing with a pedestrian phase at the signals offers a lower level of service to pedestrians, who would need to wait longer (on average) to cross, compared to the current situation where pedestrians have priority. The option addresses the issue of shading of the crossing by street trees. The

Alternative	Strategic Response	No.	Option	Short List	Explanation
					street trees could remain, which has benefits for community enjoyment of the area.
		15	Improve existing intersection (keep High Street zebra crossing just north of Tudor Street) - provide yellow hatching, median island or narrower entrance, right turn bay to Tudor Street, remove parking	N	These improvements would have a minor safety benefit, and provide a minor benefit for vehicles exiting Tudor Street also, as the yellow hatching would mean they could turn out when cars are queuing. However the shading of the zebra crossing is not addressed, meaning that current concerns about visibility of people using the crossing would not be addressed. Heavy vehicle tracking will be difficult to achieve.
		16	Improve existing intersection, signalise High Street zebra crossing just north of Tudor Street - provide yellow hatching for right turn, median island or narrower entrance, right turn bay to Tudor Street, remove parking	Y	As for option 15, but this option addresses the concerns with visibility of the current zebra crossing by providing pedestrian signals in this location. The safety benefits are significant for pedestrians. Pedestrian signals also create gaps for turning traffic at Tudor Street. In some cases there may be more delay for pedestrians waiting to cross as they will have to wait for a green signal.
		17	Ban right turn out of Tudor Street and add pedestrian refuge on Tudor Street	N	A pedestrian refuge at Tudor Street would provide a safety benefit for pedestrians who currently cross 3 lanes of traffic at Tudor Street, with no pedestrian facilities provided. Banning the right turn out of Tudor Street would improve the overall intersection safety, however this movement would be shifted to adjacent intersections, so the overall safety benefit for drivers may be negligible. On its own this option does not offer sufficient benefits and has some

Alternative	Strategic Response	No.	Option	Short List	Explanation
					negative effects on accessibility of the network and drivers who would need to use a different intersection to make the right turn.
		18	Ban right turn in to Tudor Street	N	This offers minor safety benefits for pedestrians crossing Tudor Street, as the intersection will be marginally less busy. However this may be offset by an increase in right turns at adjacent intersections. Overall any safety benefit would be minimal, and the right turn would be an inconvenience to drivers, adding to journey times as they utilise a different intersection.
	<b>Intersection Improvements - SH60/Wallace</b>	19	Provide right turn bay, remove parking and add yellow hatching, keep both zebra crossings. Assumes other zebra crossings remain and are not replaced by signals.	N	Retaining the zebra crossings does not address the known safety issues around visibility of people crossing. The improvements would make turning movements slightly easier and safer, and may improve traffic flows slightly on High Street, but these benefits alone, when weighed against the deficiencies of the zebra crossing, are not sufficient to justify further exploration of this option.
		20	Signalise zebra crossing on High Street north of Wallace Street, add yellow hatching and right turn bay at Wallace Street	Y	This option addresses the concerns with visibility of the current zebra crossing north of the Wallace Street intersection by providing pedestrian signals in this location. The safety benefits are significant for pedestrians. Pedestrian signals also create gaps for turning traffic at Wallace Street. Smoother traffic flows are expected on High Street as a result of pedestrian crossing being controlled. In some cases there may be more delay for pedestrians

Alternative	Strategic Response	No.	Option	Short List	Explanation
					waiting to cross as they will have to wait for a green signal.
		21	Signalise intersection, remove both zebra crossings.	N	This option would have a negative impact on through traffic flows on High Street, as the additional signals would cause delays. There would be safety benefits however, particularly for pedestrians who would have signal control for both crossing High Street and Wallace Street. Pedestrians may need to wait longer to cross however, compared to the existing zebra crossing scenario. Overall the expected delays on High Street with this option outweigh the positive benefits for safety.
	<b>Intersection Improvements - SH60/Pah/Greenwood</b>	22	Signalise and remove zebra crossings	Y	This option has significant benefits for safety and turn movements at Pah and Greenwood Streets. There would be significant benefits for pedestrians crossing all legs of this intersection also. There would be a negative impact for through traffic that may be stopped at this intersection, but the benefits for safety and turning traffic outweigh this negative impact.
		23	Signalise zebra crossing - intersection remains priority control. Assumes no other changes on High Street.	Y	This option has fewer benefits than option 22, but still offers pedestrian safety benefits and turning would be easier from Pah and Greenwood Streets as yellow hatching would be provided at the intersection so that queues do not block turning traffic. There would be less disruption of through traffic compared to option 22.

Alternative	Strategic Response	No.	Option	Short List	Explanation
	<b>Intersection Improvements - SH60/Parker/Fearon</b>	24	Minor improvements - improve sightlines from Parker Street	Y	This would have a minor benefit for turning traffic and safety at this intersection. There would be no impact on through traffic.
		24a	Upgrade and realign intersection (requires property)	Y	This would have a significant benefit for turning traffic and safety as there have been two serious injury crashes involving turning traffic at this intersection in the last five years.
	<b>General safety improvements</b>	25	Reduce number of accesses on to High Street	N	The minor safety benefit of this option would be outweighed by the negative impact on users who may struggle to gain access to properties. It is difficult to see how this option could be achieved going forward, although it would be desirable to not allow new accesses to be formed, through the District Plan.
		26	Control new subdivision access on to High Street	Y	There is a planned access between Whakarewa and King Edward Streets from the proposed subdivision west of High Street. Although this proposed access provides a route to the development, there are alternative routes. A new access in this location would exacerbate existing problems on High Street and there would be likely to be difficulties turning out of any new access in this location. Improving adjacent intersections so that they can provide for additional traffic would be preferred.

