Time	Topic and Purpose	Presenter(s)	Format	Time allocated
9.30am	**Update on Hamilton crime and police on the beat** The purpose of this session is for to Inspector Andrea Mcbeth to inform Members of crime trends across the city, Police resourcing, and how we partner together to tackle some of the issues facing our city.	Inspector Andrea McBeth	Open Briefing	**60 Minutes**
10.30am	**Transport Projects** As part of the Transport Projects Decision Making Framework approved at the 2 May 2024 Infrastructure and Transport Committee, there is a need for a briefing to discuss each of the projects before seeking approval via the Infrastructure and Transport Committee to proceed. A series of workshops is proposed to work through the Minor Transport Improvements programme (formerly known as Low-Cost Low Risk programme). Sites proposed for this briefing are: • Morrinsville Rd – pedestrian and cycle improvements at proposed Silverdale Rd roundabout • Heaphy Tce – pedestrian improvements outside Mosque (this is funded via CERF)	Robyn Denton Gordon Naidoo Tania Hermann	Open Briefing	**60 Minutes**
SESSION ENDS				

DISCUSSION TOPIC SUMMARY

Topic: Update on NZ Transport Agency Funding for 2024-27
Related Committee: Infrastructure and Transport
Business Unit/Group: Infrastructure and Assets
Key Staff Contact/s: Chris Allen & Robyn Denton
Direction Discussion/Drop in Session recommended? Status: Open

PURPOSE OF TOPIC/INFORMATION

To provide a verbal update on the impact of NZ Transport Agency funding decisions for the 2024-27 period.

WHAT KEY THINGS SHOULD MEMBERS THINK ABOUT/ CONSIDER IN UNDERSTANDING THIS INFORMATION?

The Hamilton City Long Term Plan 2024-27 has included assumptions regarding co-investment (subsidy) funding that would be received from the NZ Transport Agency for various transport activities to be completed including:

- Maintenance, Operations and Renewals
- Capital projects including the Low Cost Low Risk programme, Biking and Micromobility improvements

Information has now been received for the funding levels we will receive for the Maintenance, Operations and Renewals, with the funding information for the capital programme expected on 2,3 September 2024.

Staff will provide a verbal update on the implications of these funding levels on our programmes in preparation for a full report to the 26 September 2024 Infrastructure and Transport Committee

KEY SUMMARY POINTS

While we have generally received the funding expected in the Maintenance, Operations and Renewals activities – the funding for maintenance and renewal of footpaths and cycleways is significantly lower than was assumed in the development of the LTP.

We do not have information to hand on the funding towards the Transport Capital programme but are getting strong indications that there will not be a lot of funding assistance provided.

WHERE CAN MEMBERS FIND MORE INFORMATION?

No additional information is currently available.

WHAT DIRECTION/FEEDBACK/INPUT DO YOU NEED FROM ELECTED MEMBERS

- Staff will be seeking direction about the EM appetite for completed un-subsidised works utilising the local share (HCC funding) for completing transport activities over the next three years.

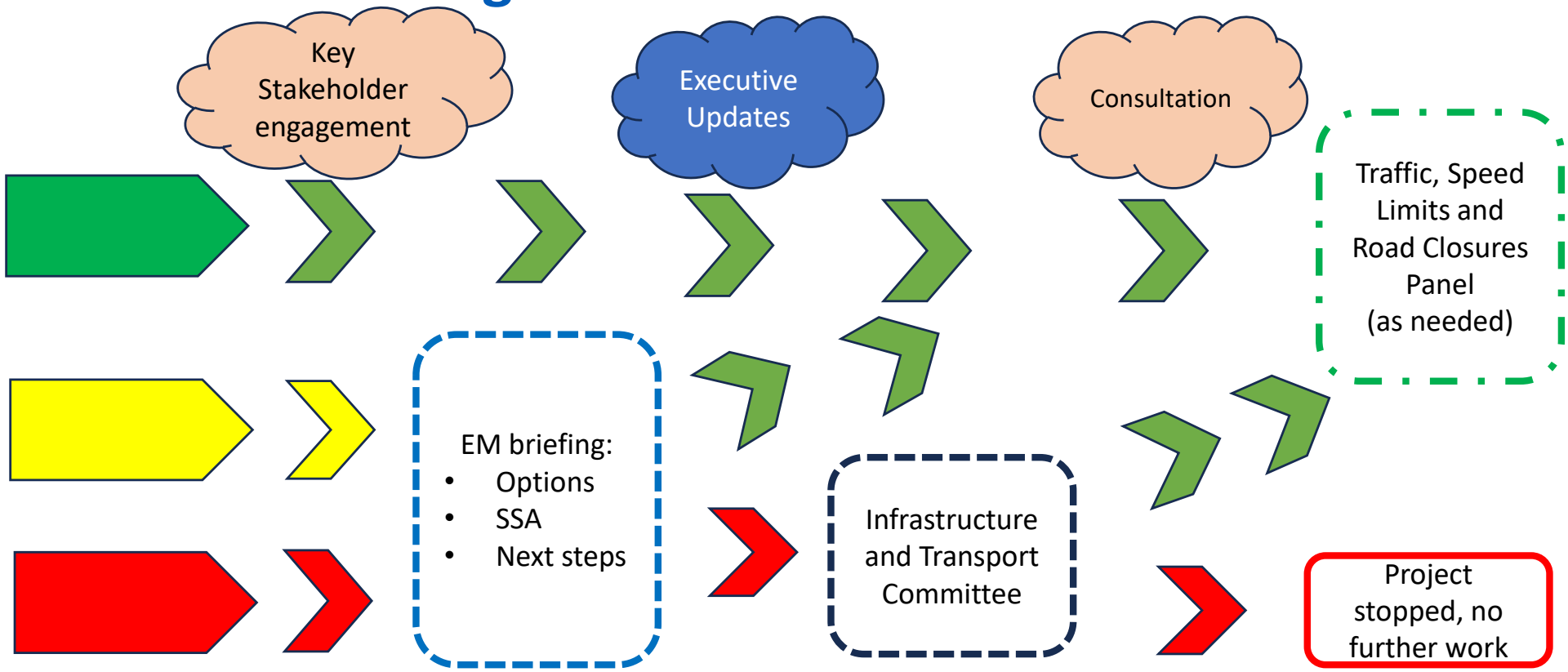
Purpose of Briefing

To present the work that has been completed investigating options for improvements to the following locations:

- Ulster / Abbotsford intersection
- Morrinsville Road – pedestrian and cycle facilities at Matangi/Silverdale roundabout
- Heaphy Terrace – pedestrian improvements outside Mosque (just south of Boundary Road)
- Grandview Shops

To seek feedback on the proposals for inclusion in future reports to Infrastructure and Transport Committee to seek approval macroscope designs for Minor Improvement projects which have been identified via the Transport Decision Making Framework as ‘Red’ or ‘Orange’ status

Decision Making Framework



Project reports and options

As part of the briefing pack there is a project report for each of the sites.

A number of options have been considered for each site and the detail of these is in the supporting project reports

Staff have identified the safest option as a preferred option, noting some of these do include RSP's. An alternative option is also provided – generally without an RSP.

The final decision on which option (if any) will proceed at the appropriate Infrastructure and Transport meeting.

Ulster/Abbotsford Intersection & Pedestrian Improvements

5 March 2024 Infrastructure and Transport Committee resolved:

Resolved: (Cr Wilson/Cr Taylor)

That the Infrastructure and Transport Committee requests staff:

a) undertake further investigations of alternative options for pedestrian crossing facilities on Ulster St without a raised platform;

b) organise an information session to seek direction from Members on the alternative options; and

c) report back to the Committee with a proposal for consideration that would be implemented in the 2024/25 financial year.

Ulster/Abbotsford Intersection & Pedestrian Improvements

The Ulster / Abbotsford Street Crossing Improvements was identified through the Comet Public Transport Route Assessment and included in the Low-Cost Low Risk programme for 2021-24. The project is expected to address the following issues:

- The lack of safe and comfortable crossing opportunities for walking and biking are a barrier to travel for walking and biking, including access to Whitiora School, FMG Stadium, and the bus stops on Ulster Street.
- The road layout and vehicle speeds create a high potential for failure to give way type vehicle crashes resulting in serious or fatal injuries, which is reflected in recorded crashes.
- The existing bus stops are closely spaced and located away from intersections. The close spacing results in increased travel time for the Comet bus service and stop locations reduce accessibility for passengers.

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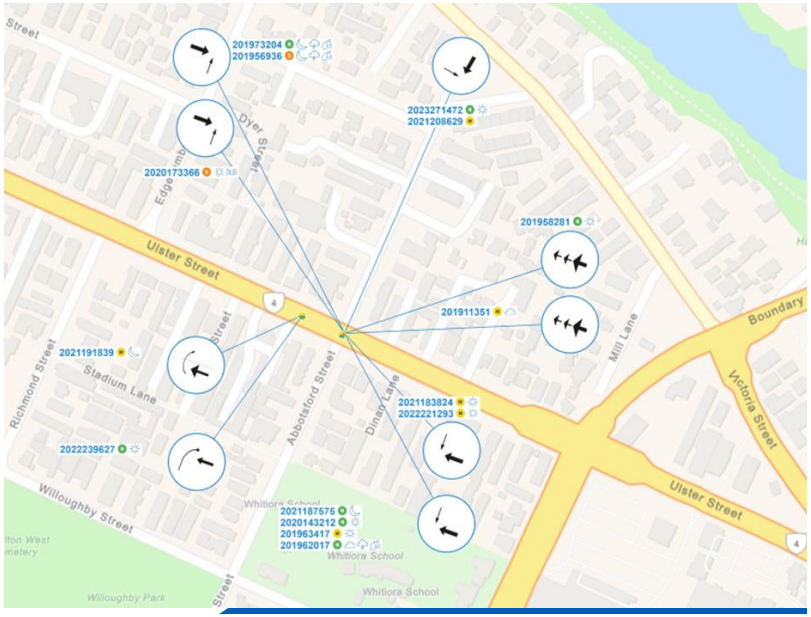
Ulster/Abbotsford Intersection & Pedestrian Improvements

In the last five years (2019 to 2023), 15 crashes were recorded with the following severity:

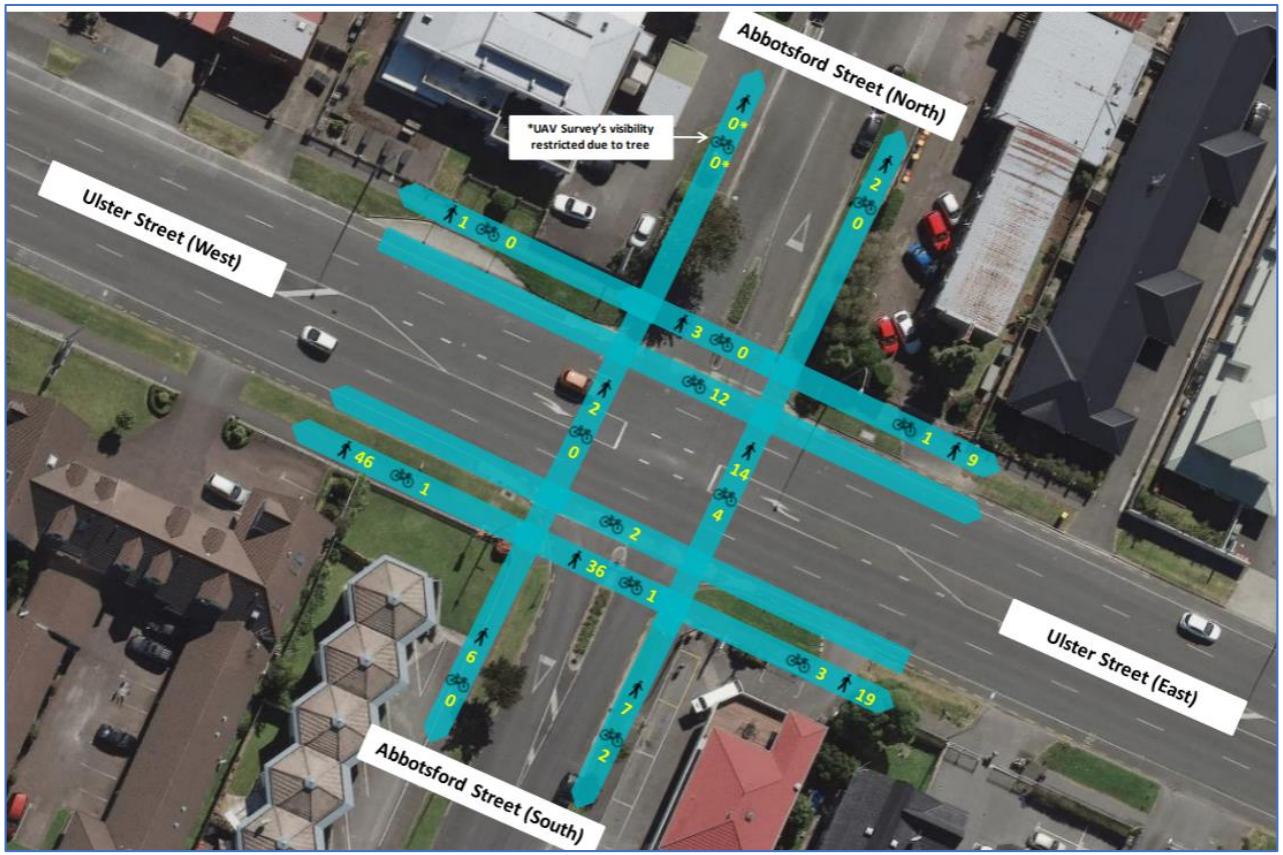
- Two serious injury crashes:
  - Both recorded serious injury crashes involved vehicles travelling straight through on Abbotsford Street colliding with vehicles on Ulster Street
- Six minor injury crashes
  - Four of the recorded minor injury crashes involved vehicles travelling straight through on Abbotsford Street colliding with vehicles on Ulster Street
- Seven non-injury crashes

- Most recorded crashes (12 of 15) occurred in fine weather and “dazzling sun” was recorded as a factor in one crash only.

- All recorded crashes included motor vehicles (including cars, vans, mopeds, motorcycles) only.



Ulster/Abbotsford Intersection & Pedestrian Improvements



Recorded walking and biking movements on 10/10/2023, 0750-0850

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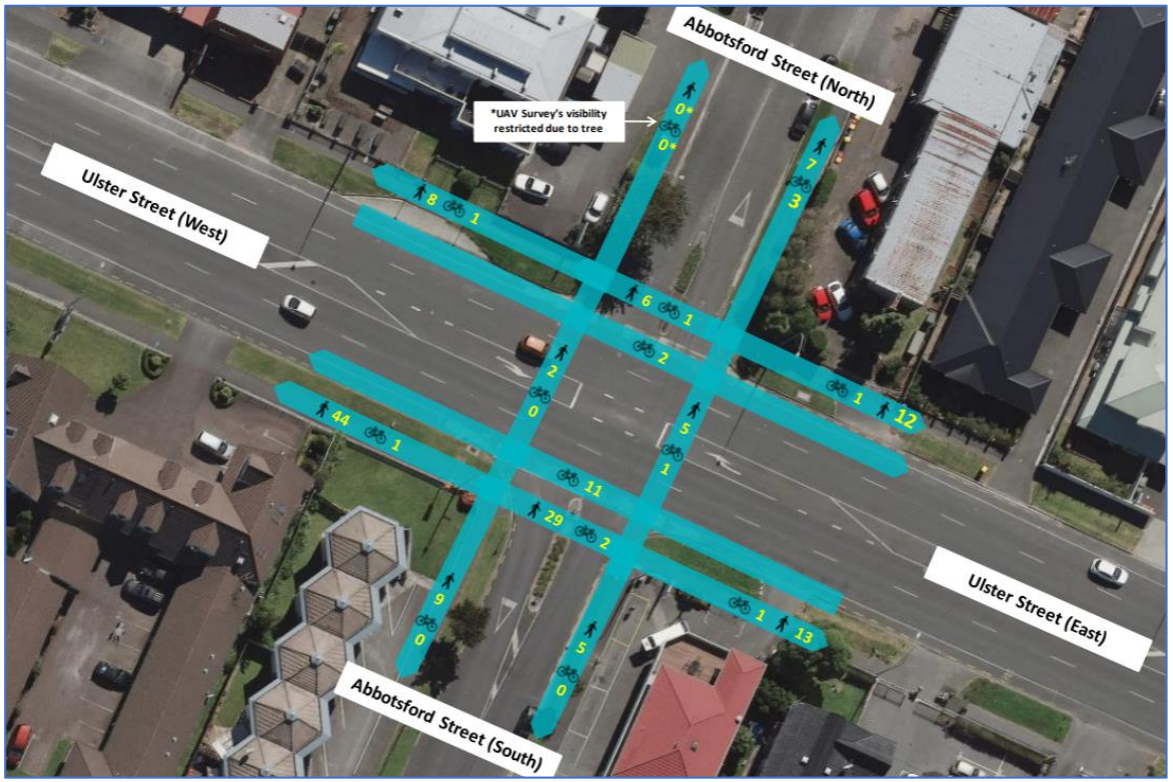
Ulster/Abbotsford Intersection & Pedestrian Improvements



Recorded walking and biking movements on 10/10/2023, 1645-1745

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Ulster/Abbotsford Intersection & Pedestrian Improvements

- During the one-hour school period on 15 August 2024, staff observed the following behaviour:
  - Five near misses due to drivers proceeding straight or heading right from Abbotsford Street failing to give way to vehicles on Ulster Street.
  - Drivers waiting to proceed straight or turn right from Abbotsford Street block the exit from Abbotsford Street causing delay to drivers behind wanting to turn left, which creates pressure to turn quickly when a gap may not be suitable.
  - Four primary aged children crossed Ulster Street unaccompanied.
- A total of
  - 23 pedestrians crossed Ulster Street north of Abbotsford Street
  - 25 pedestrians crossed Ulster Street south of Abbotsford Street

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Ulster/Abbotsford Intersection & Pedestrian Improvements

