

Papakura Greenways | Local Paths Plan

September 2016

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1.0 Introduction

1.1 Purpose of the Document

Purpose

This document defines the long-term Greenways Plan for the Papakura Local Board area. It is a visionary and guiding document intended for use by elected members, Council and CCO officers, community and volunteer groups, private developers and other interested parties.

Visionary Document

Greenways plans similar to this have been successfully developed throughout the world. One of the most notable examples is in Portland, Oregon, where the local government and residents worked together to develop their network of cycleways, walkways and parkland. This was then extended further into the urban environment to include a wholesale retrofit of streets, parks and industrial developments to achieve a fully connected city.

Planning and delivery of Auckland’s Greenways network is now well underway across the city with plans being developed in a ‘ground up’ manner by Local Boards with a shared vision; to greatly improve walking, cycling and ecological connections throughout the region.

Guiding Document

Upon adoption of the greenways plan, the Papakura Local Board will identify a series of priority projects and look for opportunities to fund and create these connections over the coming years. Auckland Council will continue to develop Open Space Network Plans under its Open Space Strategy for all Local Board areas, and greenways plans will ultimately become a chapter of these.

1.2 Strategic Fit

Links to the Auckland Plan

The Auckland Plan sets Council’s long-term strategic direction, and sets out a vision to create the world’s most liveable city. It provides an opportunity for integrated planning to significantly improve transport, environmental protection, land uses, housing growth and economic development, with the benefits of one authority responsible for all coordination.

Implementation of the projects contained within the Papakura Greenways Plan can deliver on a number of the aims of the Auckland Plan, including:

Chapter 5: Auckland’s Recreation & Sport

Priority 1: *Encourage all Aucklanders, particularly children and young people to participate in recreation and sport*

Chapter 7: Auckland’s Environment

Priority 1: *Value our natural heritage*
Priority 2: *Sustainably manage natural resources*
Priority 3: *Treasure our coastlines, harbours, islands and marine areas*

Chapter 12: Auckland’s Physical & Social Infrastructure

Priority 2: *Protect, enable, align, integrate and provide social and community infrastructure for present and future generations.*
Directive 12.8: *Maintain and extend the public open space network, sporting facilities, swimming pools, walkways and trails and recreational boating facilities in line with growth needs.*

Chapter 13: Auckland’s Transport

Priority 3: *Prioritise and optimise investment across transport modes.*

Links to other initiatives

In developing this Greenways plan, a number of related Council and non-Council initiatives have been investigated and - where possible - included in the network:

- Auckland Council long-term future planning such as the Manurewa Takanini Papakura Integrated Area Plan;
- The large number of Special Housing Areas (SHAs) within the region, including those currently progressing around Hingaia and McLennan Park;
- Auckland Council or private development proposals such as the Opaheke Park Development and the Takanini Stormwater Conveyance Corridor;
- Auckland Transport (AT) proposals such as the Auckland Cycle Network (ACN);
- New Zealand Transport Authority (NZTA) proposals such as the Southern Corridor Improvements Project;
- The Te Araroa national walkway (which only clips the northern tip of the Board area)

Local Board Aspirations

Each Local Board plan is a reflection of what elected members have heard from their community. Feedback gained both formally and informally has been instrumental in shaping these plans, they provide a touchstone for the aspirations of each area’s community.

Construction of high-performing Greenways have potential to fulfil a number of the aspirations set out in the 2014 Papakura Local Board Plan, including that set out in the overall vision statement and goal:

OUR VISION: CREATING THE WORLD’S MOST LIVEABLE CITY AT THE LOCAL LEVEL

“Our goal is to develop a thriving, safe and well-connected vibrant community.”

Supporting this vision, the Board Plan sets out a number of more tangible outcomes to guide allocation of funding and advocacy over the Local Board term. Construction of greenways, as set out by this document, can help to deliver on a number of these outcomes, specifically:

1. “Well connected and easy to move around.”

Increasing the network of safe walkways and cycleways in Papakura, and encouraging these modes of transport as practical, healthy options for community and regional connections is a main aim of any Greenways plan.

2. “Treasured for its environment and heritage.”

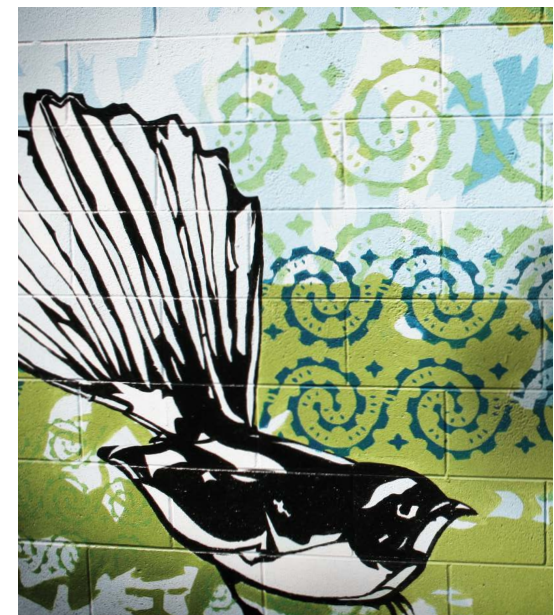
The Greenways plan is a tool which can be used to deliver this outcome, by providing re-vegetated riparian ecological corridors. Such corridors offer habitat for both flora and fauna in the area, as well as doubling as a movement corridor to allow animals to move between larger areas of habitat.

3. “Strong, safe and healthy communities.”

The Greenways plan provides a connected recreational network, allowing residents to move safely through and between their existing open spaces. This has benefits for the health and wellbeing of those people actively using the network, as well as offering an opportunity for people to get out and meet others from their local community. It also has the potential to see a greater uptake of usage of existing recreational facilities in Papakura.

PAPAKURA LOCAL BOARD PLAN OUTCOMES

- A vibrant metropolitan centre**
It’s great that Papakura meets our needs for shopping, leisure, arts and culture and we don’t need to travel elsewhere for these things.
- A skilled workforce for local jobs**
We have lots of local job opportunities and it’s easy for us to get training and learn new skills.
- A sports and recreation hub**
We have excellent sports facilities that we all use and enjoy. We are proud that Papakura is the place of choice for high-class sporting events.
- Well-connected and easy to move around**
We like to live in Papakura because it is so well-connected by road, rail and bus and has lots of safe cycling and walking links.
- Treasured for its environment and heritage**
We value and protect the land of our ancestors and the shores of Pāhurehure. We love our well designed streets and buildings.
- Strong, safe and healthy communities**
We have good places for communities to meet and great places to play in. Our young people get a great start in life and we value the wisdom and experience of our older people.



WELL-CONNECTED AND EASY TO MOVE AROUND

We like to live in Papakura because it is so well-connected by road, rail and bus and has lots of safe cycling and walking links.				
WHAT WE WANT TO ACHIEVE	KEY INITIATIVES	LOCAL BOARD ROLE	OTHER KEY AGENCIES	POTENTIAL COST
A safe cycling and walking network across the south	Greenways Plan for the south	Funding Champion	Auckland Transport Greenways Project Developers	\$50,000
	Links in cycling and walking network and coastal routes	Funding Champion	Auckland Transport	To be scoped
	Clear links between town centre and rail station	Funding Champion	Auckland Transport	To be scoped
	Inclusive footways to meet the needs of people with disabilities, the elderly and mothers with pushchairs	Champion	Auckland Transport	No cost to local board

1.3 What is a 'Greenways Plan'

Definition

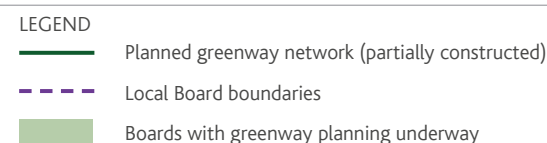
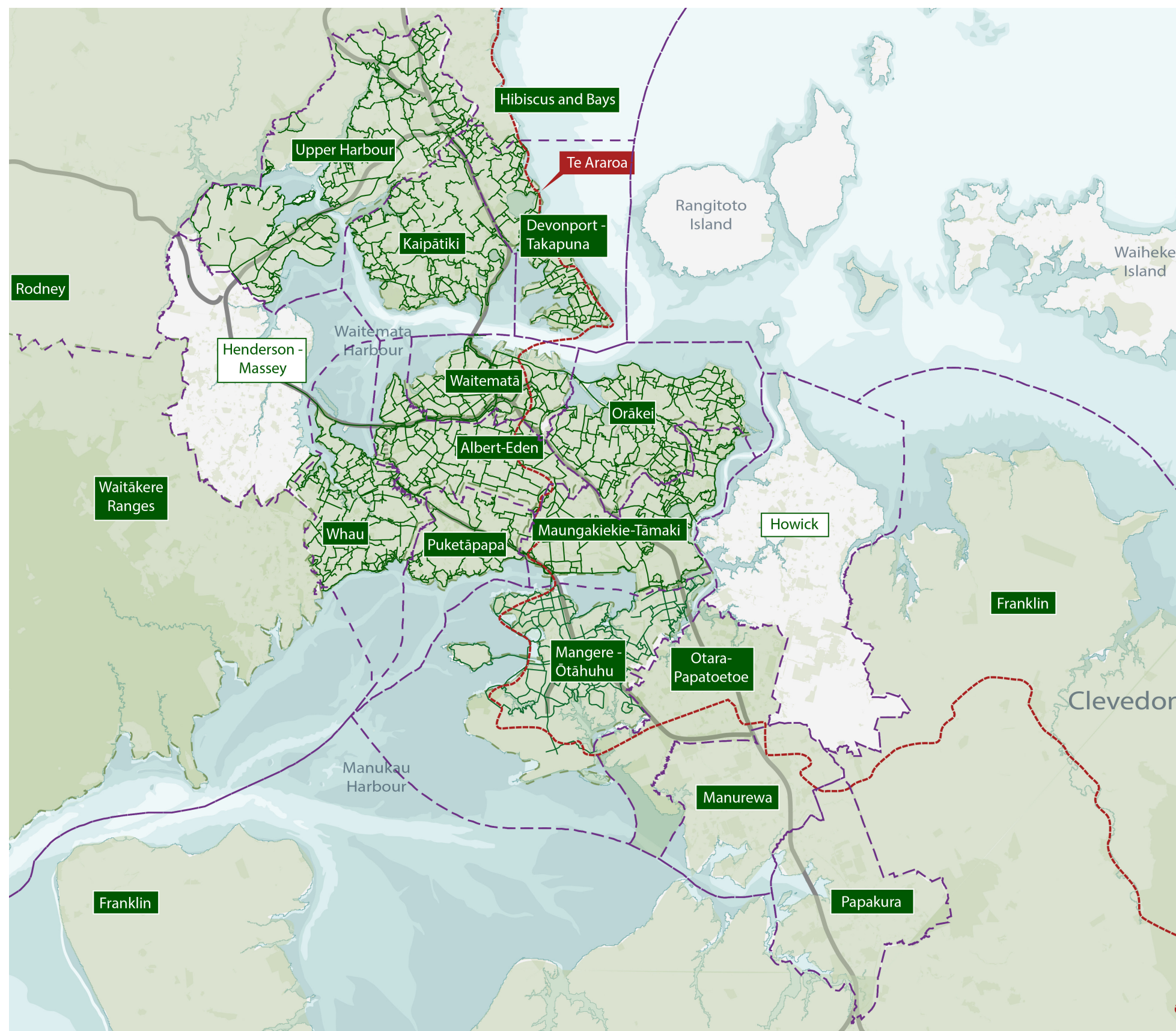
The aim of a Greenways Plan is to provide cycling and walking connections which are safe and pleasant, while also improving local ecology and access to recreational opportunities. To achieve this, Greenways may cross existing areas of parkland, and follow street connections between parks. This network will link together areas of housing and employment, open spaces, town centres, recreational facilities, places of interest and transport hubs.

