Appendix A: Crash History Report
Hutt Road
Crash Summary

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1 Introduction

1.1 Purpose

Opus International Consultants have been engaged by Wellington City Council to provide a summary report of the crashes that have occurred along Hutt Road. This report provides a crash summary of the study corridor as well as analysis of the crashes occurring both before and after the speed limit reduction along Hutt Road. The report also summarises the year and location in which crashes most commonly occurred, this helps to identify any reoccurring trends or potential problem areas.

1.2 Background

This report summarises the crash data for Hutt Road as identified in the location map below. The crash history information has been obtained from NZTA’s Crash Analysis System (CAS).

For the corridor crash summary (see section 1.3) a 5 year crash history was used 2009 – 2013 inclusive and included Thorndon Quay.

For Hutt Road where changes were made to the speed limit, ten years of crash history was analysed (30 June 2004 – 29 June 2014).

![Location Map](image-url)

Figure 1: Location map
1.3 Corridor Crash Summary

There were a total of 141 reported crashes along the corridor during 2009 – 2013 inclusive.

Of the 141 crashes there have been no reported fatal crashes, nine serious injury crashes, 53 minor injury crashes and 79 non-injury crashes. Non-injury crashes are typically under-reported, and as such trends observed from the data should be considered with caution.

Table 1: Corridor Summary Crash Types

<table>
<thead>
<tr>
<th>Crash Movement Group</th>
<th>All Crashes</th>
<th>Injury Crashes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overtaking Crashes</td>
<td>10%</td>
<td>10%</td>
</tr>
<tr>
<td>Straight Road- lost Control/ Head On</td>
<td>6%</td>
<td>8%</td>
</tr>
<tr>
<td>Bend – Lost Control/ Head on</td>
<td>4%</td>
<td>2%</td>
</tr>
<tr>
<td>Rear End/Obstruction</td>
<td>43%</td>
<td>37%</td>
</tr>
<tr>
<td>Crossing/Turning</td>
<td>33%</td>
<td>37%</td>
</tr>
<tr>
<td>Pedestrian Crashes</td>
<td>3%</td>
<td>6%</td>
</tr>
<tr>
<td>Miscellaneous Crashes</td>
<td>1%</td>
<td>0%</td>
</tr>
</tbody>
</table>

As it can be seen in Table 1 above the majority of crashes are related to crossing/turning manoeuvres and rear end/obstruction crashes.

When we consider all reported crashes:

- 47% of these crashes have resulted in injuries and 53% non-injury
- 87% of all crashes occur on a weekday and 13% on the weekend
- 29% of all crashes involve cyclists
- 6% of all crashes involve buses

There have been 62 crashes which has resulted in either serious or minor injury.

- 85% of all crashes occur on a weekday and 15% on the weekend
- 55% of all injury crashes involve cyclists
- 6% of all injury crashes involve pedestrians
- 8% of all injury crashes involve buses
1.3.1 Crash Rates

The crash rates have been calculated using both data from Thorndon Quay and Hutt Road corridor assuming a corridor length of 5.1 km.

The crash rate for all crashes as shown in Figure 2 below does not take into account traffic volumes along the route. There are only limited traffic counts along the corridor and the volumes vary significantly along the corridor. Analysis of the traffic counts at the Ngauranga Interchange shows there has been no growth in traffic volumes over the five year period so the crash rate shown is representative of the trends.

![Figure 2: Corridor Summary: Crash Rate per km](image)

Figure 2 above shows the overall crash rate for all reported crashes including non-injury crashes. The overall crash rate declined significantly between 2009 and 2010 after which the crash rate has stayed relatively static at between four and five crashes per km, before then experiencing a slight increase in 2013. There has been a steady decrease in the injury crash rate from 2009 to 2011, with a slight increase in the crash rate in 2012 but has stayed below two crashes per km. The overall crash trend is decreasing throughout the five year period.
Figure 3 above shows the crash rates for cycle crashes. The crash rates per km have been adjusted proportionally using the annual AM peak cycle surveys to account for the growth in cycle demands over the five year period. Indicative assessments of the corridor against the predicted crash frequency from the Economic Evaluation Model (EEM) show that the crash rate is significantly higher than would typically be expected.

There is little difference between all cycle crashes and injury crashes. This is reflective of the fact that cyclists are more likely to be injured in crashes when compared to motor vehicle users. However, non-injury cycle crashes are generally under-reported so these figures should be treated with caution.

The crash rate has decreased significantly from 2009 to 2011, after which time the rates have been slowly increasing. In 2013 all crashes involving cyclists resulted in injuries.

### 1.3.2 Cycle Crashes

There have been 42 reported crashes involving cyclists along Hutt Road and Thorndon Quay between 2009 and 2013, of these there have been five serious injury crashes, 29 minor injury and eight non-injury. There have been no reported fatal crashes involving cyclists within the reporting timeframe.