Options	Cost Estimate	Safe Sytems Score - Existing 272	Crash Reductions Estimate	Traffic Delays / Travel Costs	Driver Discomfort	5-10 year Maintenance Costs	Active Mode Impact	Recommendations
Treatment A - Raised Signal Intersection	$3M	156 (43%)	52%	Higher	Medium/ Higher	Medium/ Higher	Medium Benefit	Option 8 - Second safest option
Treatment B - Raised Signalised Crossing	$1.5M	146 (46%)	47%	Medium/ Higher	Medium/ Higher	Medium/ Higher	Medium Benefit	Option 7A* – Safest option
Treatment C - At Grade Signalised Crossing	$1.3M	168 (38%)	47%	Medium/Higher	Medium	Medium/ Higher	Medium Benefit	Option 6 – Third safest option
Treatment D - Uncontrolled crossing with refuge island	$800k	184 (32%)	15%	Zero	Zero	Light	No impact	Option 2 – Least safest option

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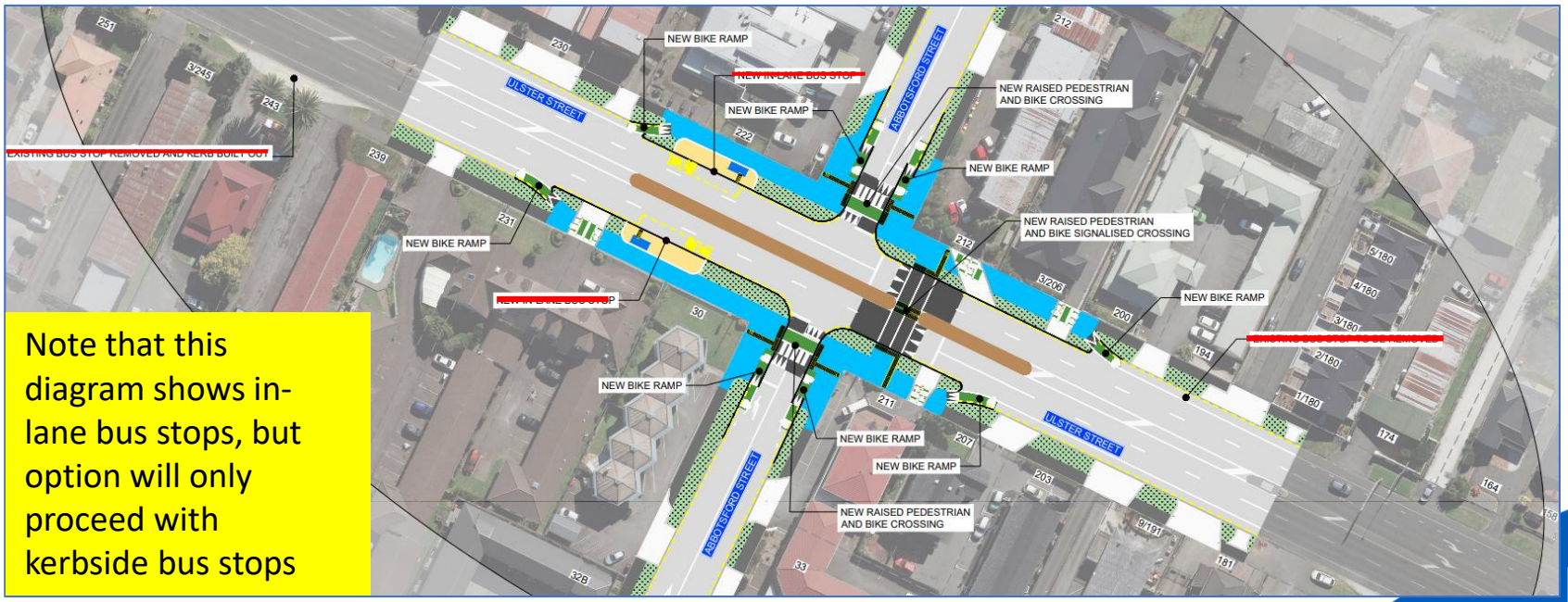
Ulster/Abbotsford Intersection & Pedestrian Improvements

Recommended safest option:

Raised dual walking and cycling crossing, side road improvements, kerbside bus stops

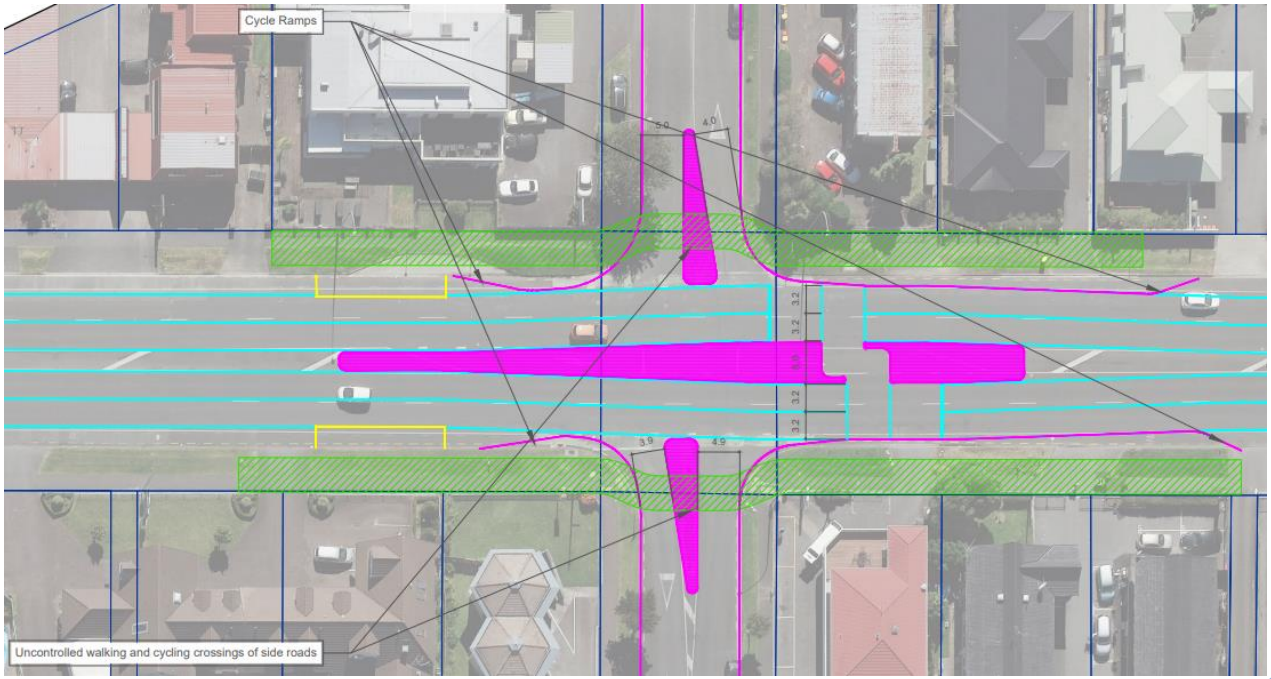


Note that this diagram shows in-lane bus stops, but option will only proceed with kerbside bus stops

Ulster/Abbotsford Intersection & Pedestrian Improvements

Alternative option:

At-grade, two stage, dual walking and cycling crossing, side road improvements, kerbside bus stops



Morrinsville Road – pedestrian and cycle facilities at Matangi/Silverdale roundabout

At the Infrastructure and Transport Committee meeting on 8 August 2024 councillors gave macro-scope approval to proceed with a roundabout at the intersection with staff to report back to approve active mode crossing facilities (form and location) at a future date.

There are currently limited facilities for walking and no facilities for cycling on Morrinsville Road between Jansen Park and the Waikato Expressway. There are no crossing facilities at the intersections of Matangi Road and Silverdale Road with Morrinsville Road. This impedes access between Hillcrest, Silverdale, Matangi or Newstead and residents (including school students) who may wish to travel by active modes are forced to accept a high level of road safety risk or drive.

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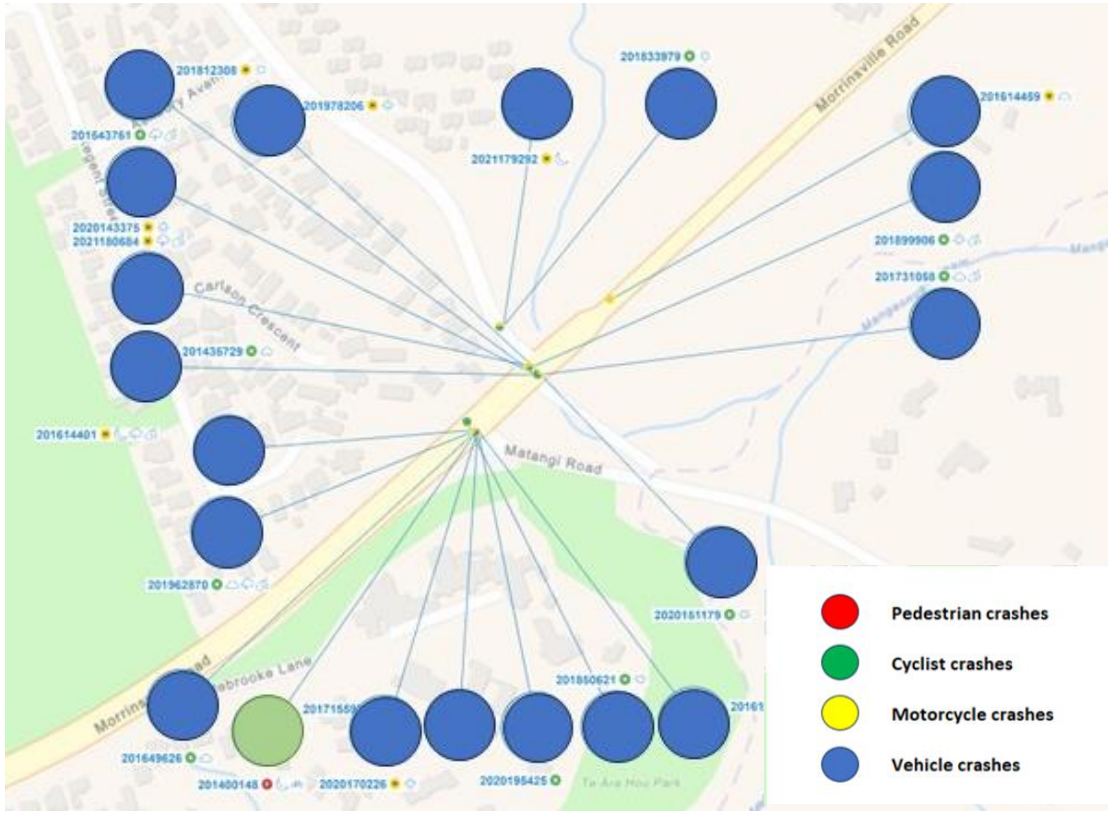
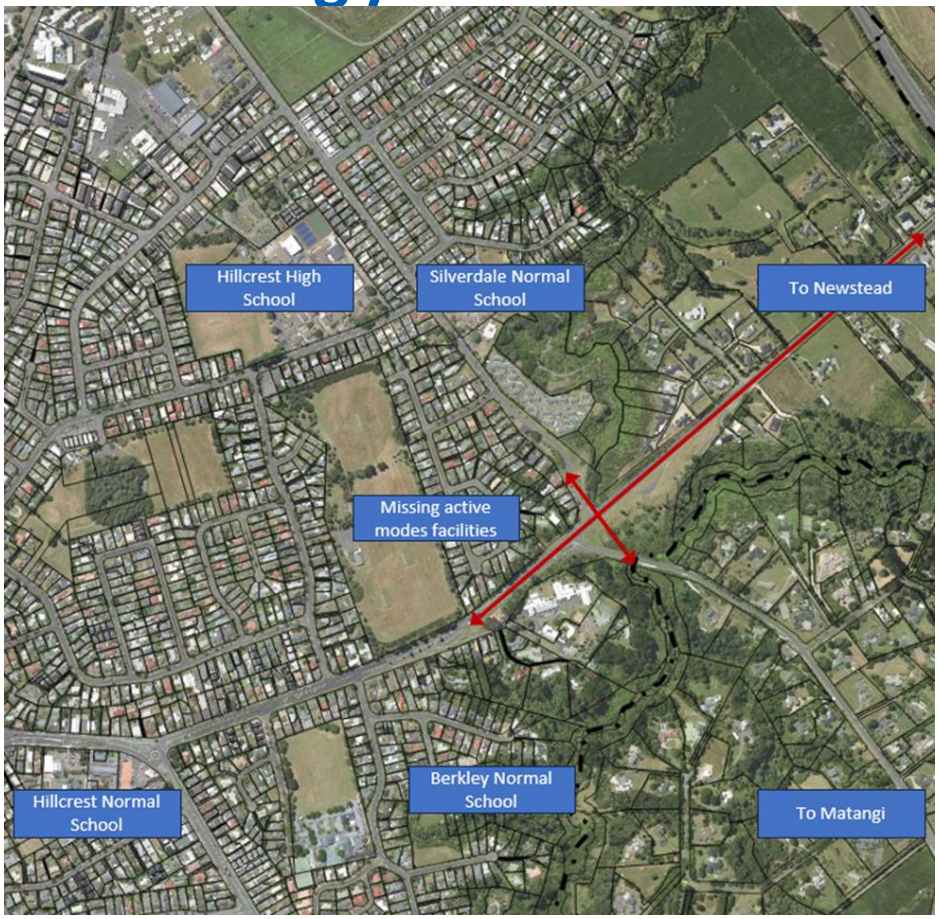
Morrinsville Road – pedestrian and cycle facilities at Matangi/Silverdale roundabout



In the last ten years (2014 to 2023), 21 crashes were recorded with the following severity:

- One fatal crash involving a cyclist turning right into Matangi Road
- Ten minor injury crashes; and
- Ten non-injury crashes

Morrinsville Road – pedestrian and cycle facilities at Matangi/Silverdale roundabout



A road user count on 22 March 2023, for the following periods: 0630 to 0930, 1100-1330, and 1430-1830, producing the following data

- A total of 24 pedestrians were recorded, including 17 who crossed Morrinsville Road.
- A total of 80 cyclists were recorded, including:
  - 26 who travelled between Matangi Road and Silverdale Road; and
  - 30 who travelled between Matangi Road and Morrinsville Road West

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Morrinsville Road – pedestrian and cycle facilities at Matangi/Silverdale roundabout

Staff are in regular contact with schools in the area, including Berkley Normal Middle School, Silverdale Normal School, Hillcrest Normal School, and Hillcrest High School. High level conversations have also been held with Matangi Primary School, Newstead Primary School and Hamilton Seventh-Day Adventist Primary School.

Schools have advised that some of their students live in Matangi or Newstead and currently travel to school by walking, scooter, or biking or have expressed desire to do so.

Following the recent media coverage, we are receiving additional requests from the community for pedestrian and cyclist facilities at this intersection

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Options	Cost Estimate	Safe Systems Score - Existing 176	Crash Reductions Estimate	Traffic Delays / Travel Costs	Driver Discomfort	5-10 year Maintenance Costs	Active Mode Impact	Recommendations
Treatment A - Uncontrolled crossings with refuge island and kerb buildouts (Silverdale Road)	$200k-$300k	156 (11%)	37%	Zero	Zero	Light	No impact	Discarded
Treatment B: Uncontrolled crossings on raised safety platform with refuge island and kerb buildout (Silverdale Road)	$300-$400k	98 (44%)	39%	Light	Medium	Medium	Medium Benefit	Preferred
Treatment G - Dual priority crossings on raised safety platform with refuge island and kerb buildout (Silverdale Road)	$300-$400k	85 (52%)	39%	Medium	Medium	Medium	High Benefit	Discarded
Treatment B: Uncontrolled crossings on raised safety platform with refuge island and kerb buildout (Morrinsville Road)	$200k-$300k	124 (30%)	39%	Light	Light	Medium	Medium Benefit	Preferred
Treatment G - Dual priority crossings on raised safety platform with refuge island and kerb buildout (Morrinsville Road)	$300-$400k	101 (43%)	39%	Medium	Light	Medium	High Benefit	Discarded
Treatment F - Dual signalised crossing with refuge island & kerb build outs (Morrinsville Road)	$500+	132 (25%)	50%	Medium/ Higher	Light	Medium/ Higher	Medium Benefit	Alternative
Treatment G - Dual signalised crossing on raised safety platform with refuge island & kerb build outs (Morrinsville Road)	$500+	96 (45%)	52%	Medium/ Higher	Medium/ Higher	Medium/ Higher	High Benefit	Discarded

Morrinsville Road – pedestrian and cycle facilities at Matangi/Silverdale roundabout

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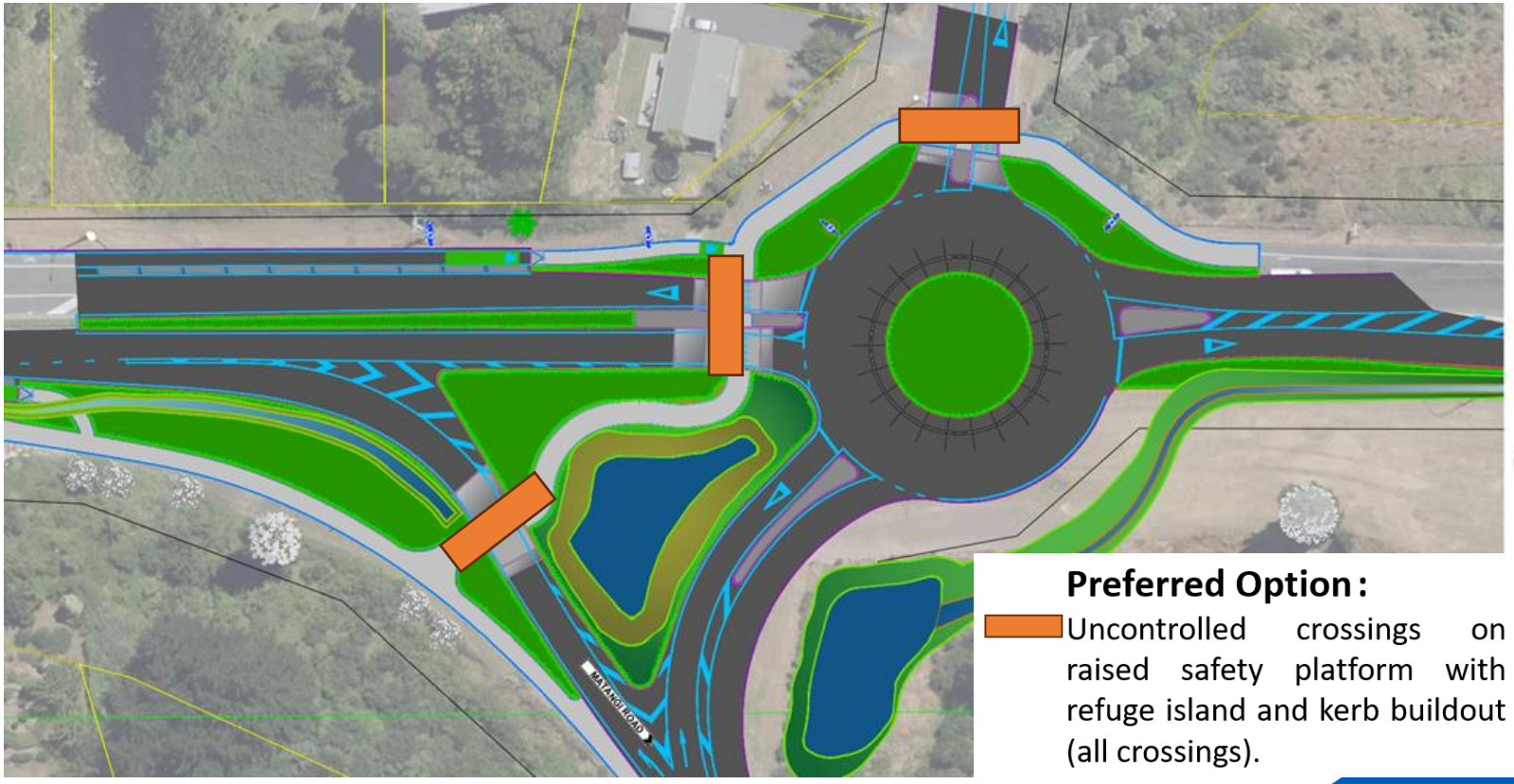
Morrinsville Road – pedestrian and cycle facilities at Matangi/Silverdale roundabout



Preferred Option:

Uncontrolled crossings on raised safety platform with refuge island and kerb buildout (all crossings).