Implementation of the Greenways Plan will better connect Papakura to the neighbouring Manurewa and Franklin Local Board areas and will also connect to regional walking/cycling proposals for the greater Auckland area. The adjoining map shows other Greenways Plans either under development or adopted by participating local boards. Each board sets their own Greenways definition for their respective areas, based around a common aim.

Benefits of a Greenway

There are many benefits from developing greenways, including:

- **Recreation** - Improving people's access to outdoor recreation and enjoyment close to their home
- **Environmental** – reducing our reliance on fossil fuels by providing attractive and safe alternative transport choices, improving stormwater quality and reducing flooding events through low impact design measures, and by enhancing ecosystems, habitat sources and ecological niches;
- **Social** – providing improved opportunities for people to get outside and meet their neighbours, to be engaged with a diverse range of communities and to be connected with local community facilities;
- **Health** – providing improved opportunities for activity and fitness;
- **Education** – Providing opportunities to learn about the vegetation, wildlife, ecology, history and people of the landscapes that they pass through; and
- **Economic** – Increasing local employment as areas become more desirable for businesses and shoppers. Greenways can also provide a tourist destination for international and national visitors, and improve property values.



Greenway Network, Auckland





CONNECTIONS IN OPEN SPACES

What the Greenways might look like

The appearance of the network will vary dependent on its location. For instance, a connection that runs through parkland may look and function quite differently to a connection adjacent to a road or in a built-up urban environment. The adjacent images show what the network could look like in a variety of settings, including:

- parks, reserves, and connecting to bush areas
- alongside streams or ecological areas
- alongside industrial land or residential properties
- slow-speed traffic environments and major transport corridors

The surface treatment will vary depending on site-specific aspects such as the location of the path, slope gradient and the existing character of an area. It is also important that the network is connected through appropriate wayfinding signage and/or other forms of markers.

These aspects are being considered as part of a 'Greenways Design Guide', which will see the construction of each individual project following a consistent set of 'rules' to allow the projects to work together consistently as part of the overall network. See over the page for examples from the Greenways Design Guide.



CONNECTIONS IN STREETS & TRANSPORT CORRIDORS

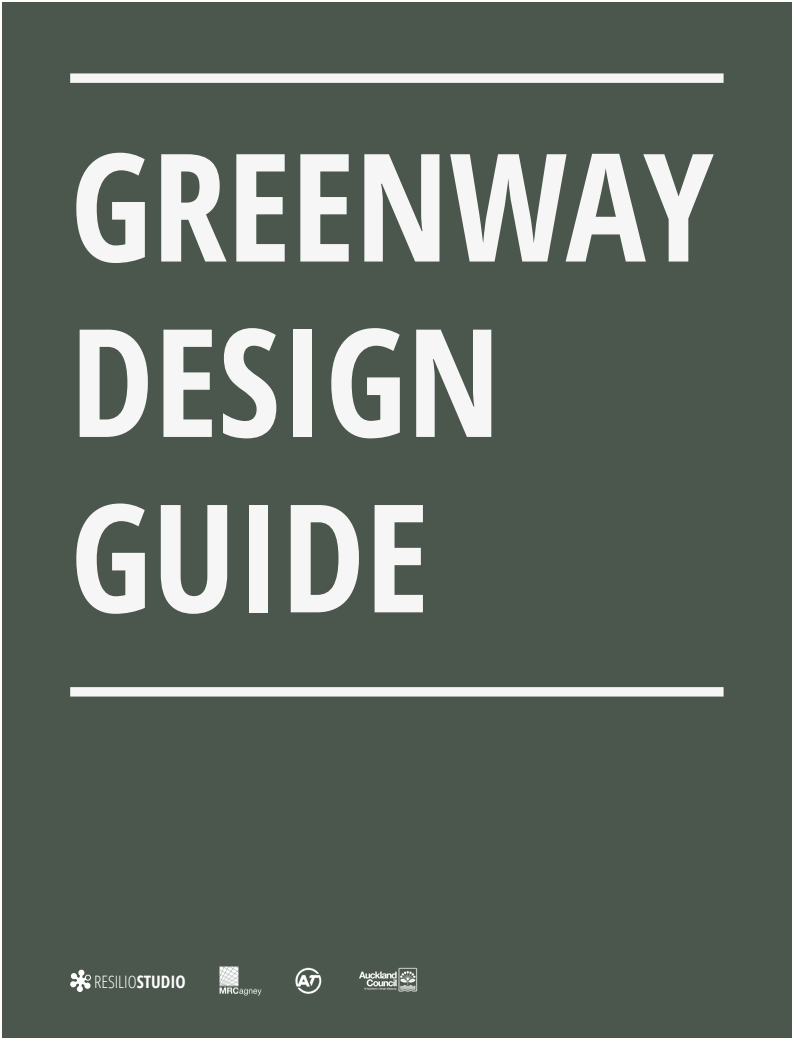


ECOLOGICAL OPPORTUNITIES

1.4 Greenways Design Guide

Positioning Greenways in Papakura’s Walking & Cycling Network

Over the last year, Auckland Transport and Auckland Council have worked to produce a 'Design Guide' for the greenways. The Greenways Plan (this document) details *where* the routes are to go, while the design guide describes their *look and feel*. It details the desirable width of connections, the materials to be used, methods of crossing roads, of calming traffic, and it also spells out the minimum ecological aspects of the routes as well. Together, these two documents will form the backbone of the ongoing delivery of these projects for the Papakura area, and ensures that the routes connect up in a logical manner to those in surrounding areas.



Greenway - Street

Greenways on streets are designed to create safe and pleasant neighbourhoods that encourage walking and cycling for local trips. Pedestrians are accommodated on footpaths and streets are safe enough to walk on. Traffic calming tools, pavement markings and signage are used to improve safety for all street users, particularly cyclists.

Vehicle Volume:	1,000 - 1,500
Vehicle Speed (km/h):	30-40
Arterial Road Crossings:	50-100 per hour
Accessibility + Safety:	Ministry of Justice 7 Qualities of Safe Spaces
Green Infrastructure:	Impervious surface 70-90% Tree canopy coverage greater than 30-40%

Greenway - Open Space

A Greenway through a park or open space is a path for cyclists and pedestrians that can be either separated or shared. Together with the Greenways on streets, they are designed to create linkages to local centres, parks, and schools as well as between primary paths. Greenways in open space provide opportunities to enhance ecological linkages and improve water quality.

Vehicle Volume:	N/A
Vehicle Speed (km/h):	N/A
Arterial Road Crossings:	N/A
Accessibility + Safety:	20km/h design speed / 20m sightlines & stopping distance
Green Infrastructure:	Tree park: continuous canopy with grass and assorted low level planting

Primary Path

Primary paths are designed to create direct links to regional and local centres. Pedestrians are accommodated on footpaths, cyclists are accommodated on separate paths and/or preferential use on streets. Off street primary paths typically accommodate pedestrians.

Vehicle Volume:	1,500+
Vehicle Speed (km/h):	40-60
Arterial Road Crossings:	50-100 per hour
Accessibility + Safety:	Ministry of Justice 7 Qualities of Safe Spaces
Green Infrastructure:	Impervious surface <90% Tree canopy coverage greater than 30-40%

Recreational Trail

A recreational trail is a shared path designed for recreational cycling, walking and equestrian. While they may form part of a persons commute or daily trips, they are not intended to create a connection between major destinations. Recreational trails often run in loops.

Vehicle Volume:	N/A
Vehicle Speed (km/h):	N/A
Arterial Road Crossings:	N/A
Accessibility + Safety:	20km/h design speed / 20m sightlines & stopping distance
Green Infrastructure:	Park land / water system / self-generating forest

Positioning Greenways in Papakura's Walking & Cycling Network





1.5 Auckland Context

The Papakura Local Board area takes in the established suburbs of Takanini, Papakura and Red Hill, as well as the township of Drury, and the Hingaia Peninsula. This map shows the Board area within its wider regional context, sitting approximately 32km south of Auckland’s CBD surrounded by the Franklin and Manurewa Local Boards, as well as significant lengths of coastline to the west.