On the Hutt Road section there have been 26 reported crashes resulting in one serious injury crash, 17 minor injury crashes and eight non-injury crashes.

On the Thorndon Quay section there have been 16 reported crashes resulting in four serious injury and 12 minor injury crashes.
Of the reported 42 crashes, 23 of these crashes (55%) involved crossing/turning movements either on-road or on the shared path.

- 78% (18) of the crossing/turning crashes were associated with right turning movements
- 22% (5) of the crossing/turning crashes were associated with left turning movements

There are two predominant crash types that are occurring. These involve vehicle conflicts with northbound cyclists on the shared path on Hutt Road and vehicle conflicts with drivers turning into or reversing out of angle parks on Thorndon Quay.

Figure 4 below shows that the proportion of fatal and serious crashes involving cyclists is increasing in the Wellington City, while the trend shows it to be decreasing on the Hutt Road and Thorndon Quay study corridor (although there is a small sample size which could be skewing the results).

1.3.2.1 Proportion of Total Cycle Crashes

![Proportion of Fatal and Serious Cyclist Crashes vs. All Fatal and Serious Crashes](image)

Figure 4: Corridor Summary: Comparison of All Fatal and Serious Cycle Crashes

The graph above shows that the proportion of fatal and serious crashes involving cyclists is increasing in the Wellington City, while the trend shows it to be decreasing on the study corridor.
1.3.2.2 Proportion of Urban Cycle Crashes

Figure 5 shows that the study corridor length of Hutt Road and Thorndon Quay has a high proportion of crashes involving cyclists when compared to urban cycle crashes in Wellington City, Wellington Region and New Zealand.

1.3.2.3 Shared Path Cyclists

The existing shared path on the Hutt Road corridor is located adjacent to the southbound traffic lanes and is used by cyclists travelling in both directions.

From reviewing the Police crash reports, 58% (15) of the reported cycle crashes on Hutt Road (and 37% of the total reported crashes along the entire study corridor) occurred on the shared path. Of the reported cycle crashes on the shared path, 73% (11) of those crashes involved northbound cyclists.

The majority (67%, 10) of the crashes involved vehicles turning out of entranceways onto Hutt Road and failing to see the approaching cyclists.

- 70% of vehicles were attempting to turn left
- 30% of vehicles were attempting to turn right

Vehicles turning into entranceways accounted for 20% (3) of the crashes with the predominant movement being northbound vehicles turning right through southbound queued vehicles and colliding with cyclists on the path (as there is limited visibility to the cyclist).

There has been one reported crash involving two cyclists on the path colliding with each other while travelling in opposite directions.
There has also been one reported crash involving a vehicle reversing out of an angle park and colliding with a cyclist on the path.

The entranceways along the shared path, the unexpected direction of travel on the shared path and restricted sight visibility to and from cyclists causes conflicts. There can also be significant differences in speed between cyclists on the path and vehicles on Hutt Road especially during peak travel times, this can increase the potential injury severity for a cyclist in a crash.

1.3.2.4 On Road Cyclists

On the Hutt Road corridor, there are still a large number of cyclists that travel on road and do not use the shared path. Of the reported crashes 42% (11) of the crashes involve cyclists travelling on the road, 64% (7) of these crashes occurred in the northbound direction and 36% (4) in the southbound direction.

When considering all the reported cyclists crashes on Hutt Road, the predominant crash pattern involves cyclists travelling northbound either on the road or on the shared path.

All cyclists travel on the road along Thorndon Quay and the two most common crash types are cyclist conflicts with parked or parking vehicles (50%, 8) and vehicles turning left in/out of side roads and entranceways (25%, 4). The conflicts with parked or parking vehicles include drivers turning into or reversing out of angle parks or opening of car doors into the path of on-road cyclists.

1.3.2.5 Cycle Crash Sites

The locations of the cycle crashes are well distributed along the corridor of Hutt Road and Thorndon Quay. However there are three clusters of cycle crashes (30 metre radius).

The first site is on Hutt Road near the intersection with School Road (just south of Kaiwharawhara Road), there have been six reported crashes resulting in three minor injury and three non-injury crashes. Four of the crashes involved cyclists travelling on the shared path and being struck by vehicles either pulling in/out of an entranceway opposite School Road. One of the crashes involved a northbound on-road cyclist being struck by turning vehicle at School Road intersection. The sixth crash involved an on-road cyclist struck by a vehicle changing lanes who failed to see the cyclist in the traffic lane. Four of the crashes occurred in 2009, the other two crashes occurred during 2011 and 2012. There have been no reported crashes at this location since October 2012.

The second site is on Hutt Road near the intersection with Sar Street, where there have been three reported crashes resulting in two minor injuries and one non-injury injury crashes. Two of the crashes involved cyclists being struck by vehicles turning onto Hutt Road from a commercial entranceway (west side) and from Sar Street. The third crash involved a cyclist being struck by a driver turning into parking space.

