

Report

Maunganui Road Traffic Calming Road Safety Audit - Golf Road to Hinau Street

Prepared for Tauranga City Council

Prepared by Beca Limited

19 December 2018



Revision History

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on behalf of	Beca Limited		

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1 Introduction

1.1 Safety Audit Procedure

A road safety audit is a term used internationally to describe an independent review of a future road project to identify any safety concerns that may affect the safety performance. The audit team considers the safety of all road users and qualitatively reports on road safety issues or opportunities for safety improvement.

A road safety audit is therefore a formal examination of a road project, or any type of project which affects road users (including cyclists, pedestrians, mobility impaired etc.), carried out by an independent competent team who identify and document road safety concerns.

A road safety audit is intended to help deliver a safe road system and is not a review of compliance with standards.

The primary objective of a road safety audit is to deliver a project that achieves an outcome consistent with Safer Journeys and the Safe System approach, that is, minimisation of death and serious injury. The road safety audit is a safety review used to identify all areas of a project that are inconsistent with a safe system and bring those concerns to the attention of the client in order that the client can make a value judgement as to appropriate action(s) based on the risk guidance provided by the safety audit team.

The key objective of a road safety audit is summarised as:

To deliver completed projects that contribute towards a safe road system that is increasingly free of death and serious injury by identifying and ranking potential safety concerns for all road users and others affected by a road project.

A road safety audit should desirably be undertaken at project milestones such as:

- Concept Stage;
- Scheme or Preliminary Design Stage (part of Pre-Implementation);
- Detailed Design Stage (Pre-implementation / Implementation); and
- Pre-Opening / Post-Construction Stage (Implementation / Post-Implementation).

A road safety audit is not intended as a technical or financial audit and does not substitute for a design check on standards or guidelines. Any recommended treatment of an identified safety concern is intended to be indicative only, and to focus the designer on the type of improvements that might be appropriate. It is not intended to be prescriptive and other ways of improving the road safety or operational problems identified should also be considered.

In accordance with the procedures set down in the “NZTA Road Safety Audit Procedures for Projects Guidelines - Interim release May 2013” the audit report should be submitted to the client who will instruct the designer to respond. The designer should consider the report and comment to the client on each of any concerns identified, including their cost implications where appropriate, and make a recommendation to either accept or reject the audit report recommendation.

For each audit team recommendation that is accepted, the client shall make the final decision and brief the designer to make the necessary changes and/or additions. As a result of this instruction the designer shall

action the approved amendments. The client may involve a safety engineer to provide commentary to aid with the decision.

Decision tracking is an important part of the road safety audit process. A decision tracking table is embedded into the report format at the end of each set of recommendations to be completed by the designer, safety engineer and client for each issue documenting the designer response, client decision (and asset manager's comments in the case where the client and asset manager are not one and the same) and action taken.

A copy of the report including the designer's response to the client and the client's decision on each recommendation shall be given to the road safety audit team leader as part of the important feedback loop. The road safety audit team leader will disseminate this to team members.

1.2 Project Background

This audit has been undertaken by Beca Ltd (Beca) at the request of Tauranga City Council (TCC). This report presents the safety audit findings of the **Detailed Design/Construction Drawings** prepared by WSP Opus International Consultants Ltd. The project comprises the upgrade of the road network along Maunganui Road (from Golf Road to Tui Street and Hull Road to Hinau Street). The corridor is broken into the two sections, presented in **Figure 1 and Figure 2**.

Safety issues have been considered against current guidelines, safety experience and best practice where relevant.

A field audit and observations was carried out on 16 November 2018. At the time of the site visit, the weather was dry, fine and bright. A night time visit has not been undertaken for this project.

Figure 1: Proposed Golf – Tui Traffic Calming

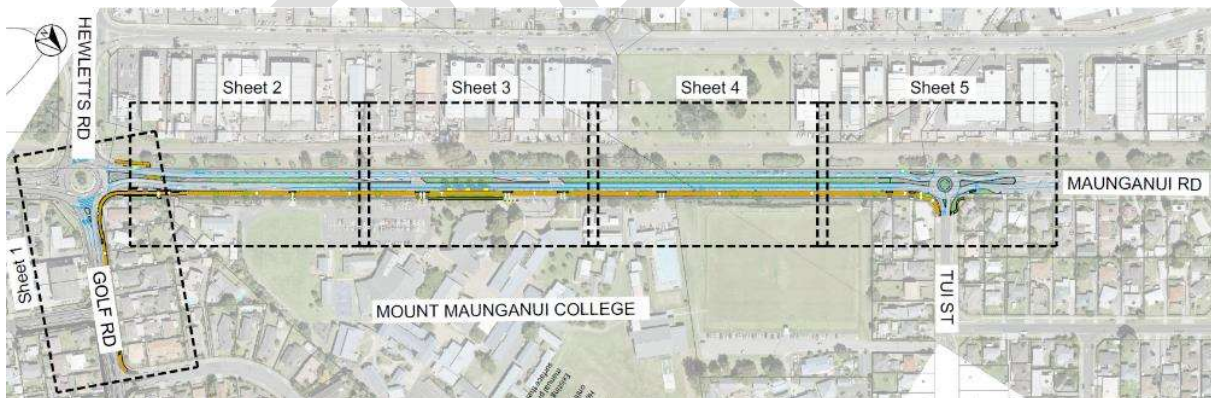
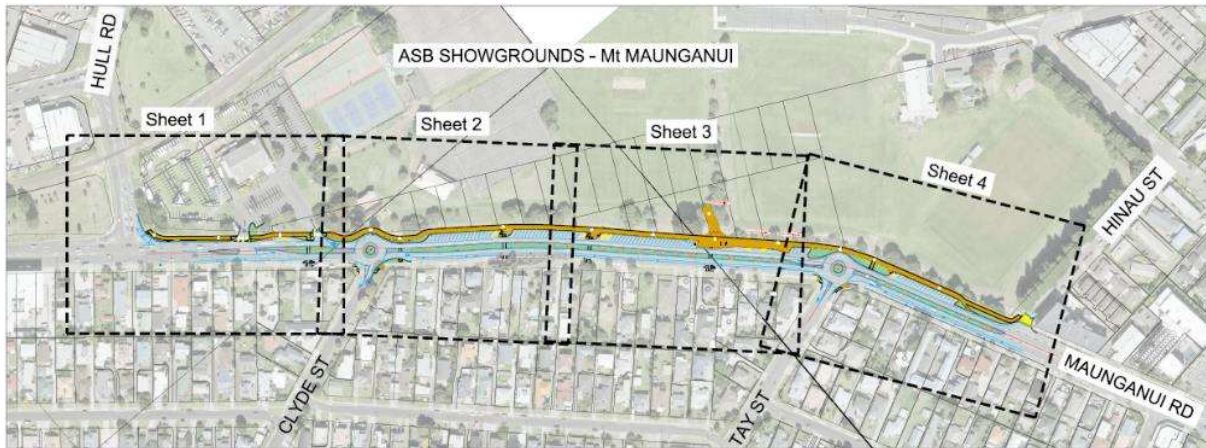


Figure 2: Proposed Hull – Hinau Traffic Calming



1.3 Safety Audit Team

The road safety audit was carried out in accordance with the “NZTA Road Safety Audit Procedure for Projects Guidelines - Interim release May 2013”, by:

- [Redacted] Road Safety Auditor – Transportation Engineer
- [Redacted] Road Safety Auditor – Transportation Engineer
- [Redacted] Road Safety Audit Observer – Transportation Engineer
- [Redacted] Safety Audit Verifier – Technical Director

[Redacted] was briefed by TCC on behalf of the Safety Audit Team and relayed this briefing to the team prior to the team undertaking the Audit on the 16th of November

1.4 Report Structure

The potential road safety problems identified have been ranked as follows:

The expected crash frequency is qualitatively assessed on the basis of expected exposure (how many road users will be exposed to a safety issue) and the likelihood of a crash resulting from the presence of the issue. The severity of a crash outcome is qualitatively assessed on the basis of factors such as expected speeds, type of collision, and type of vehicle involved.

Reference to historic crash rates or other research for similar elements of projects, or projects as a whole, have been drawn on where appropriate to assist in understanding the likely crash types, frequency and likely severity that may result from a particular concern.

The frequency and severity ratings are used together to develop a combined qualitative risk ranking for each safety issue using the Risk Assessment Matrix in **Table 1.1** below.

Table 1.1: Risk Assessment Matrix

Severity (Likelihood of Death or Serious Injury Consequence)	Frequency (Probability of a Crash)			
	Frequent	Common	Occasional	Infrequent
Very Likely	Serious	Serious	Significant	Moderate
Likely	Serious	Significant	Moderate	Moderate
Unlikely	Significant	Moderate	Minor	Minor
Very Unlikely	Moderate	Minor	Minor	Minor

While all safety concerns should be considered for action, the client or nominated project manager will make the decision as to what course of action will be adopted based on the guidance given in this ranking process with consideration to factors other than safety alone. As a guide a suggested action for each risk category is given in **Table 1.2**.

Table 1.2: Risk Categories

RISK	Suggested Action
Serious	A major safety concern that should be addressed and requires changes to avoid serious safety consequence.
Significant	Significant risk that should be addressed and requires changes to avoid injury consequence.
Moderate	Moderate risk that should be addressed to improve overall safety.
Minor	Minor risk that should be addressed where practical to improve overall safety.

In addition to the ranked safety issues it is appropriate for the safety audit team to provide additional comments with respect to items that may have a safety implication but lie outside the scope of the safety audit. A comment may include items where the safety implications are not yet clear due to insufficient detail for the stage of project, items outside the scope of the audit such as existing issues not impacted by the project or an opportunity for improved safety but not necessarily linked to the project itself. While typically comments do not require a specific recommendation, in some instances suggestions may be given by the auditors.