Broader Transport Connections

The Southern Motorway and railway line bisect the length of Papakura, effectively breaking the community into two distinct areas. While these transport corridors present many challenges from a greenways perspective (in terms of connecting many residential areas up to the coast), they also provide important transportation hubs which the greenways plan can link up with to create an efficient continuation of transport routes available.

Broader Walking and Cycling Connections

The walking trail ‘Te Araroa’ is a continuous 3,000 km track spanning the length of New Zealand, and will connect the greater Auckland area with Northland and Waikato. While this route barely grazes the Papakura area (running along Ranfurly Road at the northern boundary) , there may be future potential to link other routes in with the national trail.

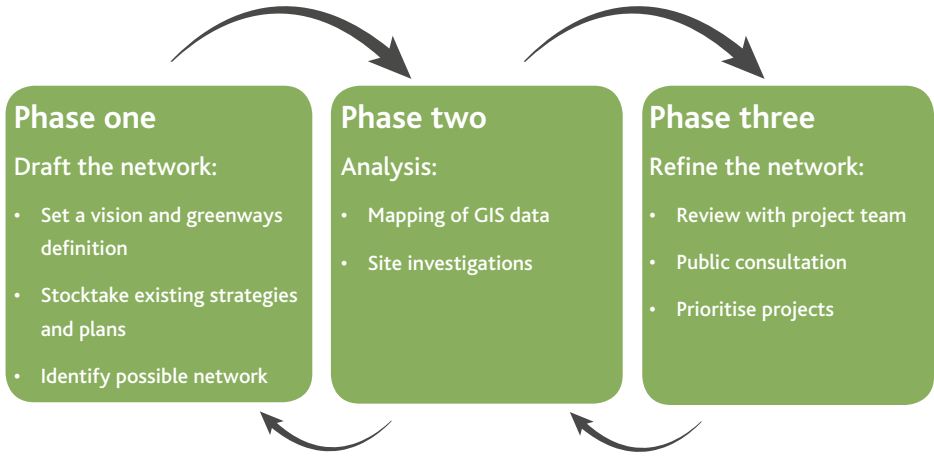




2.0 Method

2.0 The Process

The Papakura Greenways Plan was developed using a three-stage process as outlined below:



Phase one - draft the network

As a first step, previous studies and planning documents relevant to the area were collected and reviewed. The Papakura Local Board Plan (2014) was reviewed to gain an understanding of both the strategic vision of the community and also the projects planned for implementation over the coming years. After this, a definition for the Papakura Greenways was discussed and agreed upon with the Local Board, and a 'working party' was set up, which met regularly to review the plan as it developed.

Next, a desktop study was carried out to map a high-level network of walking and cycling connections as per the agreed components set out in the local Greenways definition. Ecological improvements were also given consideration, to improve links between existing vegetation, wetlands, coastal edges and streams. These desktop studies gave an understanding of the broad landscape patterns within the Papakura area, and were used to guide phase two of the process, where the network was investigated on site.

This stage of the draft network plan was taken to the working party for review prior to undertaking site investigations, to ensure that it was

aligned with the Board's aspirations and objectives for the project.

During this phase, discussions were held with Auckland Transport and other Council officers to inform them of the project, and to understand linked policies or projects that would affect the Greenways Plan.

Phase two - analysis

Following the desktop mapping, the draft route was overlaid with sourced GIS data (in Appendix - Section A) to ensure that the network made appropriate connections to destinations such as schools, community facilities, town centres and transport nodes.

The draft network plan was then assessed on-site as 'ground-truthing' to ensure that it provided practical and safe connections. This process involved an analysis of a number of aspects that could influence the suitability of the route, including topography, vegetation cover, utility service locations, the condition of existing paths, slope stability, Crime Prevention through Environmental Design (CPTED) principles, and the layout of any roading corridors identified as greenway routes.

All proposed connections were sighted and evaluated, and photo-record taken. Some connections were found to be inappropriate (where there wasn't enough space for a connection, the connection was unsafe, the terrain was too steep, or a higher amenity alternative was found) and the draft network was updated accordingly.





Phase three - refine the network

Following the analysis phase, the Papakura Local Board and Council officers from the Parks Sports and Recreation, Community Facilities and Local Board Service as well as Auckland Transport reviewed the proposed Greenways routes in detail, and a two-phase community consultation phase was then carried out.

The first was a targeted stakeholder session, held at the Papakura Library, which sought to gain feedback from groups with an active interest in this type of work. Invitees to this session included:

- Local recreational and interest groups, such as the Pahurehure Inlet Preservation Society (PIPS)
- Local Residents Associations
- Mana whenua (targeted session)
- Local and regional community groups, such as Healthy Families
- Schools and Universities
- Local Sports Clubs
- Local Business Association

Feedback from this session was then incorporated into the plans, and a wider public consultation session was held at two locations (Papakura Library and Takanini Community Hall) on the 30th of July. The draft maps were then uploaded to the Shape Auckland website where the public could view and complete an online feedback survey. This feedback helped in places to modify the draft routes, and was also very valuable in determining the priority routes described below.

As the Papakura Greenways is a long-term project, to be developed over the next ten-twenty years, the Board has identified priority sections. These priority sections are based on community desire, costs, benefits, constraints and opportunities, often driven by other local projects - including those by Auckland Council, Council Controlled Organisations and external stakeholders, such as NZTA and Kiwirail.

The priority sections can be viewed in Appendix - Section C of this document.



3.0 Greenways Mapping

3.1 Long-term Aspirational Greenways

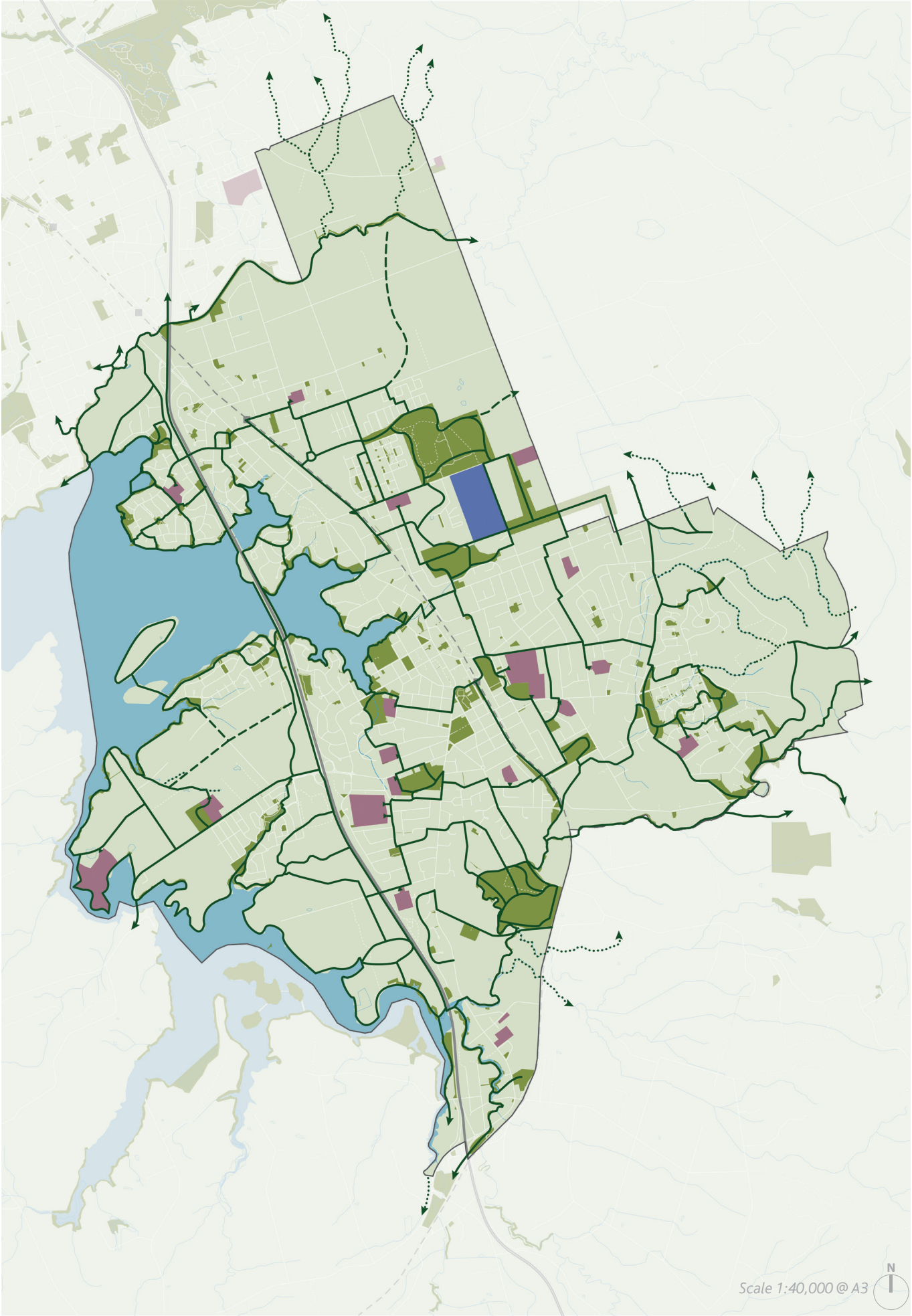
This map shows the completed greenways vision identified by the Local Board, including both the priority sections as well as longer term routes. This vision is aspirational, and will be reviewed on a regular basis as priority sections are completed, and as other related projects are completed.