Alternative	Strategic Response	No.	Option	Short List	Explanation
		27	Close (or left in-left out) New World access on to High Street via other car park to Woodland Avenue (requires Woodland/High Street upgrade)	Y	This option would have benefits for safety and improve the accessibility of New World for motor vehicles. The safety benefits would be for turning traffic and for pedestrians, who currently cross the busy three lane access way with no facilities. Turning out of the intersection is already difficult with small gaps on High Street at busy times. To achieve an alternative access would require an upgrade at the Woodland/High Street intersection, plus access over private property for Woodland Avenue to the New World car park. The merits of this option should be further explored.
		28	Relocate/consolidate Shell and Super Liquor accesses	Y	This option has most safety benefits for pedestrians as the length of vehicle crossing would be reduced. The solution may be simple and should be further explored.
		29	Post lower speed limit for town centre - do nothing else	N	Operating speeds are currently averaging 30km/hr during the day (off season 9am-4pm), when 85% of vehicles travel at or below 35km/hr. Historic crash data shows that 12 of the 13 pedestrian crashes occurred between 9am and 4:05pm when actual vehicle speeds are already low. Notwithstanding this, if a lowered speed limit is able to lower vehicle travel speeds during the early morning and evening periods there may be safety benefits at intersections and for pedestrians.



Alternative	Strategic Response	No.	Option	Short List	Explanation
		30	Post 40km/h speed limit for town centre - with other intersection improvements	Y	As per Option 29, however the other improvements would proceed, so existing concerns would be addressed. In this scenario a lower speed limit which more closely aligns with operating speeds would be further explored. A lowered speed limit may be able to lower vehicle travel speeds during the early morning and evening periods, which may bring safety benefits at intersections and for pedestrians and cyclists.
	<b>Travel Demand Management</b>	31	Sign 'alternative route' for through traffic and make minor improvements to ensure the route is safe	N	This would have negative impacts on safety particularly the safety of the streets that would become an 'alternative route'. These would be primarily residential streets with low traffic volumes currently, and little or no provision for pedestrians crossing, children cycling and so on. Introducing more traffic would be unlikely to be desirable in these streets. The benefits for High Street would be minimal also, traffic speeds may go up and the existing safety issues would not be addressed. Less traffic on High Street may make it easier to turn out of side roads, however any alternative route would be likely to be longer than using High Street.
		32	Provide alternative route for trucks using Queen Victoria, Wildman and Thorp Streets	N	As for option 31, the concerns about the impacts on the residential areas where there would be an increase in trucks would be significant in terms of safety and amenity. The route would be longer than High Street and may not have the time savings expected.

Alternative	Strategic Response	No.	Option	Short List	Explanation
Walking/Cycling	Improve pedestrian facilities	33	Replace zebra crossings with pedestrian signals	Y	This would have a significant safety benefit for pedestrians as there are known deficiencies with the existing zebra crossings, and at pedestrian signals, the crossing movements would be protected. There would also be a benefit for turning traffic as there would be gaps in traffic. A benefit to through traffic is also expected since the pedestrian crossing movements would be co-ordinated rather than ad hoc. Pedestrians may have to wait longer to cross however, as they would not have the priority over traffic that they do now.
		34	Optimise existing zebra crossings e.g. improve visibility, relocate, remove street trees	N	Relocating the zebra crossings would have benefits for pedestrians crossing High Street as it would address the known deficiencies with the existing zebra crossings. However there would be no safety benefits for pedestrians crossing side street e.g. Tudor, Wallace, Pah, and Greenwood Streets. Making the existing zebra crossings more visible would involve removing the street trees would negatively affect the streetscape and would be unlikely to be a good outcome for the community. There would be no benefits for turning movements at intersections, and use of the zebra crossings will continue to disrupt flows and cause queuing on High Street.
		35	Remove all zebra crossings and replace with pedestrian refuges	N	Although this would improve traffic flow on High Street, this option would make it more difficult for people to cross the road, as they would need to wait for a gap in traffic and judge that gap