1.5 Documents Reviewed

The SAT has been provided with the following documents for this audit:

- Detailed Design Drawings, Golf Road to Tui Street section (29B278_12-GOLF ROAD TO TUI STREET.pdf)

- Detailed Design Drawings, Hull Road to Hinau Street (2-9B278.12-HULL TO HINAU-1.pdf),

A high level review of the 10 year crash history exported from the NZTA Crash Analysis System (CAS) indicates the following:

Hull Road to Hinau Street

- Two serious injury crashes and 10 minor injury crashes have been reported
- Minor injury crashes are primarily loss of control or rear-end type crashes
- Two pedestrian crashes were reported (both minor injuries), one south of Clyde Street and the other at the Hull Road intersection. One involved a pedestrian which had the right of way at the time.

Golf Road to Tui Street

- One fatal crash, two serious crashes and 17 minor injury crashes have been reported.
- Injury crashes are primarily crossing/turning or manoeuvring at or near intersections.
- Two crashes involving pedestrians are noted, with one fatal and one minor injury involving pedestrians aged 13. The fatal crash was in 2008, and involved a pedestrian crossing in front of a vehicle with right of way.
- Four crashes involving cyclists are also noted, with one serious injury and three minor injuries reported.

In reviewing these crashes, it is noted that the proposed improvements are likely to provide potential improvements to all of the reported crashes, either through physical improvement or through the potential reduction of vehicle speeds provided by the traffic calming components.

The SAT was not aware of a previous Road Safety Audit being carried out on earlier stages of this scheme. However members of the SAT were involved in a previous safety review of a minor safety project that forms a portion of this project, which focused on providing minor safety improvements to the Maunganui Road / Golf Road intersection.

1.6 Disclaimer

The findings and recommendations in this report are based on an examination of available relevant plans, the specified road and its environment, and the opinions of the SAT. However, it must be recognised that eliminating safety concerns cannot be guaranteed since no road can be regarded as absolutely safe and no warranty is implied that all safety issues have been identified in this report. **Safety audits do not constitute a design review, nor an assessment of standards with respect to engineering or planning documents.**

Readers are urged to seek specific technical advice on matters raised and not rely solely on the report.

While every effort has been made to ensure the accuracy of the report, it is made available on the basis that anyone relying on it does so at their own risk without any liability to the safety audit team or their organisations.

2 Overall Scheme Findings

2.1 General Connectivity and Route Cohesiveness

Minor

The Safety Audit Team (SAT) noted that the two schemes present as two separate projects however are within 800 m of each other. Despite being so close, no facility is proposed between the two projects to connect them together. In addition, the proposed signage does not present a clear and obvious route that users could follow that these projects form a part of. With both off-road paths being on opposite sides of the road, the SAT considers that this will effect the cohesiveness of the route and whether this could result in increased numbers of users having to cross Maunganui Road, which currently has one signalised pedestrian crossing at the Hull Road / Maunganui Road intersection.

The SAT felt that this could result in users crossing in inappropriate locations or travelling in the wrong direction.

Recommendation:

The SAT felt that the following could be implemented to assist with this issue:

- Ensure the delivery of these projects is supported by a route strategy and good directional signage to inform all users.
- Review the ends of each design to ensure that the termination of each individual project provides safe crossing facilities

Frequency Rating: Infrequent

Severity Rating: Unlikely

Designers Comment: *The designer agrees with the recommendations of the SAT and this will be discussed with TCC. Additional signs can be implemented at the termination points of the new routes to provide additional guidance to pedestrian and cyclists.*

Safety Engineer:

Agree with SAT and Designer Comments. During detailed design ensure that there is consistency through the route, and appropriate treatments during staging to maintain user safety.

Client Decision: **Accept comments, ensure consistency through Detailed Design**

Action Taken:

2.2 Alternative Desire Lines

Minor

While these projects provide a safe off-road alternative to the existing on-road facilities, the SAT felt that there was potentially additional desire lines that could be improved.

Recommendation:

The SAT felt that the designs could be improved by considering further desire lines:

- Through to Tay Street Beach
- Connectivity with the New World & Shopping Village
- Other activities (such as the markets at Rising Tide)
- Connections with adjacent routes (i.e. Links Ave)

While this may not be within the current scope of the design, appropriate consideration at this stage may improve the longer term function of the projects, and some are also identified as priority cycle routes in the Tauranga Cycle Plan.

Frequency Rating: Infrequent

Severity Rating: Unlikely

Designers Comment: The designer agrees, and this will be discussed with TCC.

Safety Engineer: Agree with SAT, ongoing development of the Tauranga Cycle Plan will also influence additional works, as a minimum, direct connections off Maunganui Road to key destinations should be made during detailed design.

Client Decision: Agree with Safety Engineer comments for detailed design and ongoing dialogue with the development of the Tauranga Cycle Plan.

Action Taken:

2.3 Speed Limits on Paths

Significant

With the paths located in and through busy areas, the SAT queried whether there would be any recommendation of speed limits presented to users on the path (primarily cyclists). With increases to the number of powered vehicles, the potential for high speed differentials between users could result in severe crash outcomes between two vehicles or a vehicle and other vulnerable road user. As the route will cater for school children, the risk of this is increased further due to less predictable actions.

The straight nature of the path will also encourage higher speeds, even for non-powered modes. Some locations (outside the school) where the off-road path has been provided and cycling on-road could be difficult, may experience higher volumes of high speed off-road users.

Recommendation:

The SAT consider that the on-road facility should be retained for users that want to operate at a higher speed, with some signage to reinforce this. Alternatively, a higher speed off-road path could be considered from Golf to Hull Road on the western side of Maunganui Road.

Frequency Rating: Common	Severity Rating: Likely
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Designers Comment: The designer understands the concerns of the SAT team, however by introducing additional speed measure signs will set a standard that is not currently in place on the Tauranga cycle network. This can be discussed with TCC.

Safety Engineer: Agree with comments, however this sits outside the scope of this project, and is subject to National guidance, and wider use of paths within the city. This will be addressed elsewhere.

Client Decision: Agree with Safety Engineer Comments

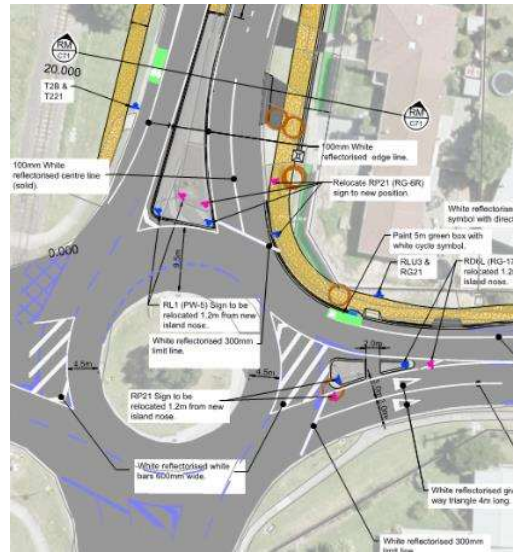
Action Taken:

3 Golf Road to Tui Street Section

3.1 Changes to Roundabout Operation	Moderate
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The SAT noted that the changes to traffic movements within the Maunganui Road / Golf Road intersection will be largely facilitated by line marking. However, some approach lane movements & markings will appear the same to drivers as they approach. As this proposal includes restricting some to left turn only, this has the potential to result in drivers making late lane changes or simply driving over the new line marking. This is shown below by the proposed hatching area.

Figure 3: Change in approach lanes to roundabout



The identified risk here is when drivers expect others to follow the new line marking (i.e. turn left) and enter the roundabout only to collide with a vehicle that continues straight.

Recommendation:

The SAT feel that more substantial changes (line marking or otherwise) need to be made to the roundabout to support such lane changes. This could include additional line marking or signage where movements are restricted.

Frequency Rating: Common	Severity Rating: Unlikely
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Designers Comment: The designer agrees with the SAT team; the design has since been updated to address these issues. See attached drawing Pavement Markings and Signs Layout – Sheet C70 Rev B.

Safety Engineer: Accept the changes that have been made, as per Designer Comment

Client Decision: Accept Changes that have been made

Action Taken:

3.2 Path Continuity with Links Ave

Minor

The SAT identified that the southern end of the project, left a shared path on both sides of Golf Road connected by a pedestrian crossing with a pedestrian cage and chicane. A cyclist using this shared path would need to dismount and navigate the crossing before continuing on the adjacent shared path through Links Ave or northbound on Golf Road.

Figure 4: Golf Road pedestrian crossing



The SAT felt that this break in the path may likely result in cyclists crossing Golf Road away from the crossing, which may distract a driver from an actual user of the pedestrian crossing or vice versa.

Recommendation:

Implement an improved crossing facility that caters safely for both pedestrians and cyclists.

Frequency Rating: Infrequent

Severity Rating: Unlikely

Designers Comment: The design agrees with the SAT team. The chicane crossing was constructed to improve the safety of pedestrians crossing. The cyclists are therefore forced to dismount at those location. The option of removing the chicane effect and implementing a shared crossing could be investigated but this will need to be discussed with TCC.

Safety Engineer: This crossing falls within the scope of the Golf Road Project, and as part of that project the crossing has been updated to remove the chicane in the middle of the crossing. This will need to be monitored, as outside school crossing times approach

speeds to the crossing are higher, particularly from Maunganui Road. This has been identified in the Golf Road safety audit and SiD.

Client Decision: Accept Safety Engineers comments that this crossing will be addressed through the Golf Road Project.

Action Taken:

3.3 Power Pole within Shared Path

Moderate

The SAT identified a new power pole not included on the design drawings, which is within the proposed path extent.

Figure 5: Recently Installed Power Pole



Recommendation:

Review the ability for this pole to be relocated and relocate if possible.

Frequency Rating: Occasional

Severity Rating: Likely

Designers Comment: The designer agrees with the SAT team recommendations. The relocation of the power pole has been included in the schedule.

Safety Engineer: Accept designer comment

Client Decision: Accept that this pole will be moved.

