



COOK ISLANDS INVESTMENT CORPORATION
TE TAU PAPA O AVARUA
AVARUA TOWN PLAN
RAROTONGA

TE TAU PAPA O AVARUA

AVARUA TOWN PLAN

RAROTONGA



Contents

	Pg.
01 BACKGROUND + ANALYSIS SUMMARY	3
Brief	4
Heritage	5
Physical Elements	7
Transportation	8
Land-use	10
Issues	11
Key Considerations	12
Vision, Principles and Objectives	13
Feedback from Initial Design Options	14
Coastal Strategies	16
02 MOVING FORWARD	18
Stage 1 Draft Town Plan	21
Stage 2 Draft Town Plan	23
Staging	27
Overview	28
03 APPENDICES	
Stage 1 Draft Option	30



Prepared for:
**Cook Islands Investment
Corporation**

Prepared by:
**Reset Urban Design
Romani + Katoa
Stantec**



01 | BACKGROUND + ANALYSIS SUMMARY

01 BACKGROUND

Introduction | Brief



PROPOSED REDEVELOPMENT SITES

There are three Government owned sites that are to be developed over the next ten to fifteen years. They are grouped just to the west of the harbour and together will span a large area of central Avarua.

Punanga Nui Market And Constitution Park

This will be masterplanned to be developed as a major public destination.

Parliament House Te Atukura

The new Parliament House Te Atukura will consolidate and house all the Parliament activities in a generous and welcoming layout

Central Government Office Vaikapuangi

The Central Government Office Vaikapuangi will eventually accommodate all of the combined government services in a single site.

All three sites are close to the central area and will create large changes to the make-up and movement around the central area. Together they extend over 2km and the movement / connections and open space between them will cover half of Avarua township.

THE TOWN PLAN

As a result of the significant impact the development sites will have on the township, a town plan is to be developed that will:

- Incorporate provisions for **multi-modal transportation connections** between the three identified sites and the surrounding communities,
- Provide for the **integration and linkages of these new public facilities** into the fabric of central Avarua whilst enhancing the area's character, movement opportunities and public enjoyment.
- Develop a **strong public realm** and a **resilient connected transport system**
- Create an **open space and street-scape** to stitch the central area of Avarua together.

The Town plan coverage will extend from Avatiu Port to Maraerenga.

TIME FRAME

The project will run for 3 months and include public consultation and working with stakeholder groups.

It is envisaged that the implementation phase will be stage over several years.



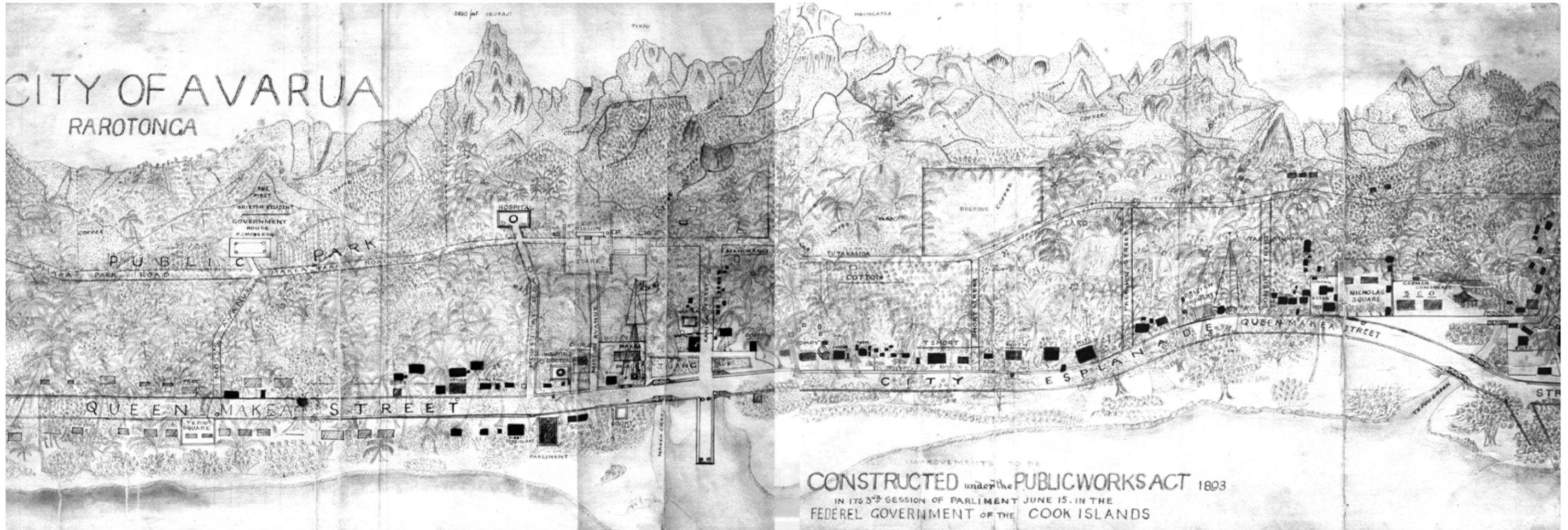
LEGEND

Proposed Redevelopment Site Locations as identified by the Cook Islands Investment Corporation (CIIC):

- 1 Punanga Nui Market & Constitution Park
- 2 Parliament House
- 3 Central Government Office Complex

01 BACKGROUND + ANALYSIS SUMMARY

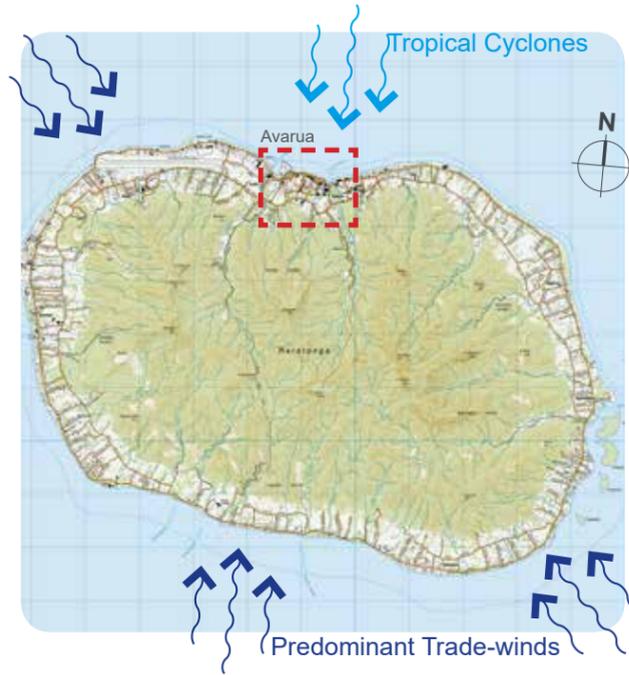
Heritage



Town Plan 1893

01 BACKGROUND + ANALYSIS SUMMARY

Heritage



Formed on Avarua harbour around the pier that transported cargo



Streams being used for recreation

- On the leeward side of the island Avarua was formed as a colonial town and as Rarotonga's main port and administration centre
- There is a two road system around the periphery and a collection of institutions along the coast with residential mainly to the rear.
- Recent development has spread the town to the north relocating the markets and creating the port at Avatiu - further commercial extends to the airport



Theological College - The first building in Avarua



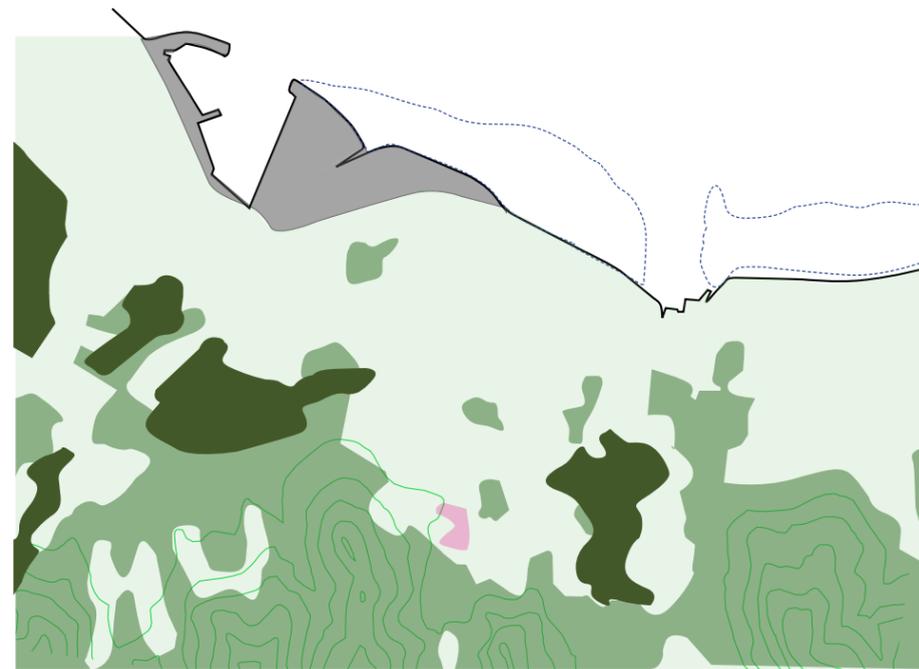
There are a number of heritage buildings present - not all have been looked after well