Alternative	Strategic Response	No.	Option	Short List	Explanation
					correctly. This would not contribute to safety for vulnerable road users and is not likely to be popular with the community. At times the traffic flow is almost constant and gaps are very small and if the zebras were removed this would reduce gaps further. It would be likely to lead to risk taking from pedestrians and cause safety issues. Given the high numbers of pedestrians crossing at the zebra crossings, pedestrian refuges would not provide an adequate level of service for pedestrians. It would have no benefits for turning traffic.
		36	Signalise Tudor and Pah, remove crossing at Wallace	N	Tudor and Pah Streets are approximately 300m apart, which is well above the recommended distance for pedestrian crossing points. This option would have some benefits for through traffic but would be likely to lead to informal crossing between Tudor and Pah, with a corresponding increase in risk for pedestrians.
		37	Signalise Tudor and Pah, replace zebra with refuge and minor improvements at Wallace	Y	This would have significant benefits for turning movements at intersections, and moderate safety benefits for all users and pedestrians. It does not offer the benefits of option 38, which provides more benefits for pedestrians, particularly vulnerable pedestrians. However it has the benefit that through traffic would potentially only be stopped twice, rather than three times.
		38	Signalise Tudor and Pah, pedestrian signals at Wallace	Y	This would have significant benefits for turning movements at intersections, and significant safety benefits for all users and pedestrians.

Alternative	Strategic Response	No.	Option	Short List	Explanation
					However it would potentially cause through traffic on High Street to stop three times through the centre rather than twice.
		39	Signalise Tudor and Pah Street intersections with High Street, provide a zebra crossing on High Street just north of Wallace Street intersection	N	This has benefits for turning movements at intersections, and safety benefits for all users and pedestrians. However the negative impact is moderate on through traffic on High Street, which may be stopped three times between the Tudor and Pah Street intersections with High Street. The nature of the zebra crossing with uncontrolled pedestrian movements, in between and in close proximity to two signalised intersections will be disruptive to traffic flows.
		40	Pedestrian enhancements between Poole and Pah Street intersections with High Street	Y	There are no pedestrian crossing facilities on this block, and yet there are shops/facilities and on-street parking on both sides, which will generate pedestrian crossing movements. Providing a refuge will improve safety for vulnerable road users, and with only minor if any impact on through traffic.
	<b>Improve cycle facilities</b>	41	Cycle lanes on High Street (remove parking)	N	There are reasonable numbers of people cycling on High Street, and there are no cycling facilities. High Street is a potentially risky environment for cyclists, with on-street parking and a high percentage of trucks on the route. Cycle lanes would improve safety for cyclists however the street is not wide enough to accommodate cycle lanes currently, so parking would need to be removed on either one or both sides to provide the space for cyclists. Removing parking would

Alternative	Strategic Response	No.	Option	Short List	Explanation
					have benefits for traffic flows on High Street also, however removing parking is not expected to be popular with the community or the businesses on High Street. There have been no cycling accidents on the High Street carriageway in the last 5 years. However there has been a serious injury crash involving a cyclist on the footpath and a turning vehicle, on the Pah/Poole Street block.
		42	Sharrows on High Street to help placement and priority of cyclists and raise awareness	Y	Sharrows are 'shared lane arrows' which indicate a safe position for cyclists to ride in, where space is constrained and particularly where there is on street parking. They raise awareness with motorists to expect and look out for cyclists. Given the average speeds are 30km/hr during the day, sharrows could provide a basic improvement for cyclists. There may be slight negative effects on traffic flows if a vehicle becomes 'stuck' behind a particularly slow moving cyclist.
		43	Lower traffic speed (40km/h) and use sharrows to help placement	Y	As for option 30, but sharrows bring added benefits for cyclists. Also, sharrows are most effective when the speed difference between cyclists and traffic is lower, and a lower speed limit would help achieve this.
		44	2 way separated bicycle facility on High Street and remove one lane of parking	N	As for option 41, although a cycle facility of this type may appeal to a wider audience and some who cycle on the footpath may use it instead. However the frequent access points would

Alternative	Strategic Response	No.	Option	Short List	Explanation
					introduce an element of risk for a two way cycle facility.
		45	Widen footpath to shared path by taking out parking (segregated - Provide space for a shared zone and maintain a pedestrian only zone)	N	As for option 41, although widening the footpath would have other benefits e.g. for mobility scooters, and for urban amenity. It would also make the crossing distance shorter which would benefit vulnerable road users but may lead to more informal road crossing.
		46	Permit cyclists on footpath, with bells (shared path)	N	The effect on safety is neutral, formalising cyclists' use of the footpath without any footpath widening would increase the risk to pedestrians in an already busy central area.
		47	Provide routes on side streets for through pedestrians and cyclists (route to attract cyclists off High Street not identified)	N	There are no obvious alternative routes on side streets, and the routes would need to be made very attractive to incentivise cyclists to leave the main thoroughfare.
		48	Widen shared path on High Street (south end)	N	This would be difficult to achieve, although it would be a safety benefit for cyclists on the Great Taste Trail. On-street parking would need to be removed which may impact on adjacent businesses.
		49	Provide for cyclists at intersections	Y	This would bring moderate safety benefits for cyclists using the carriageway, and can be achieved easily particularly with the signalised intersection proposals. It would not affect traffic flows.



