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Executive Summary

The aim of this draft report is to provide Auckland transport with a concept design and drawings for safety improvement through the St Heliers town centre.

The project specifically aims to:

- Improve the transport safety of town centres for all road users
- Manage operating speeds through town centres in accordance with the NZ Transport Agency's Speed Management Guide
- Create more attractive town centres for local communities

Auckland Transport is directing their efforts to address the worsening road trauma outcomes within the Auckland region. For village and town centre immediate road trauma reduction can be achieved through speed management. In the past five years St Heliers has a recorded crash outcome of 36 crashes, 3 resulting in serious injuries and 4 resulting in minor injuries. Due to this crash rate, Auckland Transport have programmed measures through the provision of safe and appropriate vehicle speeds in the St Heliers town centre.

AECOM has prepared a concept layout to reduce the operating speeds within the town centre to 30kph. This is the best practice and will increase the safety for all road users as well as improve the town centre environment.

The concept is to create a self-explaining and self-enforcing 30kph road environment. The concept specifically addresses the pedestrian desire lines and the lack of sufficient crossing facilities connecting the village activities to the beach front. A number of speed management and traffic calming measures have been incorporated, including vehicle activated electronic signage.

The proposed concept design has a rough order cost estimate of \$1,300,000. It should be noted that this cost is likely to be change during the detailed design phase.

It is recommended that Auckland Transport uses this report and the concept layout to support discussions with the local board, residents of St Heliers and stakeholders. Priorities and concerns of the stakeholders should be understood and used in the development of the concept for the village of St Heliers.

1.0 Introduction

1.1 Auckland Regional Situation

Auckland Transport has a continuing concern for the upward trend of death and serious injury on the Auckland regions' roads. Vulnerable road users have a significant presence in the current road trauma being experienced as part of the crashes occurring. A key issue identified across the whole of New Zealand is appropriate vehicle speed management.

Auckland Transport is seeking to address the high number of road safety issues within Auckland's town centres as a part of its planned Speed Management Programme. Reducing the operating speeds of vehicles is seen to be an effective treatment for high pedestrian orientated and active village and town centres. This will align with New Zealand's recently enabled safe and appropriate speed limits, as outlined in the NZ Transport Agency's Speed Management Guide.

1.2 Town Centre Speed Management

Auckland Transport has identified St Heliers town centre as having experienced a preventable level of road trauma over the past five years. For this local town centre the safe and appropriate speed setting guideline warrants a speed reduction to 30kph to protect the many children, families, impaired users and elderly users in this vibrant Auckland coastal village. The Auckland Transport Speed Management Programme has been applied in the concept layouts for St Heliers village and is expected to bring significant benefits to road safety along with improving the overall urban realm of the town centre itself.

The project specifically aims to:

- Improve transport safety in the town centre for all road users
- Manage operating speeds through the town centre in accordance with the Speed Management Guide
- Create a more attractive town centre for local communities and visitors

1.3 St Heliers Proposed 30kph area

St Heliers is located in Central-East Auckland. This small coastal village is connected to Auckland city centre and Mission Bay (a popular regional destination) by Tamaki Drive. St Heliers town centre is depicted in the locality plan in Figure 1 with the red circle.

The town centre is made up of a range of small businesses, cafes and restaurants. Surrounding the main town centre area is mixed housing and public open space facilities such as Vellenoweth Green and the St Heliers Bay beach. Refer to Appendix C for additional information on St Heliers urban setting plan.



Figure 1: St Heliers Town Centre - Locality Plan

St Heliers Town Centre has four streets (Goldie St, Maheke St, St Heliers Bay Rd and Turua St) feeding on to Tamaki Drive from the backstreet of the town centre (Polygon Road). An aerial plan is shown in Figure 2 of the Town Centre boundaries and the project extent.



Figure 2 St Heliers Town Centre – Project Extent

1.4 Crash History

Auckland Transport investigations from NZTA's Crash Analysis System (CAS) show that over the 5 year period from 2013 to 2017, St Heliers has experienced 36 crashes. Eleven of these crashes involved vulnerable road users, resulting in 3 serious and 4 minor injuries.

Crashes like these can be prevented or made less serious with the implementation of a self-explaining and self-enforcing 30kph speed zone.

2.0 Existing Conditions and Site Observations

2.1 General

Auckland Transport and AECOM representatives undertook a site visit on the 16th July 2018 during fine weather. In addition to the CAS report, site observations also indicate significant daily near miss situations as multimodal users make mistakes or exhibit poor judgement. The following sections refer to the existing conditions and the current situations that occur at St Heliers.

2.2 Vehicular Traffic

Currently Tamaki Drive has an arterial road layout supporting an ADT (average daily traffic) of 12,533 vehicles through St Heliers (outlined in Table 1 below, along with an ADT of a surrounding road). The current infrastructure prioritises for vehicle mobility and efficiency. It manages high vehicle volumes through designed flush medians and maximises visibility for drivers at speed by including left turn facilities and right turn bays.

Tamaki Drive also functions as a main commuter route beginning at St Heliers, collecting area wide traffic and the traffic of Kohimarama, Mission bay, Orakei and other central east suburbs to distribute traffic to Auckland city centre and other regional destinations. This function results in high volumes of traffic flowing through and around the town centre of St Heliers, particularly, Tamaki Drive, St Heliers Bay Road and the Parade.

Table 1: Vehicle Counts around the St Heliers Town Centre

Road	ADT (Vehs)	Year of count	Heavy Commercial Vehicles
Tamaki Drive (West)	12,533	2015	3% (376 vehicles)
Vale Road (East)	4,810	2015	3.6% (173 vehicles)

Source: Auckland Transport Traffic Counts

High speeds were regularly observed along Polygon Road at the Turua Street and St Heliers Bay Road Intersections, which is not appropriate for the environment of the village. The high numbers of vulnerable road users in the area are at risk. This speed is largely thought to be influenced by the geometry and environment of the road layout.

Observations at the Goldie Street and Polygon Road intersection identified vehicles cutting the corner when turning right onto Polygon Road from Goldie Street at inappropriate speed.

Issues:

- High vehicle volumes increase the probability of incidents.
- High speeds along across the town centre create a high risk for vulnerable road users; increasing the severity of any incidents should it occur.
- Traffic behaviour along the village streets indicates that vehicle users have priority.

2.3 Cycling

The town centre of St Heliers has a shared use path on the ocean-side which is regularly used by local and recreational cyclists. The natural flat topography of Tamaki Drive is conducive to the commuter and recreational cycling. Many of this group of vulnerable road users cycle on the road, mixing with fast moving vehicles, and with limited protection within the village. Outside the boundaries of the village the city bound traffic lane has a dedicated cycle lane which is interchanged with parking along the length of Tamaki Drive.

Issues:

- Within the St Heliers town centre there are inadequate facilities for commuting cyclists exposing them to high risks
- Within the St Heliers town centre local and recreational cyclists have limited safe priority.

2.4 Pedestrians

The local shops and businesses situated in St Heliers village generate a significant amount of pedestrian activity. There is a particular desire for pedestrians to cross the traffic lanes of Tamaki Drive between the landward side and the beach front.