01 BACKGROUND + ANALYSIS SUMMARY

Physical Elements



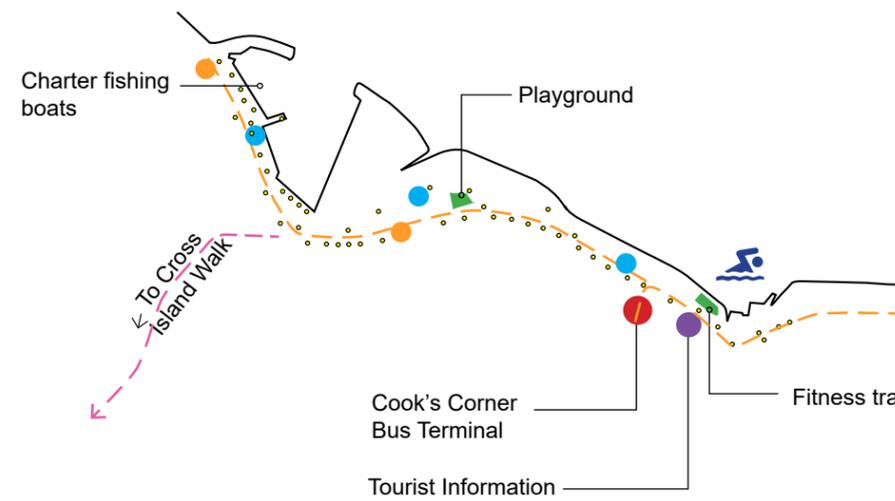
Land



LEGEND

- Reclaimed land
- Contour
- Low lying land
- Taro plantations
- Forest vegetation

Amenities

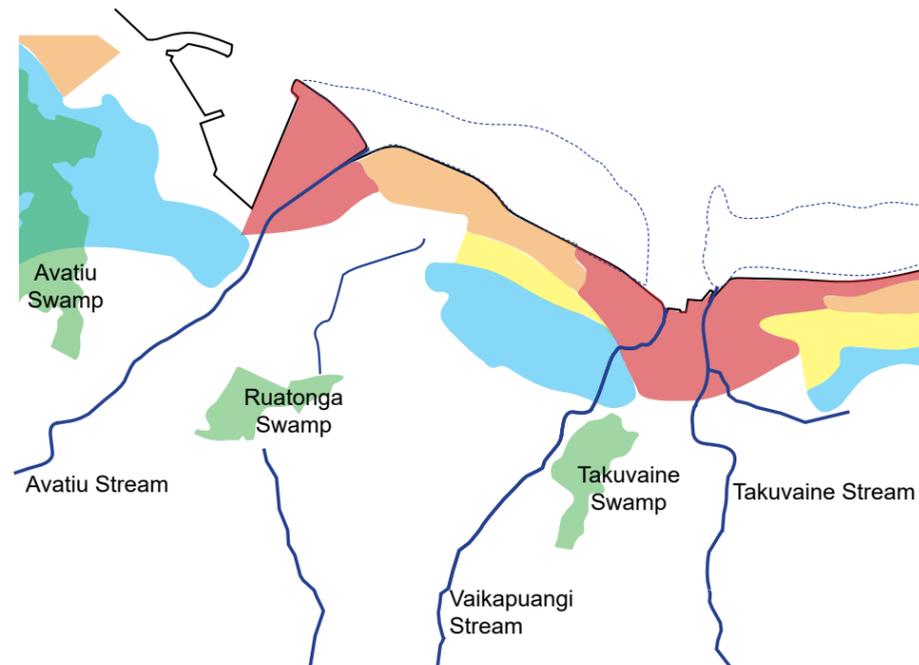


LEGEND

- Street lighting
- Public Toilets
- Bus Stops
- Bus route



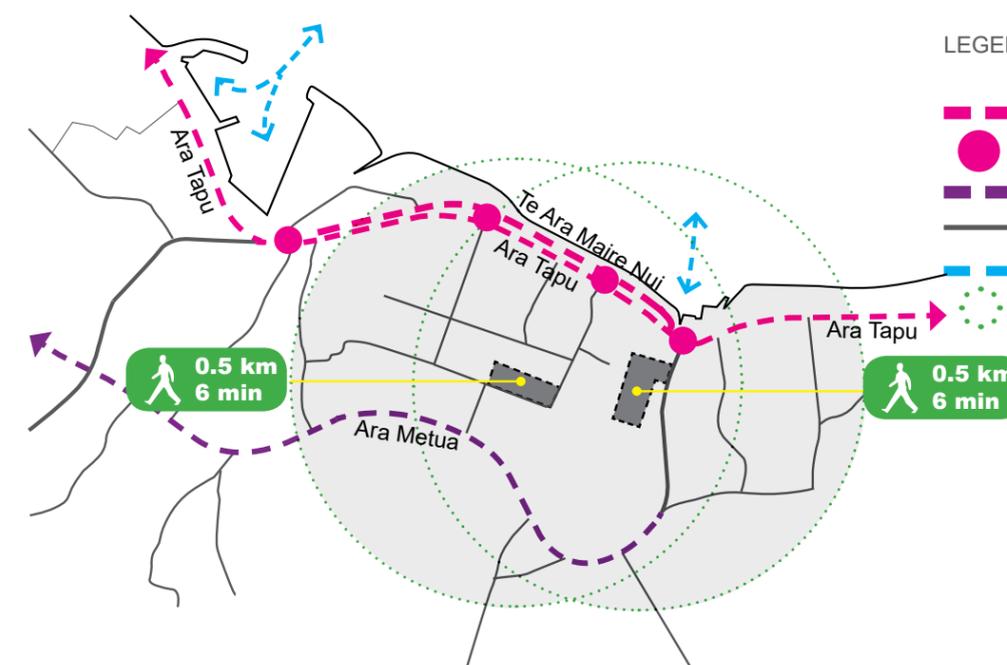
Water



LEGEND

- Reef
 - Stream
 - Swamps
- Hazard Mapping
- Surge and wave impacted areas
 - Overtopping wave impact area
 - Wave overwash area
 - Flooding inundation

Movement



LEGEND

- Main road - Waterfront connection
- Key Intersections
- 'Back' road
- Streets
- Boat + ferry access
- 500m walking distance

01 BACKGROUND + ANALYSIS SUMMARY

Transportation



ROAD SAFETY HISTORY

The recorded crash history indicates a total of 45 fatalities in the whole of Rarotonga over the past 10 years:

- 36 in Te Au o Tonga
- 6 in Puaikura
- 3 in Takitumu



A number of crash 'hot spots' were identified in along the main road in Avarua:

- Punanganui Market
- Te Ara Maire Nui
- Parekura

The majority of the crashes involved motorcycles (34 out of 45 recorded crashes) and 6 involved cars. One involved a pedestrian.

The types and causes of crashes are inconclusive, although alcohol was a factor for 39 of the crashes. Out of the motorcycle crashes, only one was recorded wearing a helmet.