Alternative	Strategic Response	No.	Option	Short List	Explanation
Streetscape	Improve interaction between safety and streetscape	50	Remove trees, furniture	N	This is likely to be controversial as the trees are well established and provide an attractive environment in Motueka. Also, there are other solutions to the pedestrian safety issue which do not necessitate such a step. The effect of street furniture on visibility of pedestrians will be reviewed and positions may be affected.
		51	Ban sandwich board advertising	N	This would require a policy change by Tasman District Council. It is unlikely to be popular with business owners. It is likely to bring a minor safety benefit only.
		52	Incorporate TDC urban design in safety improvements	Y	Urban design can enhance the effectiveness of safety treatments, and there is a budget for urban design improvements. Incorporating urban design elements such as landscaping will ensure an attractive streetscape in Motueka.
Parking Management	Information	53	Parking interpretation board at entrances to town centre	Y	This is a relatively low cost method of encouraging visitors to use the off street parking areas, of which they may be unaware. The safety benefits of promoting these off street parking areas may be considerable as parallel parking on High Street can be challenging as well as disruptive to traffic flows.
		54	Real time information parking signage	Y	Providing real time information on High Street about the number of vacant spaces in off street car parks would be likely to lead to a significant shift in people using those car parks rather than the High Street spaces, with benefits as outlined for option 53.

Alternative	Strategic Response	No.	Option	Short List	Explanation
	<b>Easier access</b>	55	Better parking direction signs	Y	As for option 53, better direction signage will ensure the off street parking areas are easy to find and visitors will be able to utilise them, rather than the on-street parking on High Street.
		56	Better access to existing off street car parking (right turns)	Y	As for option 53, improving access to off street car parking should encourage a shift to more use of these areas, with safety benefits and reductions in delay on High Street.
		57	Explore development of additional car parking	Y	This is a longer term option as there is still capacity in the existing off street car parks even at peak times. However it would be useful to have some off street car parking to the west of High Street as well as to the east, so that people travelling from the residential areas to the west of High Street do not have to cross High Street to use off street parking.
		58	Make on-road parking spaces longer to ease manoeuvring time	Y	Although this would result in fewer spaces on High Street, the impact is not likely to be large, and there is ample parking available on side streets and in the off street parking areas. The safety benefits and reductions in delay on High Street are likely to be minor to moderate.
	<b>Restrictions</b> <b>Restrictions</b>	59	Loading restrictions - time of day	N	This is expected to have only minor safety benefits as loading and unloading will take place at off peak times when traffic flows are lighter, meaning less disruption when parking to undertake loading activities. However there would be a negative impact on the ease of

Alternative	Strategic Response	No.	Option	Short List	Explanation
					operating a business in the centre and it could be difficult/costly to enforce.
		60	Use parking management tools, such as charging, time restrictions and reducing supply to encourage short term parking in off street parking areas and on side streets	Y	The right parking management approach would have significant benefits for safety and travel delays on High Street, if there was a shift from parking on-street on High Street, to parking in side streets/off street parking areas. This would need to be aligned with signage and access improvements described above.
	<b>Consolidate parking off street</b>	61	Remove all parking from High Street	N	This is not expected to be desirable from a community perspective as a standalone option, and businesses on High Street would be concerned about the impacts.
		62	Remove parking on one side of High Street	N	As for option 61, however the impact would not be as great.