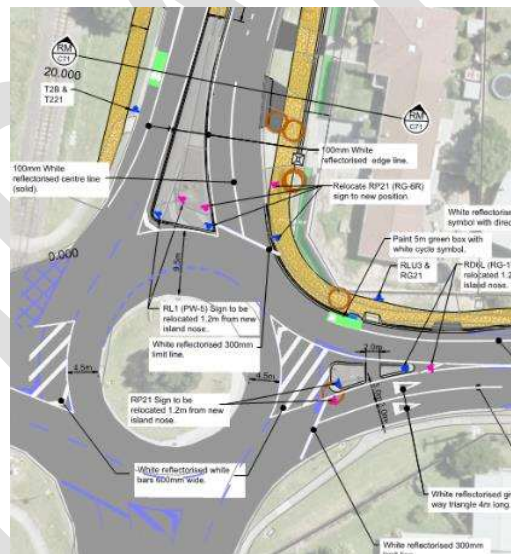
Action Taken:

3.4 Arrow Markings for Revised Intersection

Minor

Arrow markings shown on both approaches to Maunganui Road need to be provided/corrected as they are a change over the existing and the line marking plans provided do not reflect this.

Figure 6: Change required to approach lane markings



Recommendation:

Update drawings with new lane arrows.

Frequency Rating: Common	Severity Rating: Unlikely
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Designers Comment: The designer agrees with the SAT team; the design has since been updated to address these issues. See attached drawing Pavement Markings and Signs Layout – Sheet C70 Rev B.

Safety Engineer: Accept the changes that have been made, as per Designer Comment

Client Decision: Accept Changes that have been made

Action Taken:

3.5 Crossing Distance of Maunganui Road

Minor

The proposed crossing location requires a large crossing distance, due to the two lane crossing section (approx. 7m). With the change in lane allocations, the left turn only lane on the southbound approach may not need to be as long, thus the crossing path could be shorter.

Recommendation:

Reduce the width of the crossing distance where possible, potentially supported by traffic analysis.

Frequency Rating: Infrequent

Severity Rating: Unlikely

Designers Comment: This option was investigated by TCC, however due to the traffic demand this option was not accepted by NZTA.

Safety Engineer: Accept that the crossing distance was not able to be adjusted

Client Decision: Accept that the crossing distance was not able to be adjusted due to traffic analysis demands.

Action Taken:

3.6 Driveway/Shared Path Crossing Treatment

Minor

The project proposes inconsistent treatments for where the path intersects with property accesses (e.g. shared path markings, on road crossings, or no treatment) Some crossings have two paths to cross and one

marking). This could lead to confusion between all users in terms of expectations when crossing the path (for drivers) or at driveways (for path users).

Recommendation:

Provide a consistent drive way crossing treatment throughout the project.

Frequency Rating: Infrequent	Severity Rating: Unlikely
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Designers Comment: The designer agrees with the SAT recommendations. The Tauranga by-law provide right of way to pedestrians and cyclist, this can be enforced by implementing yellow limit lines at both entry points to the paths. This will however need to be discussed with TCC.

Safety Engineer: consistent treatment at vehicle crossing points should be provided throughout the project. This should also be consistent with other cycle path projects in TCC. Confirm treatment from the Tauranga Cycle Plan implementation team during detailed design.

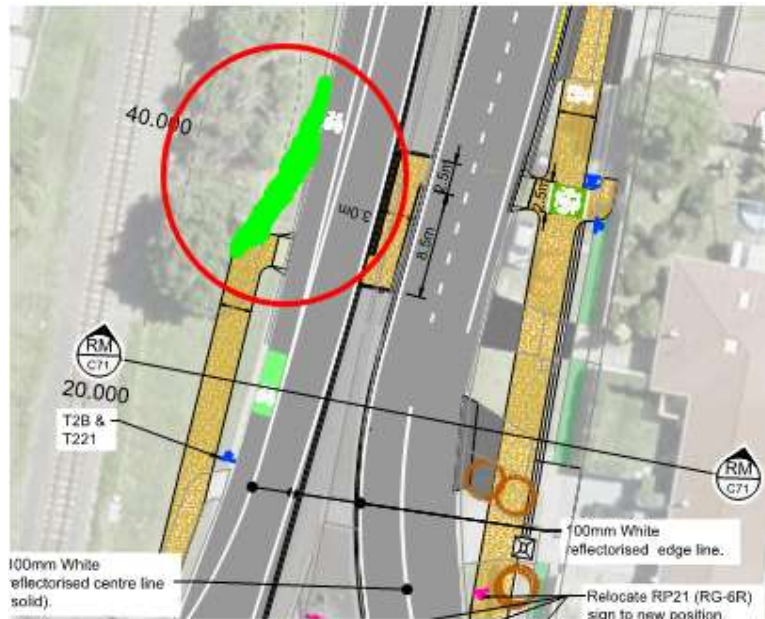
Client Decision: Accept Safety Engineer Comment

Action Taken:

3.7 Cyclist Drop Kerb on Maunganui Road Northbound Minor

The SAT noted that any cyclist on the Hewlett’s Road shared path wanting to use the northbound cycle lane or Maunganui Road, need to use the proposed drop kerb. This is likely to be an awkward angle causing a slow movement speed for cyclists. A cyclist that is wanting to do this could surprise drivers, causing sudden reactions.

Figure 7: Example of more favourable cycle drop kerb



Recommendation:

Provide a more suitable drop-kerb connection for cyclists connecting from the Hewletts Road shared path.

Frequency Rating: Infrequent

Severity Rating: Unlikely

Designers Comment: The designer agrees with the SAT recommendations, this will be discussed with TCC.

Safety Engineer: Agree with SAT, modify drop kerb connection into the northbound cycle lane.

Client Decision: Agree with Safety Engineer comment and modify connection.

Action Taken:

3.8 Cyclist Desire Line Connectivity (to Bayfair)

Minor

The SAT felt that project does not cater well for cyclists travelling southbound on Maunganui Road, primarily:

- The crossing of Golf Road is not of a high standard compared with other locations
- There are no on-road cycle lanes

- The new left turn lane markings will make it difficult for a cyclist to be in the correct location.

Recommendation:

Considering the preferred route to Bayfair would be Links Ave, cyclists should be encouraged to continue along the Links Ave path, with signage and other facilities used to discourage use of Maunganui Road.

Frequency Rating: Infrequent	Severity Rating: Unlikely
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Designers Comment:

- *The designer can discuss with TCC to see if we can implement signage for cyclists.*
- *Current Links Avenue is has a dedicated bus lane in the Northbound direction and no on road cycle lanes in either direction, nor off road shared paths, further discussion needs to be held to investigate a possible cycle route each way in Link Avenue.*

Safety Engineer: *These concerns are being addressed through the Tauranga Cycle Plan. During implementation we will review status of adjacent projects and confirm if additional signage is required to give clear route guidance.*

Client Decision: **Accept Safety Engineers comments.**

Action Taken:

3.9 Path Located on a Blind Corner

Moderate

At the Maunganui / Golf intersection where the path is located close to the adjacent property boundary, the fence obstructs sight distance around the curve. There is a high potential for two users to approach on either side of this curve and collide on the corner.

Figure 8: Blind Corner Approach (Maunganui to Golf)



The blind corner is also located on the exit lane of the roundabout, potentially increasing the risk if a collision were to occur and a user were to fall into the road way.

Recommendation:

Implement greater measures to both prevent blind corner crashes from occurring (through additional signage) and implement protection (such as a fence or bollards) for when a collision occurs such that a user does not fall into the road. Alternatively, if a fence were proposed, additional features (potentially mirrors) could help mitigate the blind corner risk.

Frequency Rating: Infrequent

Severity Rating: Likely

Designers Comment: The comments of the SAT team are valid; however, the location and physical obstructions present at this corner doesn't allow for any geometric alterations to improve this, other than reducing the footpath width. The design team would consider implementing additional signage indicating "blind spot ahead" and markings to increase awareness. The concrete block wall has been constructed post design stage.

Safety Engineer: Accept that this is a pinch point on the route and will be resolved when the Maunganui/Golf Intersection is improved. Property purchase has been considered, but it is a slow process. Review during detailed design on other work (signage, art, mirror etc) that could be done to highlight the pinch point.

Client Decision: Accept Safety Engineer response and consider alternative methods to highlight the pinch point.

Action Taken:

3.10 Posted Speed Limits on Maunganui Road

Moderate

The SAT noted that approach speed limits to the intersection increase from 50km/h to 70km/h (approximately 70m north of the intersection). Drivers that see this sign from further back may start to accelerate early, increasing speeds through the section.

Recommendation:

Relocate the speed change location to be closer to the intersection. Ideally this would notify drivers of the increased speed environment but would not encourage them to accelerate into the intersection.

Frequency Rating: Infrequent

Severity Rating: Likely

Designers Comment: The designer agrees that the speed limit of 50km/h should be extended beyond the roundabout. However this needs to be discussed with TCC and NZTA.

Safety Engineer: Agree, review location of speed limit signage and amend in the Speed Limit bylaw, in association with the NZTA.

Client Decision: Agree with request to change, needs to be processed through the Speed Limit Bylaw and in association with NZTA.

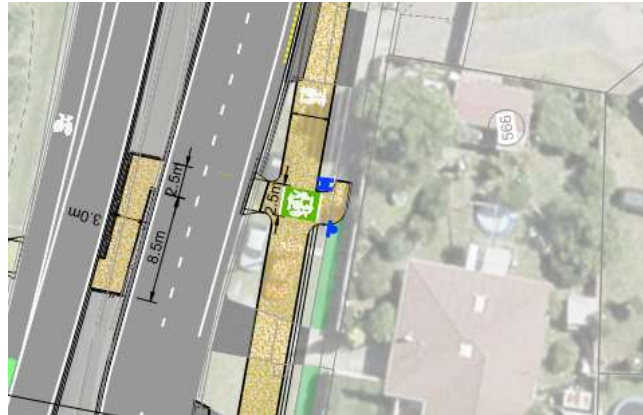
Action Taken:

3.11 Shared Path Split Environment Change

Moderate

The SAT felt that where the shared path transitions into the cycle only path section, there is no specific change in environment that would guide users into the appropriate location. This is likely to result in more pedestrians using the cycle path and conflicting with cycle users.