LEGEND:

- Base information

 - Schools
 - Parks & reserve land
 - Ministry of Defence land
 - Rivers & Streams
 - Roads
 - Rail
- Greenway connections

 - Proposed greenway route
 - Future greenway route
 - Proposed ecological link



3.2 Long-term Aspirational Greenways with Additional Future Planning Overlays

This map shows the greenways network as it relates to the draft Auckland Cycle Network (ACN), and other long term planning overlays. The other planning overlays shown here include:

- Special Housing Areas
- Structure Plan Areas
- Proposed Future Urban Zones

It is worth noting that the Greenways do not often overlap with the ACN’s ‘highway’ or ‘connector’ routes, as these are predominantly on busy roads, where opportunities for amenity, recreational and ecological improvements are very difficult to achieve. Greenways overlap with the ACN’s ‘feeder’ routes much more closely, and are included

It is also of note that the ACN is currently in draft form, and a process to better align the ‘feeder’ routes with the various Local Board Greenways plans is currently underway. It is intended that both the ACN and the Greenways plans are ‘live’ documents, which will be updated at regular intervals. ACN routes shown on this map were current as of May 2013. in AT’s definition of a feeder route. These routes are usually on low traffic volume, ‘minor’ streets where improvements to the streetscape are more practical to achieve.

LEGEND:

Base information

Schools

Parks & reserve land

Ministry of Defence land

Rivers & Streams

Roads

Rail

Greenway connections

Proposed greenway route

Future greenway route

Proposed ecological link

Future Planning Overlays

ACN Metro

ACN Connector

ACN Feeder

Special Housing Areas

Structure Plan Areas

Proposed Future Urban Zone

This map illustrates the proposed greenways network in Papakura, Auckland, in relation to the draft Auckland Cycle Network (ACN) and other long-term planning overlays. The map shows a network of greenways (solid and dashed green lines) connecting various areas. The ACN routes are shown as colored lines: Metro (pink), Connector (blue), and Feeder (yellow). Future planning overlays include Special Housing Areas (orange), Structure Plan Areas (yellow grid), and Proposed Future Urban Zones (blue grid). The map also shows base information such as Schools (purple), Parks & reserve land (green), Ministry of Defence land (dark blue), Rivers & Streams (light blue), Roads (grey), and Rail (black dashed line). A scale of 1:40,000 @ A3 and a north arrow are provided in the bottom right corner.

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3.3 Proposed Priority Routes

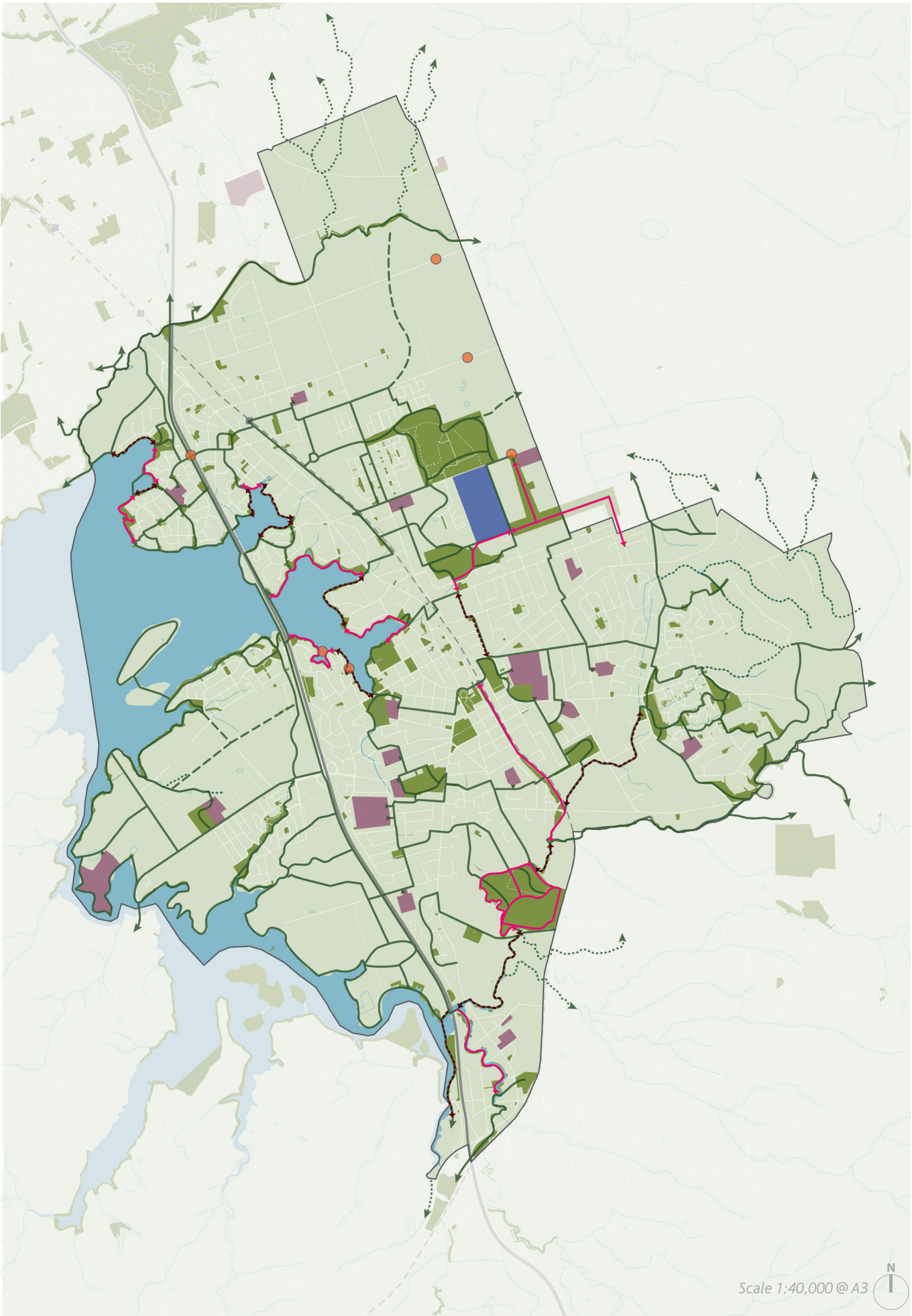
As noted earlier, the greenways plan is a long term vision, and in order to deliver a tangible result, a number of routes have been prioritised for delivery and/or advocacy over the next 3-5 years. Not all of these routes will be delivered, due to financial constraints - but these routes give an indication of where attention will be focused in the short term. Further detail on these routes is contained within Appendix C.

LEGEND:

- Base information

 - Schools
 - Parks & reserve land
 - Ministry of Defence land
 - Rivers & Streams
 - Roads
 - Rail
- Greenway connections

 - Proposed greenway route
 - Future greenway route
 - Proposed ecological link
 - Priority Routes (straightforward delivery)
 - Priority Routes (complex delivery)
 - AT general focus area



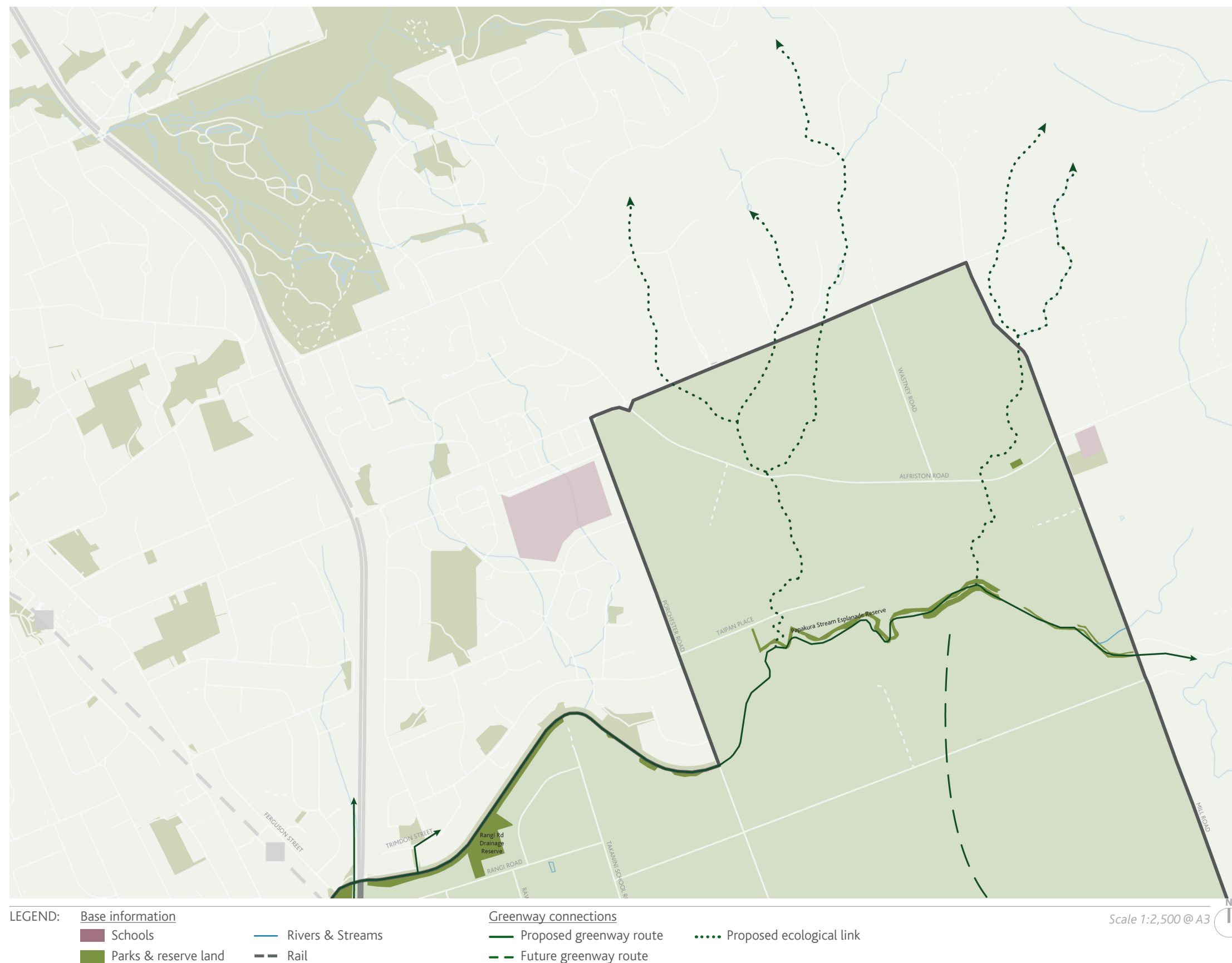
3.4 Proposed Greenway Network
Reference Plan