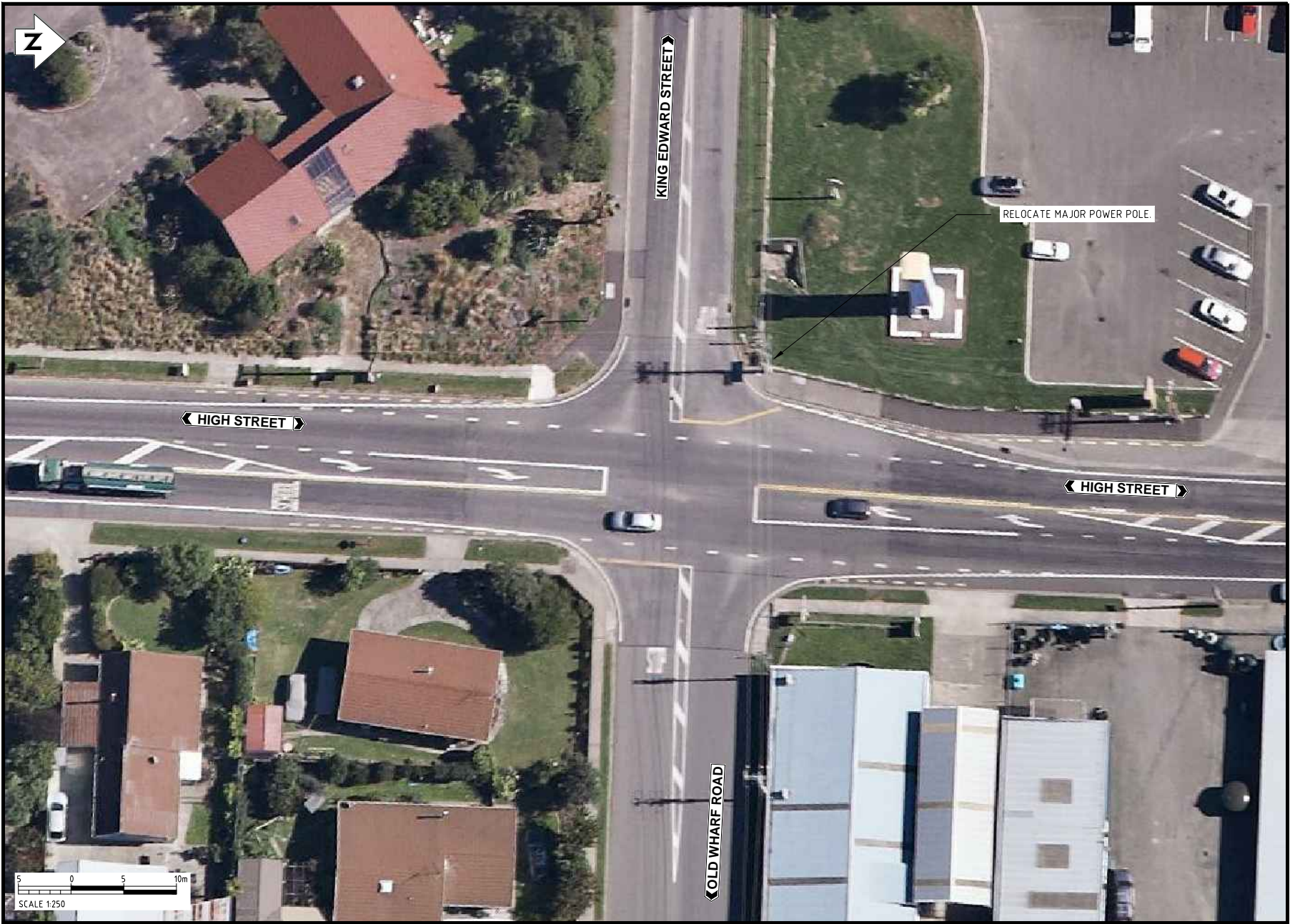
## APPENDIX C: SHORT LIST OF OPTIONS

Alternative	Strategic Response	No.	Option
Motor Vehicles	Intersection Improvements - SH60/King Edward/Old Wharf - Clock Tower	1	Install roundabout
		4	Install roundabout with pedestrian refuges
	Intersection Improvements - SH60/Whakarewa/Woodland	6	Minor improvements e.g. provide right turn bay into Woodland Ave, line marking
		7	Install roundabout, keep all approaches and exits open
		8	Install roundabout with pedestrian refuges, keep all approaches and exits open
	Intersection Improvements - SH60/Tudor	14	Signalise Tudor Street intersection (remove High Street zebra)
		16	Improve existing intersection (yellow hatching for right turn, median island or narrower entrance, right turn bay to Tudor, remove parking) and signalise High Street zebra crossing
	Intersection Improvements - SH60/Wallace	20	Signalise zebra crossing on High Street, add yellow hatching and right turn bay at Wallace Street
	Intersection Improvements - SH60/Pah/Greenwood	22	Signalise and remove zebra crossings
		23	Signalise zebra crossing but intersection remains priority control. Assumes no other changes on High Street.
	Intersection Improvements - SH60/Parker/Fearon	24	Minor improvements - improve visibility from Parker Street
		24a	Intersection upgrade and realignment (requires property)
	General Safety Improvements	26	Control new subdivision access direct to State Highway
		27	Close (or left in left out) New World access on to High Street. Provide access via other car park to Woodland Avenue (requires Woodland/Whakarewa roundabout to provide for higher traffic volumes)
		28	Relocate/consolidate petrol station and super liquor accesses
		30	Post lower speed limit for town centre (40km/h) along with other intersection improvements
		33	Replace the three High Street zebra crossings with pedestrian signals

		37	Signalise Tudor and Pah Street intersections, replace zebra crossing just north of Wallace Street with a pedestrian refuge and minor improvements at Wallace Street intersection
<b>Walking/Cycling</b>	<b>Improve pedestrian facilities</b>	38	Signalise Tudor and Pah Street intersections and provide pedestrian signals at Wallace Street
		40	Pedestrian refuge on High Street between Poole Street and Pah Street
	<b>Improve cycle facilities</b>	42	Sharrows on High Street to help placement and priority
		43	Lower traffic speed (40km/h) and use sharrows to help placement
		49	Provide for cyclists at intersections e.g. Advanced Stop Boxes
<b>Streetscape</b>	<b>Improve interaction between safety and streetscape</b>	52	Incorporate Tasman District Council urban design in safety improvements
<b>Parking Management</b>	<b>Information</b>	53	Parking interpretation board at entrances to town centre
		54	Real time parking information signage to show number of vacant spaces off street
		55	Better parking direction signs from High Street
	<b>Easier access</b>	56	Better access to existing off street car parking (right turns)
		57	Explore development of additional off street car parking
		58	Make High Street parking spaces longer to ease manoeuvring time
	<b>Restrictions</b>		60