Figure 9: Shared Path to Exclusive Path



Recommendation:

Adjust the end locations of the shared path to ensure that priority for each path is clear to all users, supported by the appropriate signage.

Frequency Rating: Occasional

Severity Rating: Likely

Designers Comment: The designer agrees, and we recommend that the dedicated cycle route sign be relocated in advance of the conflict point at approx. CH60

Safety Engineer: Agree with more detail required around the transition points. This needs to be consistent with other treatments in the network, and will be discussed with the Tauranga Cycle Planning team.

Client Decision: Confirm detailed treatment with TCC Cycle Team.

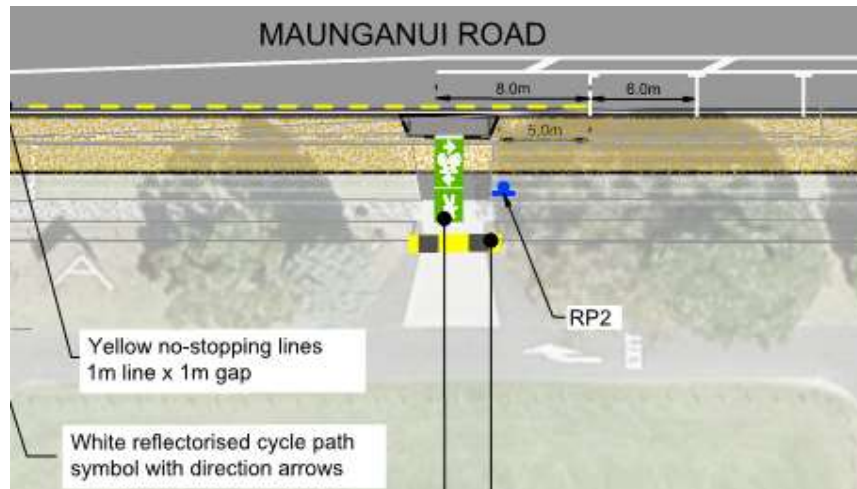
Action Taken:

3.12 Proposed RP-2 from Driveway

Minor

The RP-2 is shown at the school driveway to be located between the footpath and cycle path, may confuse drivers as to which path they give way to.

Figure 10: Give-way sign at path crossing



Recommendation:

Reinforce the give way markings by relocating the yellow & black lines between the footpath and cycle path or ensure that the cycle path and footpath are clearly separated – unlike the above where the markings are directly adjacent to one another.

Frequency Rating: Infrequent

Severity Rating: Unlikely

Designers Comment: The designer agrees that the RP2 signs should be placed between boundary and the footpath.

Safety Engineer: Agree with this change

Client Decision: Agree with the proposed change.

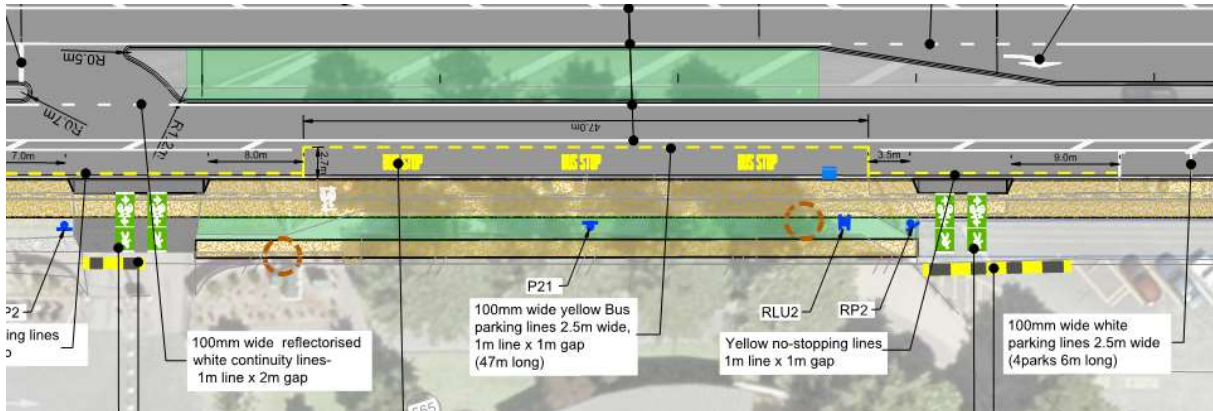
Action Taken:

3.13 Dedicated Cycle Path Conflict with Bus Stop

Significant

The cycle path is in direct conflict with the bus stop area, which is likely to be an area of significant conflict during school start/end times. School students are expected to be waiting on this path, increasing the likelihood of a collision and this is an area where pedestrians step off the bus straight into the path of cyclists.

Figure 11: Cycle Path Through Bus Stop



Recommendation:

Combine the cycle path and footpath through this area, providing a designated waiting and alighting area for passengers.

Frequency Rating: Common

Severity Rating: Likely

Designers Comment: The designer agrees that this is a conflict area and further discussion with TCC to combine the cycle / footpath through this area is required.

Safety Engineer: Agree, detailed design needs to incorporate additional measures through the bus stop area, consistent with other treatments that have been provided through the TCC Cycle Plan.

Client Decision: Agree, provide consistent treatment as per advice from TCC Cycle Plan team.

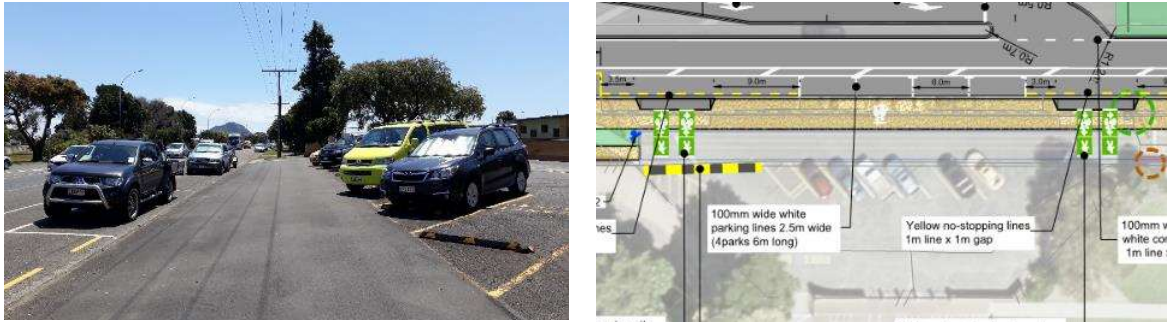
Action Taken:

3.14 Informal Parking in Front of School

Moderate

The provision of the widening for the cycle path section is shown to significantly increase the size of the drop off area in front of the school. The existing parking area appears to be able to spill over into the cycle lane section, which will be a notable conflict with path users.

Figure 12: Possible New Informal Parking Area



Recommendation:

Provide greater delineation of the cycle path through this location, and designate parking areas with additional measures (such as raised kerbing or bollards) to discourage parking in the cycle lane.

Frequency Rating: Infrequent

Severity Rating: Likely

Designers Comment: The designer agrees and would propose installing a fence and move the position of the wheel stops further back. Consultation with the school will need to be held.

Safety Engineer: Agree, provide a pedestrian fence between parked cars and path, or other options, such as the use of planter boxes or other landscaping to soften the sealed expanse.

Client Decision: xxxxx

Action Taken:

3.15 Right-Turn Bay U-Turns

Minor

The SAT felt that the implementation of a solid median will increase the number of U-turns at right turn bays. This should be checked by the designer, particularly if a parked car is present in the nearest parking space, potentially making it a three-point turn and increasing the time a driver is turning in the traffic lane.

Figure 13: Potential U-Turn Location



Recommendation:

Review the impacts of U-turns on traffic flow and parking.

Frequency Rating: Infrequent	Severity Rating: Unlikely
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Designers Comment: There is a possibility that vehicles may make U-turns at this location, however additional signage "R3-3 No U-turn" will be included to discourage vehicles to do this.

Safety Engineer: This is a possibility however the u-turn can be undertaken at the Tui Street roundabout with priority. No u-turn signs to be provided, and included in the TCC Traffic and Parking Bylaw.

Client Decision: Agree with Safety Engineer.

Action Taken:

3.16 Sight Distance from Right-Turn Bays (Trees)	Moderate
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The project proposes tree plantings in the median, in some locations close to the right-turn bays. There is potential that as these trees grow they could impact on sight distances.

Recommendation:

Review the type of trees planted here, and the likely height of these trees, so that necessary safe sight distances can be achieved and maintained when trees are fully grown.

Frequency Rating: Occasional	Severity Rating: Likely
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Designers Comment: TCC have specified the types of trees to be planted. Final tree locations to be confirmed.

Safety Engineer: the trees that have been specified are bare trunk with high canopy. They should not cause any issue with the normal use of the right turn bays. During detailed design the spacing of the trees should be checked to make sure that sight distances will not be affected.

Client Decision: Agree with Safety Engineers comments.

Action Taken:

3.17 Cycle Door Zones (On-Road)

Significant

The SAT noted that there are no cycle lanes on the eastern side of Maunganui Road, and on-road cyclists have no provision. Parallel parking areas have a small 'door zone', however the proposal includes 3.0m lanes. Effectively there is insufficient space for cyclists to remain on road.

Combined with activity outside of the school that is likely to discourage off-road use, this results in a risky situation for on-road cyclists.

Recommendation:

Reduce the median width to allow for on-road facilities (e.g. cycle lane) or consider the benefit of a wider two-way cycle facility on the western side of Maunganui Road to cater for cyclists traveling southbound as well.