Issues:

- It was identified at the site visit that there are areas with no, or limited, pedestrian crossing facilities at key locations for pedestrian desire lines. These specifically were noted around the intersections on Tamaki Drive outside the local shops and the Vellenoweth Green.
- There is a significant demand for pedestrian access along and across Polygon Road (the rear street of the town centre) however, there are currently no facilities that support these movements.

2.5 Public Transport

The direct connection that Tamaki Drive provides to the city centre is a key function of the daily high vehicle count and the patronage of the direct bus route. Buses are known to be traveling from St Heliers along Tamaki Drive approximately every 20 minutes under the revised Auckland Transport bus routes and timetables.

St Heliers Bay Road provides a through link into St Heliers town centre. This route is part of the bus network and creates significant pedestrian activity. Bus demand is due to collection and drop off of passengers from the local area in the Glen Innes, Kohimarama and Glendowie catchments. Buses use Polygon Road as a layover stop currently.

Current bus services are shown in the Table 2 below:

Table 2: St Heliers Bus Services

Route Number	Route	Frequency
Tamaki Link	Glen Innes to Britomart	Monday to Sundays every 15 minutes incl. evenings. Additional late night journeys.
744	Panmure Interchange to St Heliers	Monday to Sunday, Every 30 minutes
775	Glendowie to Britomart	Peak only Monday to Friday every 25 minutes
783	Eastern Bays Loop	Monday to Sunday, Every hour

Source: Cn09 AT Central Bus timetables – July 2018

The main bus stops in St Heliers town centre are located on Tamaki Drive to the east of St Heliers Bay Road (seen in Figure 3).



Figure 3: Bus services and bus stop location, St Heliers

Issues:

- Bus facilities are located within a high speed vehicular environment.
- Bus patrons and their activities in the village are not wholly compatible with the vehicle use of the transport corridors.

2.6 Parking

Time based pay and display parallel parking is provided along Tamaki Drive. In addition to this there is angled side street parking and off street parking.

Issues:

- There is a high demand for parking due to the land use activities such as local retail stores, cafes and the beach.
- Parallel parking on Tamaki Drive creates hazards for cyclists and pedestrians by vehicles performing parking manoeuvres or when parked car occupants open car doors.
- Entering and exiting car parking spaces creates crash potential due to the speed environment and has resulted in secondary crashes within the village.

2.7 Street Lighting

Tamaki Drive is classified by Auckland Transport as a Secondary Arterial road and there are a high number of pedestrians and cyclists using the carriageway.

At this consultation stage no assessment of the existing lighting levels is required but from observation, levels will require improvement for all new facilities. Night time observations indicate that the levels of lighting appear adequate although some dark areas were observed during an earlier safety review under the Auckland Transport high risk corridor assessment programme.

Issues:

- The street lighting is of good quality however this will need to be assessed for any changes to the road layout.

2.8 Utility Services

Electricity and communications along Tamaki Drive within the village are undergrounded however there are overhead wires along all the adjoining roads.

There are access chambers and service cabinets on the streets in the St Heliers area.

Issues:

- The design of any road alterations will need to take account of utility services.

2.9 Special Events

The village community activities include such annual event as Round the Bays. The event has high participation and occurs along Tamaki Drive generally terminating in St Heliers town centre. The layout proposed in the town centre will be designed to positively impact the operation of events in the village.

2.10 Transport Technology

St Heliers town centre has an existing radar actuated speed warning sign installed, located on St Heliers Bay Road at the approach to the Polygon Road Roundabout. This displays individual current vehicle speed to the driver and appropriately advises the driver to slow down if they are exceeding the 50kph speed limit.

2.11 Enforcement

Voluntary compliance with road rules and laws cannot always be relied upon. Where appropriate to enhance the culture of safe and appropriate speed limits, police enforcement has been used to manage operational speed.

3.0 Concept Design Principles

The issues outlined in Section 2.0 above are proposed to be addressed through the implementation of safe and appropriate speed for the function of the transport corridor and integration with the land use. Within St Heliers village, this will be achieved by creating a 30kph environment. The formation of a low speed environment will reduce the likelihood and severity of incidents, especially those involving the high number of vulnerable road users.

It is important to note that for successful implementation of a safe transportation system in the village area the speed reduction must be self-explaining and self-enforcing. The low cost posting of speed limit signs alone will not achieve the desired safety outcome for all users. The physical road environment must undergo change to lead drivers to appropriately change their speed when travelling through the village.

3.1 Streetscape/ Urban Design

Part of the solution to creating a low 30kph speed environment is to enhance the streetscape of the village to create a self-explaining and self-enforcing low speed public realm for all. This can be achieved by providing appropriate town amenities and safe system treatments enabling speed calming features. This will help to create a safe pedestrian orientated environment, shifting the priority from vehicles towards pedestrians and cyclists.

3.2 Road Function

With the focus moving away from efficiency for vehicles, some of the arterial class features such as flush medians and right turn bays will become unnecessary. This space can then be reallocated to provide enhanced vulnerable user safety and amenity that aligns with the village environment.

Traffic survey and modelling will need to be undertaken for the proposed changes to understand the function of the route and its intersections. This will inform the considerations for the appropriate design treatment. In addition, whenever kerbs are moved the checking of vehicle tracking will be required.

3.3 Pedestrians

The large number of vulnerable road users in and around the town centre and the crash history, indicate that pedestrian facilities should be a priority. Focus has been placed on upgrading current crossing facilities and creating new crossing facilities at the desire lines from the shops to the beachfront and across Polygon Road. Kerb build outs and widening of shared paths will also support the vulnerable user protection and village activities.

3.4 Cycling

Reducing the speed to 30kph will significantly reduce the speed differential between vulnerable on road cyclists and vehicular traffic, and reduce the severity should an incident occur. To support the safety of cyclists, facilities such as widening the shared path is proposed. This will cater to the requirements of recreational cyclists and less confident cyclists, but also be an attractor for commuters.

3.5 Public Transport

Implementation of the safe and appropriate speed management techniques will not have adverse effects on public transport movements. Buses will be able to maintain the 30kph limit. Bus travel time and frequencies should not suffer any adverse effects and the need for rescheduling of the time tables is unlikely. The current bus layover activities however will not be able to be undertaken within the village area.

3.6 Access

Access to local businesses, retail shops for service vehicles will be maintained, with the possibility of restricted hours for delivery needing to be enforced. No access will be lost to public spaces and residential dwellings.

3.7 Parking

The importance of car parking for the village has been considered and on street parking will only be affected where a car parking space is required to enable implementation of safe and appropriate speed management facilities. The layout is to create a parking neutral change to the village. The implementation of priced or time restricted parking can be used to facilitate land usage around the attractors within the village. Removed car parks will be relocated where practical in detailed design.

3.8 Road Markings

Road markings will be utilised to guide the new road and speed environment at physical features to drivers. Road marking will primarily be re-designed to narrow the vehicle lanes to encourage motorists to travel at a safe and appropriate speed within the village.