The third site is on Thorndon Quay near the intersection with Moore Street, where there have been four reported crashes resulting in three minor injuries and one serious injury crash. Two of the crashes involved cyclists being struck by drivers turning into parking spaces. The serious injury crash involved a cyclists and pedestrian, when the cyclists failed to give way to a pedestrian on a Zebra Crossing. The fourth crash occurred when a cyclist lost their footing and fell onto a passing vehicle.
1.3.3 Pedestrian Crashes

There have been four reported pedestrian crashes along Hutt Road and Thorndon Quay between 2009 and 2013, one serious and two minor injury. Three of the crashes occurred at pedestrian zebra crossings facilities, however they have occurred at three different zebra crossings along the study length.

The first pedestrian crash occurred on the Hutt Road corridor at the zebra crossing north of the Rangiora Avenue intersection. Vehicles have stopped and were queued in lane 2 to give way to the pedestrian. A vehicle travelling in lane 1 at approximately 70 km/hr failed to observe the pedestrian and the queued vehicles. The driver struck the pedestrian in the middle of lane 1 on the crossing. The pedestrian sustained minor injuries. The crash occurred on Saturday February 27th 2010 at 1.10pm, weather and road conditions were dry and fine.

The second crash occurred at the zebra crossing south of Moore Street on Saturday 10th September 2011 at 9.24am. The pedestrian was attempting to cross Thorndon Quay using the zebra crossing from the south side, and a cyclist travelling south failed to stop for the pedestrian and has struck them on the zebra crossing. The pedestrian sustained serious injuries. Road and weather conditions were dry and fine, with overcast light conditions. It is noted that this accident was also discussed previously as a cyclist accident.

The third crash involved a pedestrian attempting to cross Thorndon Quay from the west side on Wednesday 2nd October 2013 at 5.10pm. A bus driver was starting to pull out of the adjacent bus stop, and obscured the visibility to the pedestrian for northbound approaching vehicles. The driver of a northbound vehicle failed to see the pedestrian and has struck them on the crossing. The pedestrian sustained minor injuries. The weather and road conditions were fine and dry.

The fourth crash involved a pedestrian attempting to cross Thorndon Quay 100m south of Tinakori Road from the west side on Tuesday 21st August 2012 at 8.00am. The pedestrian ran out between traffic to get to their parked vehicle on the opposite side of the road, when they failed to notice an approaching cyclist. The cyclist struck the pedestrian which caused the cyclist to flip over the handlebars. The cyclist suffered minor injuries and the pedestrian was not hurt.

1.3.4 Bus Crashes

There have been eight reported crashes involving buses along Hutt Road and Thorndon Quay between 2009 and 2013. Five of the reported crashes resulted in minor injuries and three were non-injuries. There have been no reported serious or fatal crashes involving buses.

Six of the crashes have occurred on Thorndon Quay between Mulgrave Street and just north of Moore Street.

Four of the crashes are crossing/turning related crashes involving vehicles turning in front of buses in the central southbound bus lane on Thorndon Quay. One crash involved a bus hitting a parked vehicle in the clearway just north of Moore Street which was active at the time. The sixth crash involved a bus turning into the bus terminus and struck a vehicle waiting at the left turn give way limit line for Thorndon Quay. Three crashes resulted in minor injuries and three were non-injury crashes.

On Hutt Road, there have been two reported rear end type bus crashes. One of the bus crashes involved a vehicle stopped in lane 1 in the northbound direction, north of Rangiora Avenue. The
other bus crash occurred when a vehicle attempting to turn into an entranceway had stopped to give way to a cyclist on the shared path, which was rear-ended by a following vehicle, which was struck by a following vehicle and then the bus. Both crashes resulted in minor injuries. There have been no reported bus crashes on Hutt Road since January 2011.

1.3.5 Motor Vehicle Crashes

There have been 88 reported crashes that have only involved motor vehicles (excluding pedestrians, cyclists and buses) along Hutt Road and Thorndon Quay between 2009 and 2013. Four of the reported crashes resulted in serious injuries and 19 in minor injuries. There have been 67 reported non-injury crashes.

Two of the serious injury crashes occurred at the intersection of Mulgrave Street and Thorndon Quay and were right turning / crossing crashes caused by failing to stop at a red signal. Another of the serious crashes was a head-on crash south of School Road in the early hours of the morning where alcohol was a factor. The final serious crash was a four car rear-end crash north of Westminster Street where five people were seriously injured.

The split between motor vehicle types is; 88% cars, 18% vans, 17% 4X4 / SUV, 10% motorcycles, 3% mopeds and 18% trucks.