Frequency Rating: Occasional

Severity Rating: Likely

Designers Comment: This discussion was held with TCC however TCC's decision was a that an off road cycle lane has been provided. The wide median was allow for tree line affect to urbanise this section of Maunganui Road to reduce speed

Safety Engineer: A bi-directional off-road facility has been provided for in this section. The duration of peak activity associated with the school is a very small proportion of the day, and during this time, flow is significantly tidal around the school. Commuter users will be using the bi-directional path outside of the school times, so will not be significantly affected by the movement of school cyclists in the shared path. If an on-road cyclist is present during this time, then the operating speed on Maunganui Road should be low, and all right turn movements are controlled by the median.

Client Decision: Agree with Safety Engineers comments.

Action Taken:

3.18 Entrance & Exit into School Grounds

Moderate

With the paths located in and through busy areas, the SAT queried where there are entrances to the school how this will safely operate when large numbers of school students enter and exit the school. This is particularly of concern where the path is being shifted to be closer to the boundary than currently.

Figure 14: New Path Against Property Boundary



Recommendation:

The SAT recommend that the facilities through this section are reviewed in tandem with item 3.13 with further consideration for sight lines into the school in an attempt to mitigate occasions where path users conflict with those exiting the school.

Frequency Rating: Occasional

Severity Rating: Unlikely

Designers Comment: The designer agrees that this is a conflict area and further discussion with TCC to combine the cycle / footpath through this area is required.

Safety Engineer: Agree with SAT and Designer that further mitigation work can be undertaken in this area, in consultation with the School.

Client Decision: Agree with Safety Engineers comments.

Action Taken:

3.19 Connectivity with School Cycle Storage

Minor

With the path providing improved cyclist connections to the Mount College, the SAT felt that further connections were needed where school cyclists access the path, as there is likely to be times where high numbers of users enter and exit in these locations.

Recommendation:

Improve connectivity at intersections with entrances to the school, in particular those that connect with the school cycle parking.

Frequency Rating: Occasional

Severity Rating: Unlikely

Designers Comment: The design team agrees with this recommendation and a mid-point access could be created. Discussion to be held with TCC and the College.

Safety Engineer: Agree with SAT and Designer that additional refinement can be undertaken in this area, in consultation with the School.

Client Decision: Agree with Safety Engineers comments.

Action Taken:

3.20 Width of Existing Footpath

Moderate

The existing footpath on the eastern side of Maunganui Road was noted to be particularly thin throughout its length and is proposed to be retained for this project. This width is only sufficient for one user, two pedestrians crossing requires one to walk off the path. Added to this there is a swale next to the path in some locations.

Figure 15: Existing Path Width



Recommendation:

Widen the footpath to 1.8m with on-road cycle lane or consider combining the cycle path and pedestrian path into one shared path. It is likely that this combination would allow more flexibility to deal with other issues identified within the RSA such as the bus stop conflicts.

Frequency Rating: Common	Severity Rating: Unlikely
---------------------------------	----------------------------------

Designers Comment: The designer agrees with this recommendation and that the shared path should be consistent throughout the project. There is however issues with combining the footpath and cycle path due to volume of cyclists and pedestrians from the College. We would recommend widening the footpath to 1.8m.

Safety Engineer: The section of path between the College and Golf Road is a secondary route for pedestrians, with the main route promoted through the school via Waitui Grove so that students are more inclined to use the pedestrian crossing at Golf Road. Consideration should be given to further widen the footpath to 1.8-2m, within the context of the project budget, the footpath can be upgraded at a point in the future without compromising or affecting the proposed works.

Client Decision: Agree with Safety Engineers Comments, obtain estimate for footpath upgrade so that this can be further considered.

Action Taken:

3.21 Cycle Bypass Lane – Tui Street	Significant
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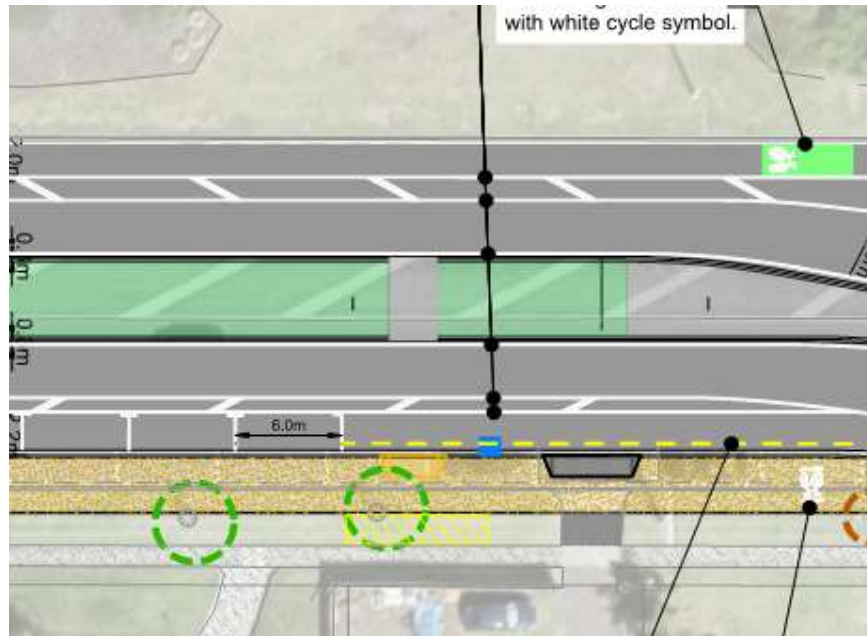
The SAT were concerned that the cycle bypass lane of the Tui Street roundabout is not sufficiently protected to operate as intended and that cyclists are exposed to a significant risk in this location.

3.22 Cycle Crossing Points

Minor

At the Tui Street intersection, the crossing does not provide a safe waiting location for those wanting to cross. A cyclist would need to wait in the cycle lane, potentially conflicting with other cyclists, or wait next to the traffic lane in an unprotected location.

Figure 17: Proposed Cycle Crossing Point



Recommendation:

Provide a safe waiting area for cyclists crossing at Tui Street (e.g. hook turn facility with hand rail).

Frequency Rating: Occasional

Severity Rating: Unlikely

Designers Comment: This cycle crossing point will be removed and will no longer be provided. A design investigation is currently underway to provide a gap in the physical island at this point for vehicles at the private properties to be able to gain access to the roundabout.

Safety Engineer: Review design following amendments, ensure that pedestrian and cyclist connectivity is maintained.

Client Decision: Agree with Safety Engineers comments.

Action Taken:

3.23 Use of Swale between Cycle Path and Footpath

Moderate

The project proposes a swale between the footpath and cycle path. With the intent for this area to hold water, combined with the width of the footpath, it is likely that users will be forced into the swale at times, increasing the risk of a slip or trip occurring which could cause injury. Cyclists are also much more likely to lose control if they enter the swale rather than a grassed berm.

Recommendation:

Remove the Swale or combine the cycle and footpath together to a single shared path.

Frequency Rating: Common

Severity Rating: Unlikely

Designers Comment: The swale is designed to remove water from the footpath. The swale will be kept at a minimum grade for safety.

Safety Engineer: Agree with Designer comment. Consideration should be given to providing additional landscaping elements in the swale to discourage use of this space.

Client Decision: Agree with Safety Engineers comments.

Action Taken:

3.24 Existing Informal Use of Berm for Selling Products

Moderate

During the site visit, the SAT observed an informal yet established produce seller parking within the verge. This space would no longer be easily available for this use, either resulting in them remaining on site or shifting the use to another location.

Figure 18: Informal Berm/Path Usage



Recommendation:

There is a risk that this activity would continue to operate in this location (i.e. parking on the cycle path) or relocate to a less safe location if the current location were no longer available. Consult with users or investigate alternative measures.

Frequency Rating: Occasional

Severity Rating: Likely

Designers Comment: *The design agrees. Additional signage “no parking behind kerb” can be implemented.*

Safety Engineer: *Agree with SAT and Design team. This can be addressed through existing bylaws (Traffic and Parking Bylaw, and Street Vendors)*

Client Decision: *Agree with Safety Engineers comments, refer for inclusion to relevant bylaws.*

Action Taken:

3.25 Confirmation of Traffic Calming Elements

Minor

With the project designated as a traffic calming activity, the proposal is a straight piece of road in parts with limited features to calm traffic (particularly in the northbound direction). If the traffic calming component is unsuccessful, this undermines the effectiveness of the project and vehicle speeds will be higher than desirable.

Recommendation:

Consider additional treatments to support the traffic calming component, e.g. blister islands and threshold treatments to assist with managing vehicle speeds.

Frequency Rating: Occasional

Severity Rating: Unlikely

Designers Comment: The designer considers 3.0m traffic lanes raised median and the shy lane with RPM's has addressed this issue.

Safety Engineer: Agree with Designer Comments, there will be a significant change in environment from existing.

Client Decision: Agree with Safety Engineers comments.

Action Taken:

3.26 Acute Entrance Angle at Tui Street Roundabout

Minor

At the northern end of the Tui Street intersection, the access closest to the intersection is shown to be acute and expected to be difficult to enter and exit from. Given the proximity to the intersection, drivers may be surprised by this action, and rear end collisions may eventuate, or drivers may drive along the berm/path to a more convenient location.

Recommendation:

Review vehicle tracking at the access and if required implement a more favourable access to improve safety.

Frequency Rating: Infrequent

Severity Rating: Unlikely

Designers Comment: This issue has been raised by the client and different solutions are being investigated.

Safety Engineer: Agree with SAT, ensure that the re-design provides a well considered access.

Client Decision: Agree with Safety Engineers comments.