PEDESTRIANS AND PUBLIC TRANSPORT

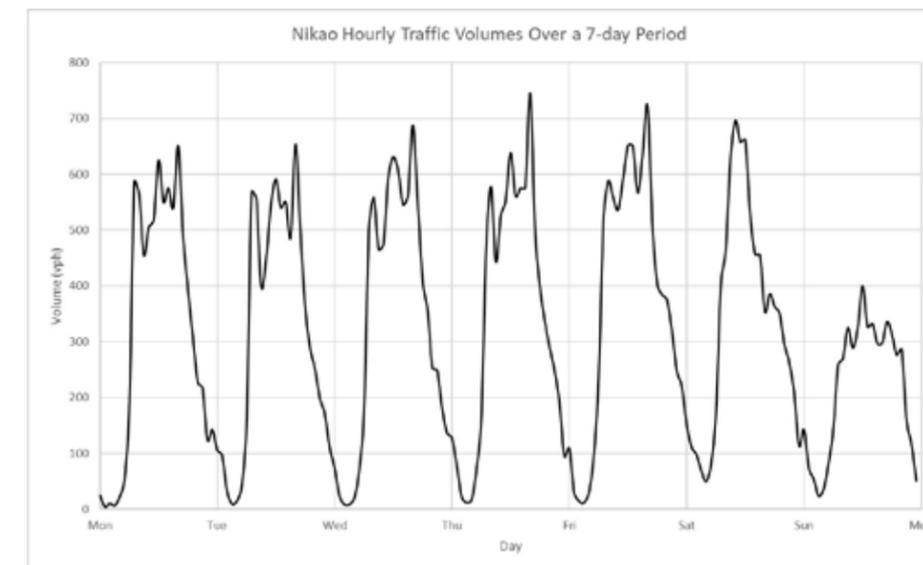
Currently, walkability and pedestrian connectivity is generally of a low to moderate standard within the town centre. Footpaths are intermittent and crossings are not well connected. A zebra crossing exists on Ara Tapu, west of Tutakimoa Road. However this zebra crossing does not connect to the harbour-side footpath on Te Ara Maire Nui and instead delivers pedestrians into the median island area within the scooter parking area.

Improvements for pedestrians would include connecting footpaths to provide a continuous, accessible path for pedestrians and new zebra crossings spaced across both Te Ara Maire Nui and Ara Tapu. This would encourage walking within the town centre itself, provide a viable, suitable and convenient walking alternative so as to reduce short distance car trips, as well as provide a safe path for pedestrians crossing the road to the markets and harbour.

The existing public transport service is owned, managed and operated as a private, fully commercial service. To encourage the use of public transport and in turn reduce private car trips, bus stop infrastructure should be located within the main catchment in the town centre with amenities such as bus shelters, seats and footpaths for connection. Further consideration should be given by the Cook Islands Government and its subsidiary departments to the establishment of a public transport policy, which may involve the creation of a management and operations contract to deliver suitable quality and frequency of bus service. The implementation could bring about a proportional shift in private car travel to public buses.

TRAFFIC VOLUMES

No traffic counts have been undertaken to date on Te Ara Maire Nui and Ara Tapu and will be commissioned at a later date. Typically, a single lane has capacity to carry 1,800 vehicles per day (based on an average gap distance of 2 seconds between vehicles). Currently it is expected that the two-lane roads have capacity to cater for traffic growth. With the operation of the markets, the peak times of Te Ara Maire Nui and Ara Tapu in terms of traffic activity are on Saturdays.



01 BACKGROUND + ANALYSIS SUMMARY

Transportation



AVARUA TOWN PLAN - CURRENT LAYOUT

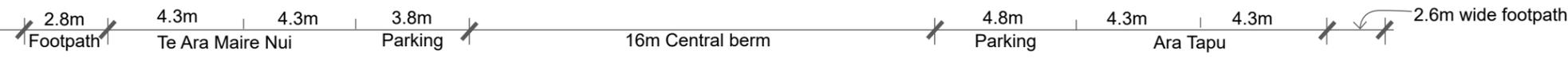
The current road layout along the harbour is a two-lane, one-way carriageways direction on both Ara Tapu and Te Ara Maire Nui. Ara Tapu, being one-way in the westbound direction is closest to the commercial area of the Town Centre and Te Ara Maire Nui in the eastbound direction is closest to the waterfront and lagoon. The central median separating the two roads is a grassed area of varying width, up to 16m wide. Indented parking bays exist on the right-hand side of both roads. Some benches and public toilets are located within the median towards the eastern end. Gaps are provided along the central median, allowing turning maneuvers of vehicles between the two uni-directional roadways.

There are sections of footpaths on Ara Tapu, although they are not continuous. A footpath is also present along the lagoon - side of Te Ara Maire Nui. The indented parking bays are utilised as angled parking spaces for both cars and scooters. However the parking spaces themselves are not marked and are used by both cars and motorcycles parking as and where they wish generally following the angled parking regime. Approximately 300 car

parking spaces are provided on both sides of the central median. Observation of the parking activity indicated that without time controls of any of the parking spaces these parking areas are in significant part occupied by workers and take up valuable space that could be available for visitors and shoppers in the Town Centre.

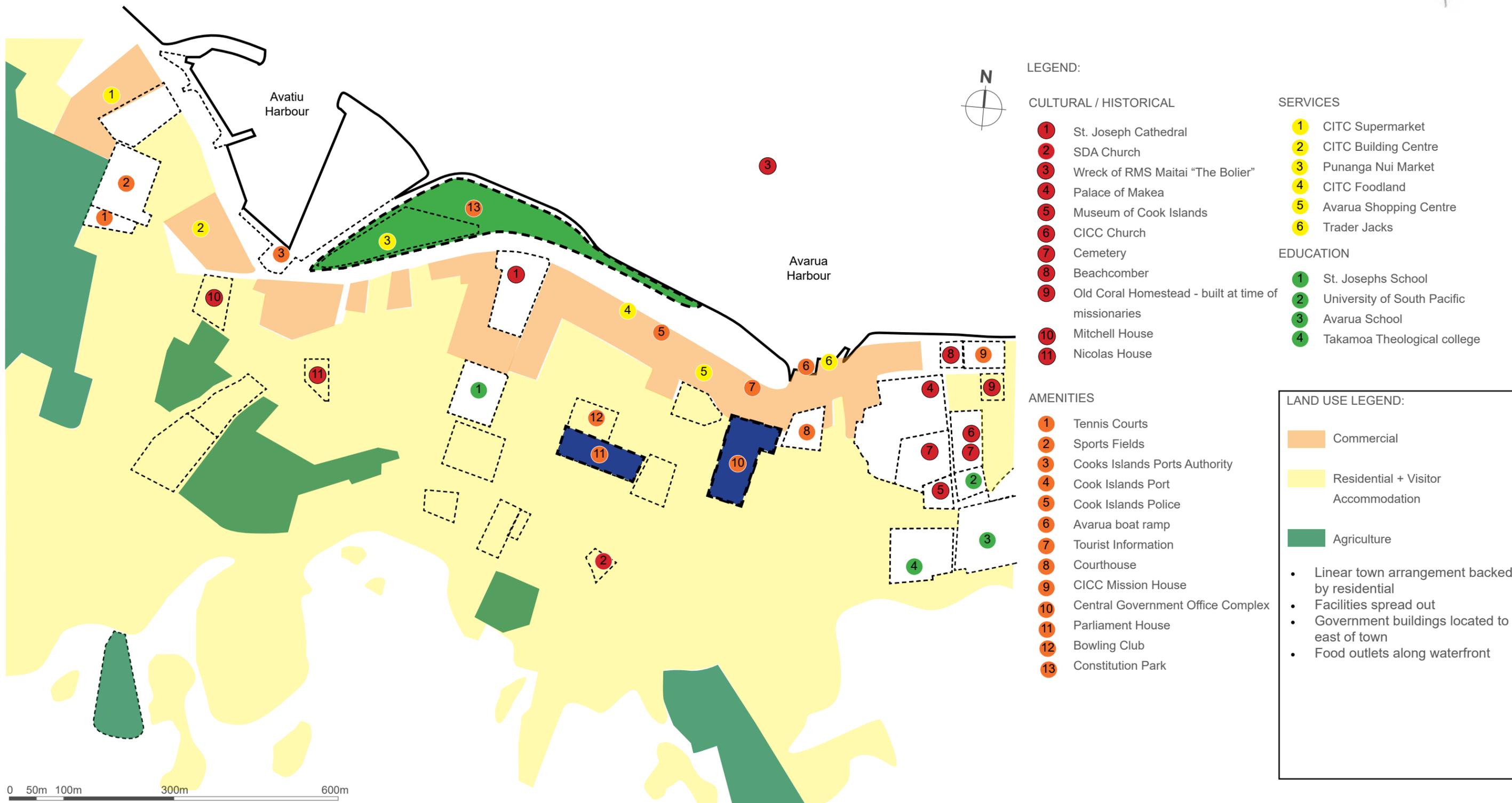
The primarily established two-way 'back road' Ara Metua, is located approximately 450-500m inland of the main road of Ara Tapu. It is not a continuous ring road within the town centre, with vehicles required to travel through a section of Ara Tapu to connect back to Ara Metua as a result of the road passing through the church land at the Theological College.