3.9 Lighting

Appropriate lighting will be provided with upgrades and new installation for new facilities throughout the town centre. Sufficient lighting will increase the visibility of vulnerable users, hence enhancing the safety and complementing the 30kph road environment of the village. The design will utilise using LED lighting throughout the village. In addition, a focus will be made to minimise the number of lighting poles in order to create reduced risks for all road users and enhance the urban realm space for mobility and visually impaired as well as young and elderly pedestrians

3.10 Transport Technology

The use of ITS will support the gateways to the villages. Drivers will be informed in advance that they are approaching 30kph vehicle speed limit zone and need to start to adjust their speed when entering the 30kph village vehicle speed limit zone.

3.11 Enforcement

The proposed layout aligns with the NZ road rules and council by-laws. The layouts while self-explaining and self-enforcing will require some periodic police enforcement to ensure driver behaviour and illegal activities are appropriately managed and maintained with the village area.

4.0 Proposed Layout

4.1 General

A speed reduction concept is proposed to achieve a high level compliance with a 30kph speed limit. Proposed measures include town centre gateway treatments, kerb build outs, chicanes, raised plateaus and other features that physically require a motorist to slow down.

The measures are proposed in accordance with Auckland Transport's Code of Practice and Austroads design guidance in addition to current design practice, and in alignment with the safe speed management guidelines.

4.2 Primary Gateways

The aim of the village gateways are for drivers entering the town centre to recognise that they are entering a different speed environment. Gateways should be located in a position that drivers can prepare to reduce their speed before the village. Primary gateways will be located on primary access roads into the village, generally the roads with high traffic volumes. For the St Heliers town centre the primary gateways will be located on Tamaki Drive and Vale Road.

4.2.1 Tamaki Drive Primary gateway

The primary gateway on Tamaki Dr will be located immediately after The Parade (Figure 4). Although the pedestrian activity arguably begins further west along Tamaki Drive, that activity is more to do with coastal activity than being part of the St Heliers village activity.

This location gives motorists the option to by-pass the town centre and will encourage those not wishing to reduce their vehicle speed to 30kph to bypass the town centre by turning right onto The Parade.

The gateway will be incorporated into the upgrading of the current pedestrian refuge point and will be a raised zebra pedestrian crossing.



Figure 4: Primary Gateway location on Tamaki Drive

4.2.2 Vale Road Primary Gateway

This gateway targets the eastern most main entrance into St Heliers village. It is situated before the raised table at the Vale/ Cliff/ Lombard/Tamaki intersection Figure 5. The location of the gateway will complement the existing raised table and further encourage speed reduction as the town centre is entered. The primary gateway will be followed with a formalised pedestrian crossing on the existing raised table. The position of the gateway will aim to minimise the number of on street car parks lost. The primary function of this gateway is to notify road users that they are entering the 30pkh environment.



Figure 5: Location of Primary gateway on Vale Road

4.3 Secondary Gateways

Secondary gateways key functions are to delineate and identify the 30kph zone. These secondary gateways will be typically on back or side streets. For St Heliers the secondary gateways have been placed on the backstreet, Polygon Road and side streets that connect to Tamaki Dr (Cliff Road, Goldie Street and St Heliers Bay Road). Secondary gateways will consist of kerb build outs and texturised pavements to make drivers aware that they are entering a 30kph zone.

4.3.1 Cliff Road Secondary Gateway

The steep nature of Cliff Road (Figure 6) naturally increases the downhill speeds of motorists. This road also supports a well-used childrens' playground. Hence the importance of the secondary gateway is to reinforce to drivers that they need to reduce their speed as they approach the 30pkh town centre zone. The gateway will be positioned before the curvature in the road leading up to the intersection.



Figure 6: Secondary gateway located on Cliff Road

4.3.2 Goldie Street Secondary Gateway

Goldie Street is located toward the back of the town centre. The secondary gateway will begin approximately around the location of the first silver car in Figure 7 below, near the Vellenoweth Green sports park. This gateway will require removing some legal car parking as well as some current illegal parking within the intersection. 'No stopping' restrictions are proposed to combat the illegal parking at this T intersection. The position of this secondary gateway will create a significant improvement for safety issues at this intersection. More space will be created for the vehicles turning right into Polygon Road, addressing the current situation where vehicles wait to turn and are positioned across the centre line, which often results in kerb run over.



Figure 7: Secondary gateway located on Goldie Street

4.3.3 St Heliers Bay Road Secondary Gateway

This location is the southern entrance into St Heliers Bay village and it does still support a significant through traffic movement. The proposal has a number of improvements occurring at the roundabout approaches as depicted in Figure 8 and hence a secondary gateway is appropriate for this approach. The gateway will be located between the roundabout and the T intersection of Devore Street and St Heliers Bay Road.



Figure 8: Secondary gateway located on St Heliers Bay Road

4.3.4 Polygon Road Secondary Gateway

Polygon Road is (Figure 9) is also a local road entrance to the St Heliers village. This secondary gateway is an important feature to inform drivers on the downhill gradient of the 30kph speed limit. This will be followed by a 'give way' control to manage priority into Turua Street as this is an important area for bus circulation within the village. The best way to implement this priority control should be decided in the detailed design phase.



Figure 9: Secondary gateway located on Polygon Road

4.4 Speed Management Features

A number of traffic calming features have been proposed to maintain the speed environment of St Heliers village to 30kph. Speed management features are implemented once within the bounds of the primary and secondary gateways. The speed reduction treatments have been carefully placed to minimise the ability of motorists to increase their speed inside the town centre also maximise on street parking and possible pedestrian crossing facilities at desire lines..

These are as follows.

4.4.1 Raised Speed Tables with Zebra Crossings facilities

The purpose of raised tables is to maximise visibility, provide access at the pedestrian desire lines, and manage vehicle speed within the 30kph zone. Raised tables allow enhanced visibility for vulnerable users crossing the road to see and be seen to on-coming traffic. Raised tables with zebra crossings have been proposed at:

- The primary gateway location on Tamaki Drive
- Goldie Street/ Tamaki Drive intersection, across Goldie Street.
- Maheke Street/ Tamaki Drive intersection, across Maheke Street and the east side on Tamaki Drive.
- St Heliers Bay Road/ Tamaki Drive Intersection, across St Heliers Bay Road and the eastside of Tamaki Drive
- Turua Street/ Tamaki Drive, across Turua Street
- Polygon Road/ St Heliers Bay Road Roundabout.
 - Raise the existing crossing across St Heliers Bay Road.
 - Provide raised zebras across the remaining 3 legs of the roundabout (if all legs are raised, consider providing a raised table for the whole intersection to manage bus movements)

4.4.2 Additional Zebra Crossing

Formalising crossings will mitigate the confusion that pedestrians face when wanting to cross sections of road. Current confusion arises around there being drop kerbs and a small raised table but no proper facility (Example seen in Figure 10).



Figure 10: Kerb crossing with no formalised crossing facilities

The following will be upgraded to proper facility:

- Vale Road. This will be across the already raised platform at the intersection
- Cliff Road. This will be across the already raised platform at the intersection
- Maheke Street/ Polygon Road intersection, across Maheke Street.