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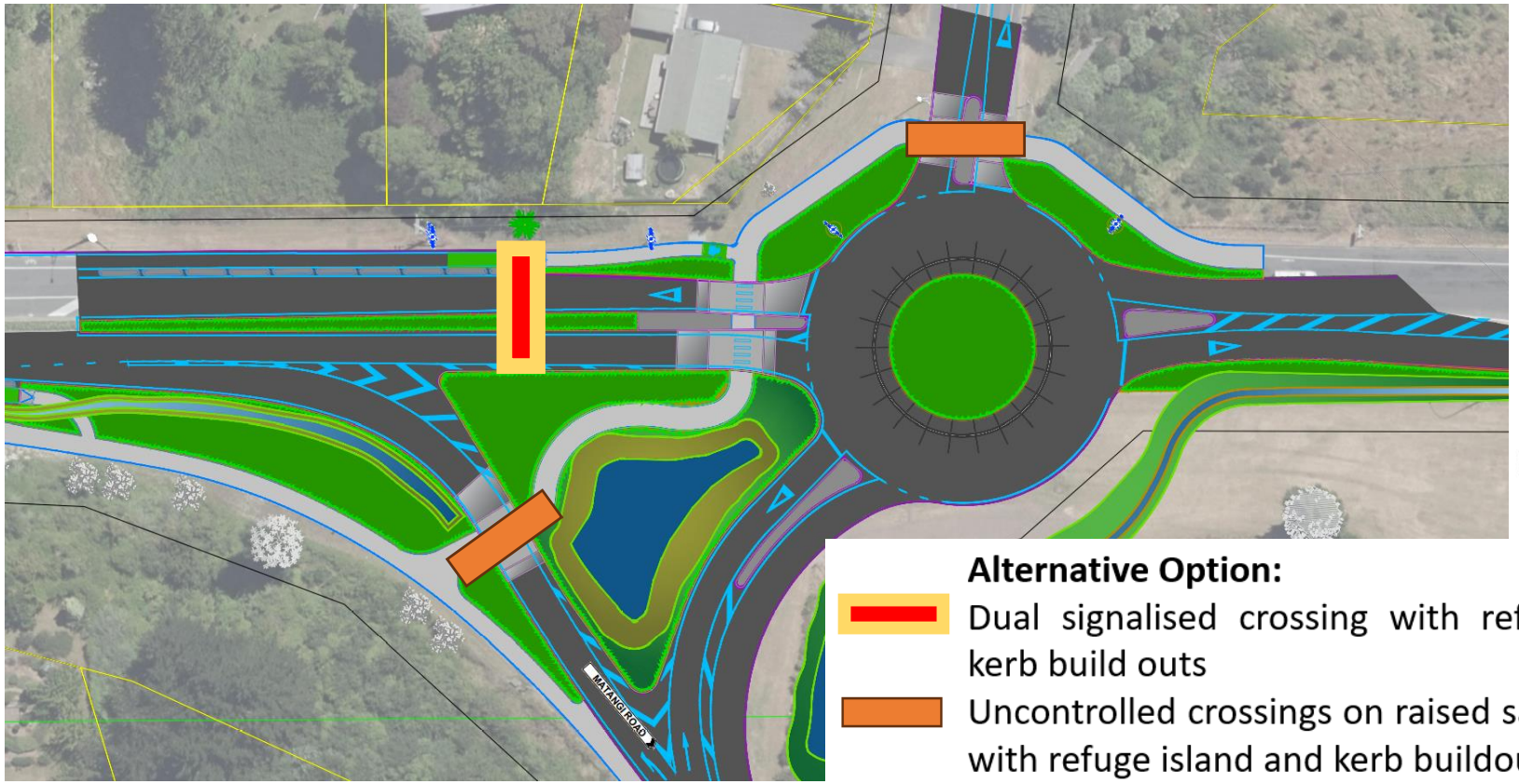
Morrinsville Road – pedestrian and cycle facilities at Matangi/Silverdale roundabout



Alternative Option:

Dual signalised crossing with refuge island & kerb build outs

Uncontrolled crossings on raised safety platform with refuge island and kerb buildout

Morrinsville Road – pedestrian and cycle facilities at Matangi/Silverdale roundabout

Traditionally, roundabouts use horizontal deflection (curves in the direction of travel) to manage vehicle speeds on approach to roundabouts. However, this can require a large diameter for the central roundabout island. A large enough roundabout is unlikely to be feasible at this site due to the property boundaries and nearby steep banks and gullies and therefore an alternative roundabout design will be needed.

Staff are considering changes which may include:

- Changing the size of the roundabout eg a compact roundabout like shown in the draft design above and used at Gordonton/Puketaha where the design will need to incorporate vertical deflection (raised safety platforms) to achieve safe operating speeds
- Changing the shape of the roundabout, such as a lozenge, bean, oval, or ellipse – see examples next pages
- Removing or changing the form of the left turn slip lane from Matangi Road

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Morrinsville/Matangi/Silverdale - alternative roundabout designs

Morrinsville/Matangi/Silverdale alternative roundabout designs

Heaphy Terrace – pedestrian improvements outside Mosque (just south of Boundary Road)

- A new pedestrian crossing on Heaphy Terrace was identified as part of the Minor Transport Improvements programme 2023-2024. However, the project is planned to be funded and delivered from the CERF Transport Choices Programme, which attracts 90% funding assistance from NZTA Waka Kotahi. The proposed pedestrian crossing compliments the newly constructed CERF Transport Choices Heaphy Terrace separated cycle path project that runs from Boundary Road to Brooklyn Road.

- The objective of installing the crossing is to improve safety and accessibility for active mode users. There is an existing pedestrian refuge island located on Heaphy Terrace. This area is the desirable location for the new mid-block crossing which will effectively be an upgrade of the existing pedestrian refuge.

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Heaphy Terrace – pedestrian improvements outside Mosque (just south of Boundary Road)

Table 2 - Activity Numbers at the Mosque

Prayer / Activity	Frequency and Times	Number Attending
Fajr	Daily, varies between 4.05 am and 5.58 am	60
Thuhur	Daily, varies between 12.25 pm and 1.10 pm	90
'Asr	Daily, varies between 3.00 pm and 5.10 pm	90
Maghrib	Daily, varies between 5.19 pm and 8.30 pm	120
Ishā	Daily, varies between 6.47 pm and 10.15 pm	120
Congregational Prayer	Fridays - Afternoons	500 - 700
Madrasah	Monday to Thursdays 5.30 pm to 7.30 pm Saturdays and Sundays 10:00 am to 12.00 pm	60
Iqra (Day Care)	Daily, 8.00 am to 3.00 pm	20 - 40

The mosque, as with most places of worship, undertakes a number of community activities alongside prayer meetings which include a Madrasah (School) and a day care. The Mosque serves the region around Hamilton with members coming from Te Aroha and other outlying towns.

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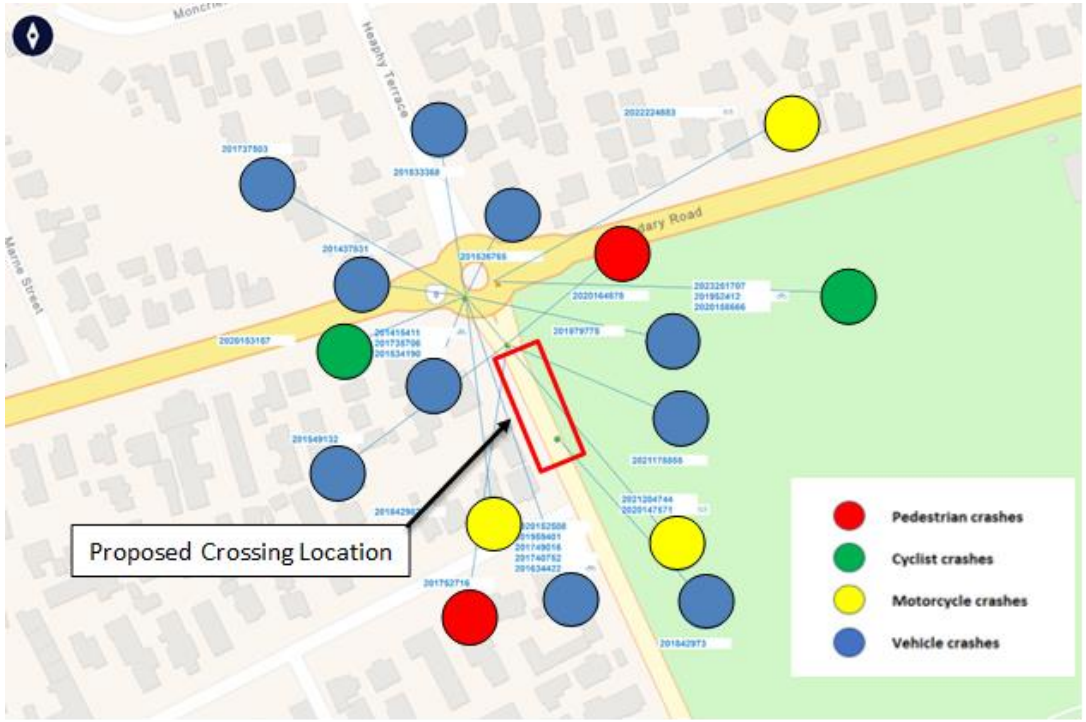
Heaphy Terrace – pedestrian improvements outside Mosque (just south of Boundary Road)



In the last 10 years there has been 26 recorded crashes consisting of 19 non-injury crashes and 7 minor crashes resulting in a social cost of $4.3m.

Heaphy Terrace – pedestrian improvements outside Mosque (just south of Boundary Road)

Options	Cost Estimate	Safe System Risk Reduction - Existing 118.5/448	Crash Reductions Estimate		Traffic Delays / Travel Costs	Driver Discomfort	5-10 year Maintenance Costs	Active Mode Impact	Recommendations
Treatment A - Uncontrolled crossing with refuge island and kerb buildouts	$300-$400k	113(-5%)	35%		Light	Zero	Low/Zero/Cleaning	No Impact	Option 3 -Additional option to be considered
Treatment B – Pedestrian platform with refuge island and kerb buildout	$500+	90(-24%)	40%		Light	Medium/Higher	Light	High Benefit	Option 2 - Alternative option
Treatment C - Zebra crossing with RSP (without kerb buildout)	$300k-$400k	84(-29%)	30%		Medium	Medium/Higher	Medium/Higher	High Benefit	
Treatment D - Zebra crossing with RSP and kerb buildout.	$500+	80(-32%)	38%		Medium	Medium/Higher	Medium/Higher	High Benefit	Option 1 -Recommended option
Treatment E - Signalised crossing (without RSP and kerb buildout)	$300-$400k	92(-22%)	45%		Medium	Light	Medium	Medium Impact	
Treatment F - Signalised crossing with kerb buildout (without RSP)	$400-$500k	95(-20%)	49%		Medium	Light	Medium	Medium Impact	
Treatment G - Signalised crossing with RSP and kerb buildout	$500+	77(-35%)	52%		Medium/Higher	Medium/Higher	Medium	High Benefit	

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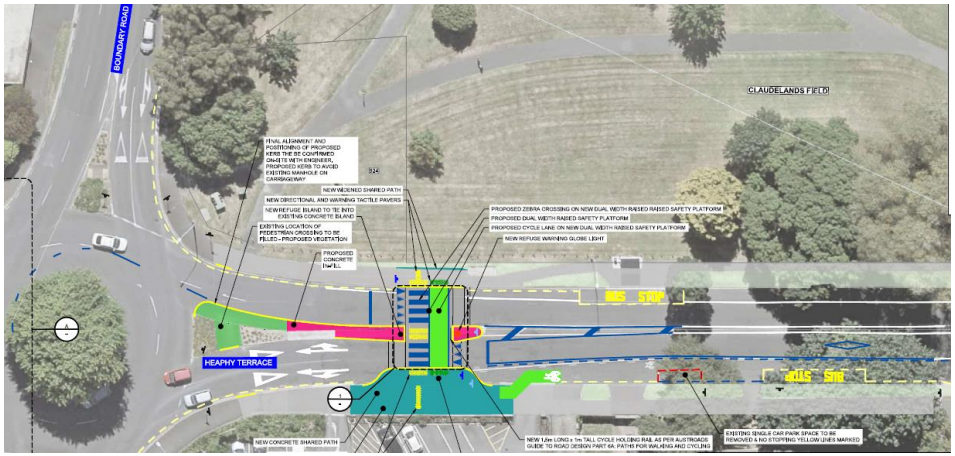
Heaphy Terrace – pedestrian improvements outside Mosque (just south of Boundary Road)

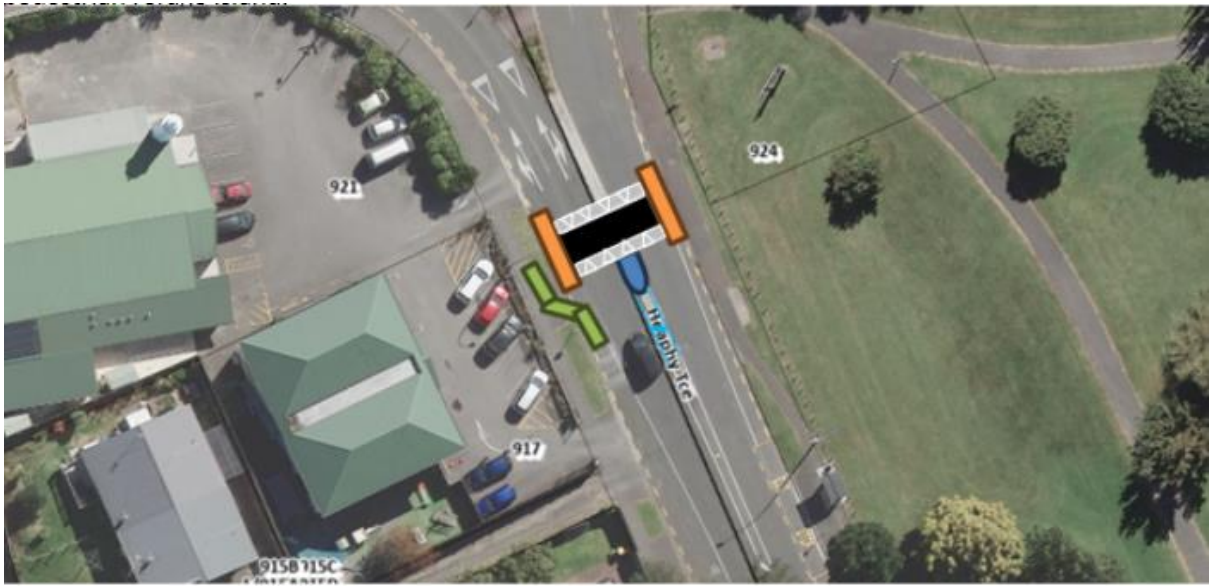
- **Preferred Safest – Paired Zebra Crossing with Kerb Buildout and RSP**
- Project planning and design cost - $160,000 (completed and paid by CERF)
- Project construction cost - $529,000
- **Total project cost - $689,000**



NZTA have voiced a strong preference in continuing funding assistance for this option

Heaphy Terrace – pedestrian improvements outside Mosque (just south of Boundary Road)

- **Alternative Option: Pedestrian Platform with Refuge Island and Kerb Buildout**
- **Total project cost - $533,000**



Check if NZTA will allow CERF funding to be used for this option

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Grandview Shops

- This location has two existing refuge crossings that are seldom used, and this is because they are not on the pedestrian crossing desire lines (shortest route and aligned with Fraser school link). The refuge islands are also too narrow to accommodate mobility scooters or prams. This has resulted in high-risk decision making and chance taking by children and other vulnerable road users to cross this busy arterial road.
- The busy traffic times also coincide with high pedestrian activity and judging safe gaps in traffic is difficult, compounded as pedestrians are crossing at extremely high-risk locations between parked vehicles.

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Grandview Shops

- Received customer request from resident (2023) for raised safety platform on Grandview Road to limit speed through this road.
- Received customer request from resident (2023) addressing serious concerns regarding vehicle speeds and requesting physical speed reduction measures.
- During site a visit (2023) residents of Clancy Place suggested that a pedestrian crossing with raised safety platform (RSP) would be more user friendly for people on mobility scooters and should be installed on Grandview Rd near Clancy Place; and
- During site observation (2024) wide pedestrians in the area had positive feedback in favour of a priority crossing.