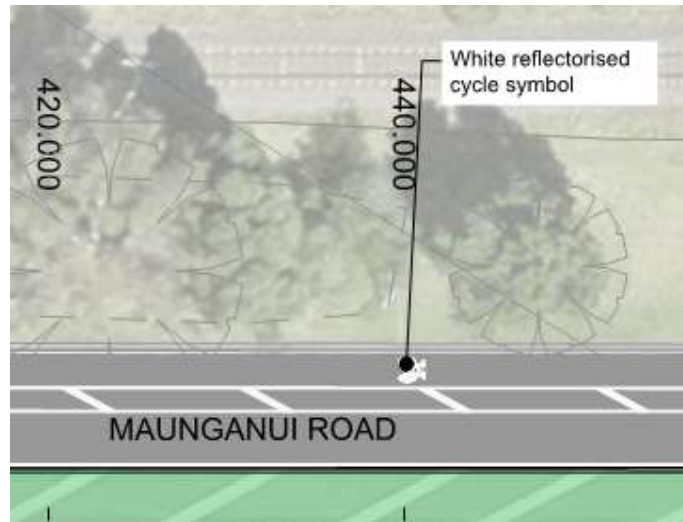
Action Taken:

3.27 Delineation of Cycle Lane Separation

Moderate

The cycle lane on the western side of Maunganui Road will need to be clearly delineated so that drivers are discouraged from driving within the lane and so cyclists are safe from errant vehicles. Physical protection is typically favourable for cyclists rather than just line marking.

Figure 19: Delineation of Cycle Lane



Recommendation:

Ensure that on-road cycle lanes are clearly delineated to prevent vehicles for driving in the new median area. Consider physical separation e.g. armadillos or bolt on kerbing.

Frequency Rating: Common

Severity Rating: Likely

Designers Comment: The designer considers physical protection to be a hazard to the cyclists. However safe hit posts could be considered.

Safety Engineer: Consideration of a physical barrier is ongoing, and will be implemented in consideration of other treatment options being trialled in Tauranga.

Client Decision: Agree with Safety Engineers comments.

Action Taken:

3.28 3.0m Lane and Heavy Truck Conflict

Significant

With a high use of heavy vehicles (logging trucks and buses in particular) observed using Maunganui Road, the risk of 3.0m lanes in combination with heavy vehicles and on-road cyclists (without dedicated cycle lanes on the eastern side) is considered significant.

Recommendation:

Ensure that there is an appropriate cycle facility provided for on-road users along the road so that the appropriate level of protection is provided for cyclists in particular with respect to heavy vehicles.

Frequency Rating: Infrequent

Severity Rating: Very Likely

Designers Comment: On road cycle lanes can be provided however the on-road car parking facilities will need to be removed. Further discussion with TCC is required.

Safety Engineer: Refer comments made in 3.17. Additionally the work to urbanise Maunganui Road is in part also being undertaken to discourage this road to be used as a route for Heavy Vehicles.

Client Decision: Agree with Safety Engineers comments.

Action Taken:

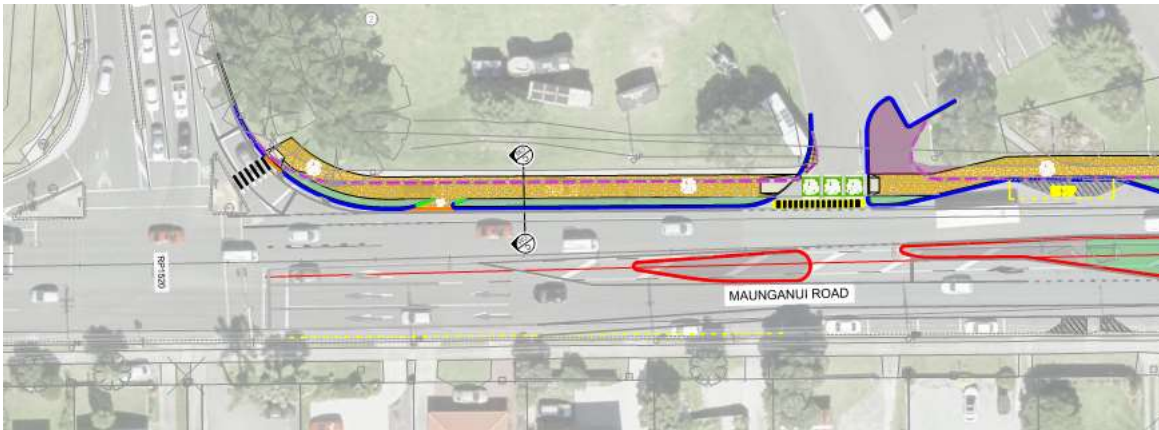
4 Hull Road to Hinau Street Section

4.1 Hull Road Approach Lanes & Informal Lane Use

Minor

The provision of a new right turn facility into Blake Park and median will prevent informal stacking for the right turn lane into Hull Road. This will reduce the level of service for the approach and is could result in increased red-light running and late lane changes approaching the intersection.

Figure 20: Short Stacking Lanes Approaching Hull Road



Recommendation:

Review traffic modelling to check there is sufficient stacking space for the right turn. Extend the two-lane approach to the intersection in necessary by removing some parking spaces to provide greater functionality.

Frequency Rating: Common

Severity Rating: Very Unlikely

Designers Comment: The designer agrees that this physical island should be removed to provide stacking for right turn movement into Hull Road and to provide a painted right turn median into Blake Park. Termination of the raised median to be discussed with TCC

Safety Engineer: Additional capacity to be provided through minor adjustments to the island.

Client Decision: Agree with Safety Engineers comments.

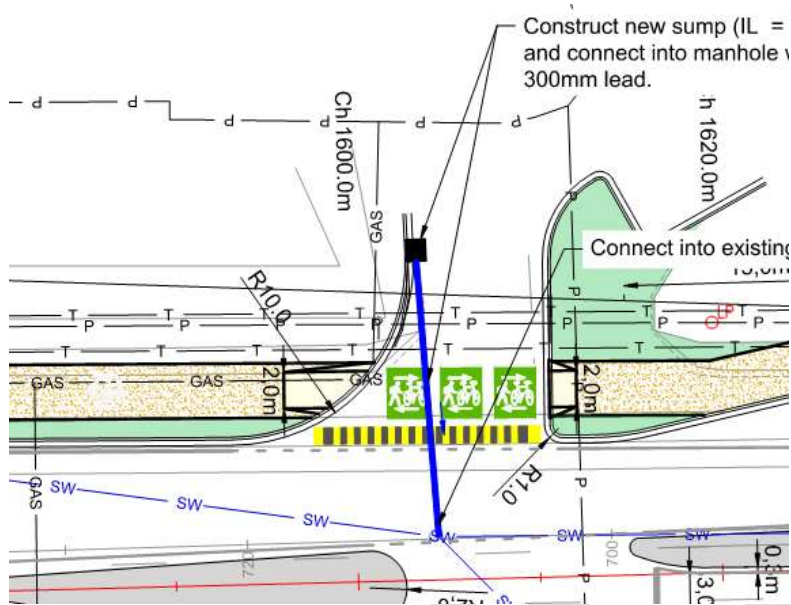
Action Taken:

4.2 Effective Path Widths

Minor

The SAT noted that crossing widths decrease to 2.0m wide in some locations. This is likely to have a significant impact on the ability for multiple users to cross at the same time and has the potential to funnel users together and create conflicts between cyclists and pedestrians in particular.

Figure 21: Effective Path Widths



Recommendation:

Retain a consistent 3.0m path widths by widening kerb crossings and cut downs to 3.0m.

Frequency Rating: Infrequent	Severity Rating: Unlikely
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Designers Comment: The designer agrees, and the crossings will be widened to suite the path width.

Safety Engineer: Agree with SAT and designer comments

Client Decision: Agree with Safety Engineers comments.

Action Taken:

4.3 Cyclists Remaining On-Road Significant

The SAT were concerned with the available on-road space for cyclists, particularly in the northbound direction where no specific cycle lane is provided. The risk of this elevated in locations with angle parking, where drivers are unlikely to see an on-road cyclist in time to stop or react accordingly. The SAT expect the result will be a high-risk conflict zone behind the parked cars with potential for cyclists to either crash into the rear or be pushed into the path of an adjacent vehicle in the traffic lane.

As cyclists may be on-road from Clyde Street or Tay Street there is also no provision for cyclists to leave the road, effectively giving these such cyclists no appropriate alternative.

Figure 22: Limited On-Road Space for Cyclists



Recommendation:

Provide the appropriate width to avoid this conflict zone and the appropriate facilities to encourage cyclists to leave to road at likely locations.

Frequency Rating: Common	Severity Rating: Likely
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Designers Comment: On and off ramp facilities can be provided for cyclists, TCC to confirm this.

Safety Engineer: Agree with providing off and on ramp facilities in key locations.

Client Decision:

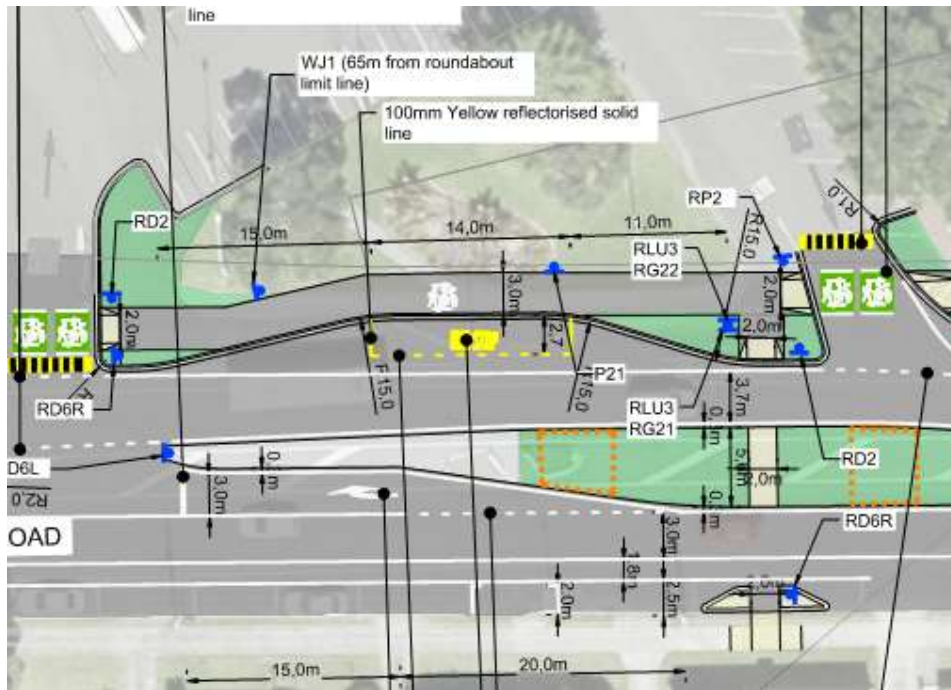
Action Taken:

4.4 Bus Stop Area & Shared Path Conflict

Moderate

Similar to issue 3.13, the SAT were concerned with the shared path and bus stop waiting area sharing the same space, in particular cyclists as on-road cyclists will be discouraged with the lack of on-road facility. It is likely that this will increase the risk of a passenger alighting a bus in front of a cyclist on the path.