4.4.3 Kerb Buildouts

Kerb build outs will assist with vehicle guidance, protect parking areas, enabling improved driver visibility of pedestrians and for pedestrians to see vehicles approaching. In addition installation of raised pedestrian crossings improve the pedestrian amenity by widening the footpath as well as supporting lane narrowing and reducing intersection speeds to manage vehicles when navigating through the town centre.

Kerb buildouts will be located at the following locations:

- The Parade and Tamaki Drive intersection
- Initial gateway entrance pedestrian crossing
- Maheke Street (north and south)
- St Heliers Bay Road
- Turua street
- Lombard street, Cliff road and Vale road
- Goldie street

4.4.4 Chicane Raised Table Zebra Crossing

This facility is a traffic calming technique to improve driver awareness of the village and to create a facility for vulnerable users to access the beach and the village. Motorists will slow down to manoeuvre through the chicane facility.

The Chicane is located on:

- Tamaki Drive west of Goldie Street and of the existing bus stop.

4.4.5 Texturised pavement

Texturised pavement is to be incorporated in the gateways at the entrances to the town centre but also to place particular emphasis around a number of intersections.

The following locations will have texturised pavement:

- On Goldie street at the Goldie street/ Tamaki Drive intersection and south of Polygon Road
- On Maheke Street at the Maheke street / Tamaki Drive intersection
- Cliff road
- Vale Road
- St Heliers Bay Road before and after the roundabout.
- Polygon Road, East of Turua street

4.4.6 Road Markings

The proposal consists of line markings, speed limit roundels, traffic controls and corner hatching. Changes to the existing markings will assist with the implementation of facilities such as the raised pedestrian crossings. Road markings are also being used to redefine the boundary of the road carriageway. Beginning after the chicane on Tamaki Drive, it is proposed to remove the flush median and the kerb will be shifted towards the landside. This will provide more shared path on the sea side increasing the pedestrian and cycling amenity. The kerb shift will extend to the intersection of Vale/ Tamaki and Cliff Road creating a reduced 30kph lane width but not removing any on-street parking. Roundels will be placed throughout the town centre approximately 80m apart as a constant visual reminder of the 30kph vehicle speed limit. Appropriate hatching will be applied to Turua Street/ Polygon Road intersection. Hatching creates a sense of narrowness at the intersection slowing vehicles in the 30kph zone.

4.4.7 Tracking

Tracking will be required at the detailed design stage to confirm that the proposed changes will allow the path of buses as well as truck delivery vehicles at the following locations:

- Tamaki Drive Chicane and zebra crossing
- St Heliers Bay Road, kerb build out

4.4.8 Transport Technology

In addition to the gateway information, drivers will need to be informed in advance that they are approaching a 30kph vehicle speed limit zone and need to start to adjust their speed when entering the 30kph village speed limit zone.

Every approach to St Heliers town centre will need to use transport technology to assist in safe management of vehicle speed:

- To provide the driver with individual current vehicle speed.
- To provide the driver with dynamic information that a 30kph vehicle speed limit is ahead.
- To provide opportunity for enforcement.

4.5 Cost Estimate

A rough order costing is proposed to have an estimated a value of \$1,300,000 to undertake the physical works of the safety improvements at the St Heliers village. This was based on similar work carried out in Auckland and Hamilton. Appendix B outlines the approximate cost of the safety improvements for St Heliers town centre

The cost estimate includes:

- Signs and markings
- Traffic management and preliminaries
- Main road ITS installation

The cost estimate does not include:

- Drainage (movement of catchpits)

It should be noted that this cost is subject to change in the detailed design phase. Also, should the sites be implemented individually as separate contracts, the costs would be higher.

5.0 Safety and Risk

5.1 Utility Services Plant

The proposed designs have been developed with the need to avoid any disruption to utility services plant that would incur costly diversion or protection works.

None of the proposed designs should affect known utility services however the eastern primary gateway requires the removal of a lighting column and may require some protection of underground plant.

5.2 Safety in Design

In designing the features care has been taken to ensure that there are no adverse safety impacts that can be reasonably avoided that affect:

- Construction
- Operation
- Maintenance; and
- Possible eventual removal of the facilities.

Group discussions in AECOM have been held to ensure that any obvious safety issues have been avoided in the design of the measures. Notwithstanding this the detailed design should be subject to an independent Road Safety Audit by a suitably experienced and independent auditor.

5.3 Risk Register

A summary of the risks to implement- the concept are set out in Table 3 below.

Table 3 - Risk Register

No.	Issue	Consequence	Risk	Mitigation Measure	Residual Risk
1	Stakeholder objections	AT are unable to implement the scheme due to objectors (eg noise, inconvenience, loss of parking).	High	Full consultation and engagement with stakeholders and affected members of the public.	Medium
2	Utility diversions required	Increase in cost and delay to programme	High	Designs to avoid affecting utility equipment.	Low
3	Crash Risk	Design leads to higher crash levels	Medium	Undertake independent Road Safety Audit	Low
4	Adverse Press	AT Funding withdrawn	Low	Keep press informed of the proposals	Low
5	Safety for vulnerable users	Increased demands and reflected current outcomes being achieved	High	Proposal addresses high severity potential future outcome	Low
6	Growth	Planned growth for the area increases the risk for vulnerable road users	Medium / High	Proposal addresses high severity potential future outcome	Low
7	Out of date facilities for current demands	Current facility is dominated by vehicular needs and not the increase in demands for the village place	Medium / High	Proposal addresses high severity potential future outcome	Low

No.	Issue	Consequence	Risk	Mitigation Measure	Residual Risk
8	Change of traffic patterns	Traffic diverted around the town centre are transferred onto roads that are unable to handle additional volumes	Medium	Traffic Counts and modelling	

6.0 Conclusion and Recommendations

Auckland Transport is directing their efforts to address the worsening road trauma outcomes within the Auckland region. For village and town centre immediate road trauma reduction can be achieved through speed management. In the past five years St Heliers has a recorded crash outcome of 36 crashes, 3 resulting in serious injuries and 4 resulting in minor injuries. Due to this crash rate, Auckland Transport have programmed measures through the provision of safe and appropriate vehicle speeds in the St Heliers town centre.

AECOM has prepared a concept layout to reduce the operating speeds within the town centre to 30kph. This is the best practice and will increase the safety for all road users as well as improve the town centre environment.

The concept is to create a self-explaining and self-enforcing 30kph road environment. The concept specifically addresses the pedestrian desire lines and the lack of sufficient crossing facilities connecting the village activities to the beach front. A number of speed management and traffic calming measures have been incorporated, including vehicle activated electronic signage.

The proposed concept design has a rough order cost estimate of \$1,300,000. It should be noted that this cost is likely to be change during the detailed design phase.

It is recommended that Auckland Transport uses this report and the concept layout to support discussions with the local board, residents of St Heliers and stakeholders. Priorities and concerns of the stakeholders should be understood and used in the development of the concept for the village of St Heliers.

Appendix A

Concept Layouts



This drawing is confidential and shall only be used for the purpose of this project. The signing of this title block confirms the design and drafting of this project have been prepared and checked in accordance with the AECOM quality assurance system to ISO 9001-2008.