A typical cross-section at the eastern end near the CITC shopping centre is shown below.



01 BACKGROUND + ANALYSIS SUMMARY

Land-use



01 BACKGROUND + ANALYSIS SUMMARY

Issues



1. Storm surges



2. Limited water access + interaction



3. Difficult access to markets



4. Poor pedestrian network + vehicle dominance



5. Lack of pedestrian provision at Port

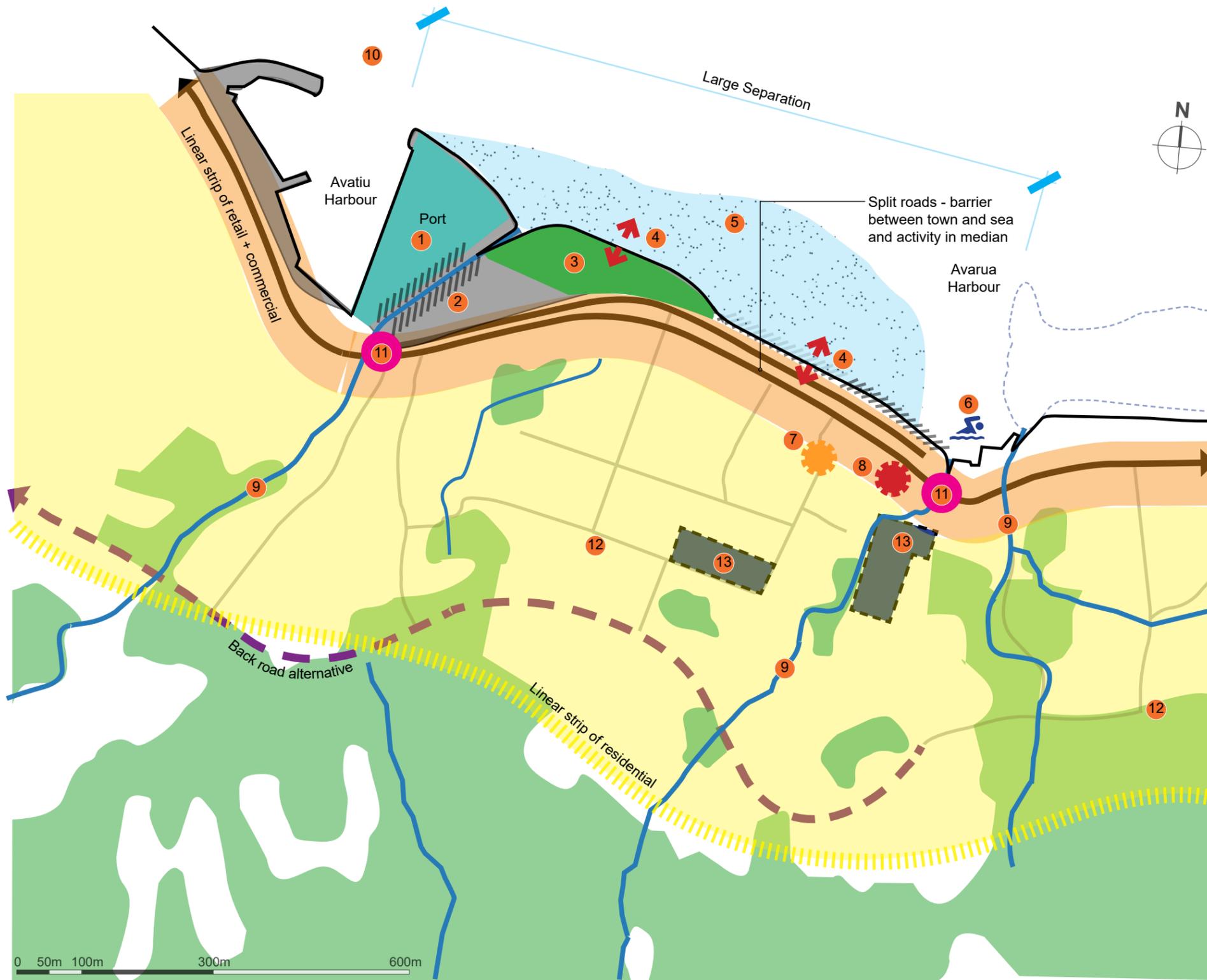


6. Degraded streams

1. The township is exposed and vulnerable to cyclones. The Town Plan design needs to be robust and where possible, help reduce the level of wave run up and accommodate sea level rise
2. Mostly hard-stand surfacing around Avarua Harbour. The foreshore is made up of concrete working edges, and poor quality rock seawalls which are virtually inaccessible. The foreshore needs to be opened up, usable and welcoming to the public
3. Conflict between markets and car park, and well as poor connection between the centre of town and the markets. Parking needs to be reconfigured to ensure a smooth transition and safe access during market days, as well as not providing barrier too much empty space during weekdays when smaller market space is needed.
4. Limited connectivity of pedestrian network. Footpaths disjointed in poor state of repair and do not provide appropriate safe connections.
5. Port edge with undefined pedestrian route. Needs to be defined so when ports are in operation, the public feels safe and are safely out of the way of the operations
6. Poorly maintained and treated streams and margins which have been channelised in some places. Need to be repaired where appropriate and replanted. Also, opportunity for pedestrian links along stream corridors

01 BACKGROUND + ANALYSIS SUMMARY

Key Considerations



LEGEND

- 1 No pedestrian provision around port
- 2 Markets don't day-light with Port
- 3 Reclaimed open space foreshore behind markets
- 4 Poor edge interaction / access to sea
- 5 Low quality marine environment
- 6 Small swimming area and jetty next to Trader Jacks
- 7 Hidden bus station
- 8 Hard to find Tourist information
- 9 Neglected, channelised streams
- 10 Limited cruise ship access
- 11 Large, wide roundabout
- 12 Incomplete road network
- 13 Two new large complexes will stimulate urban development

ADDITIONAL POINTS

- Spread out facilities
- Poor disjointed footpaths without adequate street lighting
- Minimal or no shaded/covered walkways along foreshore
- Swimming in open harbour areas can be dangerous with strong currents
- Heavy rains discharge rubbish, debris and waste from streams into lagoon / ocean

01 BACKGROUND + ANALYSIS SUMMARY

Vision, Principles + Objectives



VISION

Support sustainable and resilient land use and community development for Avarua Township

PRINCIPLES

Integrating social and physical functions of the town

Developing the township's healthy recreational activities and cultural facilities

Enhancing the environment and it's resilience

Providing easy and safe public access and circulation throughout

Supporting the development of the townships broad-based economy

OBJECTIVES



Interactive Community



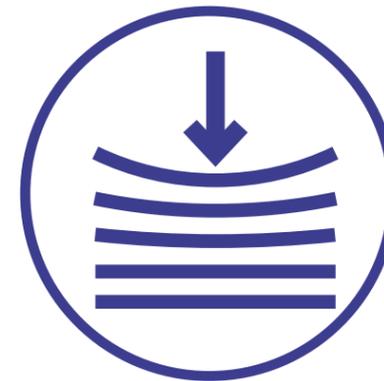
Multi-modal Accessibility



Generous Public Space



Enhance Ecology



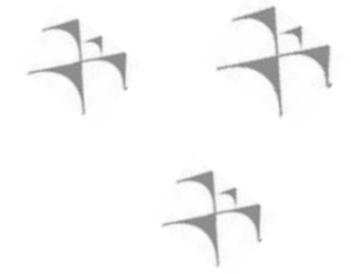
Resilience Infrastructure



Celebrate Heritage

01 BACKGROUND + ANALYSIS SUMMARY

Feedback from Initial Design Options



GENERAL AREAS OF AGREEMENT

- A Town Plan is overdue- to better coordinate development
- Bus parking / interchange supported - especially for public servants
- Upgraded Public transport – including the proposed hub at RFC (Avarua Harbour)
- Need for landmark / pivotal point along waters edge
- Working with offices to promote healthy lifestyle
- Footpaths are an important connection
- Parking and cycle connections are needed
- Culture and heritage needs real recognition and community ownership
- Upgraded on-land wastewater system is required - micro treatment or wetland seepage systems are recommended alternatives