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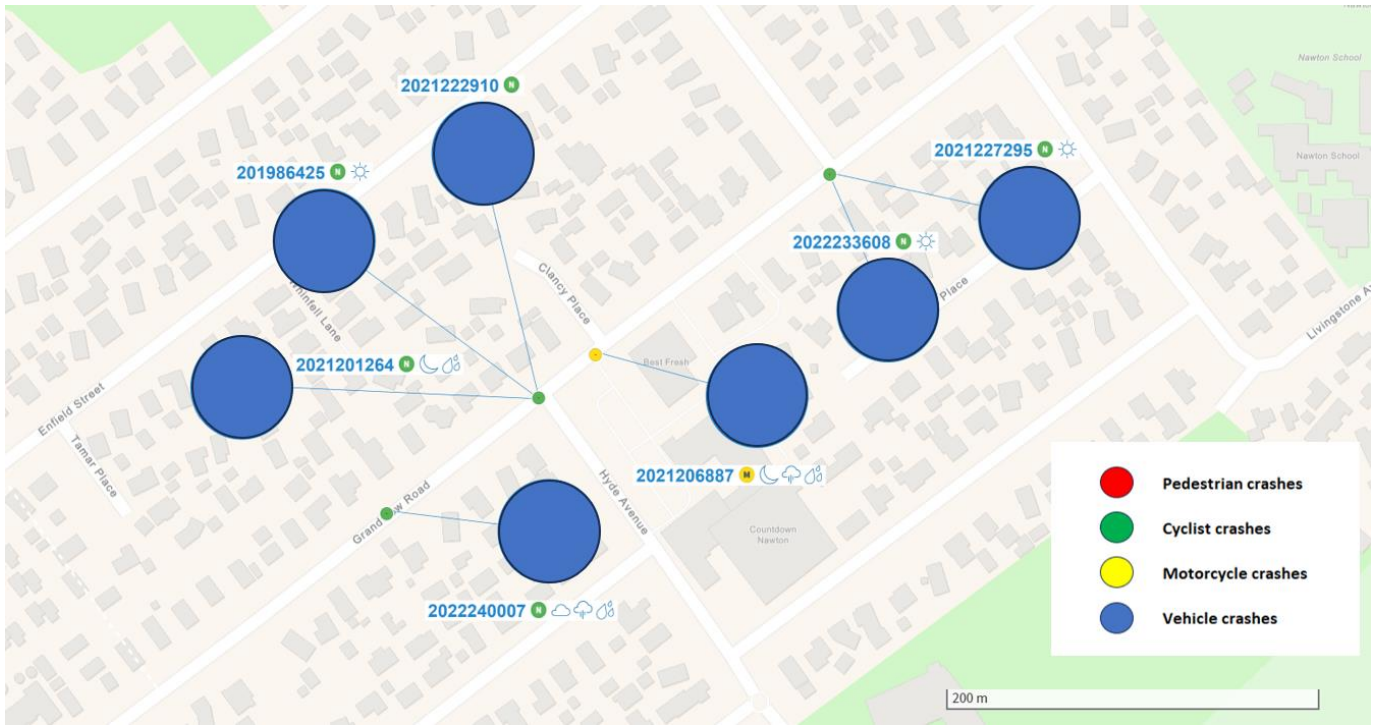
Grandview Shops



In the last 5 years (2019 - 2023) there have been seven recorded crashes in the vicinity with four occurring within the proposed project area.

Grandview Shops

Treatments	Cost Estimate	Safe Sytems Score	Crash Reductions Estimate	Traffic Delays / Travel Costs	Driver Discomfort	5-10 year Maintenance Costs	Active Mode Impact	Recommendations
Treatment A - Courtesy crossing Refuge island with kerb buildouts	<$100k	>125	50-60%	Zero	Zero	Low/Zero/Cleaning	Medium Benefit	
Treatment B - Courtesy crossing on raised safety platform with kerb buildout	$300k-$500k	>125	50-60%	Zero	Medium/Higher	Medium	High Benefit	
Treatment C - Zebra crossing with RSP (without kerb buildout)	$600-$700k	80-90	50-60%	Medium	Medium	Medium	High Benefit	
Treatment D - Zebra crossing with RSP and kerb buildout.	$600-$700k	90-100	60-65%	Medium	Medium	Medium	High Benefit	Additional Option Considered - Combined with Option H
Treatment E - Signalised crossing (without RSP and kerb buildout)	$600-$700k	100-125	50-60%	Light	Light	Light	High Benefit	
Treatment F - Signalised crossing with kerb buildout (without RSP)	$700 - $800	100-125	60-65%	Light	Light	Light	High Benefit	Alternative Option 2 - Combined with H/ or alternatively with delineation to support reduced traffic speeds
Treatment G - Signalised crossing with RSP and kerb buildout	$700 - $800	90-100	65-70%	Medium/Higher	Medium/Higher	Medium/Higher	High Benefit	Preferred Safest Option 1 - Combination G+H
Treatment H - 30km/hr Speed limit + Thresholds	<$100k	90-100	65-70%	Medium/Higher	Light	Light	Medium Benefit	

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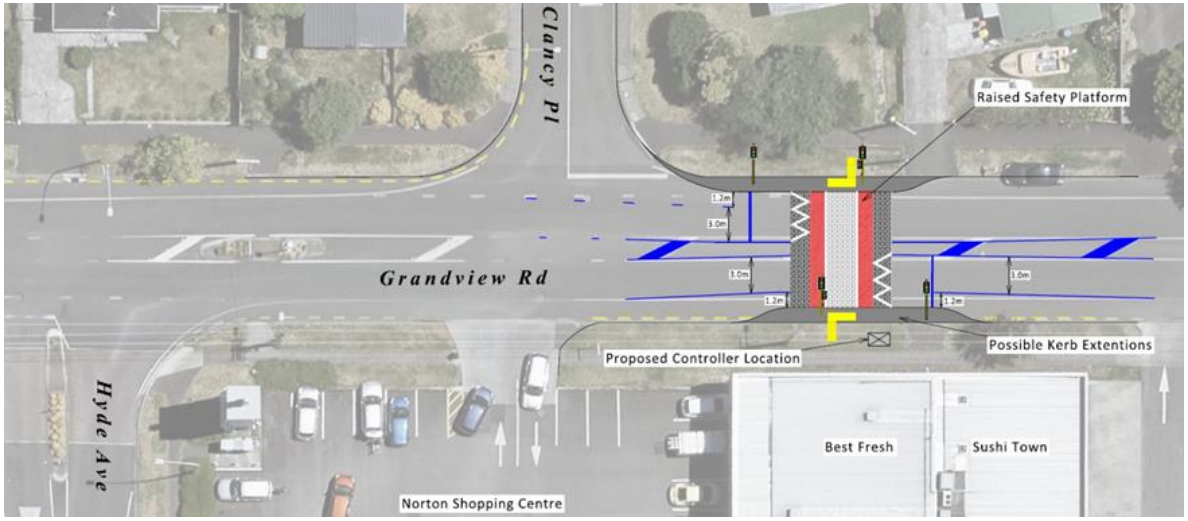
Grandview Shops

Preferred Safest Option: Signalised Crossing with RSP, Kerb Buildout and 30km/hr Speed limit.

- **Estimated Cost: $800k**



Grandview Shops

Alternative Option: At Grade Signalised Crossing with Kerb buildout - preferably with 30km/hr speed Limit with supportive delineation and signage.

- **Estimated Cost: $700k**

Next Steps – pending confirmation of funding from NZTA

- Based on direction from this workshop staff will complete an additional targeted consultation needed
- Report to Infrastructure and Transport Committee to seek macro-scope and funding approval

Feedback and Direction

- Staff need direction on preferred option to progress to inclusion in future reports to Infrastructure and Transport Committee

Project Report

Active user facilities at Matangi Road roundabout- Morrinsville Road Fit for Purpose

2024/25

Morrinsville Road Fit for Purpose - Proposed Crossing Facilities at New Roundabout

PURPOSE

Hamilton City Council (HCC) has entered into a funding agreement with NZTA to deliver the Morrinsville Road Fit for Purpose project associated with the revocation process. Part of the scope agreed with NZTA is to install a roundabout at the intersections of Morrinsville Road with Silverdale Road and Matangi Road includes active mode crossings. The funding agreement was informed by a single stage business case by NZTA.

At the Infrastructure and Transport Committee meeting on 8 August 2024, councillors gave macro-scope approval to proceed with a roundabout at the intersection with staff to report back to approve active mode crossing facilities (form and location) at a future date.

This report describes the option assessment process for the form and location of the active modes facilities.

DESIGN CONTEXT

The Fit for Purpose business case includes a proposed design for the roundabout, shown below. However, staff have identified some safety issues, budget risks, and traffic impacts with this design. Staff are considering alternative layouts.

Intersection layout in the NZTA business case

Traditionally, roundabouts use horizontal deflection (curves in the direction of travel) to manage vehicle speeds on approach to roundabouts. However, this can require a large diameter for the central roundabout island. A large enough roundabout is unlikely to be feasible at this site due to the property boundaries and nearby steep banks and gullies and therefore an alternative roundabout design will be needed.

Staff are considering changes which may include:

- Changing the size of the roundabout e.g. a compact roundabout like shown in the draft design above and used at Gordonton/Puketaha where the design will need to incorporate vertical deflection (raised safety platforms) to achieve safe operating speeds
- Changing the shape of the roundabout, such as a lozenge, bean, oval, or ellipse – see examples below
- Removing or changing the form of the left turn slip lane from Matangi Road

Example of a 'Peanut' roundabout in Dunedin

Peanut roundabout at Knighton Road, Clyde Street and Cameron Road intersection, Hamilton

The business case includes extending the 50 km/h speed limit through the intersection from the west and lowering the existing 80km/h to a 60 km/h speed limit east of the intersection through to the Waikato District boundary at the Waikato Expressway overbridge.

WHERE?

The proposed active mode crossings are located on the western and northern legs of the intersection, as shown by the blue line in the figure below.

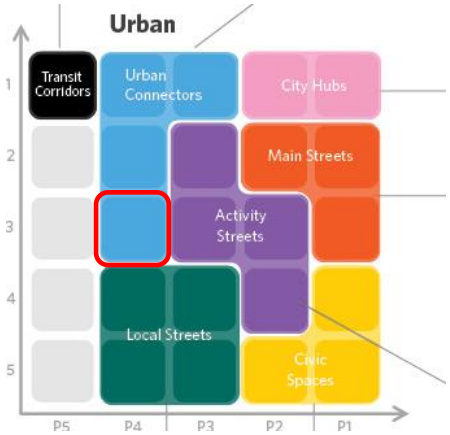
Site Location

WHY IS IT IMPORTANT TO ADDRESS THE PROBLEM?

Morrinsville Road has average daily traffic of 7,100 (east of the Waikato Expressway) to 13,300 (signalised crossing) vehicles per day. It's ONF classification is M3, P4 falling within the Urban Connector classification. These can be summarised as a mix of higher volumes of vehicles and people. The existing speed limit is 80km/hr, and the measured mean operating speed is 64 km/h (westbound) and 66 km/h (eastbound)[1].

There are very limited facilities for active modes to safely move through this site and the existing pedestrian facilities do not include any crossing facilities at the Silverdale/Matangi intersection.

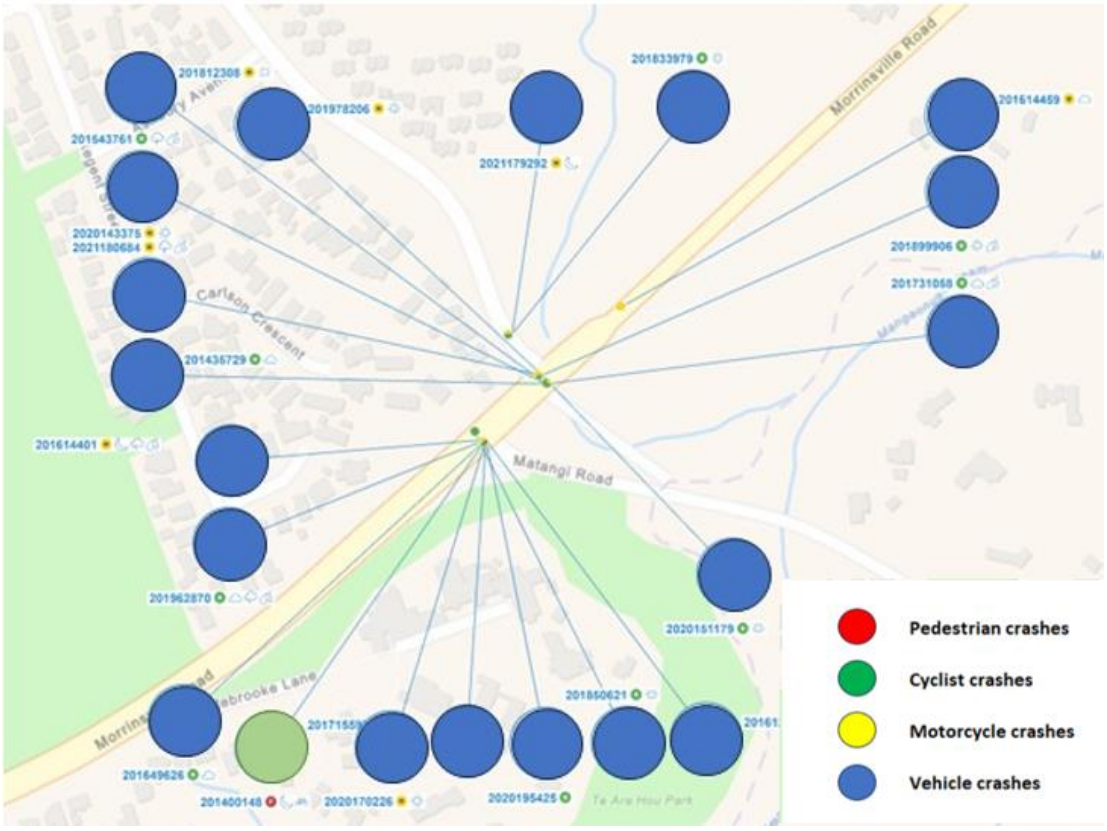
[1] Vehicle operating speed is sourced from the NZTA resource MegaMaps. NZTA's data is sourced from TomTom.



ONF Classification

In the last ten years (2014 to 2023), 21 crashes were recorded[2] with the following severity:

- One fatal crash involving a cyclist turning right into Matangi Road
- Ten minor injury crashes; and
- Ten non-injury crashes



[2] NZTA Crash Analysis System, extracted 10/06/2024

Existing active mode use

Staff commissioned a road user count on 22 March 2023, for the following periods: 0630 to 0930, 1100-1330, and 1430-1830, producing the following data:

- A total of 24 pedestrians were recorded, including 17 who crossed Morrinsville Road.
- A total of 80 cyclists were recorded, including:
    - 26 who travelled between Matangi Road and Silverdale Road; and
    - 30 who travelled between Matangi Road and Morrinsville Road West

Observations

Site inspections were carried out on 16 August 2024 where the following observations were made:

- Eastbound vehicles are accelerating in anticipation of the passing lane approximately 60m east of Silverdale Road.
- Pedestrians were observed walking on the grass verge on the northern side of Morrinsville Road

Community and Public feedback

Staff have received feedback from the community regarding safety at the intersection of Morrinsville Road with Matangi Road and Silverdale Road. This includes several requests to improve safety and/or convenience for people turning at the intersection, as well as requests for new and/or improved crossing facilities for pedestrians and/or people on bikes – including disabled people.

Staff are in regular contact with schools in the area, including Berkley Normal Middle School, Silverdale Normal School, Hillcrest Normal School, and Hillcrest High School. High level conversations have also been held with Matangi Primary School, Newstead Primary School and Hamilton Seventh-Day Adventist Primary School. Hamilton schools have advised that some of their students live in Matangi or Newstead and either travel to school by walking, scootering, or biking – or have expressed desire to do so if it were safer. The only viable route for journey is through the intersection of Morrinsville Road with Matangi Road and Silverdale Road.

Staff will continue to engage directly with schools in relation to the proposed works on Morrinsville included in the funding agreement.

Community representatives from Matangi and Tamahere have been in contact convey their support for infrastructure to support active travel. This route is seen as an important connection from Matangi to schools, the University of Waikato and nearby businesses. The existing intersection is seen as dangerous with high vehicles speeds and a lack of suitable infrastructure – highlighted by the death of a person riding a bike in 2014. Feedback received is that Morrinsville Road is well pedestrianised with students coming to/from schools in the area. The Tamahere Mangaone Restoration Trust have also advised of their ambitions to create a walking path alongside the Mangaonua Stream and that it would be ideal for this to emerge at Matangi Road and connect to an upgraded intersection.

WHAT'S THE PROBLEM?

There are currently limited facilities for walking and no facilities for cycling on Morrinsville Road between Jansen Park and the Waikato Expressway. There are no crossing facilities at the intersections of Matangi Road and Silverdale Road with Morrinsville Road. This impedes access between Hillcrest, Silverdale, Matangi or Newstead and residents (including school students) who may wish to travel by active modes are forced to accept a high level of road safety risk or drive.