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ISSUE/REVISION		
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PROJECT NUMBER
60582275
SHEET TITLE
CONCEPT DESIGN LAYOUT
SHEET 1 OF 6
SHEET NUMBER
SHT-SO1819005-CI-001

LEGEND - CIVIL:

-  PROPERTY BOUNDARY
-  NEW KERB
-  NEW TRAFFIC ISLAND
-  NEW RAISED TABLE - TABLE TOP TO BE FLUSH WITH FOOTPATH, 100mm HIGH
-  NEW FOOTPATH AND/OR SHARED PATH
-  GRASS BERM
-  NEW ROAD MARKING
-  NEW COLOURED SURFACING
-  PARKING BUFFER ZONE
-  NEW 30kph ROAD MARKING



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PROJECT
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 Central-East Speed
 Management Measures
 St Heliers

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DATUM	MT EDEN	SURVEY	GEODETTIC 2000
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ISSUE/REVISION

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SHEET TITLE
 CONCEPT DESIGN LAYOUT
 SHEET 2 OF 6

SHEET NUMBER
 SHT-SO1819005-CI-002

LEGEND - CIVIL:

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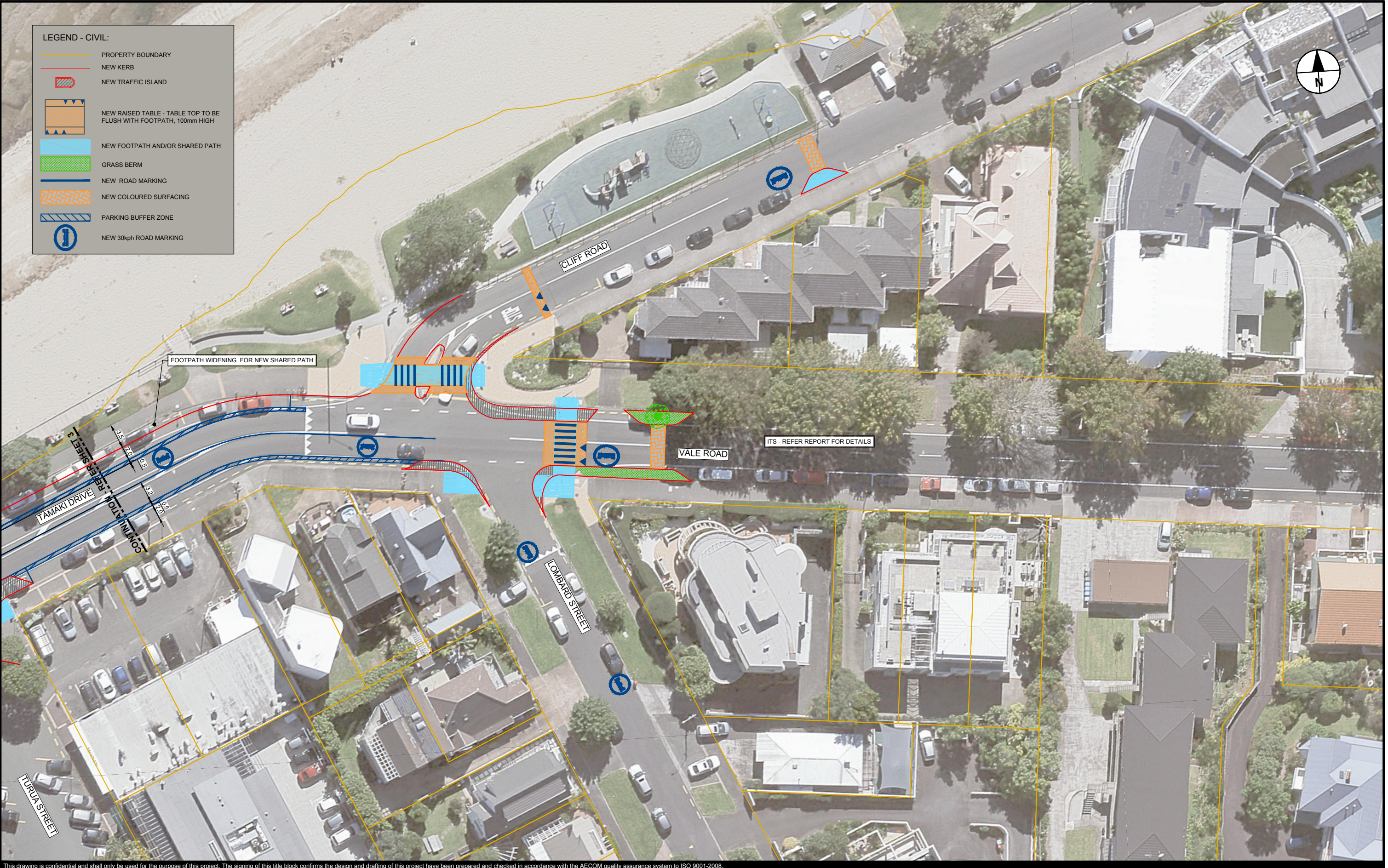
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SHEET NUMBER
 SHT-SO1819005-CI-003

LEGEND - CIVIL:

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 SHEET 4 OF 6

SHEET NUMBER
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LEGEND - CIVIL:

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	NEW TRAFFIC ISLAND
	NEW RAISED TABLE - TABLE TOP TO BE FLUSH WITH FOOTPATH, 100mm HIGH
	NEW FOOTPATH AND/OR SHARED PATH
	GRASS BERM
	NEW ROAD MARKING
	NEW COLOURED SURFACING
	PARKING BUFFER ZONE
	NEW 30kph ROAD MARKING



CONTINUATION - REFER SHEET 2



CONTINUATION - REFER SHEET 3

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SHEET 5 OF 6

SHEET NUMBER
SHT-SO1819005-CI-005



LEGEND - CIVIL:

- PROPERTY BOUNDARY
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- NEW TRAFFIC ISLAND
- NEW RAISED TABLE - TABLE TOP TO BE FLUSH WITH FOOTPATH, 100mm HIGH
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- NEW ROAD MARKING
- NEW COLOURED SURFACING
- PARKING BUFFER ZONE
- NEW 30kph ROAD MARKING

CONTINUATION - REFER SHEET 3

CONTINUATION - REFER SHEET 2

ITS - REFER REPORT FOR DETAILS

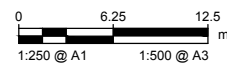
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SHEET TITLE

CONCEPT DESIGN LAYOUT
SHEET 6 OF 6

SHEET NUMBER

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Appendix B

Rough Order Cost Estimate

Appendix B Rough Order Cost Estimate

Location	Cost
Tamaki Drive/ The Parade	\$175,000.00
Goldie Street chicane	\$175,000.00
Tamaki Drive/ Maheke Street	\$120,000.00
Tamaki Drive/ St Heliers Bay Road	\$140,000.00
Tamaki Drive/ Turua Street	\$120,000.00
Tamaki Drive/ Vale Road	\$130,000.00
Polygon/ Goldie Street	\$75,000.00
Polygon/ Maheke Street	\$65,000.00
Contingency	\$300,000.00
Total	\$1,300,000.00