- Water Drainage to be further out to sea
- Extension of path to airport
- Extension of the fitness trail
- Constitution park is exposed- design needs to accommodate this
- Road lighting needs to be improved
- Markets needs improved bus stops and specific traffic management
- Staged construction process agreed as most practical
- Need to respect and work with existing land ownership
- Most agree that the project could be staged with the large reclamation as the ultimate goal
- Most like the idea of encouraging walking along coastal promenade

RESPONSE

- All items agreed on to be retained and split over 2 stages (no reclamation and waterfront park reclamation)
- There will be in a integrated transport plan delivered as part of this project
- Wastewater and drainage are outside of this scope but are important
- Land ownership is respected - no proposals to take land

OPTION THREE (STAGE 1)



FEEDBACK

- Connected back road and cross-roads required but will have land tenure and road widening issues
- Variation in driver expectations with the 30km/h town centre carriageway and 50km/h through movement carriageway - some believe there will be “mayhem” if the four lanes are reduced to two. Others believe there is too much road and separation from the sea.
- Play-space and bus stop supported.

RESPONSE

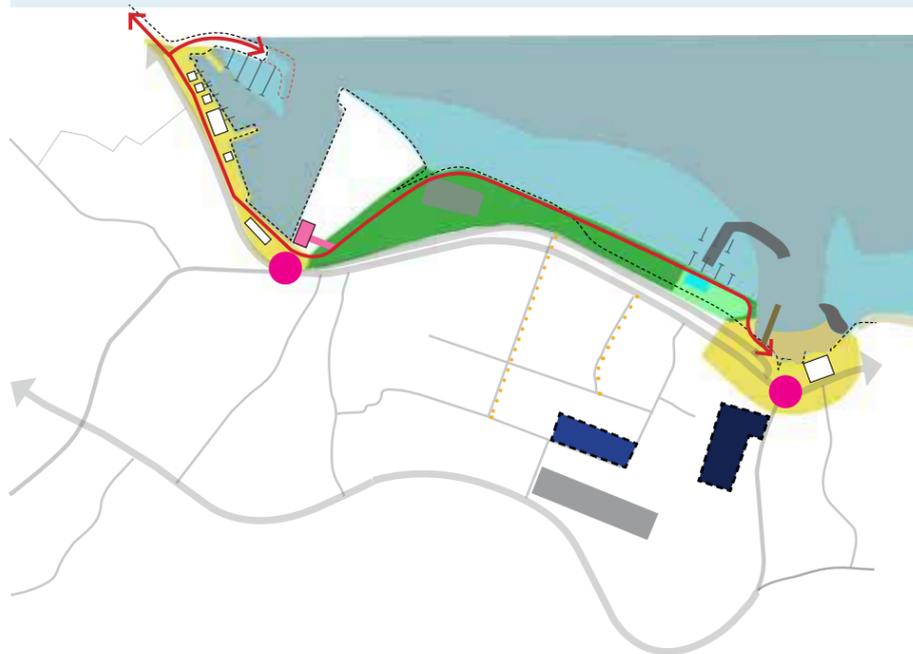
- Back and cross roads will moved into a future stage
- Te Ara Maire Nui will be kept until the back road network is completed
- Play-space and bus hub are a Stage 1 priority

01 BACKGROUND + ANALYSIS SUMMARY

Feedback from Initial Design Options



OPTION TWO (STAGE 2)



FEEDBACK

- Most agree with the concept of the salt-water pool for learning to swim and recreation
- Marina for yachts would contribute to the economy
- Consistent street lighting needed
- Fishing clubhouse would fit well but there are reserve land issues

RESPONSE

- This option will be split between Stage 1 and the original Stage 3 (so there are now just the 2 stages)
- Beach upgrades to happen in Stage 1
- Marina and pool retained but becomes part of the reclamation in Stage 2
- Improved street lighting will be provided in Stage 1
- Rear parking to be moved to a future stage

OPTION ONE (STAGE 3)



FEEDBACK

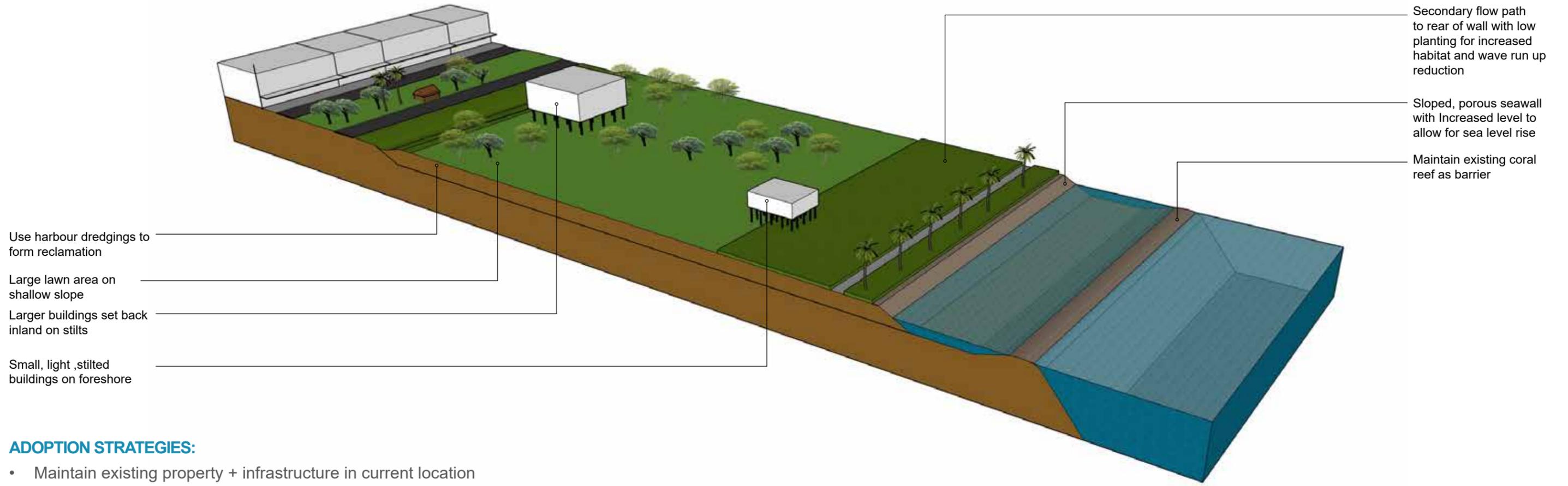
- Seen as the long term vision
- Agree with the big vision concept of major reclamation
- Market parking close to intersection seems sensible
- Involvement of private sector supported
- Parking provision within the reclamation
- Increased harbour capacity for local island vessels
- Conference and cultural facilities
- Schools may use the facilities
- Ports are wanting more container space (on land)
- Possible drainage alternative / retention across the re reclamation
- The reclamation 'zeroes' the inter-reef distance and would need to protect the rich ecosystem

RESPONSE

- Reclamation to be carried out in Stage 2 for larger waterfront park
- Design of park done in a way that Te Ara Maire Nui can be kept, but removed at a later date without creating redundant works
- Parking provision on reclamation
- Facilities retained
- Additional port hard-stand area retained
- Rear drainage alternative provided as well as areas of low planting at the front of the reclamation which could be used as retention / filtration

01 BACKGROUND + ANALYSIS SUMMARY

Coastal Strategies



Use harbour dredgings to form reclamation

Large lawn area on shallow slope

Larger buildings set back inland on stilts

Small, light ,stilted buildings on foreshore

Secondary flow path to rear of wall with low planting for increased habitat and wave run up reduction

Sloped, porous seawall with increased level to allow for sea level rise

Maintain existing coral reef as barrier

ADOPTION STRATEGIES:

- Maintain existing property + infrastructure in current location
- Use a natural system approach to provide protection
- Allow for sea level rise
- Create a wide green sponge in the form of a park to assist in adsorbing storm surges
- Provide for new recreation and cultural facilities

Sources:

1. Science Direct. Future of our coasts: The potential for natural and hybrid infrastructure to enhance the resilience of our coastal communities, economies and ecosystems approaches. Ariana E.Sutton-Grierab, Kateryna Wowkac & Holly Bamford
2. Hawai'i Climate Change Mitigation and Adaptation Commission. 2017. Hawai'i Sea Level Rise Vulnerability and Adaptation Report. Prepared by Tetra Tech, Inc. and the State of Hawai'i Department of Land and Natural Resources, Office of Conservation and Coastal Lands, under the State of Hawai'i Department of Land and Natural Resources

PRECEDENT: ALA MOANA BREACH PARK HONOLULU

- Uses coral reef to create a barrier
- Large reclamation formed from harbour dredgings
- Large recreational facility - beach, hard courts, open space, promenade, marina
- Seawall around marina



02 | MOVING FORWARD



02 TE TAU PAPA O AVARUA | AVARUA TOWN PLAN

Draft Town Plan | Stage One

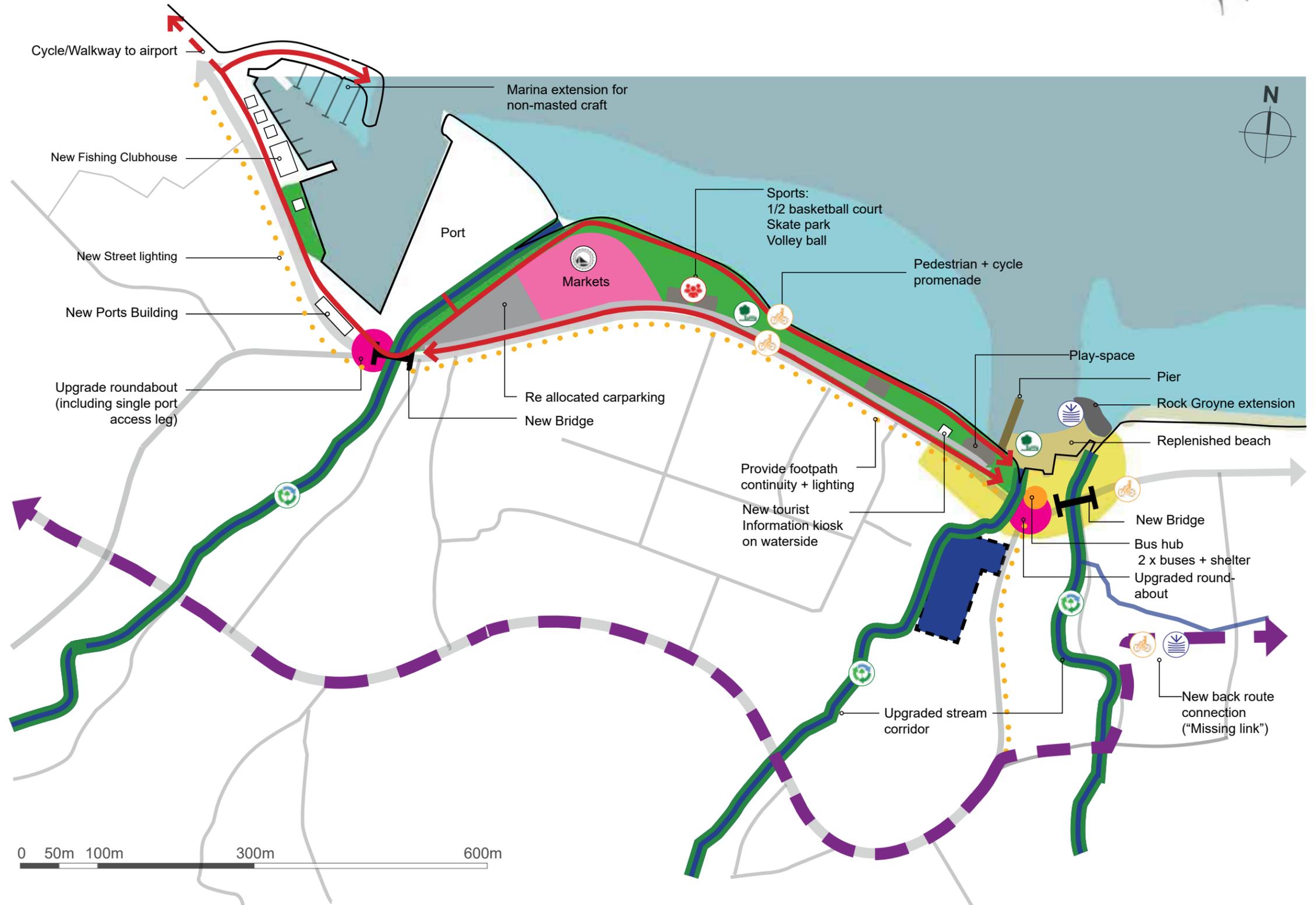
DRAFT
FOR INTERNAL REVIEW
28/03/2019

LEGEND

- Extent of current coastal edge
- Carriageways
- Reef
- Reserve / Open space
- New Commercial Zones
- Market Space
- Feature Gardens
- Pedestrian Promenade
- Beach
- Car parking
- Key roundabouts

KEY MOVES

- Create a high quality urban beach at Avarua Harbour
- Upgrade existing marina
- New fishing clubhouse
- Introduce walkways
- New waterfront park with playing field, hard-courts and playground
- Existing roads retained along esplanade - seaward a bypass, landward a slow route
- Markets and carpark reorganised
- New back route connection
- New bus hub



02 TE TAU PAPA O AVARUA | AVARUA TOWN PLAN

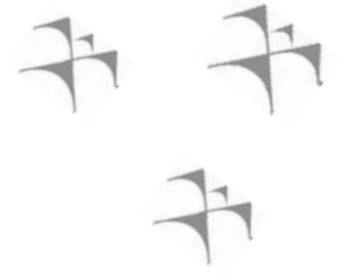
Draft Town Plan | Stage One | Market Layout



1:2000 @ A3

02 TE TAU PAPA O AVARUA | AVARUA TOWN PLAN

Draft Town Plan | Stage One | Revitalised Harbour



1:2000 @ A3

02 TE TAU PAPA O AVARUA | AVARUA TOWN PLAN

Draft Town Plan | Stage One



TRANSPORT

In Stage One, both Te Ara Maire Nui and Ara Tapu would be converted into a pair of two-way carriageways. Te Ara Maire Nui would serve as a “bypass” or the town centre and Ara Tapu would be retained as a local road subject to a slower speed zone. The tie-in intersections of these roads would be designed to provide priority for vehicles traveling through Te Ara Maire Nui.

Ara Tapu would have a speed environment dictated by the presence of kerbs and footpaths on both sides. A 2m continuous footpath is proposed on the southern side. On the northern side a 3m promenade is proposed, suitable for use by bikes, pedestrians and cyclists. Along the harbour, a 4m wide promenade is proposed linking back to the main footpath on Ara Tapu.

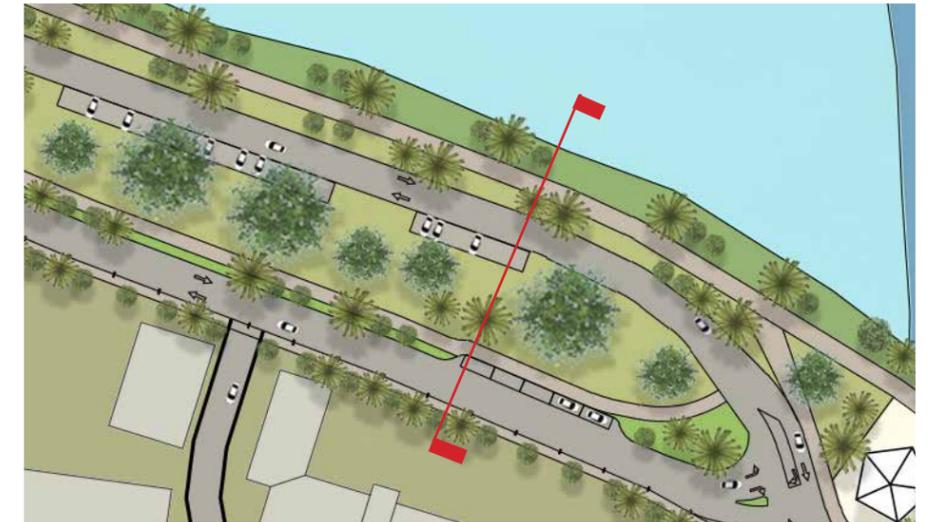
A number of zebra pedestrian crossings would be provided on Te Ara Maire Nui and Ara Tapu to provide safe crossing point connections and promote walkability between the town centre and the markets and harbourside promenade.