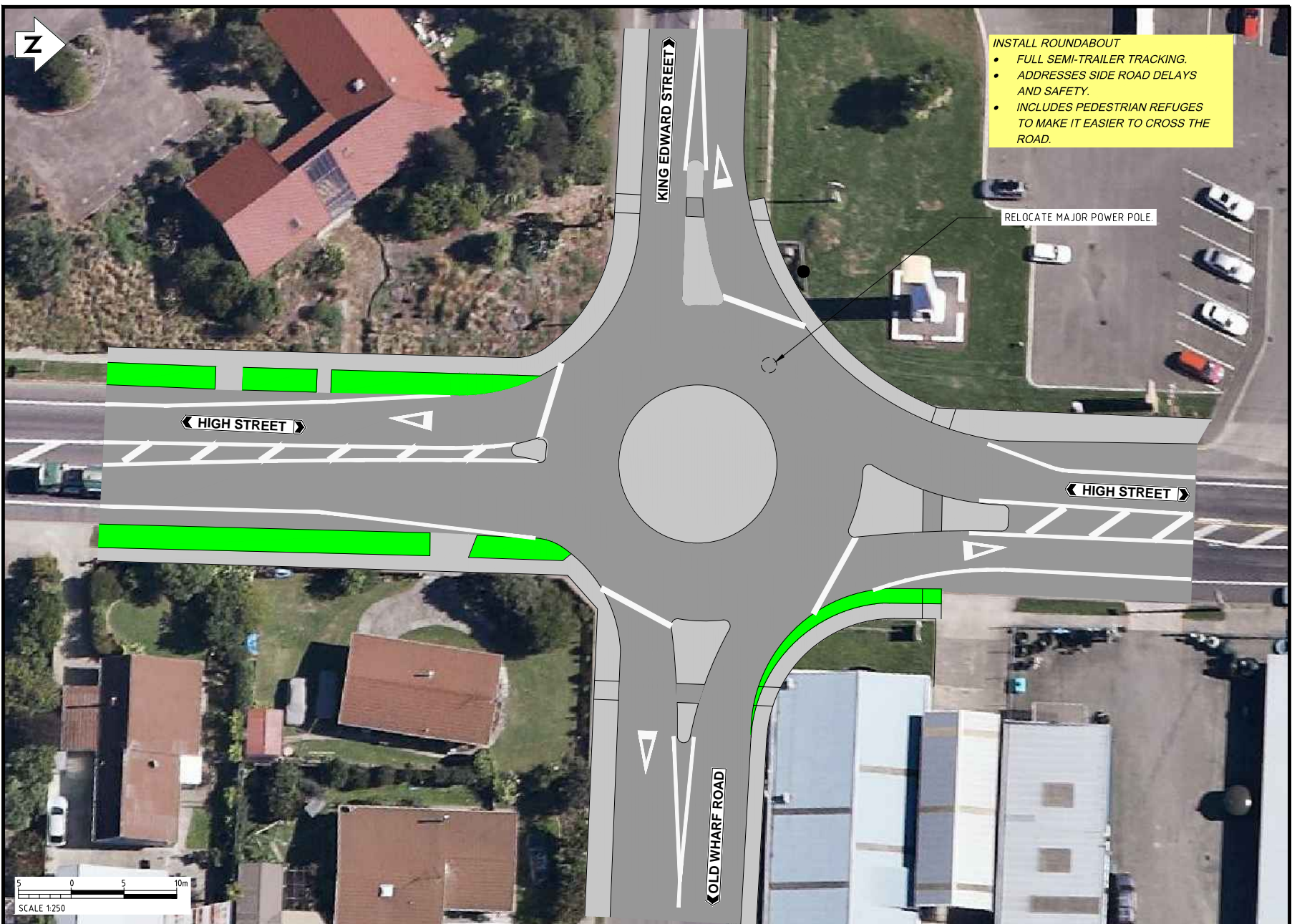
# APPENDIX D: KING EDWARD/OLD WHARF/HIGH STREETS