- map 1
- map 2
- map 3
- map 4
- map 5
- map 6

3.5 Proposed Greenway Network Plan

Map 1 of 6



map 1

map 2

map 3

map 4

map 5

map 6

3.6 Proposed Greenway Network Plan

Map 2 of 6



LEGEND:

Base information

Schools

Parks & reserve land

Rivers & Streams

Rail

Greenway connections

Proposed greenway route

Future greenway route

Proposed ecological link

Scale 1:2,500 @ A3

map 1

map 2

map 3

map 4

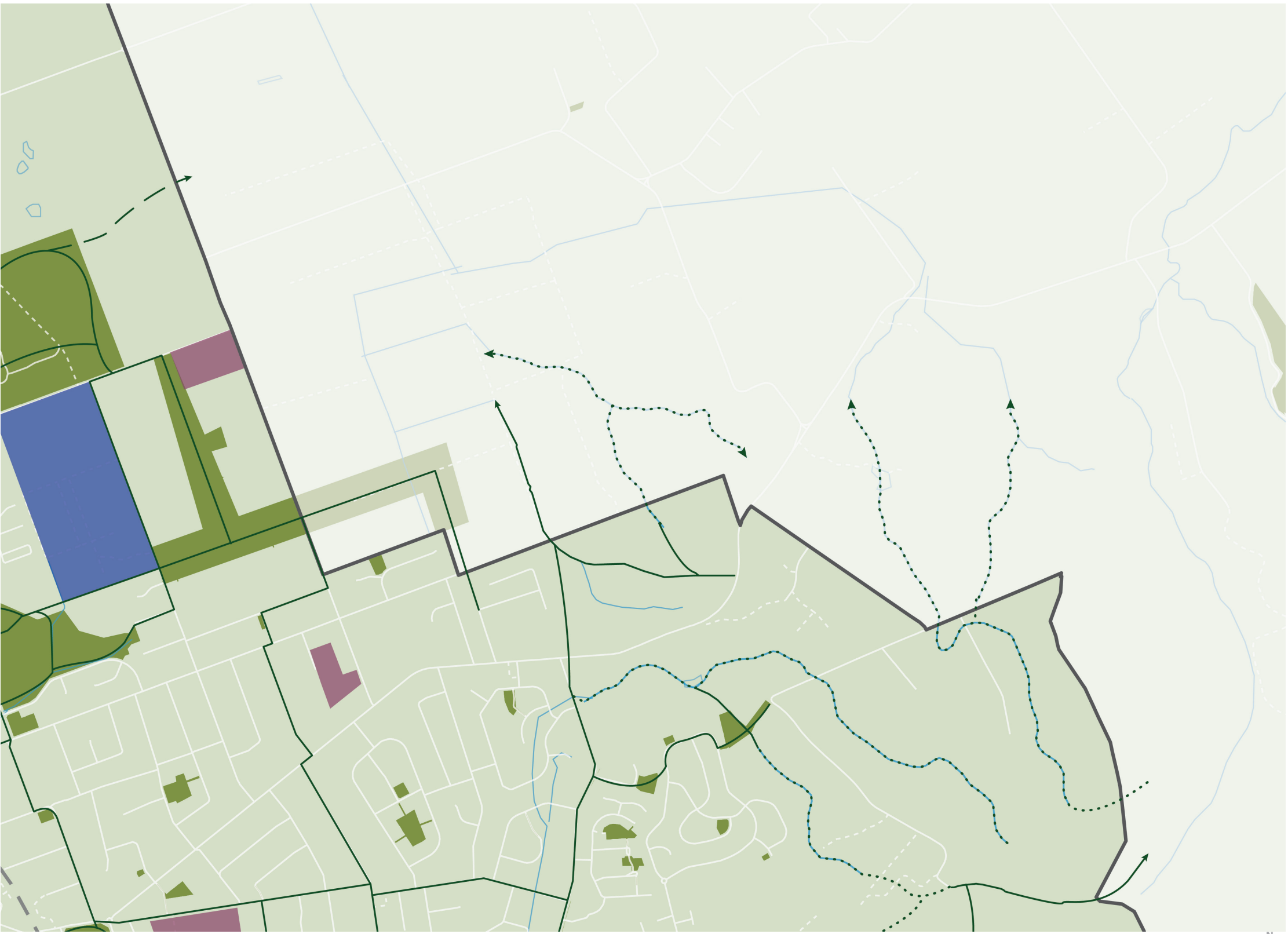
map 5

map 6

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3.7 Proposed Greenway Network Plan

Map 3 of 6



map 1

map 2

map 3

map 4

map 5

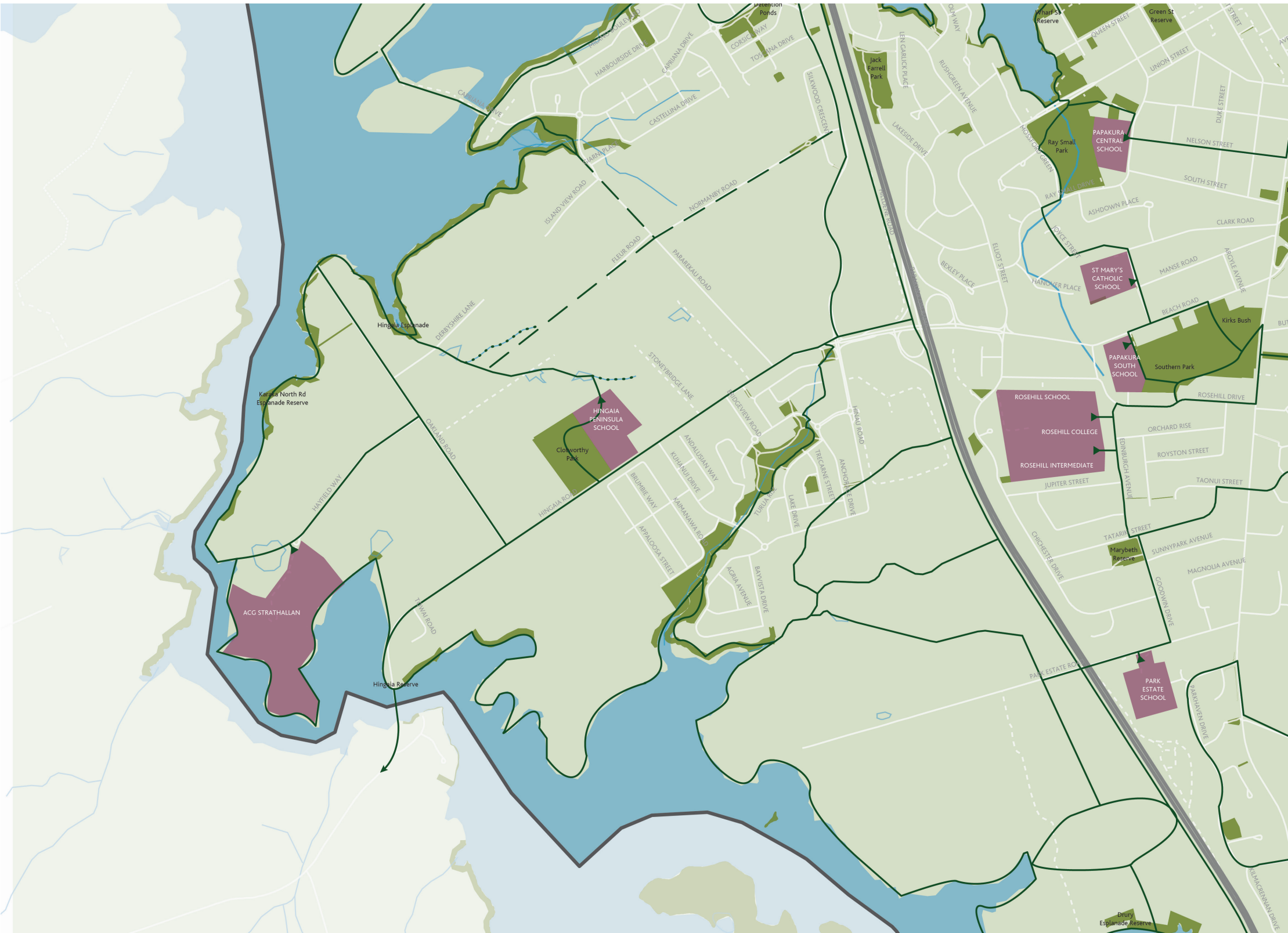
map 6

LEGEND: Base information
Schools
Ministry of Defence land
Parks & reserve land
Rivers & Streams
Rail
Greenway connections
Proposed greenway route
Future greenway route
Proposed ecological link

Scale 1:2,500 @ A3

3.8 Proposed Greenway Network Plan

Map 4 of 6



LEGEND:

Base information

Schools

Parks & reserve land

Rivers & Streams

Rail

Greenway connections

Proposed greenway route

Future greenway route

Proposed ecological link

map 1

map 2

map 3

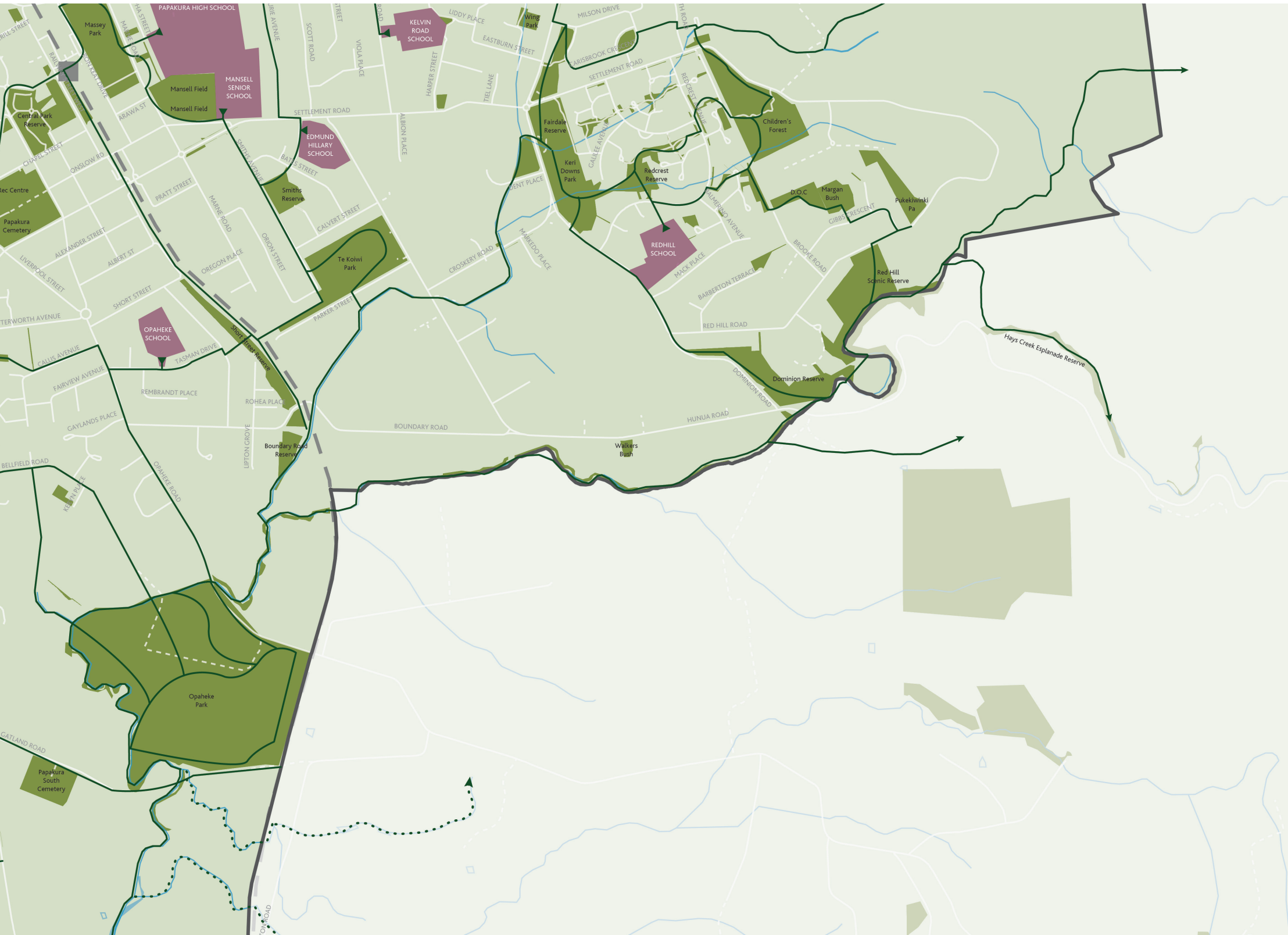
map 4

map 5

map 6

3.9 Proposed Greenway Network Plan

Map 5 of 6

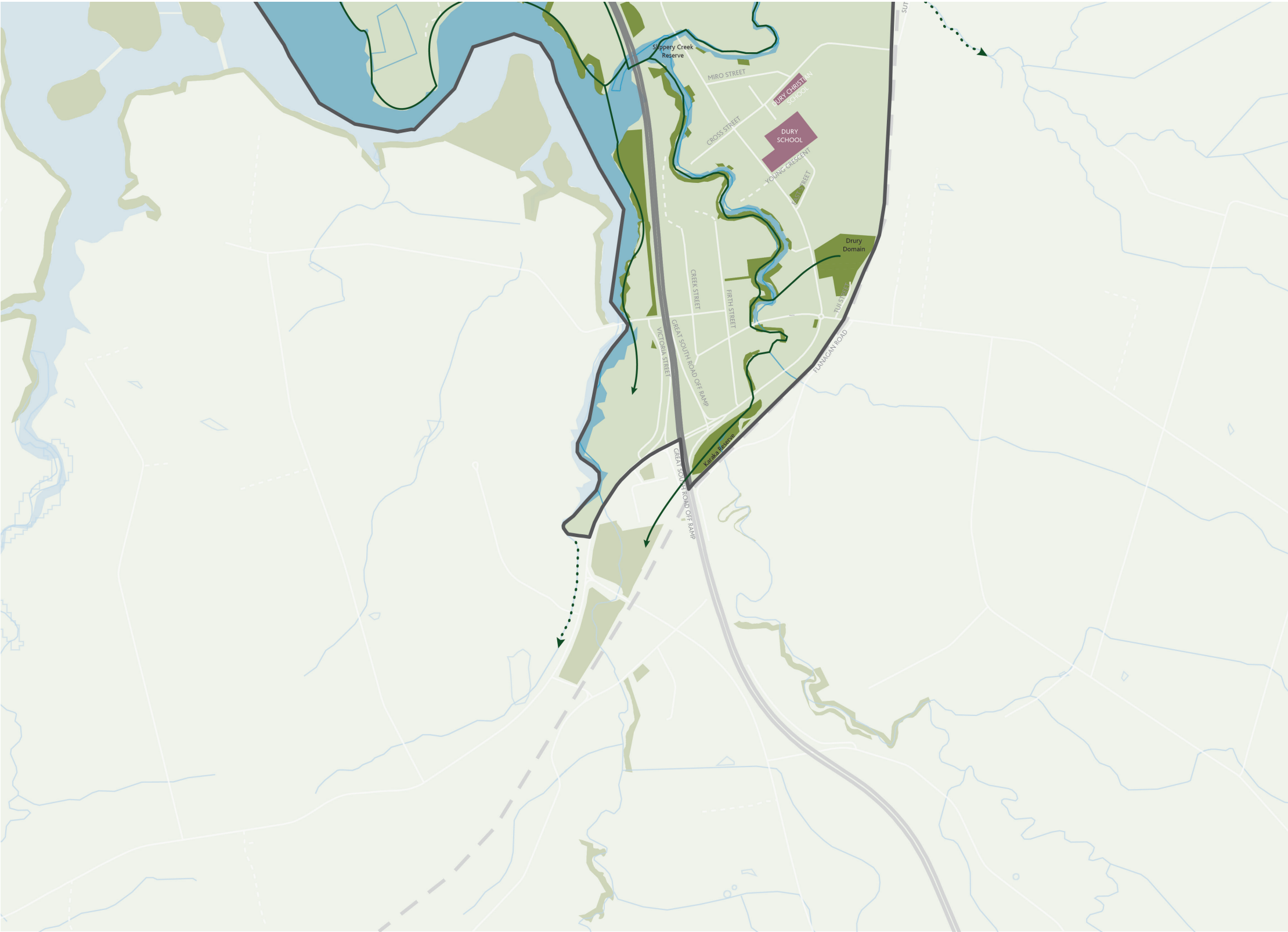


LEGEND: Base information
Schools
Parks & reserve land
Rivers & Streams
Rail
Greenway connections
Proposed greenway route
Future greenway route
Proposed ecological link

Scale 1:2,500 @ A3

3.10 Proposed Greenway Network Plan

Map 6 of 6



LEGEND:

Base information

Schools

Parks & reserve land

Rivers & Streams

Rail

Greenway connections

Proposed greenway route

Future greenway route

Proposed ecological link

Scale 1:2,500 @ A3

N

map 1

map 2

map 3

map 4

map 5

map 6



4.0 Future Development

4.1 Future Development

The Papakura Greenways Plan will be implemented overtime to achieve (in part) the outcomes envisaged in the Local Board Plan. Implementation of this plan will include the upgrade of existing walking and cycling connections (both on and off-road), as well as the creation of new connections within open space land, through designation areas, and/or via partnerships with non-council parties.

Successful implementation of the plan requires co-ordination and commitment from the Papakura Local Board, Auckland Council, Auckland Transport, as well as relevant public agencies such as the NZTA, KiwiRail, Watercare Services Ltd, Transpower and Vector. Assistance from community groups, local businesses or schools would also greatly improve delivery of the network.

The following section gives an overview over the future development and implementation of the Papakura Greenways Plan in the short-medium term, including best practice for implementation, stakeholder involvement and funding availability, related case studies and the prioritisation strategy.

4.2 Best Practice for Implementation

Successful implementation of the Greenways Plan relies on a co-ordinated approach between Auckland Council's Parks, Healthy Waters (Stormwater) and Community and Cultural Policy departments, as well as Auckland Transport. Future detailed planning shall take into consideration best practice guidelines, which include:

- Greenways Design Guide (Auckland Council, Draft)
- Auckland Transport Code of Practice
- Stormwater Code of Practice (Healthy Waters)
- Parkland Design Guidelines (Community and Cultural Policy, Draft)

Related 'best practice' documents such as NZTA's 'Bridging the Gap – Urban Design Guidelines', DoC's 'Caring for Archaeological Sites' report, and the Ministry of Justice's 'National Guidelines for Crime Prevention through Environmental Design (CPTED) in New Zealand' shall also be taken into account as designs develop, in addition to all relevant Unitary Plan controls and area-specific policies.

4.3 Stakeholder Funding and Information

Ongoing community engagement, stakeholder collaboration and partnerships are key to the successful implementation of the Papakura Greenways.

Likely stakeholders, other than those previously mentioned include:

- Neighbouring Local Board areas (Manurewa and Franklin)
- Mana whenua
- Auckland Tourism, Events and Economic Development (ATEED)
- Cycle Action Auckland
- YES Disability
- Operators of community facilities, including schools
- Ministry of Education
- Department of Conservation
- Housing New Zealand
- Ministry of Defence
- Local residents and business associations
- Forest and Bird

Grass-roots community involvement is very important to ensure the ongoing success of the Greenways plan. Local knowledge-sharing and volunteering are needed to provide community ownership, care and responsibility. Community involvement could take the form of planting/weed clearance days, 'adopt a stream/street' groups, fundraising, lobbying and artistic input.