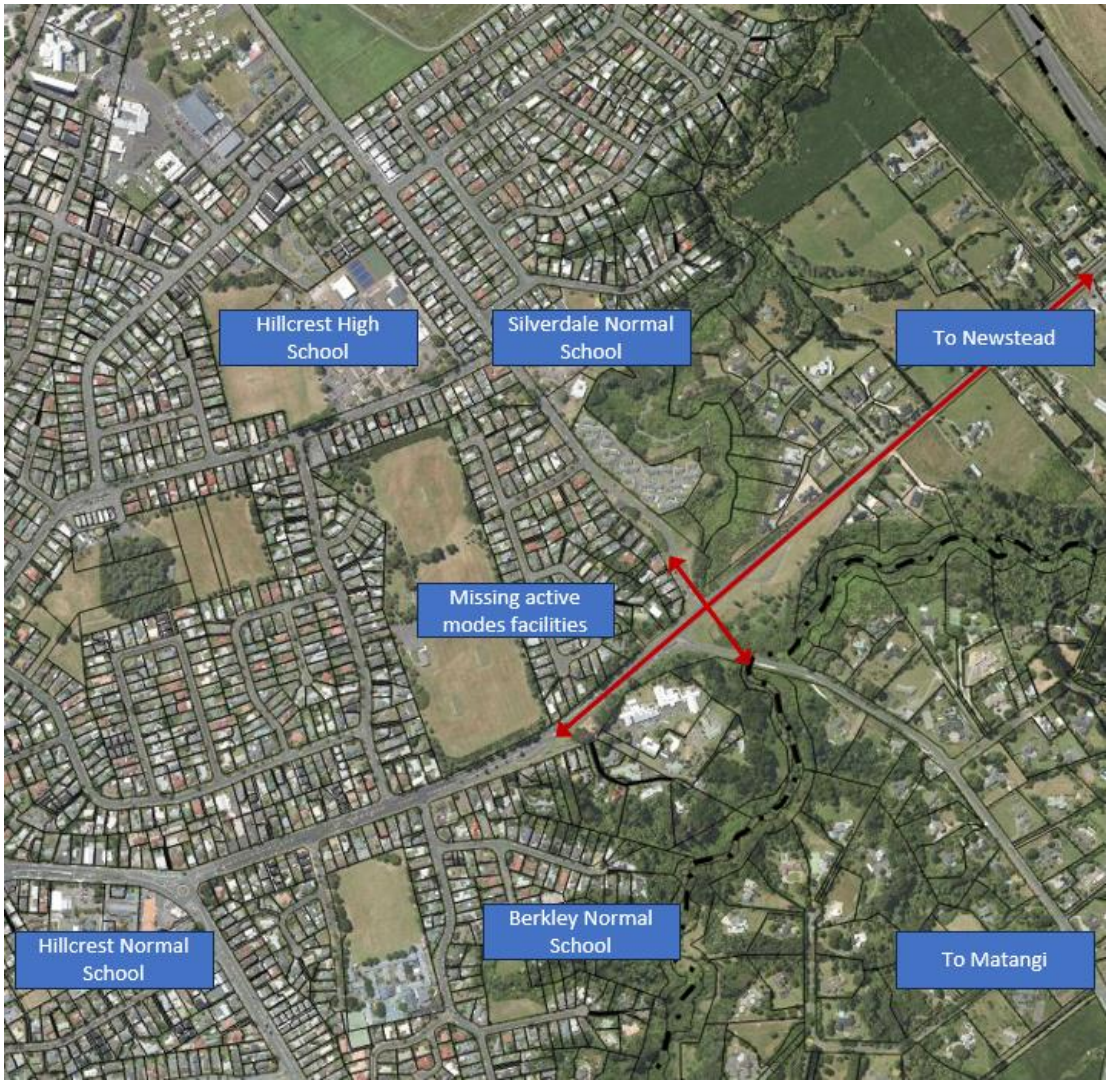


Figure 1: Active travel destinations and missing facilities.

Figure 2: Existing environment.

The funding agreement with NZTA is based upon the business case for the revocation of State Highway 26 west of Ruakura Road. The business case identified the following problem statements:

- "Road configuration leads to a high crash risk at intersections and bends in the road"
- "High traffic flows and operational speeds are reducing safe travel choices for communities"
- "Asset condition does not meet the standard for the road function which leads to higher costs for council of […] (eg infrastructure provision is excessive for road user needs and historic "asset sweating" reduces asset life)."

RECOMMENDATIONS

A description of the Options and Treatments are provided in the "Treatments Considered" and "Treatment Analysis Matrix" tables together with the Options Considered section at the end of this report.

Preferred Option: Uncontrolled crossings on raised safety platforms with kerb buildouts and median refuges for all crossing points. This option achieves relatively good safety outcomes with minimal design risk.

Alternative Option:
Uncontrolled crossings on raised safety platforms with kerb buildouts and median refuges on Silverdale Road and the left turn slip lane. Dual signalised crossings with kerb buildouts and median refuges on Morrinsville Road.

OPTIONS CONSIDERED – LONG LIST

Staff have developed and assessed options for the form and control of active mode user crossing facilities at the intersection of Morrinsville Road with Matangi Road and Silverdale Road. Staff have only considered crossing facilities across the western leg of Morrinsville Road, Silverdale Road, and any left turn slip lane needed from Matangi Road. All options have been assessed based on a change in speed limit to 50 km/h at the intersection. All options have been assessed to allow for a left turn slip lane from Matangi Road; however, none of the options require the left turn slip lane to be provided.

Treatments Considered

Treatment	Type	Discussion
A.	Uncontrolled crossings with refuge island and kerb buildouts	**Potential Risk:** Active mode users do not have right of way and must find a safe gap in the traffic. Visually impaired people, or those with other disabilities may find uncontrolled crossings less easy to use compared with a zebra or signalised crossing. With no speed control for drivers, there is a high likelihood that any crashes result in serious or fatal injuries for active mode users
B.	Uncontrolled crossings on raised safety platform with refuge island and kerb buildout	**Potential Risk:** Active mode users do not have right of way and must find a safe gap in the traffic. Visually impaired people, or those with other disabilities may find uncontrolled crossings less easy to use compared with a zebra or signalised crossing.
C.	Courtesy crossings on raised safety platform with refuge island and kerb buildouts	**Potential Risk:** Children, visually impaired people, or those with other disabilities may find a courtesy crossing less easy to use compared with a zebra or signalised crossing. Drivers may not expect the driver in front to stop to allow active mode users to cross resulting in rear-end type collisions. **Note:** NZTA guidelines set parameters for the use of courtesy crossing which cannot be met at this site (traffic volumes and speed are too high). Therefore, this option has not been assessed further.
D.	Zebra crossings with refuge island and kerb buildout	**Potential Risk:** Pedestrian volumes at this crossing are low compared to other dual priority crossings. Therefore, drivers can become complacent (i.e. they expect that no active mode users will be present) and therefore, are more likely to fail to give way when an active mode user is present. Cyclists may lawfully cycle across a zebra crossing; however, drivers are not required to give way to cyclists who do so. This subtlety is not well known to road users and there is risk that cyclists expect drivers to give way to them and ride in front of a vehicle, resulting in a crash. With no speed control for drivers, there is a high likelihood that any crashes result in serious or fatal injuries for active mode users. **Note:** Due to the likely confusion regarding give way rules, this option has not been assessed further.

E.	Zebra crossings on raised safety platform with refuge island and kerb buildout	**Potential Risk:** Pedestrian volumes at this crossing are low compared to other dual priority crossings. Therefore, drivers can become complacent (i.e. they expect that no active mode users will be present) and therefore, are more likely to fail to give way when an active mode user is present. Cyclists may lawfully cycle across a zebra crossing; however, drivers are not required to give way to cyclists who do so. This subtlety is not well known to road users and there is risk that cyclists expect drivers to give way to them and ride in front of a vehicle, resulting in a crash. **Note:** This option was selected in the business case Due to the likely confusion regarding give way rules, this option has not been assessed further.
F.	Dual priority crossings with refuge island and kerb buildout	**Potential Risk:** Active mode user volumes at this crossing are low compared to other dual priority crossings. Therefore, drivers can become complacent (i.e. they expect that no active mode users will be present) and therefore, are more likely to fail to give way when an active mode user is present. With no speed control for drivers, there is a high likelihood that any crashes result in serious or fatal injuries for active mode users. **Note:** NZTA guidelines set parameters for the use of at grade zebra crossings (which are part of a dual priority crossing) which cannot be met at this site (traffic volumes and speed are too high). Therefore, this option has not been assessed further.
G.	Dual priority crossings on raised safety platform with refuge island and kerb buildout	**Potential Risk:** Active mode user volumes at this crossing are low compared to other dual priority crossings. Therefore, drivers can become complacent (i.e. they expect that no active mode users will be present) and therefore, are more likely to fail to give way when an active mode user is present.
H.	Dual signalised crossings with kerb buildout	**Potential Risk:** There is a risk that drivers or active mode users fail to follow the signals resulting in a crash. Active mode users may lawfully cross the road closer to the roundabout to avoid the detour to the signalised crossing where they are at greater risk of crashes. With no speed control for drivers, there is a high likelihood that any crashes result in serious or fatal injuries for active mode users. **Note:** It is a legal requirement that the crossing area must be at least 30 m from the limit line of a roundabout. This presents a significant detour for pedestrians and cyclists. Every 20m of detour results in approximately 15s of delay (in each direction) for pedestrians, with greater delays for children, elderly, disabled, or low vision pedestrians. This option has the greatest delay to active mode users. This is most significant for the crossing of Silverdale Road, where the detour is also on a steep hill.
I.	Dual signalised crossings on raised safety platform with kerb buildout	**Potential Risk:** There is a risk that drivers or active mode users fail to follow the signals resulting in a crash. Active mode users may lawfully cross the road closer to the roundabout to avoid the detour to the signalised crossing where they are at greater risk of crashes.

		Note: It is a legal requirement that the crossing area must be at least 30 m from the limit line of a roundabout. This presents a significant detour for pedestrians and cyclists. A 30m detour results in approximately 45s of delay for pedestrians, with greater delays for children, elderly, disabled, or low vision pedestrians. This option has the greatest delay to active mode users. This is most significant for the crossing of Silverdale Road, where the detour is also on a steep hill.

TREATMENT ANALYSIS MATRIX

Options	Cost Estimate	Safe Systems Score - Existing 176	Crash Reductions Estimate	Traffic Delays / Travel Costs	Driver Discomfort	5-10 year Maintenance Costs	Active Mode Impact	Recommendations
Treatment A - Uncontrolled crossings with refuge island and kerb buildouts (Silverdale Road)	$200k-$300k	156 (11%)	37%	Zero	Zero	Light	No impact	Discarded
Treatment B: Uncontrolled crossings on raised safety platform with refuge island and kerb buildout (Silverdale Road)	$300-$400k	98 (44%)	39%	Light	Medium	Medium	Medium Benefit	Preferred
Treatment G - Dual priority crossings on raised safety platform with refuge island and kerb buildout (Silverdale Road)	$300-$400k	85 (52%)	39%	Medium	Medium	Medium	High Benefit	Discarded
Treatment B: Uncontrolled crossings on raised safety platform with refuge island and kerb buildout (Morrinsville Road)	$200k-$300k	124 (30%)	39%	Light	Light	Medium	Medium Benefit	Preferred

Treatment G - Dual priority crossings on raised safety platform with refuge island and kerb buildout (Morrinsville Road)	$300-$400k	101 (43%)	39%	Medium	Light	Medium	High Benefit	Discarded
Treatment F - Dual signalised crossing with refuge island & kerb build outs (Morrinsville Road)	$500+	132 (25%)	50%	Medium/ Higher	Light	Medium/ Higher	Medium Benefit	Alternative
Treatment G - Dual signalised crossing on raised safety platform with refuge island & kerb build outs (Morrinsville Road)	$500+	96 (45%)	52%	Medium/ Higher	Medium/ Higher	Medium/ Higher	High Benefit	Discarded

SHORTLISTED OPTIONS

The following sections of the report discuss the results for each option in the treatment analysis matrix and their potential impact on and impacts by the larger project on Morrinsville Road. Options are presented in order of decreasing preference.

In order to construct a roundabout as agreed by councillors at the Infrastructure and Transport Committee, it is necessary to manage vehicle speeds on approach. Traditionally this has been achieved by installing a large radius roundabout that forces drivers to turn to negotiate it (horizontal deflection). A roundabout large enough to achieve this may not be feasible due to the property boundaries and nearby steep slopes. Recently, 'compact' roundabouts have been designed with raised safety platforms on approach to manage vehicle speeds, which has allowed smaller roundabouts to operate safely. If councillors approve staff to proceed with active mode user crossings that do not include raised safety platforms or include raised safety platforms away from the intersection, it may still be necessary to include raised safety platforms to manage vehicle speeds.

Preferred Option: Uncontrolled crossings on raised safety platform with refuge island and kerb buildout (all crossings). Estimated Cost: 800k

At uncontrolled crossings, pedestrians and cyclists crossing the road are required to wait for safe gaps to cross traffic. Kerb buildouts and refuge islands minimise the crossing distance that people need to cross in one go, reducing the likelihood of crashes occurring. The provision of a refuge island also allows pedestrians and cyclists to focus on one traffic stream at once, reducing the likelihood of crashes and reducing the delays they face. Based on the observed traffic volumes, average waiting time to cross each road will be less than five seconds[3].

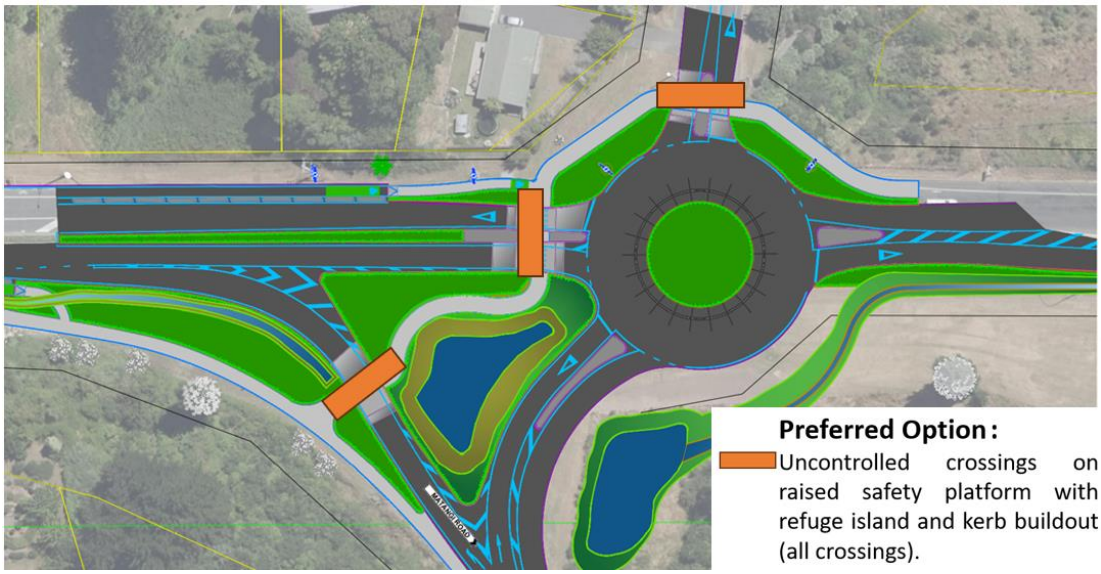
Raised safety platforms manage driver speeds, which reduces the severity of crashes that do occur. The proposed design for ramps is 40 km/h (1:20 gradient) on Morrinsville Road and 30 km/h (1:15 gradient) on Silverdale Road and the slip lane.

Uncontrolled crossings can be placed relatively close to the intersection, which reduces the detour and delay for pedestrians and cyclists to use the facility. The proposed offset is 10 m to allow for vehicles to wait in the flat area between the raised safety platform and the limit line.

Uncontrolled crossings prioritise drivers over pedestrians and cyclists. While it is possible to construct a dual priority crossing at this location, there are safety risks at this location (as noted below). An uncontrolled crossing could be converted to a dual priority crossing in the future if desired.

The raised safety platforms provided at the crossings can also be used to manage driver speeds on approaches to the intersection.

[3] Crossing aids and pedestrian delay | NZ Transport Agency Waka Kotahi (nzta.govt.nz)



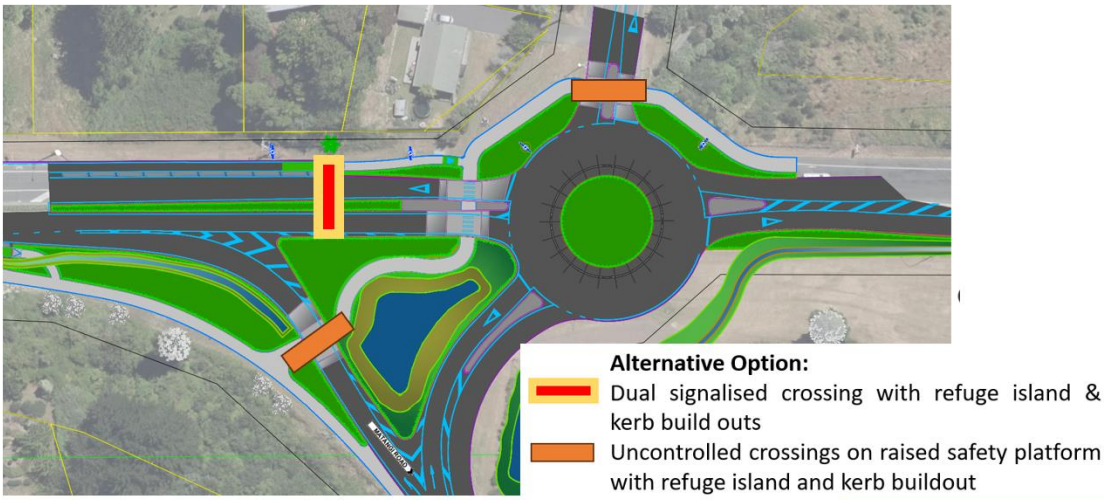
Alternative Option: Dual signalised crossing with refuge island & kerb build outs (Morrinsville Road) Uncontrolled crossings on raised safety platform with refuge island and kerb buildout (Silverdale Road, slip lane). Estimated Cost: 800k

At uncontrolled crossings, pedestrians and cyclists crossing the road are required to wait for safe gaps to cross traffic. Kerb buildouts and refuge islands minimise the crossing distance that people need to cross in one go, reducing the likelihood of crashes occurring. The provision of a refuge island also allows pedestrians and cyclists to focus on one traffic stream at once, reducing the likelihood of crashes and reducing the delays they face.

Uncontrolled crossings can be placed relatively close to the intersection, which reduces the detour and delay for pedestrians and cyclists to use the facility. The proposed offset is 10 m to allow for vehicles to wait in the flat area between the raised safety platform and the limit line.

At signalised crossings, through traffic and crossing pedestrians and cyclists are provided with dedicated time periods. This reduces the likelihood of crashes. The crossing would operate in two stages (i.e. each side of the road is controlled independently) which minimises travel time delay for traffic, but increases travel time for pedestrians and cyclists crossing the road.

If a raised safety platform is required to manage westbound traffic speeds entering the roundabout, it will result in a raised safety platform approximately 20m from a signalised crossing. This will be confusing for road users.



Discarded Options Dual priority crossing with refuge island & kerb build outs (all crossings)

To operate safely, dual priority crossings rely on drivers to give way to pedestrians and cyclists. At this site, pedestrian and cyclist volumes are relatively high at school travel periods and relatively low at other times. At zebra crossings with similar pedestrian volumes, observed behaviour is that drivers become complacent if they are not regularly seeing pedestrians cross the road and therefore fail to give way to pedestrians. The same behaviour is likely to occur at dual priority crossings. Due to this risk. This option has been discarded.