55 of the crashes occurred on Hutt Road with 33 of those within 50m of an intersection. The intersections with the highest number of crashes were Jarden Mile (8), Kaiwharawhara Road (5), Onslow Road (5) and Rangiora Avenue (5). Similarly on Thorndon Quay, 20 of the 33 crashes occurred at or near to an intersection. The intersections with the highest number of crashes were Tinakori Road (10) and Mulgrave Street (6).

26 of the reported crashes were right turning / crossing crashes and all but five of those occurred at or close to intersections. 15 of the reported crashes were manoeuvring crashes, those on Hutt Road were typically u-turn crashes whereas those on Thorndon Quay were typically associated with driveways or parking. 21 of the reported crashes were rear-end crashes and were relatively evenly split between Thorndon Quay and Hutt Road. 18 of the reported crashes were lost control / overtaking crashes and most of these occurred on Hutt Road.
2 Hutt Road Crash Analysis

The following summarises the reported crashes which occurred along Hutt Road and is divided between the two following time periods:

- 18 September 2004 – 17 September 2008 (Pre speed limit reduction)
- 18 September 2008 – 17 September 2014 (Post speed limit reduction)

2.1 Pre/Post Speed Limit Reduction Injury Comparison

Figure 6: Hutt Road: Injury and Non-Injury crashes per year

Figure 6 shows all injury and non-injury causing crashes before and after the speed limit reduction, with the red dashed line denoting the period between the changes.

- The data shows an overall trend downwards for non-injury crashes following the change in speed limit.
- The minor injury crashes have halved from their peak of 15 in the first year after the speed limit was implemented and have remained relatively constant since then.
- Overall the data shows a reduction in the number of serious injuries after the speed limit was reduced with the exception of 2009-2010.
- There has been one reported fatal crash which occurred during the 2005-2006 period. The fatal crash occurred when by a car traveling south on Hutt Road swung wide and hit a truck travelling north head on.
2.2 Pre/Post Speed Limit Reduction Vehicle Type Comparison

Figure 7 shows a comparison between vehicle types and year. The number of crashes involving each of the three vehicle types (light vehicles, heavy vehicles and cyclists) peak around when the clearway was implemented and then have declined since then.

- The data shows an overall decline in all vehicle crashes following the reduction in speed limit on Hutt Road.
- The cyclist crashes accounted for 21% (21 of 104) of all crashes before the speed reduction, before increasing to 27% (28 of 108) after the speed limit reduction the increase in the proportion of cyclist crashes is due to the reduction in the number of light vehicle crashes.

![Vehicle Type Comparison](image-url)
2.4 Pre/Post Speed Limit Reduction Cyclist Crashes Injury Comparison

Figure 8: Hutt Road: Injury and Non-injury cyclist crashes per year

Figure 8 shows the number of injury and non-injury cyclist crashes both before and after the speed limit reduction.

- Non-injury cyclist crashes reached a high of three following the speed limit reduction but have declined since then (note that non-injury crashes are generally under reported).
- Minor injury cyclist crashes decreased following the speed limit reduction and have stayed relatively constant since then.
- Since the speed limit change there has been only two serious reported cyclist crashes which would suggest that the speed limit change has had a positive reduction on serious cycle injury crashes.

2.5 Pre/Post Speed Limit Reduction Cyclist Crashes Location Comparison

The majority of crashes involving cyclists occurred at an intersection rather than midblock. Before the speed limit reduction, the proportion of cycle crashes occurring at an intersection was 75%, of these, 80% of the crashes occurred where the intersection was uncontrolled.

Since the speed limit change the proportion of crashes occurring at intersections has stayed similar (77%) with the proportion of crashes occurring at uncontrolled junctions reducing to 54%. Crashes at stop or give way controlled junctions has increased to 25%, crashes at traffic signals only accounted for 5% of the crashes.
3   Summary

3.1   Conclusions

The following conclusions can be drawn from the analysis above:

- The proportion of cyclist crashes along the corridor is significantly higher than local, regional and national averages (but so are the cyclist volumes).

3.1.1   Hutt Road

- The overall crash rates for vehicles and cyclists has reduced following the adoption of the reduced speed limit.
- There is a higher proportion of northbound cycle crashes on the Hutt Road both on the shared path and on the road.

3.2   Implications for Options

The following implications exist for the options being considered.

3.2.1   Shared Path on Hutt Road

- Visibility to cyclists in both directions on the shared path from vehicles leaving properties and turning left or right onto Hutt Road is important, as is the unexpected direction of the cyclists, as this is the cause of 67% of cyclist crashes on the shared path.
- Visibility to cyclists in both directions on the shared path from vehicles entering the premises from Hutt Road will become more important if kerbside parking is provided (vehicles turning in make up 20% of the crashes on the shared path).
- The intersection improvements at the Jarden Mile intersection may provide an opportunity to address the crash risk at the intersection.