Funding has been allocated for roading improvements in the Board area in Auckland Council's Long Term Plan (LTP) for the next 10 years, and some of this will be used to implement the Greenways. Other funding avenues include Auckland Transport and the NZTA's regional cycleways fund. In addition the Local Board has planned open space projects to assist with implementation of the priority sections of this Plan.

The maps contained in Appendix - Section C, break down the prioritised projects in more detail, to setup for future planning and programming.



References

Image reference

Cover Page	1.	Photographer - Liesching, Claire (2016). Pahurehure Inlet looking towards Karaka, Papakura.
Page 3	2.	Photographer - Liesching, Claire (2016). <i>Coastal track, Walter Strevens Reserve</i> .
Page 4	3.	Photographer - Liesching, Claire (2016). <i>Karaka Harbourside</i> .
Page 7	4.	Adapted from Papakura Local Board Plan (2014). <i>Plan objectives</i> .
Page 8	5.	Auckland Council Design Team (2016). <i>Overall Greenways Network, Auckland</i> .
Page 11	6.	Greenways Design Guide (2016). <i>Positioning Greenways in Auckland's Walking and Cycling Network</i> .
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Page 14	9.	Photographer - Liesching, Claire (2016). <i>Brylee Drive Reserve Coastal Walkway</i> .
Page 16/17	10.	Photographer - Liesching, Claire (2016). <i>Karaka Harbourside near Pararekau Island</i> .
Page 18	11.	Photographer - Leach, Theo (n.d). <i>Bruce Pulman Park, Papakura</i> . ID: 38-221576
Page 30	12.	Photographer - Liesching, Claire (2016). <i>Coastal Boardwalk, Conifer Grove Esplanade Reserve</i> .
Page 33	13.	Photographer - Liesching, Claire (2016). <i>Capriana Drive, Karaka</i> .
Page 36	14.	Photographer - Liesching, Claire (2016). <i>Pedestrian crossing in Conifer Grove</i> .
Page 38	15.	Photographer - Liesching, Claire (2016). <i>Walter Strevens Reserve</i> .

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Appendices



A. Analysis Mapping



Papakura Local Board Area

This aerial photograph shows the broad landscape patterns of the Papakura Local Board area within its surrounding context. The area is bound to the west by the Pahurehure Inlet of the Manukau Harbour – a large body of water which separates Papakura from the rural land around Karaka. The Papakura Stream separates Papakura from Manurewa to the north, and the southern boundary is defined by the Hays Stream. The eastern boundary appears to have been formed more from planning processes than landscape features.

Papakura is currently one of the least 'urbanised' board areas on the isthmus, with large tracts of rural land visible on the Hingaia Peninsula, around Drury and east of Takanini. This is set to change however, with many of these rural areas set for residential development under the Unitary Plan. Much of this land is set out as Special Housing Areas, meaning that their conversion to residential land will be relatively rapid. While this will change the character of the Board Area, it does offer the ability to construct a high performing greenways network as part of these developments.

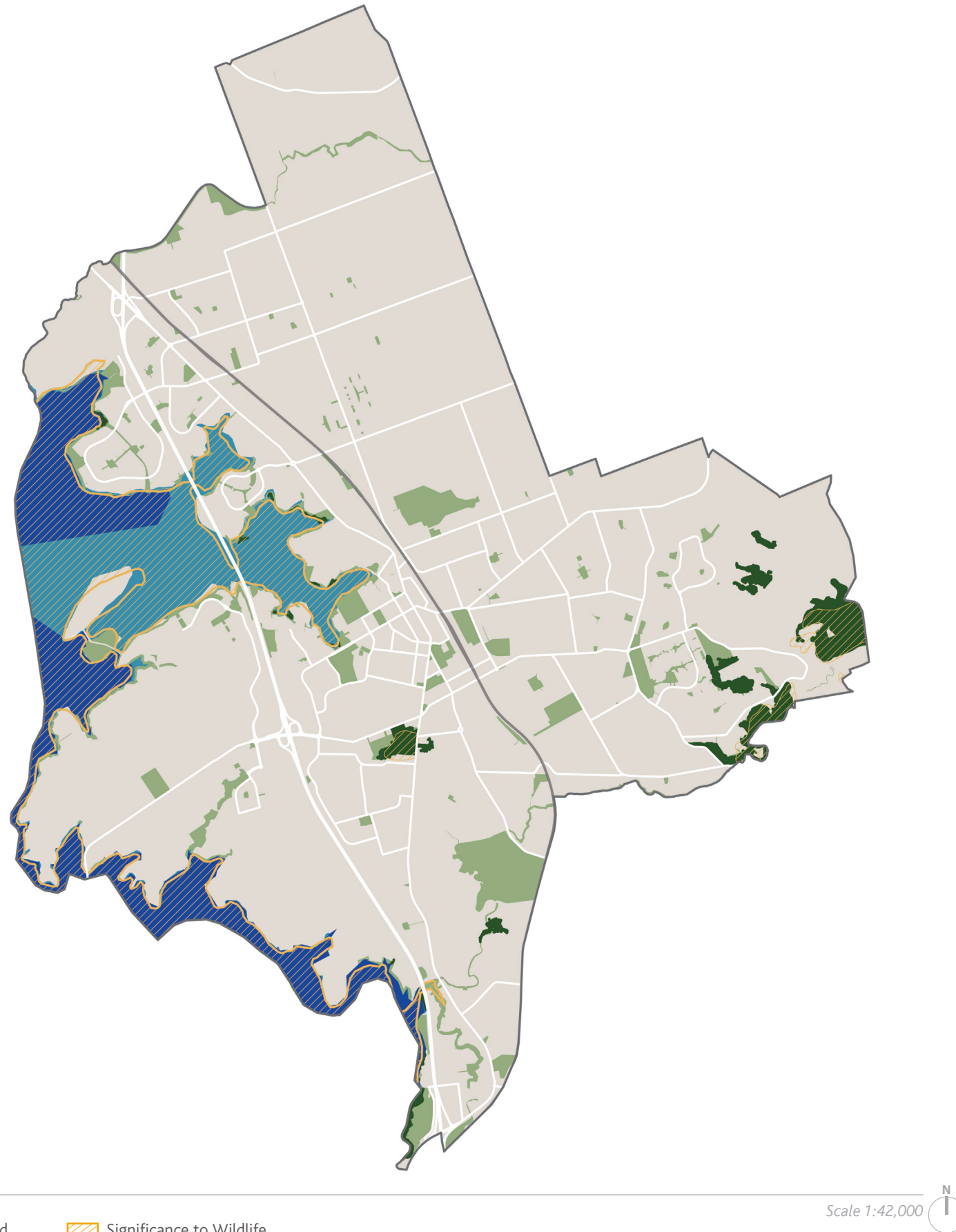
Looking at the Board area at this scale, there are four 'macro' landscape patterns which define it from a greenways perspective:

- Generally flat contour, meaning that the greenways network can occur on good accessible grades to maximise usage.
- Relatively long sections of coastlines, with good portions of this in public ownership
- Severance of neighbourhoods by SH1 and the rail line
- Pockets of industrial land, which further sever neighbourhoods from each other – generally clustered along the rail line.

Papakura connects to two local board areas;

- Manurewa (to the north)
- Franklin (to the east, south and west)

Both board areas are developing their own greenways plans, and as these develop, care will be taken to ensure that the links shown in the Papakura plan flow smoothly out into adjacent areas.



Significant Ecological Areas

Much of the ecological significance in the Papakura area relates to its coastal environment. The entire Pahurehure inlet on the west coast is of significance to wildlife (generally wading birds), and this extends right down to the narrow inlets around Drury. There are also several significant terrestrial ecological areas within the project area, primarily at Kirks Bush and in the less modified areas of bush around Red Hill. The Greenways project can support and link these ecological 'nodes', strengthening resilience of the network as a whole. Fully formed greenways will treat and reduce contaminated urban stormwater runoff, improving the health of both freshwater and coastal waterways.

The Auckland Regional Policy Statement (ARPS) lists the species that are known to frequent the Manukau Harbour (of which the Pahurehure Inlet forms the easternmost reach) as the; godwit, knot, turnstone, golden plover and other northern hemisphere migrants. The variable oystercatcher, NZ and banded dotterel, wrybill (threatened), the black stilt (endangered) and the South Island pied oystercatcher are migrants from within New Zealand. In order to maintain the wader population, preservation of roosting areas is one of the most important factors. Important wader roosting areas on the south Manukau harbour include the shell banks and adjoining pasture at Karaka (Kidd's Farm), Seagrove, Waipipi, Puhinui and Pollok Spit. If public land access is provided to any of these areas, it should be planned so as to least disturb these features. Protection of the intertidal sand and mud banks is also essential for birdlife in the harbour.

As with archaeological areas, the presence of such rich fauna brings with it specific development constraints, but adds greatly to the interest and potential education potential of any Greenways routes here.

Drury Creek is noted specifically as being one of Papakura's most significant ecological areas being comprised of a variety of intertidal habitats ranging from sandy mud intertidal flats to current-exposed rocky reefs and a variety of saline vegetation. Healthy and expanding areas of mangroves grow in the shelter of the waterways here and in the southern half of the Whangapouri Creek are notable eelgrass beds. Within the upper tidal reaches of Drury Creek there are a variety of marshes, grading from mangroves through to extensive areas of jointed rush-dominated saltmarsh, to freshwater vegetation in response to salinity changes. This same area is a migration pathway between marine and freshwater habitats for a number of different species of native freshwater fishes.



Key Open Spaces

This map includes large open spaces with a recreation function (typically playing fields, attractive walks, gymnasiums and pools). These areas can be considered 'destination' points within the open space network, and connecting these via Greenways will improve usage of both. Not shown on this map due to scale, but important from a greenways perspective is Totara Park and the Auckland Botanic Gardens, some 2km north of the Papakura Stream. Connections from Papakura to this regional facility have been set up in this plan, and will be completed in the upcoming Manurewa plan.