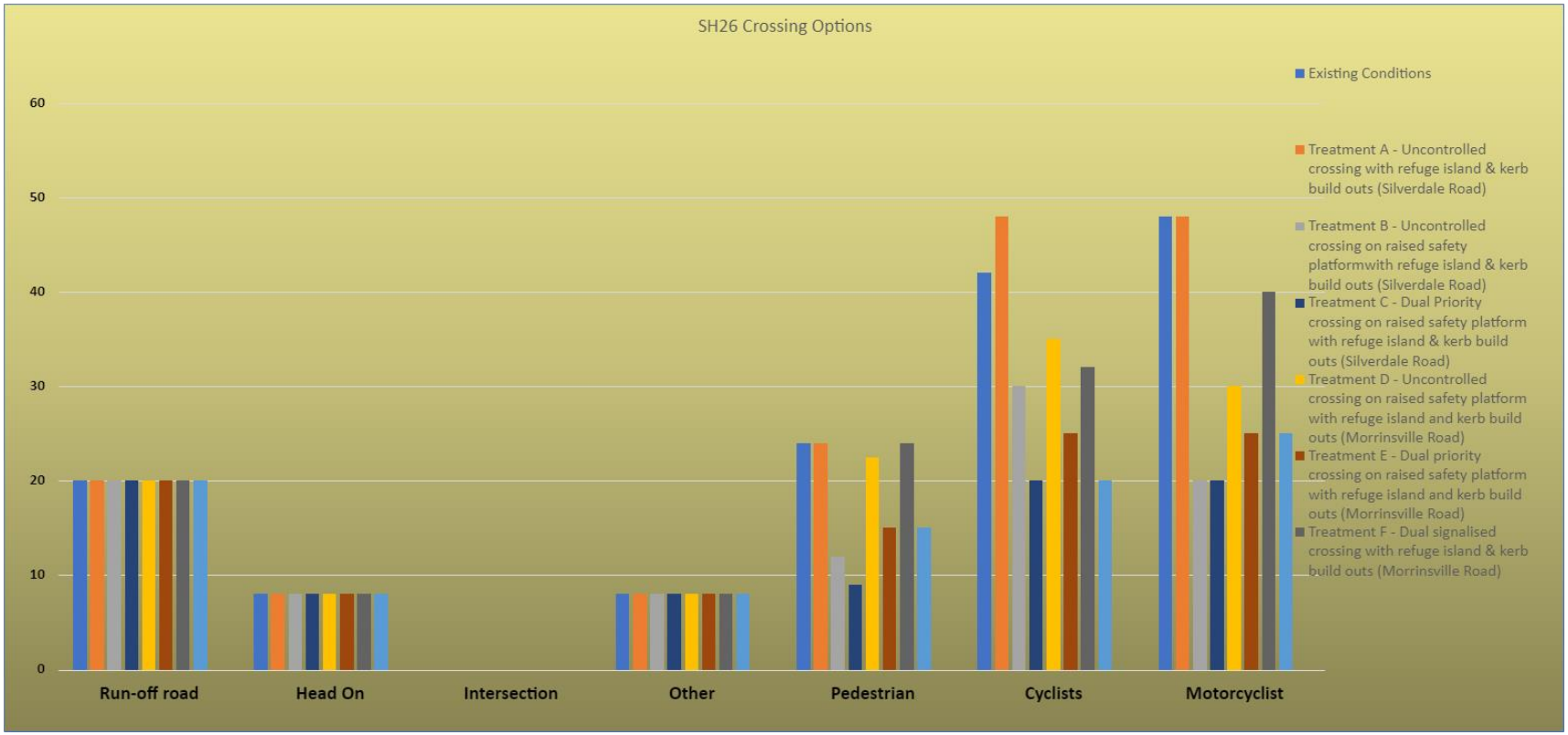
Discarded Option: Dual signalised crossing on raised safety platform with refuge island & kerb build outs (all crossings)

If a raised safety platform is required to manage westbound or southbound traffic speeds entering the roundabout, it will result in two raised safety platforms approximately 20 m apart. This will be confusing and uncomfortable for road users. If this situation arises during the design process, staff would come back to councillors to review the decision, which would result in project delay and, potentially expensive, re-work in the design. Due to this risk,this option has been discarded.

Discarded Option: Uncontrolled crossing with refuge island and kerb buildout (Silverdale Road). Estimated Cost: 800k

This option provides a very small improvement to the safe systems score and has been discarded for this reason.

SAFE SYSTEMS ASSESSMENT INFORMATION



Request Number	Name	Feedback	Description
419787	Mano Manoharan	SUPPORTIVE	Silverdale, Matangi 6.4m roundabout with speed bumps and crossings Definitely this intersection need a roundabout. Passing the intersection coming from Morrinsville speed is 50kmph but going from Hamilton to Morrinsville is 80kmph. Heavy vehicles coming from Morrinsville and Matangi started using residential Silverdale Road to access motorway to Auckland I have brought to the notice of the Council 3 years ago about the heavy vehicles using residential Silverdale Road from early morning till late evening. Two senior staff from Council met me at 8 am at this intersection and agreed to what I said and said heavy vehicles are not meant to use this road. Using this intersection for 25 years, I am well aware it need crossing, speed bumps and roundabout. Reason schools Silverdale Normal, Berkely, Hillcrest High, Tkkm o Toku Mapihi, University, Students Orchard 31 units, Mathews Church, Retirement villages Bishops Gains 57 units, Crosher 35 units. Students and elderly people use this intersection stop heavy vehicles using residential road, reduce speed and introduce roundabout, speed bumps and crossings.
422050	Evelyn van Ommen	SUPPORTIVE	Regarding the new proposed roundabout at the bottom of Matangi Road and Morrinsville Road going up to Hillcrest and linking Silverdale Road. I have lived in the Matangi Community for 30 years and commute into Hamilton on a daily basis. The spped limit needs to be drastically reduced on the Morrinsville - Hillcrest Road. Drivers have a tendency to not slow down on the approach/exit and go well in excess of 80 kms. I always feel anxious driving from Matangi Road turning to the right into Morrinsville Road and left into Silverdale. Sililar if in Silverdale Road waiting to turn ringht into Morrinsville Road. There are cars begin piling up waiting to cross on both situations , especially prior from 7:30 a.m. to 9 a.m. with people driving or walking to school and work . Pkus 2:30 onward feom school and work until 6 p.m. People are also walking to catch buses/get off in Hillcrest and Silverdale to go into/or exit the CBD. The number of pedestrians and bicyclists have increased over the years. The are two high schools, an intermediate and two primary schools in the Hillcrest and Silverdale Districts plus numerous early childhood centres and kindergartens. Plus there is the Matangi Primary School and two childcare Centres on the outer edges of Matangi. There is also a great deal of staff at Atawhai Assisi who use the car, bus, bike or walk up Matangi Road having to negotiate the Morrinsville/ Hillcrest/ Silverdale Roads. I personally know of at least one staff member who died on her bike trying to get to work. I think the proposed plan of the roundabout including the crossing for pedestrians and bicyclists is great for safety reasons as well as making it easier for drivers to negotiate crossing Morrinsville road that has a high number of cars, buses, trucks etc using the road at high speeds.
422137	Colin Pitt	SUPPORTIVE	I am adding my support for the proposed design for the roundabout at the intersection of Matangi/Silverdale/SH26. As a Matangi resident and a regular user I find the present roading set-up is dangerous and a recipe for crashes - especially with the NZ driver's disdain for speed limits and road rules. The proposed design will slow drivers down, make them aware of oncoming traffic and surely lower the hazard potential. I have not read the complete proposal but it is not in there, I would advocate to extend the 50 kph limit out to the Morrinsville side of the intersection as well. The proposed lay-out looks like it has been designed by experts, makes provision for all road/footpath/bike users and will be a huge improvement to the present intersection.
422169	Christine Miller	NEUTRAL	Christine is calling on behalf of the Matangi Community Committee about the Morrinsville Road project - specifically the Silverdale Road pedestrian access. They have been told by their councillor at the Waikato District Council that they need to obtain more detailed plans from HCC immediately - especially the Silverdale Road pedestrian access plans so that as a committee they can submit feedback. They have been told that this needs to be submitted within about three days time or they will miss their feedback going to the big transport Meeting scheduled for 26/9/24. Christine has the letter that Matt Leach sent out - with some plans - insufficient she said for them. Would like a call to discuss this urgently.
422287	Waikato Regional Council	SUPPORTIVE	We do not have an issue with SH26/Silverdale/Matangi being converted to a roundabout. About time, will help a lot with the traffic movement. For construction, preference is to keep Silverdale Rd open if possible as this has our high frequency services - which we will not be able to turn a bus around. On the Meteor page on the Buslt site the route is shown to split at Masters Ave so that every second trip during the weekdays goes down to Morrinsville Rd. All weekend trips go via Morrinsville Rd. There no timing points along Morrinsville Rd.
422288	Leo Koppens	SUPPORTIVE	I am the chair and operations manager of the Tamahere Mangaone Restoration Trust who have amongst other directions an ambition to link Tamahere to Hamilton City. We still have ambitions to create a walking path along the stream on our side. We also understood that HCC had similar thoughts so it made little sense to have two. We had been discussing crossing at Humare Park and going on to Berkley Ave. We are in a position of having the funds to do some serious stuff in this area with LTP and targeted rate allocations. If we were to emerge at Matangi Rd it would be ideal to be able to incorporate walking tracks with the new roundabout. Lofty ambitions. NOTE: Previous feedback from Leo via Cr Anna that the Tamahere Community Committee were upset following the Waikato Times article as they would like to see greater walking and cycling connectivity.
422663	Adriana Velazquez	SUPPORTIVE	I am writing to express my strong support for the proposed improvements at the intersection of Morrinsville and Silverdale Roads, including the construction of a roundabout and a separated, shared cycleway/footpath from the LIC roundabout into Hillcrest. These enhancements are crucial for several reasons: (1) Safety: The current intersection is a known hazard for both motorists and cyclists. A roundabout will significantly reduce the risk of accidents and improve traffic flow. (2) Accessibility: A separated cycleway/footpath will provide a safe and convenient route for cyclists and pedestrians, encouraging more people to choose active modes of transport. (3) Community Benefit: These improvements will enhance the overall quality of life in our community by promoting healthier lifestyles and reducing traffic congestion. I believe these changes will make a positive impact on our community, and I urge the Council to proceed with these plans.
422665	Julien Guitton	SUPPORTIVE	I'm supporting the construction of the cycleway and the pedestrian crossings, linking LIC Newstead with Hamilton, including appropriate crossings at the new roundabout. I understand that councillors have debated whether these features are necessary, particularly regarding the anticipated pedestrian and cyclist traffic. While it's understandable to scrutinise projects, especially with limited resources, I would argue that this isn't just about meeting current demand - it's about creating the conditions that will encourage people to walk and cycle more often. As the saying goes, "Build it, and they will come", which means creating incentives or making something attractive. If we genuinely want to reduce car usage and promote healthier, more sustainable modes of transport, we need to make cycling and walking safe and desirable. A roundabout without proper crossings would be like a bridge that doesn't quite reach the other side-good intentions, but not quite useful. Moreover, since this project is funded by NZTA and not directly from HCC rates, there's even more reason to seize this opportunity to improve our city's infrastructure without the financial burden falling on our local ratepayers. By building these crossings and extending the cycle lane, we send a clear message that Hamilton is committed to becoming a city where active transport is a viable and attractive option for everyone. I hope you'll support this initiative, which will be a significant and attractive step forward for our community, especially for everyone working at LIC.
422701	Katy King	SUPPORTIVE	I understand that the proposed changes to Morrinsville Road, including the creation of a roundabout at the Silverdale Road intersection, is going before HCC Infrastructure and Transport Committee late in September. As a resident of Hillcrest who works at LIC in Newstead, I would be a daily user of the proposed cycleway. I fully support the creation of the cycleway and I would like to stress the importance of including proper pedestrian crossings at the new roundabout. There are comments from some councillors in this article 'Niggles remain over $6.4 million Hamilton roundabout project ' Waikato Times suggesting that this is a "zero pedestrian area" and would absolutely disagree with this. Using this route every day I see pedestrians here daily and if there was a safer route along Morrinsville Road I too would be a daily pedestrian or cyclist here. LIC has a very active cycling and walking community among our workforce and I believe the creation of a safe route along Morrinsville Road would support more people to take up the option of biking or walking to work. There's also the lovely Mangaonua gully walkway which runs from the northern corner of the Morrinsville / Silverdale intersection up to Chelmsford Park. It's a favourite walkway for me, my family and our dogs, but it's currently difficult and dangerous to access this walkway from Hillcrest because of the issues with crossing the intersection. Safe crossings at the new roundabout are really important for any users of this walkway. Please add my voice to the support for the creation of the cycleway, including the pedestrian crossings, at the Infrastructure meeting on 26 September. If you need any more information from me, or if there is another forum I should use to express my views, please let me know.
422702	Christopher Old	SUPPORTIVE	Just voicing my support for the cycleway and pedestrian crossing proposed changes to Morrinsville Road. I cycle to my work at LIC along Morrinsville Road regularly and this intersection currently is where I feel most in danger as a cyclist.
422707	Stefanie Hueber	SUPPORTIVE	Regarding raised crossings in Hillcrest: I would use the a save crossing, walk and cycle path for getting to and from work at LIC to shopping at the Gauda shop and New World. The reason why I currently do not do that is because it seems suicidal to either walk or bike that stretch of road in its current state (there is no consideration for cyclists or pedestrians there - a bit surprising as more and more houses are being built and multiple subdivisions are taking place there).
422708	Danhui Yang	SUPPORTIVE	Both my partner and myself support the construction of the cycleway/footpath linking LIC Newstead with Hamilton, including appropriate cycleway and pedestrian crossings at the new roundabout. There are some school kids walking or biking from Silverdale Rd crossing at that intersection daily, which looks very dangerous. It would be much safer for them and other cyclists and pedestrians if an appropriate cycleway and pedestrian crossings are built at the new roundabout.
423140	Rana Hay	SUPPORTIVE	Concerned after reading about Elected Members trying to pass a motion at the Infrastructure and Transport Committee meeting for no raised crossings/platforms for the Morrinsville Road project. Rana advocates for biking and disability users to get around the city safely and feels raised crossings need to be included in the project. Rana mentioned the incident where a student was recent hit outside Berkley School as proof that further safety measures were needed. Mentioned that the disability community were in favour of raised crossings as it makes it easier to cross the road.
423141	Glenn Otton	SUPPORTIVE	I read with a mixture of interest and horror, the article in the Waikato Times reporting on a recent HCC meeting debating the upgrade to Morrinsville Rd footpathing and raised crossing points. Due to work commitments, I travel the area frequently and see many pedestrians. If I pass by before or after school hours, the area is heavily pedestrianised by school students. Adjacent is Berkley School with a roll of about 770 students, along with Hillcrest High with a roll of about 1706 students, and Silverdale School with a roll of about 331 students. Yes, you are reading this correctly, 2807 students within a stone's throw of this intersection. It is noteworthy that in the last week, a student has been struck by a vehicle at the light-controlled crossing just up the hill from the proposed roundabout and at the time of me penning this letter, remains in a serious condition at Waikato Hospital. I have spoken with a friend of mine who worked at Berkley School for 23 years, and in that time, there were students being injured on the crossing or on their bikes, with injuries ranging from superficial to serious. Please keep in mind that this is a light-controlled crossing, and we are still having plenty of accidents. My belief is that not only should we be catering to the needs of pedestrians at this new roundabout, but doing so in a way that keeps pedestrians as safe as possible, especially with a huge number of young students. I also note in the photo provided in the paper, that new footpathing extends in the Morrinsville direction, where there are more residential homes and more currently being built. One can presume that their children will also need to transit the area for scholastic needs. I can understand that if a councillor does not live in the area, they may well pass by the intersection when foot traffic may be minimal. But before you even add the number of general residents, there is already an extremely large pool of school pedestrians in the area. I appreciate all councillors who try to work effectively within a budget, and get more bang for our buck, but in this instance, I believe that the footpathing in this area should be designed to keep our pedestrians and children as safe as possible.
423142	Cr Crystal Beavis	SUPPORTIVE	There is considerable enthusiasm for the ability to walk or cycle across this intersection and the only thing stopping its greater use is the fact that it is currently in an 80kph zone and rather dangerous for pedestrians and cyclists in the current configuration (and was the scene of a particularly nasty fatal accident of a cyclist in 2014 - which has not been forgotten.) Nevertheless there are pedestrians/cyclists who turn left from Matangi Rd into Morrinsville Rd to attend Berkeley Intermediate or to find another route to places like Hillcrest HS, Waikato University, Hillcrest Library and Medical Centre - and also still some who will brave the intersection to head up Silverdale Rd (but usually not at the traffic peaks.)
423143	Berkley Normal Middle School	SUPPORTIVE	Meetings with Deputy Principal on 08/08 and Principal on 14/08. Desire for improvements at intersections of Morrinsville Rd with Berkley Ave and Mullane St. Students who are biking and scootering use Mullane St to enter and exit the school. Mullane St and the intersection with Morrinsville Rd are busy, with congestion caused by drivers attempting to turn right. Suggested possibility of left turn only movements. Concerned about high vehicle speeds with drivers turning left off Morrinsville Rd down Mullane St. Identified informal crossing point closest to Cambridge Rd as unsafe with near misses and poor decisions. Existing signalised, staggered crossing can be confusing for people as they need to push the beg button twice to get across the road and have observed people crossing when the light is red. Mentioned crash on 12/08 where student sustained leg injuries and ended up in hospital. Incidents are stressful for students, families and staff. Since the latest incident it has been observed that a more lot families are dropping kids off.
423144	Silverdale Normal School	SUPPORTIVE	Initial meeting with Principal on 08/08. Supportive of the project and its intended purpose. Although the school zone ends at Matangi, the school is supportive of more safe options for active modes. School has staff who travel from Matangi who will be interested in the intersection upgrade. Happy to support a collective approach to advocating for safe infrastructure that will benefit students and wider community. Principal commented that he was personally interested in seeing crossings and connecting infrastructure installed at the roundabout.
423145	Hillcrest Normal School	SUPPORTIVE	Initial meeting with school representative on 14/08. Supportive of the project and its intended purpose. Supportive of any measures that can be put in place that supports students being able to use their preferred mode of transport to get to/from school. Happy to add their voice in support of changes being made. Wants to ensure that changes encourage safer speeds as they feel this has not been the case with the NZTA project on Cambridge Road.