Figure 23: Potential Conflict with Shared Path and Bus Stop



Recommendation:

Implement additional measures to slow approaching cyclists or implement a safer treatment in this location that separates the different users to mitigate this risk.

Frequency Rating: Common	Severity Rating: Unlikely
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Designers Comment: The designer agrees that this is a conflict area and further discussion with TCC to address this conflict area is required. An option can be, the pavement colour can be changed and signs installed to alert cyclists passengers are dismounting.

Safety Engineer: Agree with SAT, investigate additional measures to create awareness of passenger movement at the bus stop.

Client Decision: Agree with Safety Engineers comments.

Action Taken:

4.5 Cycle Crossing at Hull Road

Minor

At the southern end of the project, the Hull Road intersection will remain as is effectively, with the shared path terminating into a standard pedestrian crossing. Paths are not available on all approaches to the intersection, and path users may assume that the path continues on the western side of Maunganui Road where there is not path.

In addition, there is no pedestrian crossing of the slip lane into Hull Road, and path users that go in the wrong direction may cross illegally or unsafely to return to the path.

Recommendation:

Provide the appropriate signage at the end of the shared path to guide users in the correct direction and prevent unfamiliar users from travelling in the wrong direction, until the connection can be completed.

Frequency Rating: Common

Severity Rating: Likely

Designers Comment: The designer agrees that further investigation is required. One option would be to install no entry sign at on ramp (CH1560).

Safety Engineer: Agree with SAT and Designer comments. Review connections and consistency of route design.

Client Decision: Agree with Safety Engineers comments.

Action Taken:

4.6 Carpark Entrance Crossing Distance

Minor

The SAT felt that the entrance to the carpark was of such a width that would encourage higher entry speeds, rather than constrain approach speeds such that would be safer for those wanting to cross the entrance.

Figure 24: Width of Vehicle Entrance



Recommendation:

Constrain the entrance width as much as possible, noting vehicle tracking requirements. Consider alternative treatments such as table crossings and mountable kerbing to reduce the effective widths for the majority of vehicles.

Frequency Rating: Common

Severity Rating: Likely

Designers Comment: The designer agrees, however the proposed judder bars that are proposed at this location will act as speed humps and will provide slower entrance speeds as well as being a visual warning to motorists.

Safety Engineer: Agree with SAT and Designer Comments, review entrance way layout.

Client Decision: Agree with Safety Engineers comments.

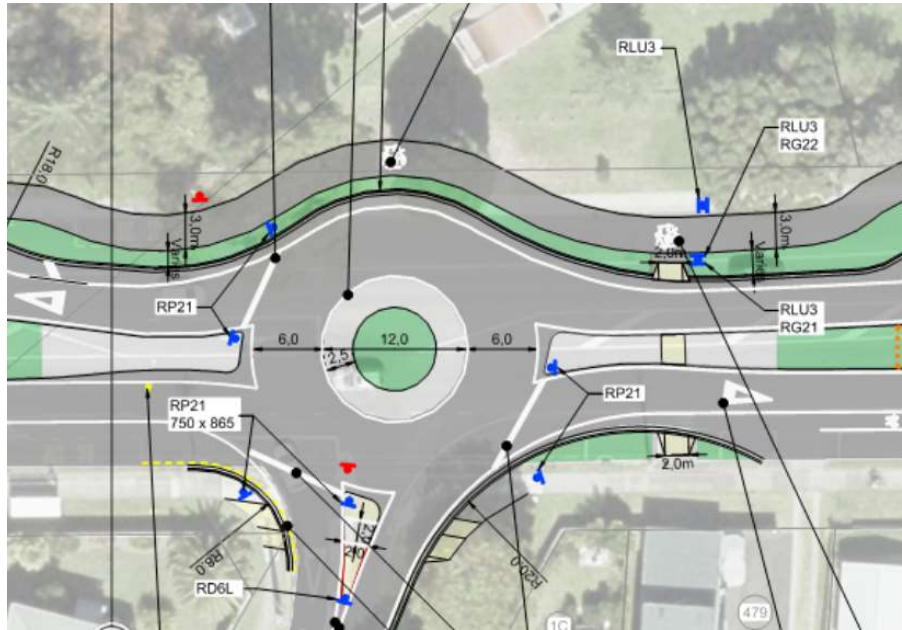
Action Taken:

4.7 Roundabout Deflection on Exit Lanes

Moderate

The SAT noted that the deflection at roundabouts in the southbound direction will not constrain vehicle speeds as effectively as the northbound direction, and at both intersections may offer very little deflection to drivers at all.

Figure 25: Limited Roundabout Deflection at Roundabouts



Recommendation:

Increase roundabout deflection exiting the roundabout in the southbound direction.

Frequency Rating: Infrequent

Severity Rating: Likely

Designers Comment: The designer agrees with the recommendations, however the deflection angle at the exit to the roundabout is achieved when considering the position of the edge line, the location of the kerb is however governed by the turning movement of the design vehicle.

Safety Engineer: Agree with SAT and Designer comments, review exit geometry to see if there are any additional deflection gains to be made.

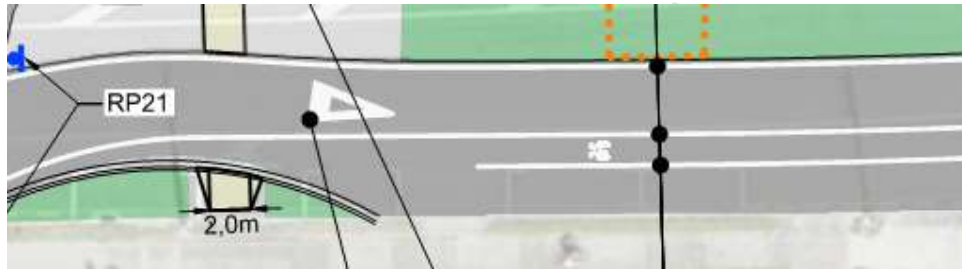
Client Decision: Agree with Safety Engineers comments.

Action Taken:

4.8 Termination of Cycle Lane Approaching Roundabout **Minor**

At the end of cycle lanes, the right-hand edge line continues, rather than the left, which will result in cyclists having to cross the edge line to re-join the traffic lane.

Figure 26: Continuation of Opposite Edgeline



Recommendation:

Continue the left hand edge line when terminating cycle lanes.

Frequency Rating: Infrequent

Severity Rating: Likely

Designers Comment: *The designer agrees with the SAT recommendation and the edge line will be amended.*

Safety Engineer: *Agree with SAT and Designer response*

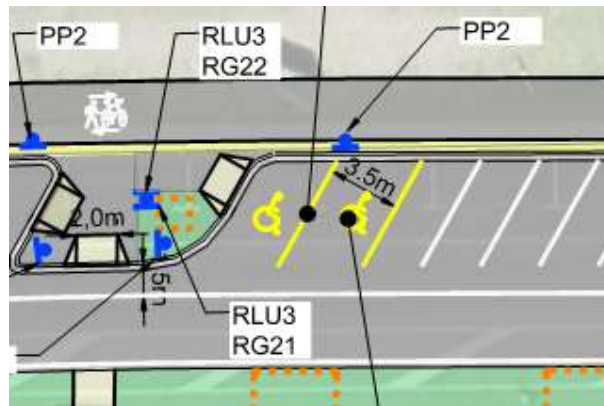
Client Decision: **Agree with Safety Engineers comments.**

Action Taken:

4.9 Disabled Parking Ramp to Kerb **Minor**

With disabled parking provided at the end of each parking bay, a section is proposed where there are two disabled spaces side by side. If a vehicle is in the park closest to the ramp, this may not be able to be used by the second disabled user. This could result in a disabled user trying to find other locations to get onto the path, possibly entering the traffic lane at times.

Figure 27: Drop Kerb for Disabled Space



Recommendation:

Relocate the second disabled space to another drop kerb location or provide some drop kerbing in front of parking spaces to help cater for this space.

Frequency Rating: Infrequent	Severity Rating: Unlikely
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Designers Comment: The designer agrees and the parking bay will either be relocated or sufficient disability access will be provided at this location.

Safety Engineer: Agree with SAT and Designer response, review provision of mobility parking and ensure they comply with required standards.

Client Decision: Agree with Safety Engineers comments.