**EXISTING HIGH ST**

**HIGH ST / KING EDWARD ST / OLD WHARF ROAD**



**ROUNDABOUT**

**HIGH ST / KING EDWARD ST / OLD WHARF ROAD**



# APPENDIX E: WHAKAREWA/WOODLAND/HIGH STREETS





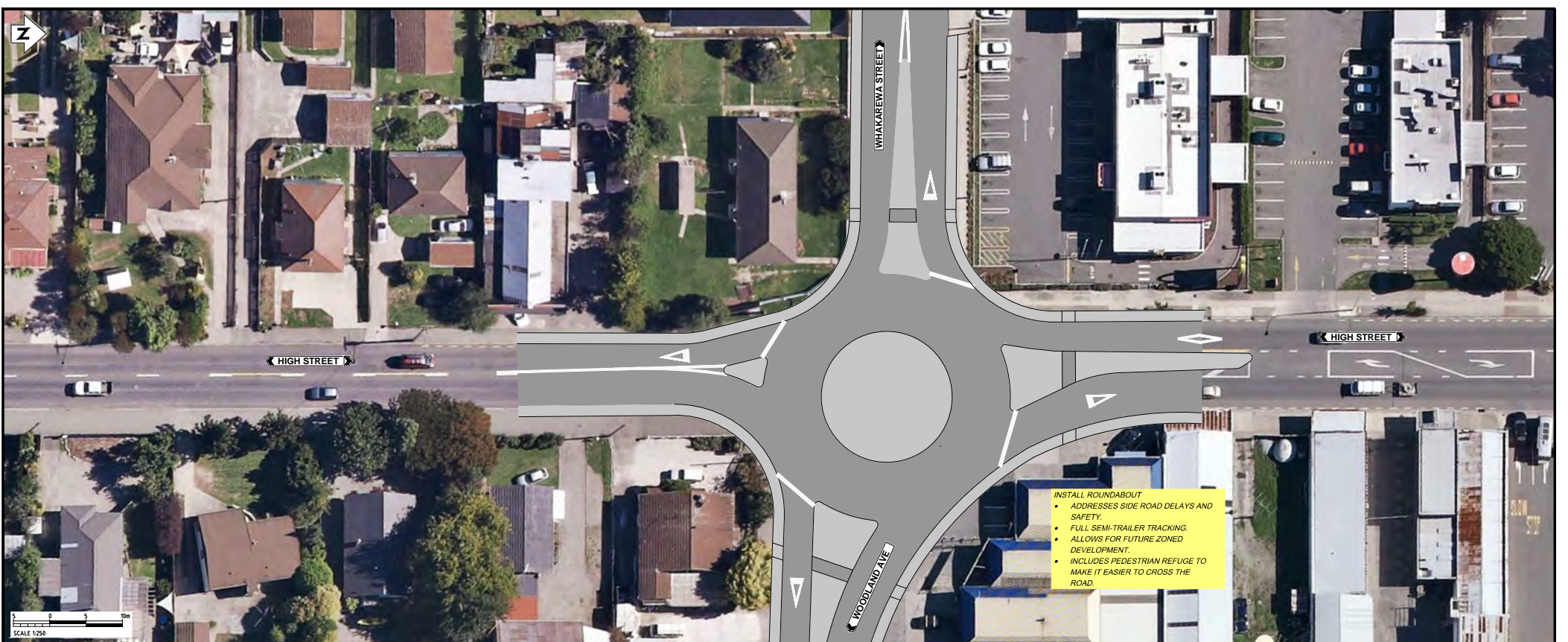
**EXISTING HIGH ST**

**HIGH ST / WHAKAREWA ST / WOODLAND AVE**



**MINOR IMPROVEMENT**

**HIGH ST / WHAKAREWA ST / WOODLAND AVE**



**ROUNDAABOUT**

**HIGH ST / WHAKAREWA ST / WOODLAND AVE**



# APPENDIX F: PARKER/FEARON/HIGH STREETS





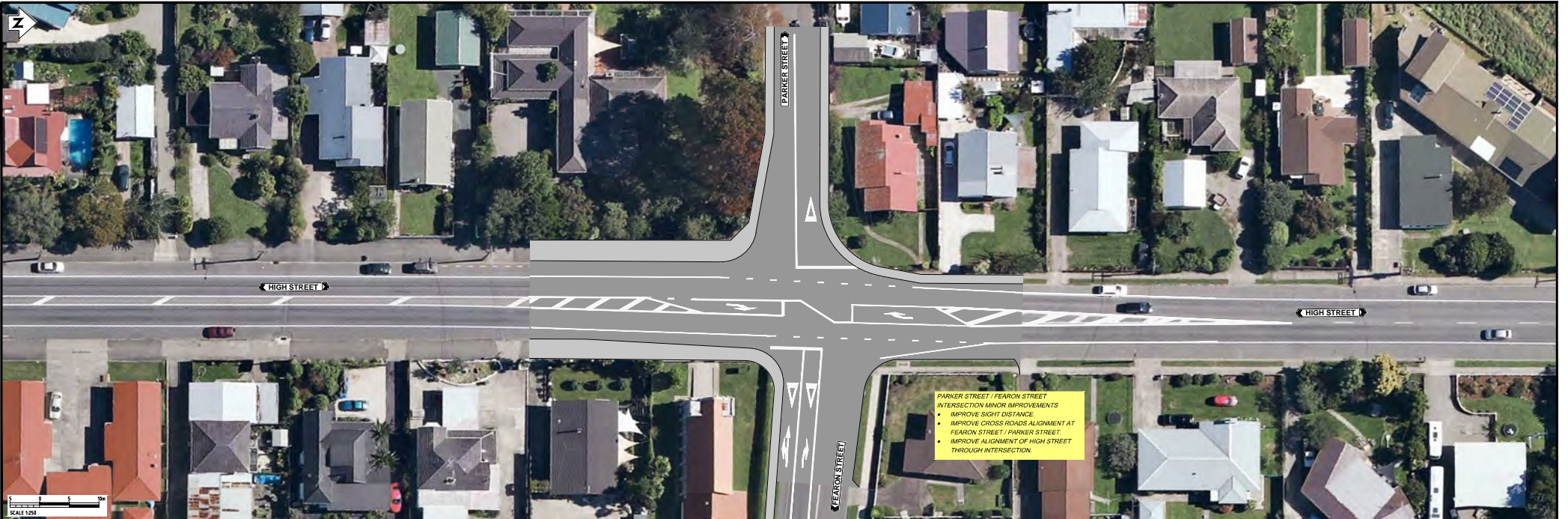
**EXISTING HIGH ST**

**HIGH ST - FEARON STREET INTERSECTION**



**MINOR IMPROVEMENT**

**HIGH ST - FEARON STREET INTERSECTION**



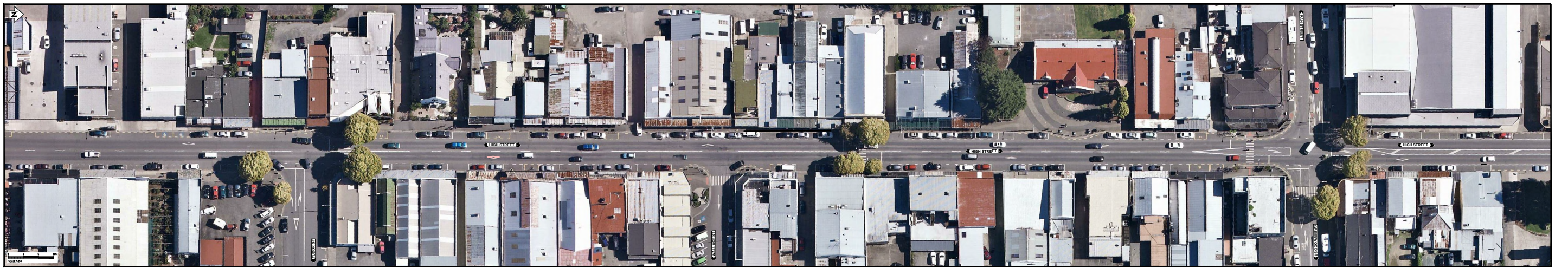