423146	Hillcrest High School	SUPPORTIVE	Initial meeting with school representative on 14/08. Supportive of the project and its intended purpose. The current intersection at Morrinsville Rd/Matangi Rd/Silverdale Rd is difficult to navigate. Have a large number of students and staff who come from the Matangi area. Students cross Morrinsville Rd to get to/from school. Happy to be a supportive voice for changes that will make it safer for students.
423147	Matangi School	SUPPORTIVE	Initial meeting with principal on 19/08. Supportive of the project and its intended purpose. Supports changes to the intersection of Morrinsville Rd/Matangi Rd/Silverdale Rd. Observed that people from the Matangi community do walk down to the intersection and along Morrinsville Rd - including students. Recent investments in footpaths in Matangi would be supported by better connections at the intersection. Advised that school is growing and is building extra classrooms to increase capacity.
423148	Tara Hills	SUPPORTIVE	Reports produced by Tara Hills, Principal Traffic Engineer, sent to HCC. Raised platform at the signalised crossing will help reduce speed and crash severity in this area with high conflicts between pedestrians and vehicles. The two cyclist and one pedestrian crashes between the BK roundabout and Mullane St indicate a vulnerable road user crash pattern in the area. This area should be considered for safety improvement works. The Mullane St intersection would benefit from improved pedestrian safety works as such as a raised pedestrian platform and a splitter island with a pedestrian refuge. The Berkley Avenue intersection would also benefit from a raised pedestrian platform to help address the known crash history at this intersection. Congestion at the Morris Ave intersection needs to be addressed, with any solution to provide safety for pedestrians. The high number of loss of control and turning crashes indicate speed and congestion issues that need to be addressed to improve safety. See attached for full reports.

Project Report

Heaphy Terrace South Proposed Pedestrian Crossing

2024/2025

Hamilton City Council
Te kaunihera o Kirikiriroa

PURPOSE OF REPORT

This report has been prepared to investigate different options for a new pedestrian crossing located on Heaphy Terrace, south of Boundary Road, in the vicinity of the Hamilton Jamia Mosque. The report will also provide an overview of a preferred option.

A new pedestrian crossing on Heaphy Terrace was identified as part of the Minor Transport Improvements programme 2023-2024. However, the project is planned to be funded and delivered from the CERF Transport Choices Programme, which attracts 90% funding assistance from NZTA Waka Kotahi. The proposed pedestrian crossing complements the newly constructed CERF Transport Choices Heaphy Terrace separated cycle path project that runs from Boundary Road to Brooklyn Road.

The objective of installing the crossing is to improve safety and accessibility for active mode users. There is an existing pedestrian refuge island located on Heaphy Terrace. This area is the desirable location for the new mid-block crossing which will effectively be an upgrade of the existing pedestrian refuge.

WHERE?

Heaphy Terrace is a two-lane road divided by a painted flush median. There is an on road painted cycle lane on both sides of the road, adjacent to the kerb. The traffic lanes are 3.5-4.0m wide. There is an existing pedestrian refuge island located at the site. The site location and existing pedestrian refuge island is shown below in Figure 1.

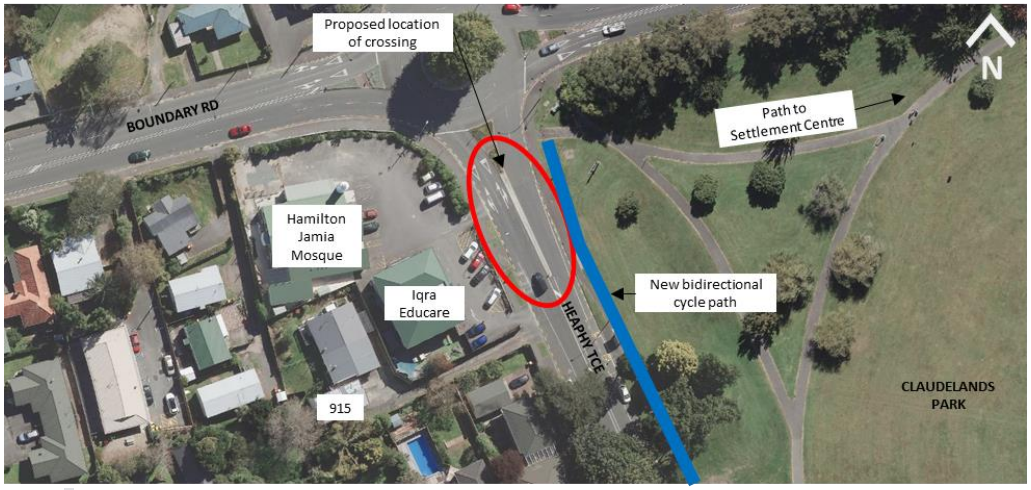


Figure 1: Site Location

WHAT'S THE PROBLEM?

Heaphy Terrace/Boundary Road roundabout is relatively small in diameter and without formal pedestrian crossing facilities either at the roundabout or close by. During busy times the traffic flows are such that crossing the roads in the vicinity of the roundabout by foot or on a bike is hazardous. This is also likely to result in a suppressed demand by these road user groups.

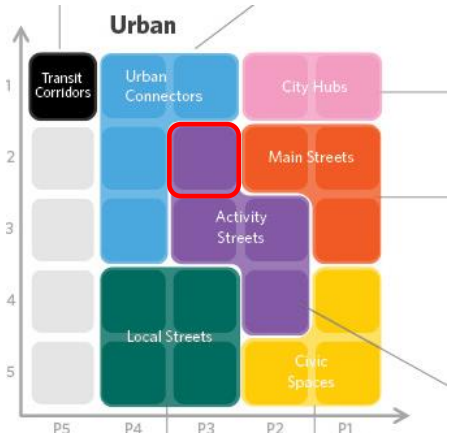
Figure 2: Site observation pictures

WHY IT IS IMPORTANT TO ADDRESS THE PROBLEM?

Land use to the west of the Heaphy Terrace/Boundary Road intersection is predominantly residential, however to the south of the intersection is a mosque, childcare centre, businesses, event facilities. East of the intersection there is a large recreational facility (Claudelands Field) and the newly built cycle path along Heaphy Terrace southbound from Boundary Road to Brooklyn Road.

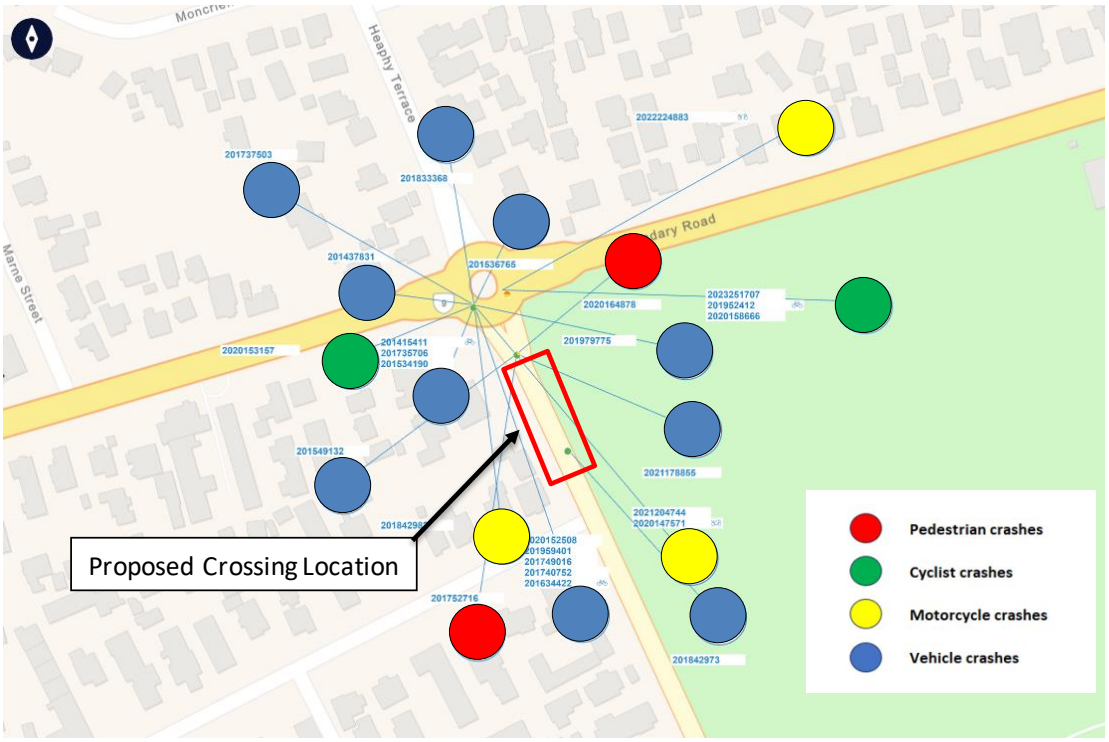
To the east of the intersection is a path leading to the settlement centre where a lot of the new migrants are walking to and from to access the mosque/childcare centre located on the opposite side of the road for their daily prayers and routines. Access between the west and east areas for pedestrians is severely hampered by the difficulty in crossing Heaphy Terrace at the intersection.

Access for cyclists crossing at this location is similarly hampered and demand has increased since the construction of the cycle path on Heaphy Terrace. Heaphy Terrace South has 9,400 AADT daily traffic, is on the number 14 bus route (every 30mins) and >80 crossing pedestrians per day. It is ONF classified as an P3/M2 Activity Streets - summarised has a mix of higher volumes of vehicles and people. The speed limit is 50km/h, with a measured operating speed of 54km/h.



ONF Classification

In the last 10 years there has been 26 recorded crashes consisting of 19 non-injury crashes and 7 minor crashes resulting in a social cost of $4.3m. Given the high volumes of traffic/pedestrians mix, it is likely that ongoing minor/non-injury crashes will occur and there is potential for serious injury or death due to the relatively high traffic speeds. Similar improvements have been undertaken at comparable traffic/pedestrian locations in the city such as at Anglesea Street South near Woolworths (although traffic volumes were slightly higher).



Crash data map

Based on data, including insightful information from anecdotal data (site observations, community experiences and feedback), this project would benefit the community by providing, safe, cohesive and accessible connections for all. Hamilton has adopted a Vision Zero target which means HCC must be committed to designing and constructing infrastructure which aligns with Vision Zero's objectives.

This project aligns with Vision Zero and Access Hamilton strategy to enhance accessibility and safety for all users on the transport network.

This project aims to:

- Eliminating Traffic Fatalities
- Reducing Injuries
- Promoting Safe Transportation
- Encouraging Sustainable Mobility
- Equity in Transportation

PEDESTRIAN AND CYCLIST DATA

Site inspections were carried out on Friday 19th July 2024 when the congregational prayers at the mosque are held and on Sunday 21st July 2024, both days during 6am-9pm to observe pedestrian and cyclist behaviour.

Key points noted below:

- Pedestrians were observed crossing in the westerly direction at the current refuge island with close contact calls from vehicles accelerating through the roundabout or making left turn movements at the Heaphy Terrace / Boundary Road roundabout. This would result in pedestrians running across to avoid oncoming vehicles and vehicles stopping abruptly after exiting the roundabout with no traffic calming measures in place introducing the risk of crashes.
- Pedestrians were observed crossing in the easterly direction at the current refuge island having to dangerously navigate through three lanes of traffic and traffic queues at the intersection.
- Some pedestrians opted to cross further down the road on Heaphy Terrace to allow themselves greater sight distance and reaction time.
- The majority of the pedestrians were seen crossing in the westerly direction coming off the Settlement Centre path to access the mosque and childcare centre located opposite the road.
- The desire line for majority of the pedestrians was at the existing refuge crossing point at the intersection with some pedestrians scattering further along the median island which became a safety risk as the width of the island narrowed further along which wasn't suitable for pedestrians to use as a refuge as it created very little to no buffer between the traffic lanes.
- Very few cyclists were observed crossing at this location, most likely due to the narrow width of the refuge island and the risk of crossing through three lanes of traffic.

A summary of the surveyed pedestrian and cyclist counts are shown below in Figure 3 for the day surveyed on Friday 19th July 2024 and Figure 4 for the day surveyed on Sunday 21st July 2024.

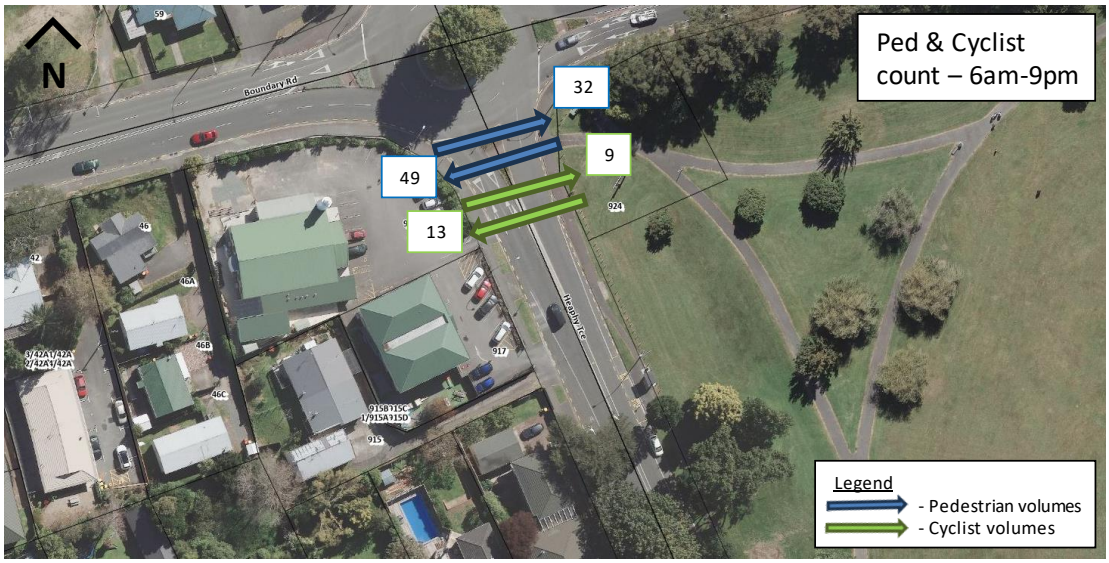


Figure 3: Pedestrian and Cyclist count – Friday 19th July 2024

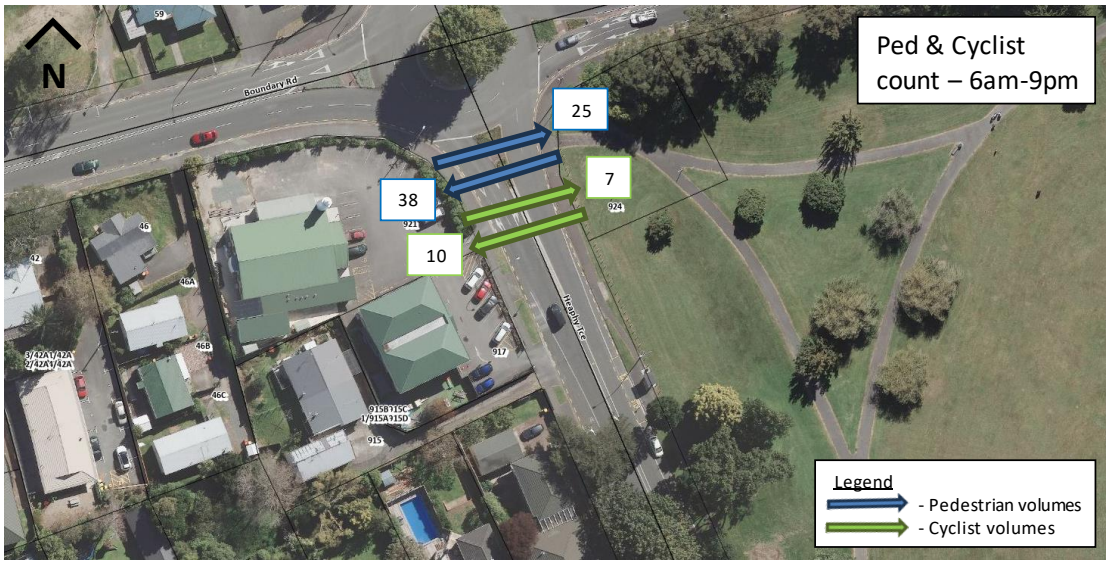


Figure 4: Pedestrian and Cyclist count – Sunday 21st July 2024

COMMUNITY AND PUBLIC FEEDBACK

Engagement with the Waikato Muslim Association revealed that key activities at the Mosque included daily and weekly prayers in addition to childcare and after school classes, with a number of activities occurring in the evening traffic peak hour. Concerns with the intersection and its approaches include:

- Parking – insufficient parking on site is a key issue;
- Turning into the Mosque from Heaphy Terrace; and
- Parents and caregivers crossing the road to attend the Mosque activities.

The mosque, as with most places of worship, undertakes a number of community activities alongside prayer meetings which include a Madrasah (School) and a day care. The Mosque serves the region around Hamilton with members coming from Te Aroha and other outlying towns.

In Islam daily prayers are held five times a day with the timing dependent upon the position of the sun in the sky and hence the times vary throughout the year. A guide to prayer times is provided in Table 1 which shows that there is often a worship taking place during the afternoon traffic peak hour.

Table 1 - Mosque Activity and Visitor Numbers

Prayer	Time by the position of the sun	Approximate prayer times in Hamilton in July 2024	Approximate prayer times in Hamilton in December 2024	Approximate number of people attending
Fajr	Between daybreak and sunrise	5:58 am	4:05 am	60
Thuhur	After the sun passes its highest point (midday)	12:25 pm	1:10 pm	90
'Asr	When the shadow of an object is the same length as the object itself (before the sun starts to turn orange)	3:00 pm	5:10 pm	90
Maghrib	When the sun sets	5:19 pm	8:30 pm	120
Ishā	When the red light is gone from the western sky	6:47 pm	10:15 pm	120

The main weekly prayer is held on Friday afternoons in place of the Thuhur (mid-day) prayer when around 600 to 700 people attend the service lasting for about 40 minutes.

The Mosque is usually busier during the holy month of Ramadan, particularly for the Maghrib and Isha prayers, where between 300 people will attend. Ramadan this year was between 10 March and 9 April (The Islamic lunar calendar moves backward approximately 11 days each year in relation to the regular Gregorian calendar).