Car parking areas would be provided on the harbourside, accessed from Te Ara Maire Nui. These car parks are situated adjacent to the markets and recreation areas, relocated from

the current on-street parking arrangement. A number of indented parking bays would be retained within the central median. These spaces would be re-marked to reflect the direction of travel of the adjacent traffic lane. By re-marking the spaces and through ongoing maintenance of the road markings, the effective use of the parking spaces would be maximised. Specific areas for parking motorcycles would also be provided closest to the main hubs of activity.

As part of the Vaikapuangi government office development process, two additional areas of government-owned land have been identified to provide approximately 150 off-site parking spaces for use by employees of the new office. Within the office complex itself, it is estimated to provide 100 car park spaces, including provision for government pool vehicles and staff vehicles.

To promote the exposure of public transport and shorter walking distance between the main catchment in the town centre, bus stops would be established and spaced along Ara Tapu. Consideration would also be given to a new bus hub / enhancement of a bus stop facility adjacent to the Avarua roundabout/ Trader Jacks.



Section Location

A typical cross-section at the eastern end near the CITC shopping centre is shown below.



Redesign of existing public space with 4m promenade |
 3.5m Te Ara Maire Nui |
 3.5m |
 4.5m Parking |
 Existing Central berm with new 3m promenade |
 2.6m Parking |
 4.3m Ara Tapu |
 4.3m |
 Upgraded 2m wide footpath

Made with Streetmix

02 TE TAU PAPA O AVARUA | AVARUA TOWN PLAN

Draft Town Plan | Stage One | 3D



02 TE TAU PAPA O AVARUA | AVARUA TOWN PLAN

Draft Town Plan | Stage Two

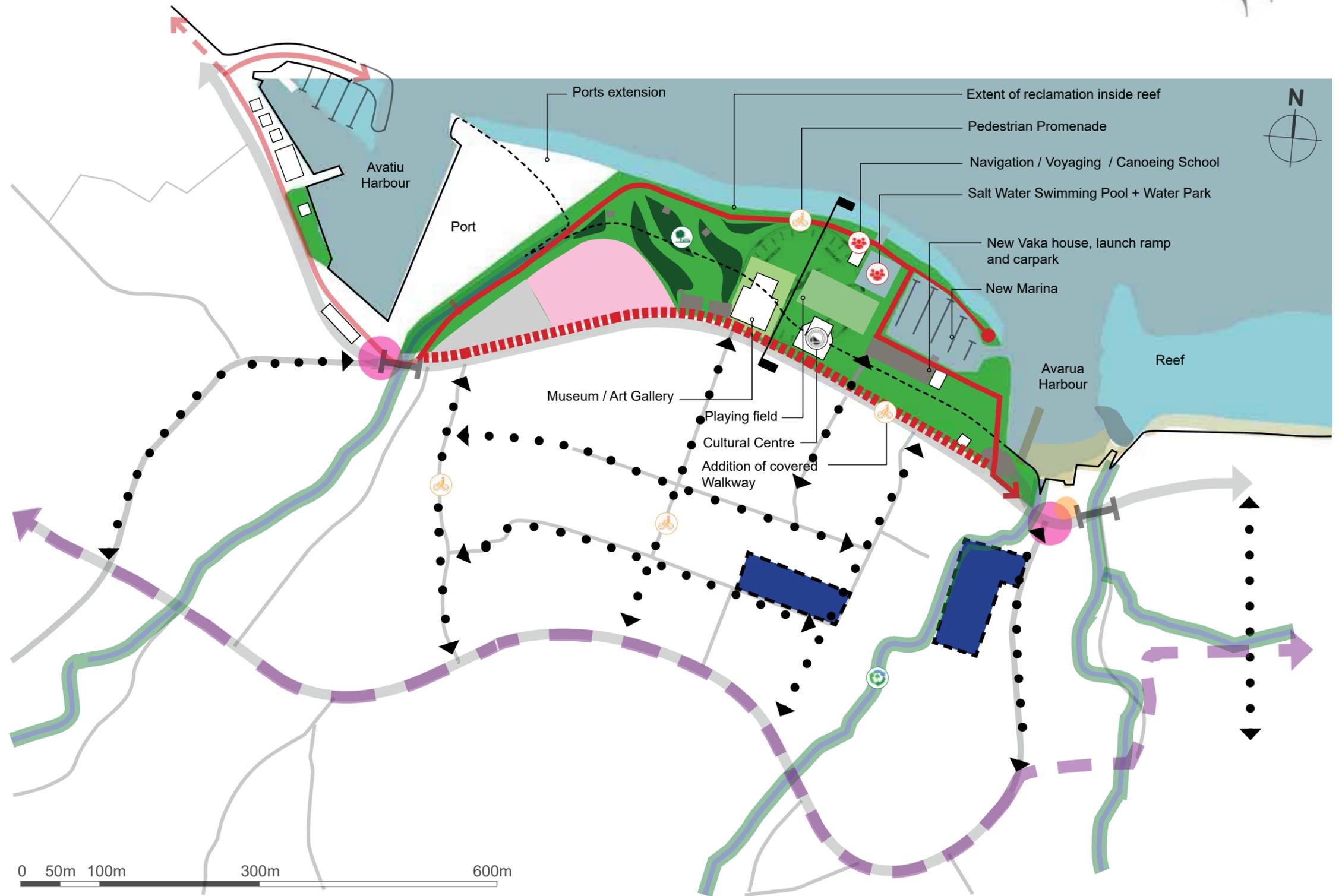
DRAFT
FOR INTERNAL REVIEW
28/03/2019

LEGEND

- Extent of current coastal edge
- Reef
- Reserve / Open Space / Playing Fields
- Carriageways
- Feature Gardens
- Pedestrian Promenade
- Cover to Pedestrian Promenade