Appendix C

Urban Design Summary

St Heliers Town Centre

Urban Context Analysis
CONSULTATION

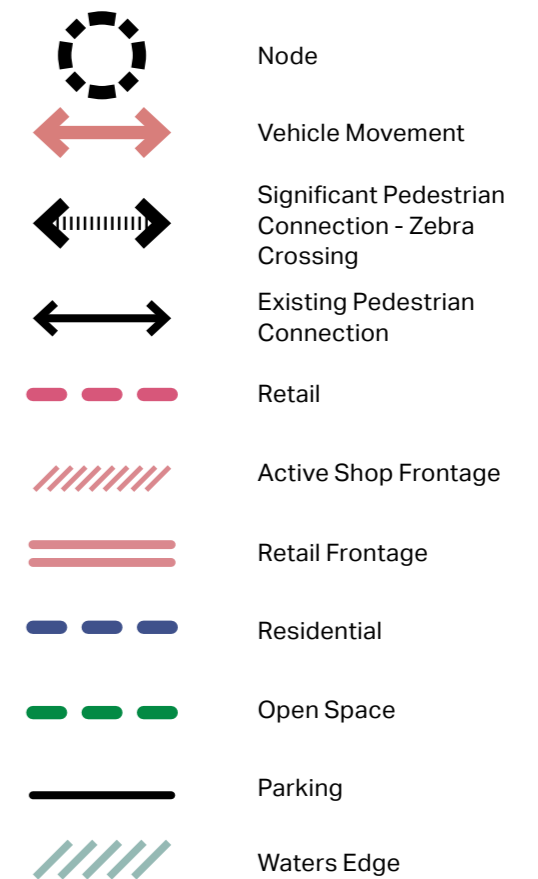


Urban Context Overview:

The linear open space adjacent to beach is infrequently used for the space itself, with its main role acting as a thoroughfare for recreational activities and between the beach and retail/residential areas.

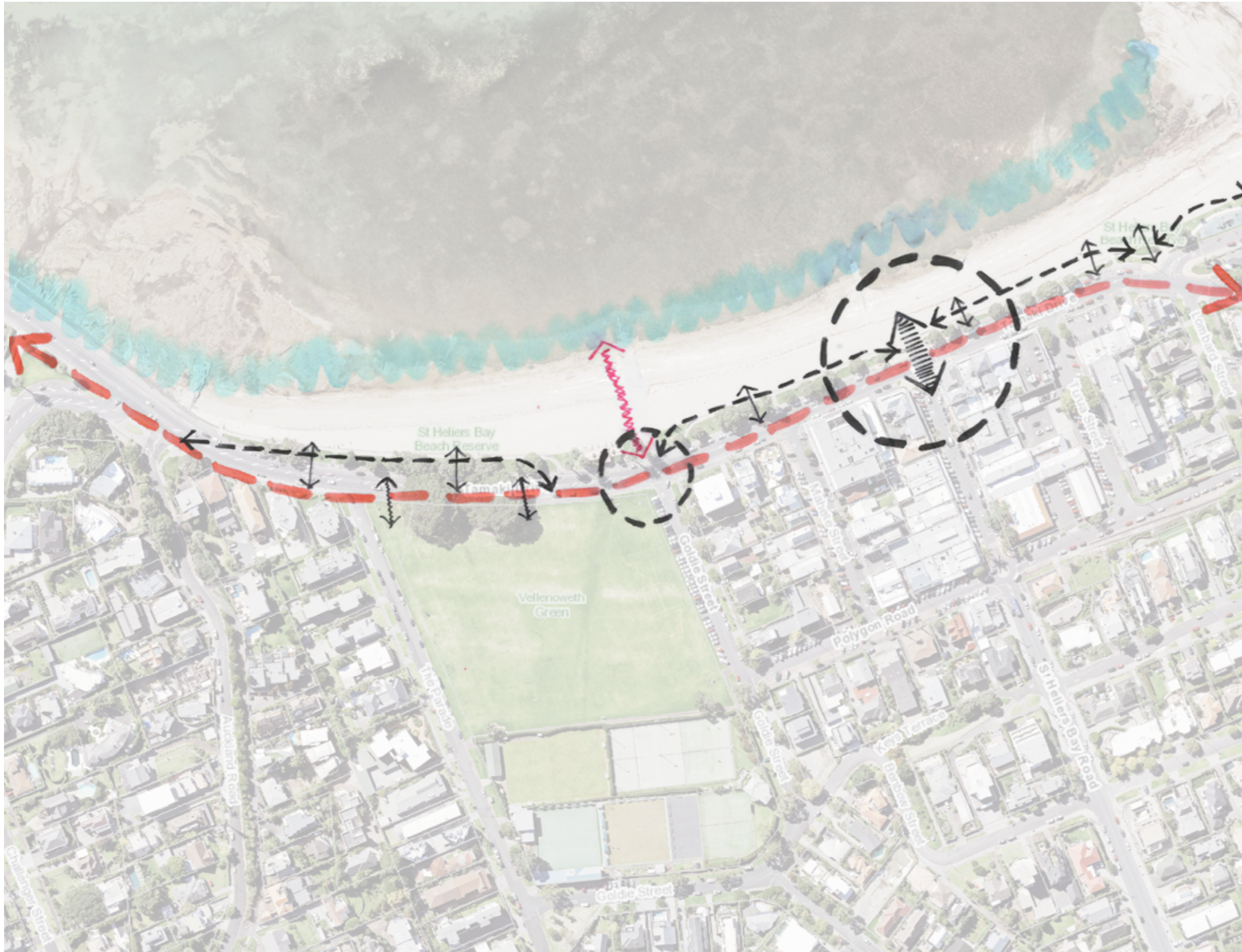
The primary open space is often underutilised unless there is an organised public or sporting event.

There is active retail frontage along the main road, opposite the beach, that generates significant pedestrian activity, such as cafes, whereas the retail along the adjacent edges of the blocks generates less pedestrian street activity.



Urban Context Analysis

St Heliers Local Centre

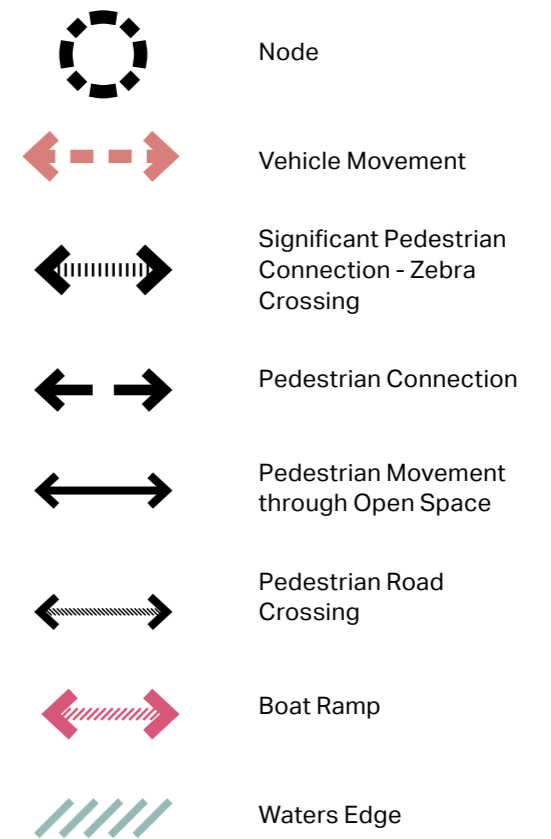


Urban Context Pedestrian movement:

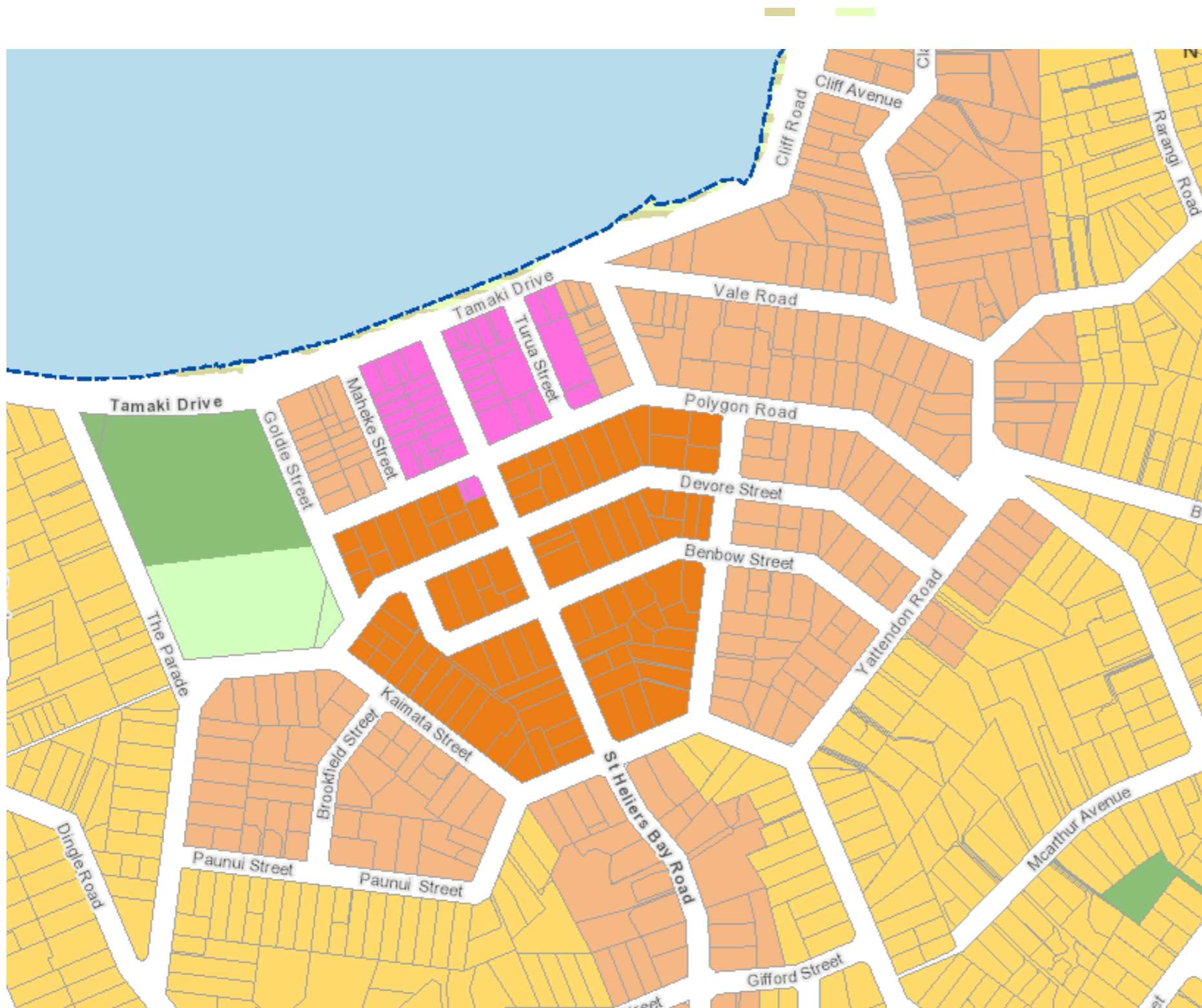
Formalised zebra road crossing connects active retail frontages with the beach, as this is the preferred swimming location for the locals and visitors.








Traffic islands are present at several areas along the road that loosely aligns with the desired line for people crossing the road. The vehicle speed around the area is naturally slow with the increased street activities.

The boat ramp provides vehicle and boat access to the beach, and isn't used by pedestrians, but can be a lot busier during the summer, causing greater conflict between pedestrians and vehicles around the node.



Desired Pedestrian Access St Heliers Local Centre



	Local Centre
	Terrace Housing and Apartment Buildings
	Mixed Housing Urban
	Mixed Housing Suburban
	Public Open Space - Sports and Active Recreation
	Public Open Space - Informal Recreation
	Coastal - Coastal Transitiona Zone