The Madrasah is held as an evening schooling on Mondays to Thursdays from 5.30pm to 7.30pm and weekends between 10.00am and 12.00pm with around 40 to 60 pupils and staff attending.

The Mosque day care operates daily from 8.00 am to 3.00 pm with between 20 to 40 children and five teachers present. Parents generally drop off their children early morning and collect them in the afternoon with a smaller number dropping their children off for shorter stays.
The above activities are summarised in the following table for ease of reference.

Table 2 - Activity Numbers at the Mosque

Prayer / Activity	Frequency and Times	Number Attending
Fajr	Daily, varies between 4.05 am and 5.58 am	60
Thuhur	Daily, varies between 12.25 pm and 1.10 pm	90
'Asr	Daily, varies between 3.00 pm and 5.10 pm	90
Maghrib	Daily, varies between 5.19 pm and 8.30 pm	120

Ishā	Daily, varies between 6.47 pm and 10.15 pm	120
Congregational Prayer	Fridays - Afternoons	500 - 700
Madrasah	Monday to Thursdays 5.30 pm to 7.30 pm Saturdays and Sundays 10:00 am to 12.00 pm	60
Iqra (Day Care)	Daily, 8.00 am to 3.00 pm	20 - 40

EARLY ENGAGEMENT WITH STAKEHOLDERS

It is important to note that the Transport Unit have worked closely with FENZ regarding main emergency response routes and raised safety platform profiles. Staff have identified an alternative route that is more efficient for emergency response vehicles. Generally, FENZ are supportive of RSP's with a 1:15 approach and 1:20 departure ramp gradient.

NZ Transport Agency Waka Kotahi have voiced a strong preference in continuing funding assistance for Option 1: Paired Zebra Crossing with Kerb Buildouts and RSP which is considered as the preferred safest option.

STAKEHOLDER IMPACT AND MITIGATION

Clear and accurate communication will be given to the key stakeholders. Informed stakeholders are likely to be more accepting of any inconvenience caused during construction. This will create opportunity for discussion regarding construction methodologies, traffic diversions and flexible working hours.

Each site has different types of immediate neighbour stakeholders, from businesses, schools through to residential housing. These stakeholders will be identified by the HCC staff and provide them with project scope, purpose of the project, project sketch plan with estimated time of construction.

Communication methods includes project signage, postal communications, face-to-face discussions with impacted parties, variable message boards (VMS) and two weeks' notice period dedicated for gathering public feedback. This gives all parties an opportunity to discuss processes and timeframes, and to try to mitigate any issues prior to the physical works commencing.

We will continue to work alongside the Waikato Muslim Association who look after the Mosque and Childcare Centre to ensure that people are provided with a safe alternative crossing point and will stop work at the listed peak times immediately prior to and after prayers to enable pedestrian access. We will ensure work is stopped or minimal noise is created during listed prayer times accordingly.

Clear communication will be in place with H3 prior to construction regarding any major events and activities will be coordinated with construction timeline to minimise impact to access for the Claudelands Fields, Farmers Market and Events Centre.

Temporary bus stops will be in place during construction to provide a safe alternative site for users away to a safe distance from the active worksite.

RECOMMENDATIONS

Option 1 is recommended with a total cost estimate of $689k, a zebra crossing with kerb build outs and an RSP. This option has the highest safety benefit with a safe systems score of 80/448 with an estimated crash reduction of 38% (an estimated social cost savings $1.63m over 10 years). This option provides the best outcome to vulnerable users especially those with disabilities by giving them priority across Heaphy Terrace. The RSP increases survivability by lowering impact speeds should a car vs pedestrian impact occur.

Option 2 should be considered with a total cost estimate of $533k, a raised pedestrian platform with refuge island and kerb build outs. If option 1 is not desirable due to the impact of travel times pedestrian and cyclist priority may have, option 2 should be considered. This option has the second highest safety benefit with a safe system score of 90/448 with an estimated crash reduction 40% (an estimated social cost savings of $1.72m over 10 years). A raised pedestrian platform provides benefit to vulnerable users by achieving survivable impact speeds with very minimal impact on vehicle travel times. However, this option is not favourable among the disability community due to lack of pedestrian priority.

Should an RSP not be favourable which options 1 & 2 have, Option 3 is the substitute recommendation with a total cost estimate of $364k (uncontrolled crossing with refuge island and kerb build outs). Option three has the lowest safety benefit with a safe system score of 113/448 due to the likely high impact speeds. This option does have an estimated crash reduction score of 15% (an estimated social cost savings $645k over 10 years). Note the estimated crash reduction score has been reduced due to option 3 consisting of similar treatments to the existing crossing conditions.

TREATMENTS CONSIDERED

The following two tables detail treatment options and a scoring table for the options that have been considered.

Treatment No.	Treatment Type	Discussion
A.	Refuge Island with kerb buildouts	Pedestrians do not have right of way and must find a safe gap in the traffic. Visually impaired people, or those with other disabilities may find refuge island less easy to use compared with a zebra or signalised crossing.
B.	Pedestrian platform with refuge island and kerb buildout	Pedestrians do not have right of way. For the pedestrian to cross safely, they must have good judgement of motor vehicle speeds and gaps in traffic. Raised pedestrian platform crossing creates uncertainty as to who gives way to who.
C.	Paired zebra crossing with RSP (without kerb buildout)	Creates unnecessary conflict points as pedestrians / cyclists will be crossing through 3 lanes of traffic near the roundabout. Longer crossing distance thus cause longer traffic delay (existing crossing width 14m).
D.	Paired zebra crossing with RSP and kerb buildout.	High pedestrian / cyclist flows can dominate and cause traffic delays.
E.	Signalised crossing (without RSP and kerb buildout)	Chances of red light running and high crash impact. Creates unnecessary conflict points as pedestrians will be crossing through 3 lanes of traffic near the roundabout. Longer crossing distance thus longer crossing time that causes time delay for traffic. Less than 30m from existing roundabout would require relocation of signalised crossing from current pedestrian desire line location.
F.	Signalised crossing with kerb buildout (without RSP)	Chances of redlight running and high crash impact. Less than 30m from existing roundabout would require relocation of signalised crossing from current pedestrian desire line location.
G.	Signalised crossing with RSP and kerb buildout	Chances of redlight running. Less than 30m from existing roundabout would require relocation of signalised crossing from current pedestrian desire line location.

TREATMENT ANALYSIS MATRIX

Options	Cost Estimate	Safe System Risk Reduction - Existing 118.5/448	Crash Reductions Estimate		Traffic Delays / Travel Costs	Driver Discomfort	5-10 year Maintenance Costs	Active Mode Impact	Recommendations
Treatment A - Uncontrolled crossing with refuge island and kerb buildouts	$300-$400k	113(-5%)	35%		Light	Zero	Low/Zero/Cleaning	No Impact	**Option 3 -Additional option to be considered**
Treatment B – Pedestrian platform with refuge island and kerb buildout	$500+	90(-24%)	40%		Light	Medium/Higher	Light	High Benefit	**Option 2 - Alternative option**
Treatment C - Zebra crossing with RSP (without kerb buildout)	$300k-$400k	84(-29%)	30%		Medium	Medium/Higher	Medium/Higher	High Benefit	
Treatment D - Zebra crossing with RSP and kerb buildout.	$500+	80(-32%)	38%		Medium	Medium/Higher	Medium/Higher	High Benefit	**Option 1 -Recommended option**
Treatment E - Signalised crossing (without RSP and kerb buildout)	$300-$400k	92(-22%)	45%		Medium	Light	Medium	Medium Impact	
Treatment F - Signalised crossing with kerb buildout (without RSP)	$400-$500k	95(-20%)	49%		Medium	Light	Medium	Medium Impact	
Treatment G - Signalised crossing with RSP and kerb buildout	$500+	77(-35%)	52%		Medium/Higher	Medium/Higher	Medium	High Benefit	

RECOMMENDED OPTIONS

Option 1: Preferred Safest – Paired Zebra Crossing with Kerb Buildout and RSP

Project planning and design cost - $160,000 (completed and paid)
Project construction cost - $529,000
Total project cost - $689,000

Paired zebra crossing that gives priority to pedestrians and cyclists combined with a raised safety platform and refuge island.

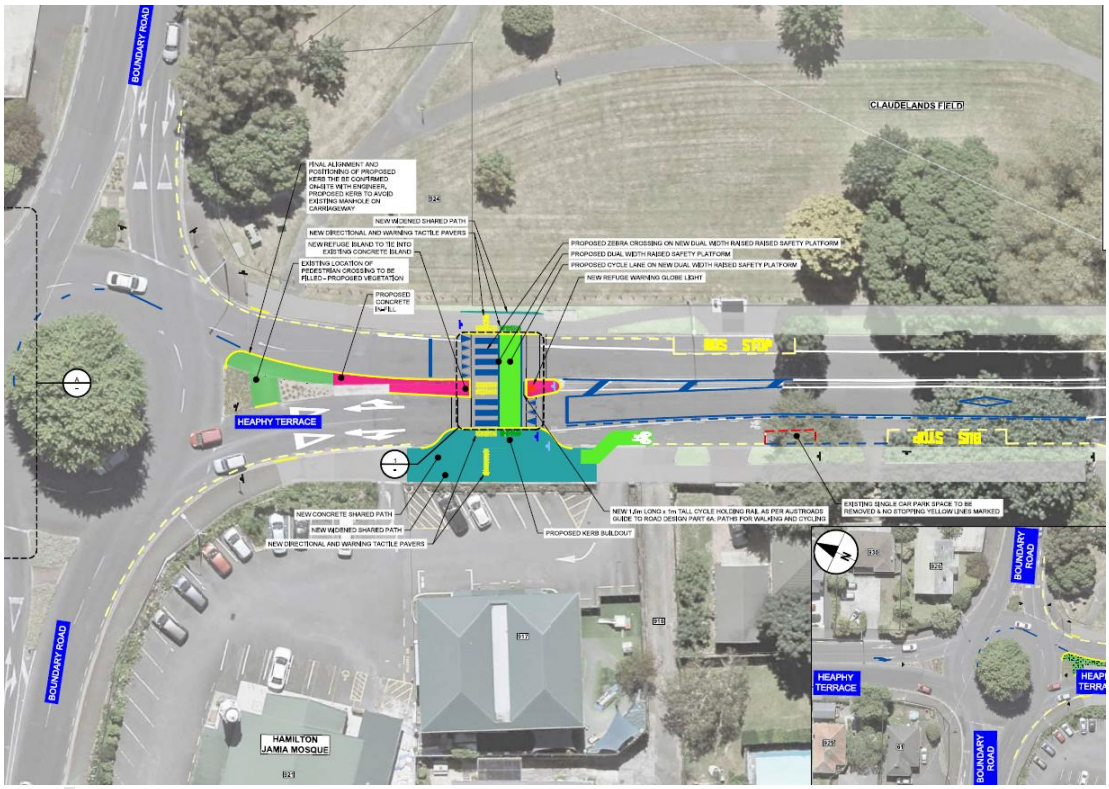


Figure 5: – Proposed Paired Zebra Crossing on RSP and Kerb Buildout

Benefits:

- Raised platform reduces speed to survivable outcomes
- Kerb buildout will narrow the road in return reducing the amount of traffic lanes to cross over, reduce the crossing distance, provide increased sight lines for pedestrians
- Improve crossing accessibility to visually impaired/ disabled users and reduce pedestrians being obscured by parked vehicles
- Reduces community severance across busy roads and provides for a safer right turn movement of vehicles into the mosque which has been a community concern by reducing the centre island.

Challenges

- Raised platform has some driver frustration/minor travel disruption due to the change in vertical alignment
- Raised platform may discomfort passengers, especially buses.
- Raised platform may increase noise.

Option 2: Pedestrian Platform with Refuge Island and Kerb Buildout

Total project cost - $533,000

This option has a raised pedestrian platform, and kerb build outs to shorten the crossing distance, and a-pedestrian refuge island.

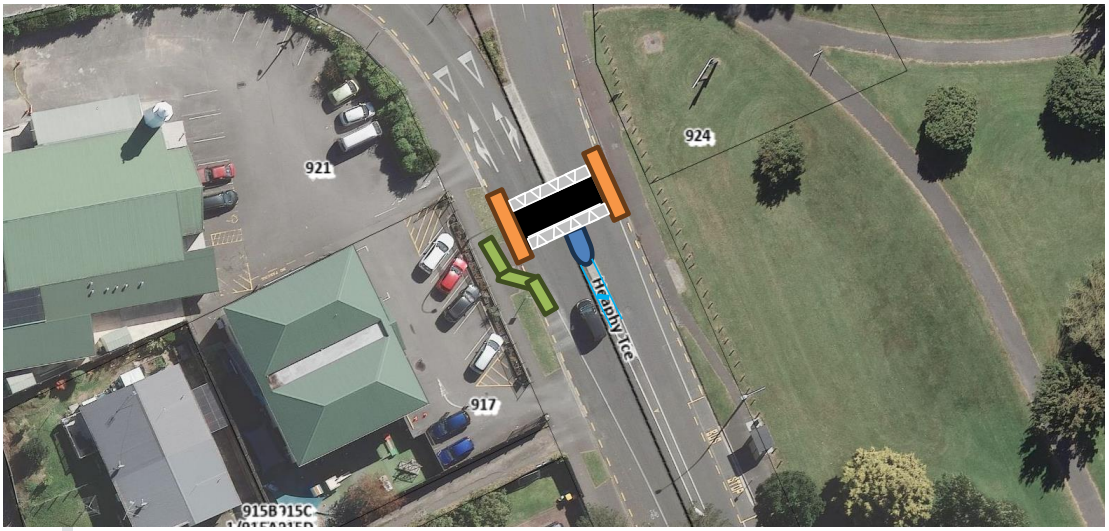


Figure 6: Pedestrian Platform and Kerb Buildout

Although pedestrian platforms provide a focus for pedestrians to cross, they must still give way to vehicles, this is difficult for those who are visually impaired or have mobility issues and in this case for kids from the childcare centre that may find difficulty in judging safe gaps in traffic.

Benefits:

- Raised safety platform reduces speed to survivable outcomes
- Increased conspicuity of the crossing and pedestrians.
- Kerb buildouts will reduce crossing distance, provides increased sight lines for any oncoming traffic, and reduce pedestrians being obscured by parked vehicles.
- Reduces community severance across busy roads and provides for a safer right turn movement of vehicles into the mosque which has been a community concern by reducing the centre island.

Challenges:

- Are not obvious who has right of way so can create uncertainty and can be unsuitable for some pedestrians.
- Can result in unsafe use if pedestrians assume they have right of way.
- Can create discomfort for vehicle occupants travelling over platforms if not well designed (particularly buses).
- May increase noise as vehicles brake, slow, pass over them and then accelerate (particularly heavy vehicles).

Option 3: Refuge Island and Kerb Buildout

Total project cost - $364,000

This option extends the pedestrian refuge island and kerb buildouts, relocating and upgrading the existing crossing.

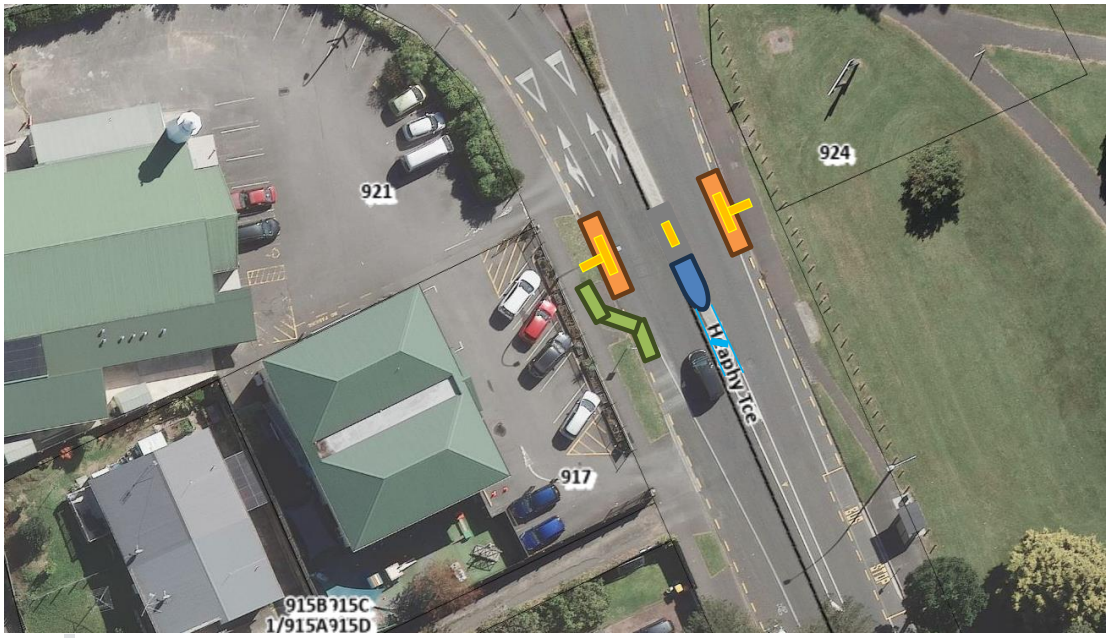


Figure 7: Pedestrian Platform and Kerb Buildout

Benefits:

- Kerb buildouts will reduce crossing distance, provides increased sight lines for any oncoming traffic, and reduce pedestrians being obscured by parked vehicles.
- Reduces community severance across busy roads and provides for a safer right turn movement of vehicles into the mosque which has been a community concern by reducing the centre island.
- Can be upgraded with a raised safety platform and formalised crossing in the future.

Challenges:

- Pedestrians must determine a safe gap in the traffic before crossing. Not suitable for all ages.
- Refuge islands are not desirable for the visually impaired or people with other disabilities.
- No speed calming measures in place reduces the likelihood of survival if a pedestrian is struck by a vehicle.

EXISTING PEDESTRIAN REFUGE ISLAND – ALL OPTIONS

It should be noted that with all the options, the existing pedestrian refuge crossing through the median island should be infilled with concrete and full height kerbs should be reinstated at the existing kerb cutdowns. Retaining the existing kerb letdowns will encourage and give users the initiative to continue to cross from an unsafe location with the risk of a fatal or serious crash. These pedestrians will be susceptible to accelerating vehicles entering/exiting the roundabout who may not have great visibility and enough reaction time to stop for pedestrians without any speed management/traffic calming measures in place at the location.