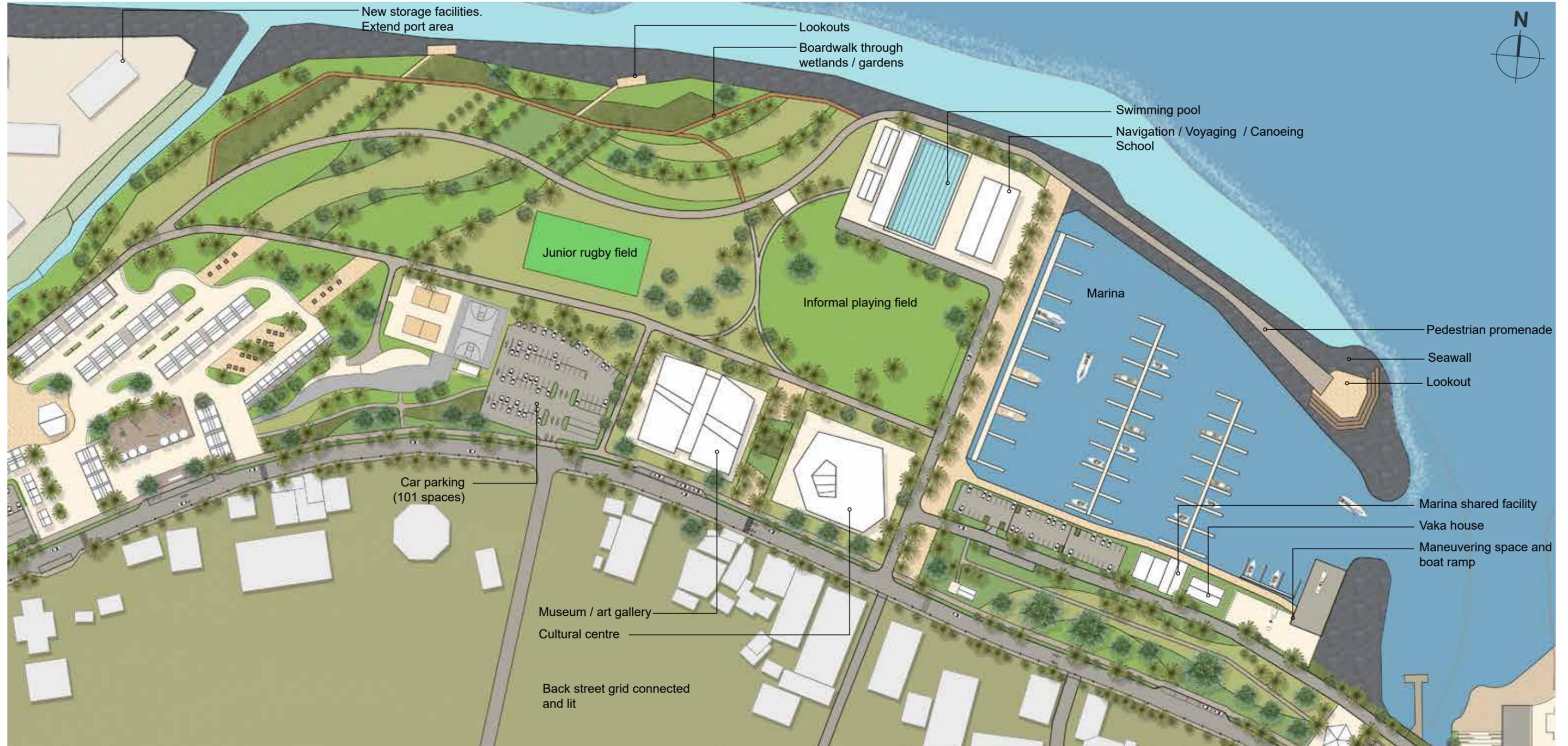
KEY MOVES

- Extend foreshore inside reef edge to create large new waterfront park
- Waterfront promenade
- Cultural / historical information
- Space for playing fields
- New marina for small boats, Vaka house and launch ramp
- References the traditional wind /star compass
- Historical traditional monuments and more iconic buildings - reflective of Cook Islands culture & traditions
- Back street gird connected
- New marina and pool
- New vaka house and launch ramp



02 TE TAU PAPA O AVARUA | AVARUA TOWN PLAN

Draft Town Plan | Stage Two | Waterfront Park



1:2000 @ A3

02 TE TAU PAPA O AVARUA | AVARUA TOWN PLAN

Draft Town Plan | Stage Two



TRANSPORT

With the removal of Te Ara Maire Nui and utilisation of the space for the waterfront park / recreation area, the lane capacity on Ara Tapu is expected to be 3,200 vehicles per day (two-way). Traffic bypassing the town centre and some of these vehicles with destinations within the Town Centre would be re-directed to Ara Metua, the 'back road'. As part of the upgrade of Ara Metua, a connection linking back to Ara Tapu would be upgraded to cater for the additional traffic using this route. Efficiency of traffic flow would also be improved by providing this bypass route separate from the pedestrianised environment. It is expected that Ara Tapu would have sufficient capacity to cater for traffic. In the next stage of works, traffic modeling and assessment will be undertaken to determine the traffic flow on these roads and how to best mitigate these either by road upgrades or improved connections.

Currently there are approximately 320 unmarked spaces for cars along the central median, which will be removed and reinstated elsewhere as part of Stage Two. With the intention of reducing traffic in this part of town but expectation that there will remain a practical need to provide suitable levels of employee, customer and visitor parking, some spaces will need to be reinstated within the car parking areas and on-street parking.



Section Location

The connectivity and safety of pedestrian movement within the town centre would be improved by minimising the total length of road to cross and potential conflict points as well as promoting the visibility and priority of pedestrian movements within the Town Centre over vehicle movements. An area of recreation separate from traffic will be expanded on the harbour. Narrow traffic lanes would be provided around the cultural hub and to access the car park on the eastern end.

A typical cross-section at the eastern end near the CITC shopping centre is shown below.



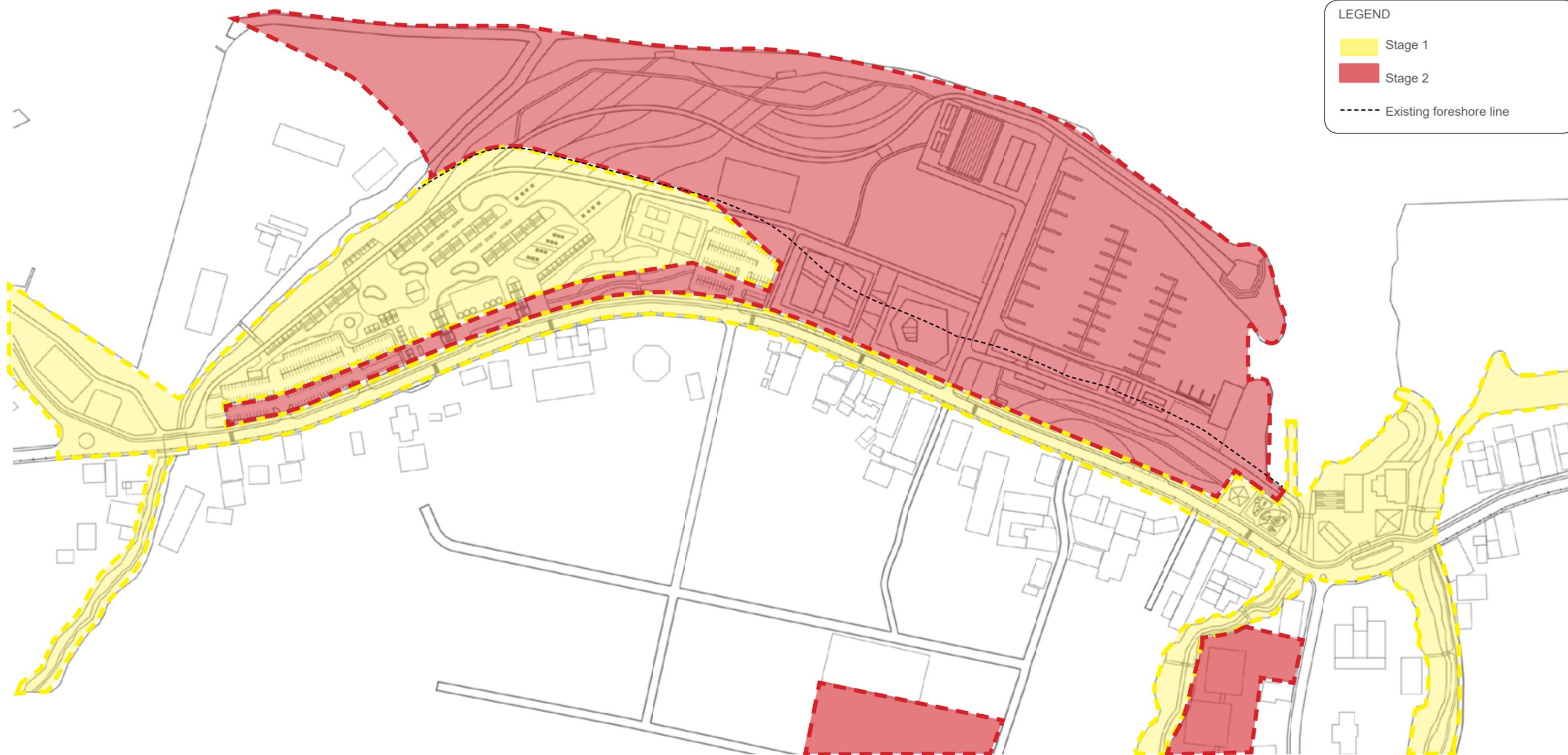
02 TE TAU PAPA O AVARUA | AVARUA TOWN PLAN

Draft Town Plan | Stage Two | 3D



02 TE TAU PAPA O AVARUA | AVARUA TOWN PLAN

Draft Town Plan | Staging

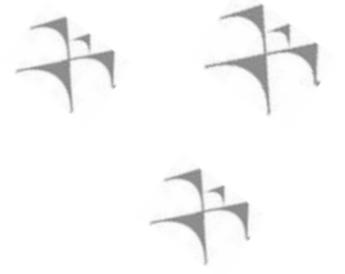


LEGEND

- Stage 1
- Stage 2
- Existing foreshore line

02 TE TAU PAPA O AVARUA | AVARUA TOWN PLAN

Draft Town Plan | Overview



1:3000 @ A3

03 | APPENDICES



03 TE TAU PAPA O AVARUA | AVARUA TOWN PLAN

Stage 1 Draft Option



1:1500 @ A3
East Harbour Layout Draft
09/04/2019