Unitary Plan

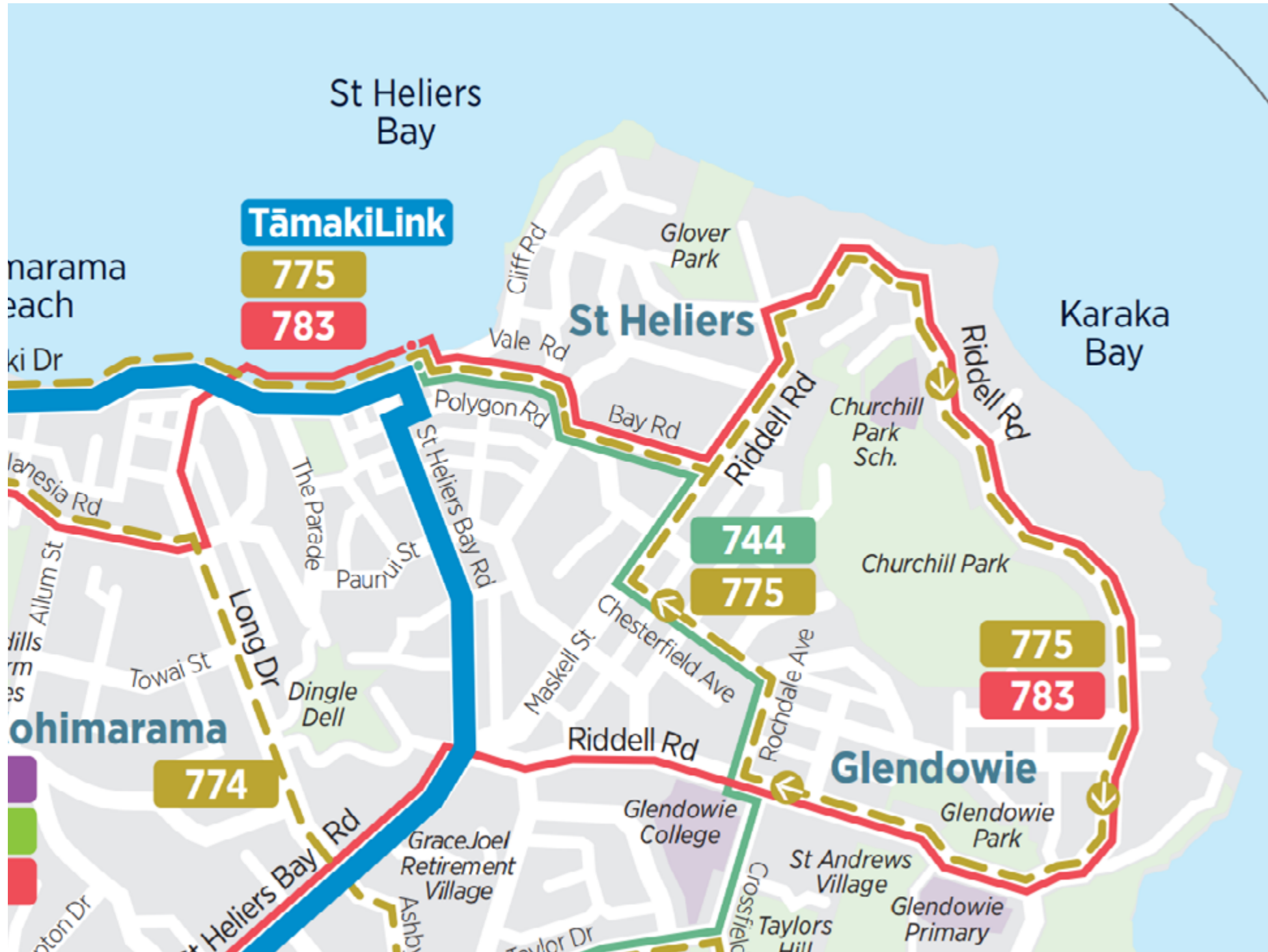
St Heliers Local Centre



	Routes with Space for Cyclists (may be on busy roads)
	Route on quieter roads recommended by cyclists
	Shared path Pedestrian link

Cycle Routes

St Heliers Local Centre



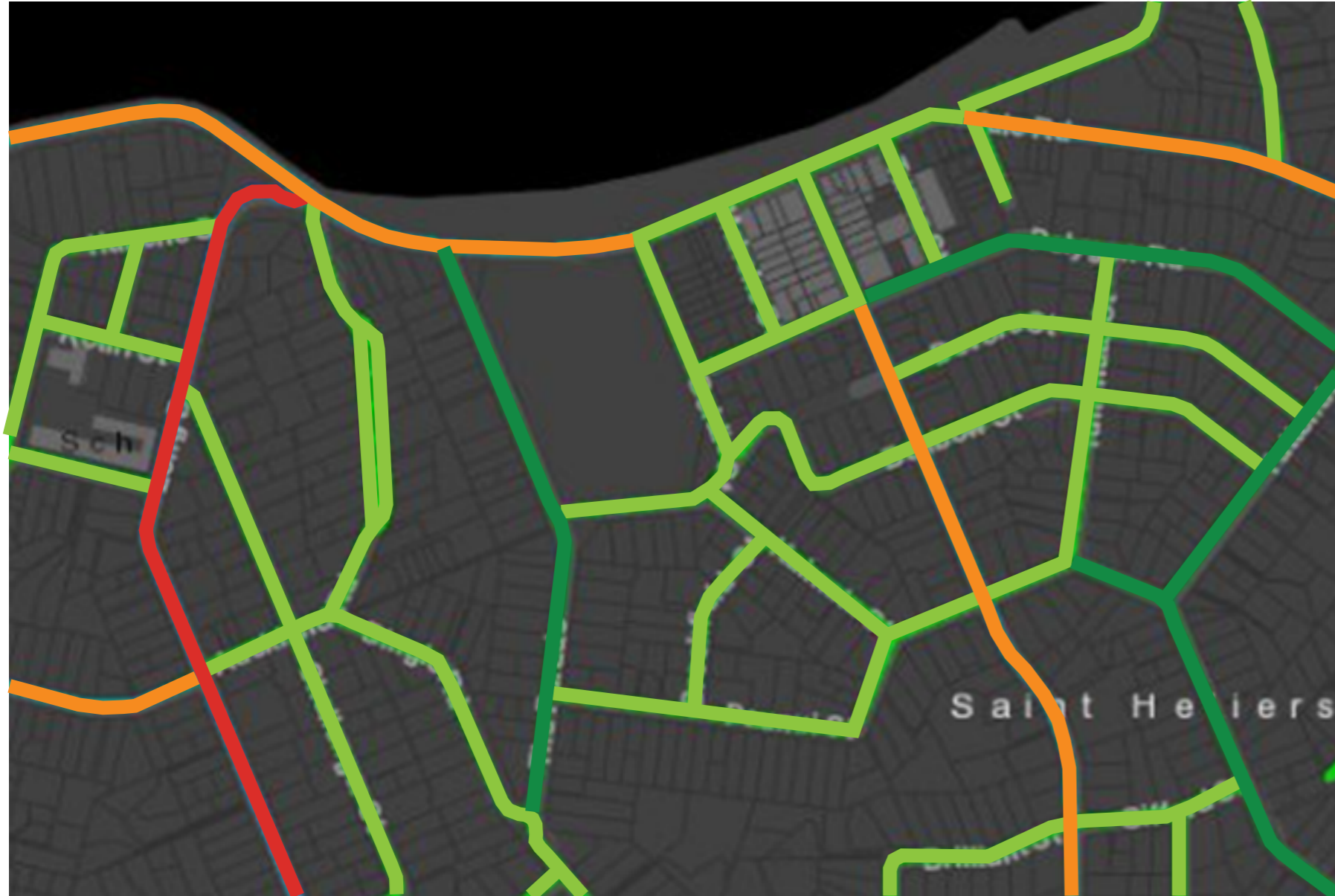
Every 20 minutes along Tamaki Drive

Bus Routes St Heliers Local Centre



No Over dimensional route through the Town Centre.

Over Dimensional Route St Heliers Local Centre



	<30kph
	30 – 34kph
	35-39kph
	40 – 44kph

National Operating Speed St Heliers Local Centre



Traffic volume	ADT: 12533 vehicles
Boundary to boundary distance along Tamaki drive	Max 18m min 15 m
Kerb to kerb distance along Tamaki Drive	Approx 12m
Footpath width – Tamaki Drive	5 – 3 m wide (both sides included) – large build outs in some places
Parking provisions	Parallel parking provided regularly along Tamaki drive. Some side street angled parking and some additional off street parking.
Crossing characteristics	One raised table ped crossing on Tamaki drive
ONRC (AT)	Secondary Arterial
Potential mitigation method	<ul style="list-style-type: none"> • Restrict front vehicle access (service lanes kept). • Increase side street parking. • Priced visitor parking (pay and display or restricted) • Diversion of through traffic to other routes. • Wider footpaths • Bus, walking and cycling access are a priority • Car accessibility managed to low speed environment • Goods and services restricted to certain operating hours (consent required)



Posted Speed Limit St Heliers Local Centre