**REALIGN INTERSECTION**

**HIGH ST - FEARON STREET INTERSECTION**



# APPENDIX G: CENTRE (TUDOR TO GREENWOOD STREETS)

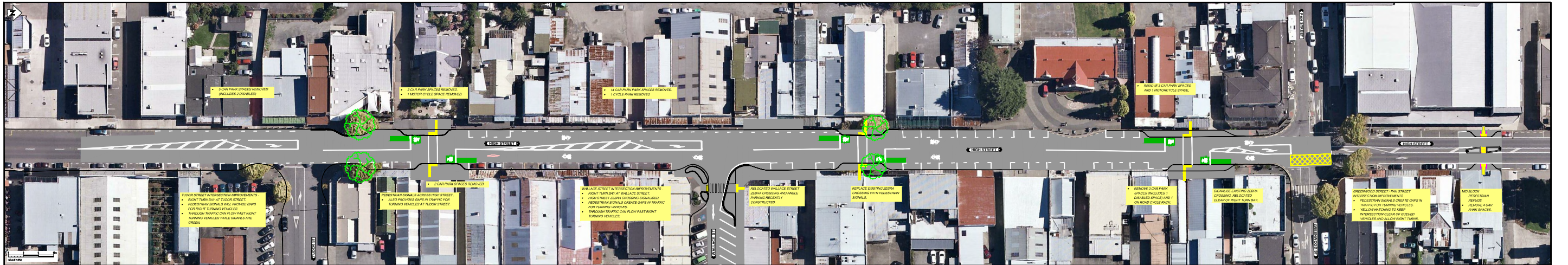




EXISTING HIGH ST

HIGH ST - WHAKAREWA ST TO WALLACE ST

HIGH ST - WALLACE ST TO POOLE ST



OPTION 1

HIGH ST - WHAKAREWA ST TO WALLACE ST

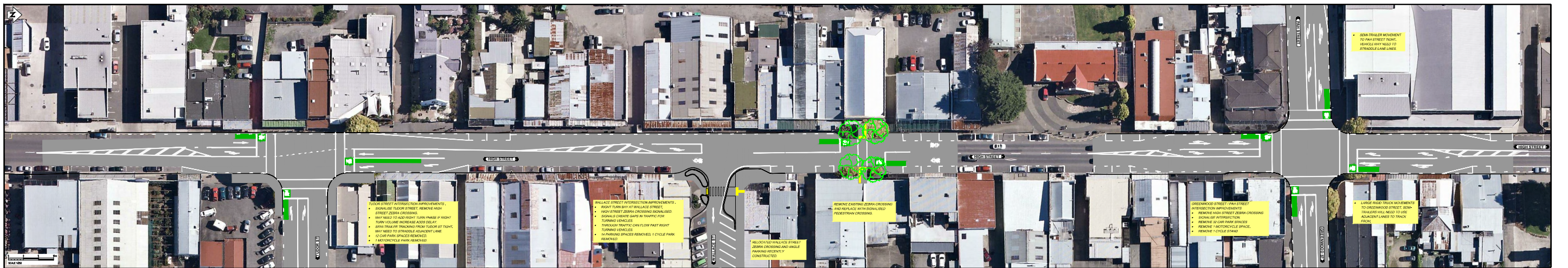
HIGH ST - WALLACE ST TO POOLE ST



OPTION 2

HIGH ST - WHAKAREWA ST TO WALLACE ST

HIGH ST - PAH ST / GREENWOOD ST INTERSECTION



OPTION 3

HIGH ST - WHAKAREWA ST TO WALLACE ST

HIGH ST - PAH ST / GREENWOOD ST INTERSECTION