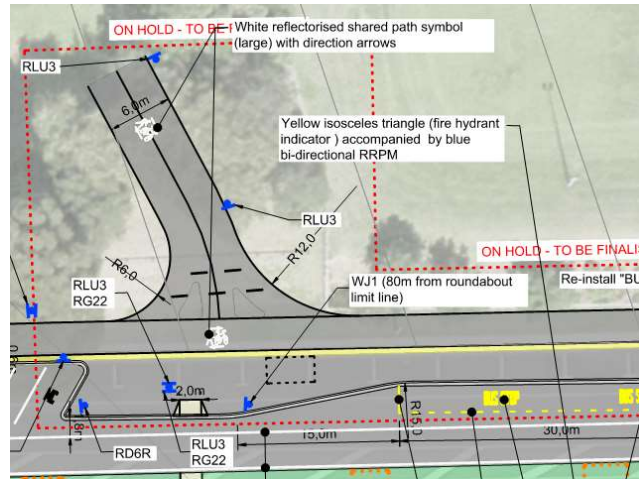
Action Taken:

4.10 Totara Street Cycleway Connection

Moderate

At the connection with the Totara Street Cycleway, the SAT felt that this will need to be managed appropriately to ensure that users are aware of this intersection and slow accordingly. The risk is from cyclists missing the intersection and entering the road or colliding with other users on the path that are travelling along Maunganui Road. (appreciating the notation of hold status).

Figure 28: Totara Street Approach to Maunganui Road



Recommendation:

Implement the appropriate signage (such as give way markings and signage) and potential cycle calming measures to manage user speeds and provide an indication to users of the approaching intersection.

Frequency Rating: Occasional	Severity Rating: Likely
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Designers Comment: The designer agrees and since the SA the design has been updated and U-Rail terminals have been introduced at this access point. The terminals have been placed to provide a chicane effect to eliminate access speed at this conflict point. The u-rails will also be installed in sleeve sockets to ensure easy removal to allow access for emergency vehicles.

Safety Engineer: Agree with SAT and Designer comments. However following completion of this safety audit additional changes have been made in this location. Review design to ensure that the issues addressed in the RSA have been addressed in the final design.

Client Decision: Agree with Safety Engineers comments.

Action Taken:

4.11 Vehicle Access to Shared Path	Moderate
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In addition to the previous item, the SAT felt that a 6.0m wide path presents a risk with respect to vehicle access, and that the appropriate measures should be in place to prevent vehicle access from Maunganui Road as much as possible (especially considering its width and potential to appear like a road.).

Recommendation:

Prevent vehicle access to the Totara Street shared path and reconsider the need for a 6.0m wide path.

Frequency Rating: Infrequent	Severity Rating: Likely
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Designers Comment: The designer agrees and since the SA the design has been updated and U-Rail terminals have been introduced at this access point. The terminals have been placed to provide a chicane effect to eliminate access speed at this conflict point. The u-rails will also be installed in sleeve sockets to ensure easy removal to allow access for emergency vehicles.

Safety Engineer: Agree with SAT and Designer comments. However following completion of this safety audit additional changes have been made in this location. Review design to ensure that the issues addressed in the RSA have been addressed in the final design.

Client Decision: Agree with Safety Engineers comments.

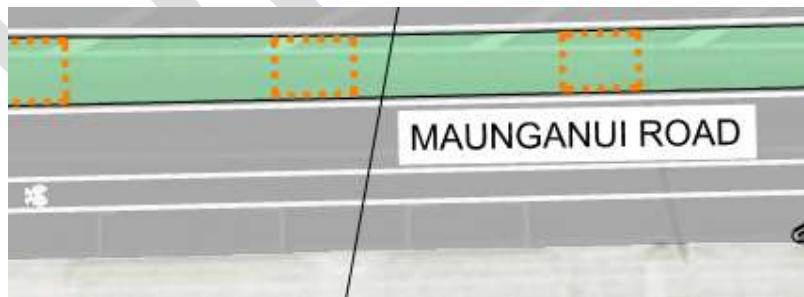
Action Taken:

4.12 Door Zones & On-Road Cyclists

Moderate

The plans do not appear to show any door zone protection for southbound on-road cyclists adjacent to parallel parking. This would lead to car doors opening in front of cyclists leading to collisions.

Figure 29: Door Zone Conflict with Cycle Lane



Recommendation:

Provide door zones to protect on-road cyclists.

Frequency Rating: Common	Severity Rating: Likely
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Designers Comment: The designer agrees with the SAT recommendations. This option was however investigated during the design process and would trigger the elimination of the parking areas or narrowing the raised central median. TCC to make final decision.

Safety Engineer:

Client Decision:

Action Taken:

4.13 Existing Chorus Box (Effective Width)

Minor

The SAT noted the existing Chorus Box opposite Tay Street, which if the project is constructed as shown will cause a sudden reduction in path width, which is a notable risk, particularly at night.

Figure 30: Existing Chorus Box to Remain



Recommendation:

Adjust the path widths approaching the utility box to reduce the impact of the sudden change in width, relocate the box or provide more path width on the roundabout side of the path. In addition consider the lighting provided for this box to ensure that users are aware of it as they approach.

Frequency Rating: Infrequent

Severity Rating: Unlikely

Designers Comment: The SAT team comments are valid; however this issue has been resolved by changing the position of the roundabout to ensure sufficient path width at this location. See attached drawing: General Layout – Sheet C05.

Safety Engineer: Accept designer comment that this has been addressed through the redesign.

Client Decision: Agree with Safety Engineers comments.

Action Taken:

4.14 Stop Line Angle to Roundabout

Minor

The SAT felt that the angle of the stop line at the Clyde Street approach was too high relative to the intersection and that this conflicted with buses entering the adjacent bus stop. Given that there is limited roundabout deflection here, this could increase the likelihood of a car waiting at the stop line being involved in a crash.

Recommendation:

Reduce the angle of the stop line and tie in with the kerb rather than the proposed edgeline.

Frequency Rating: Infrequent

Severity Rating: Likely

Designers Comment: The designer notes the SAT recommendation; the angle of the limit line will be amended as part of removing the edge line as per 4.8 above.

Safety Engineer: Accept Designer response.

Client Decision: Agree with Safety Engineers comments.

Action Taken:

4.15 Cyclist / Pedestrian Priority at Path Termination

Serious

At the Hinau Street end of the project, the SAT were concerned that the current treatment does not provide any priority to pedestrians and cyclists (despite being a raised speed hump). This project proposes a similar

treatment, however as this is a continuation of the shared path, users may interpret this as a raised table crossing giving priority. Plans imply that this will be altered on site, however an appropriate design is recommended to ensure that all users are aware of the intentions here.

Figure 31: Hinau Street Approach Crossing



Recommendation:

Considering the current use in this location, it is recommended that significant changes are made (i.e. the raised table to be specifically aligned with the path) to this location to encourage the correct priority treatment.

Frequency Rating: Frequent

Severity Rating: Likely

Designers Comment: The designer agrees with the SAT recommendations. The designers view is that the shared path should be terminated at this location due to the level of uncertainty as what the extended cycle network will look like. Final decision to be made by TCC.

Safety Engineer: Agree with SAT and Designer. Review arrangement in this location to ensure consistency in messaging and provision, especially through the staged approach to the Maunganui Road works.

Client Decision: Agree with Safety Engineers comments.

Action Taken:

4.16 Hinau Street Intersection

Moderate

With the project terminating at the Hinau Street intersection, the SAT consider that this intersection could have received a roundabout treatment also, due to:

- Hinau Street can become notably congested during off-peak/weekend sports, increasing the chances a driver pushes into traffic
- The closest safe crossing facility is at Tay Street for those wanting to access the park, Café etc. or the southbound bus stop
- The width of the median appears to be different on both sides of the intersection, possibly requiring a lane correction from drivers in the southbound lane.

Recommendation:

Extend the project intent to the Hinau Street intersection.

Frequency Rating: Common

Severity Rating: Likely

Designers Comment: The SAT recommendations are noted, this will be discussed with TCC.

Safety Engineer: Agree with SAT and Designer comment. This intersection was to be addressed during the next stage of the Maunganui Road project, with final form somewhat dependent on the outcome of other investigations. I suggest we revisit this intersection and decide on most appropriate form and to complete during this stage.

Client Decision: Agree with Safety Engineers comments.

Action Taken:

4.17 Back of Kerb Parking

Minor

With this area catering to large events, this proposal includes the provision for a large area of green space, which may become informal parking when events are held. This increases pedestrian collision risk.

Recommendation:

Implement signage prohibiting parking behind the kerbing, supported by further measures if required to prevent this from occurring.

Frequency Rating: Common

Severity Rating: Likely

Designers Comment: The design agrees with the SAT recommendations, additional “No Parking” signs or bollards prohibiting parking could be placed at this location. This will be discussed with TCC.

Safety Engineer: Agree with SAT and Designer comment. Progress inclusion of parking restrictions in the TCC Traffic and Parking Bylaw (which will also have to be done for the remainder of the street parking, bus stops, parking restrictions, mobility spaces, cycle lanes and shared paths)

Client Decision: Agree with Safety Engineers comments.

Action Taken:

DRAFT

5 Audit Statement

We certify that in carrying out this audit we have inspected the site and used the drawings listed in **Section 1.5**. We have endeavoured to identify features that could be modified or removed in order to improve safety, although it must be recognised that safety cannot be guaranteed since no road can be regarded as absolutely safe.

The problems identified have been noted in this report together with recommendations that should be studied for implementation. Readers are urged to seek further specific technical advice on matters raised and not rely solely on the report. Where recommended actions are not taken, this should be reported in writing, providing the reasons for that decision.

Signed: Date: 19/12/2018

....., Transportation Engineer
Beca, Tauranga

Signed: Date: 19/12/2018

....., Transportation Engineer
Beca, Tauranga

Signed: Date: 19/12/2018

....., Technical Director
Beca, Tauranga

Designer: Name:..... Position:.....

Signature:..... Date:.....

Safety Engineer: Name:..... Position: Snr Traffic and Safety Engineer

Signature:..... Date:..May 2020.....

Project Manager: Name:..... Position:.....

Signature:..... Date:.....

Action Name:..... Position:.....

Completed: Signature:..... Date:.....

Project Manager to distribute audit report incorporation decision to Designer, Safety Audit Team Leader, Safety Engineer and project file Date: 19/12/2018