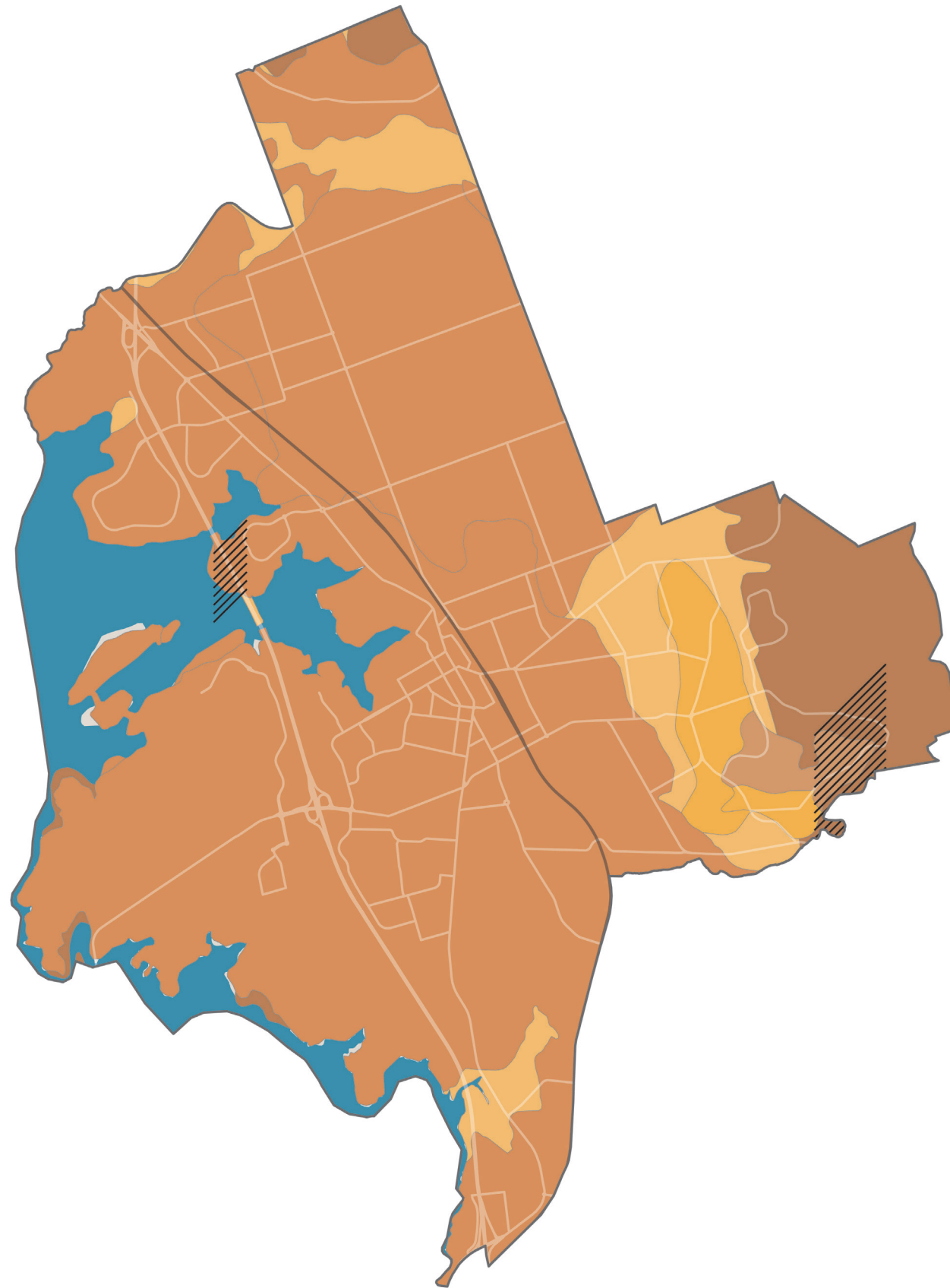
This map shows that recreational destinations are generally clustered in the developed areas of Papakura. The rural areas of Hingaia, north of Bruce Pulman Park and beyond Red Hill will likely develop these facilities over time as they grow. One area of very limited provision is the residential area around Papakura east - connecting these neighbourhoods to recreational facilities would be very beneficial for social and health reasons.

LEGEND:

- Park and reserve land
- Roads
- Rail

Scale 1:42,000





Geomorphology

While much of the geomorphology of Auckland is determined by its volcanic past, this is less the case in Papakura. The only significant volcanic feature is the extinct volcano Puke-Kiwi-O-Riki (Red Hill), and a basalt flow extends north from the cone, indicating an ancient lava flow. This feature is relatively intact, and its basalt wall faces are a unique feature within the board area.

This feature aside, the area is almost entirely sandstone, with some pockets of muddy substrate at coastal inlets and around waterways. This soil profile is typically silty clay, and relatively fertile – so is suitable for the type of native planting envisaged as part of this plan.

Not picked up in these soil maps, but another well-documented feature of the area are its peat-based soils. These are widespread throughout Takanini, and influence both engineering (due to their relative instability) and also planting choices, due to their anaerobic nature and low (acidic) pH. This influences suitable species, and may also mean that additives such as lime may be required to raise the pH and improve plant establishment.

Interpretation of this map has referenced Bruce Hayward's 'Volcanoes of Auckland – the Essential guide', and also the NZ Geotechnical Database bore logs for the area.

LEGEND:

— Roads
— Rail

/// Significant Geological Site

Basalt

Conglomerate

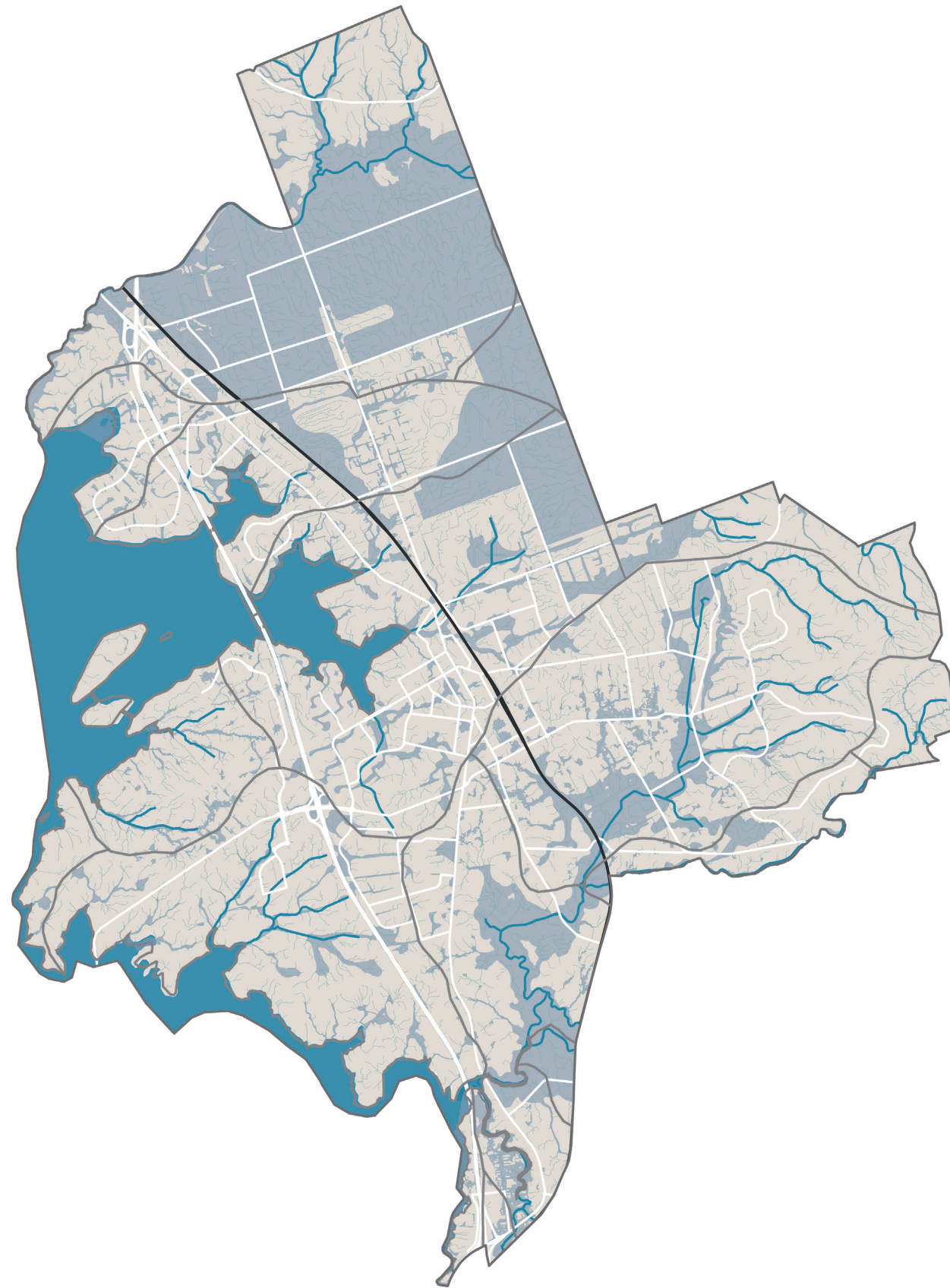
Mud

Sandstone

Terbidite

Scale 1:42,000





Hydrology and Catchments

This map shows stormwater catchments, sub-catchments and the 100 year flood plains within the Papakura Local Board area, as well as local watercourses. Many of the streams in the area have been significantly modified – with the Papakura Stream being channelised, and a number of minor streams running through industrial areas and being straightened and suffering the effects of pollutant runoff. These often flow out via pipes and culverts to the harbour, contributing to poor water quality in the Pahurehure Inlet. The 2012 State of Auckland Marine Report Card marks the ecological health of the inlet as ‘unhealthy’. The Papakura Local Board is committed to protecting and restoring both the riparian and coastal environment, and works with the Manukau Harbour Forum to help achieve this. It is noted in the 2014 Local Board that the way to achieve this is to reduce pollutants into the waterways that flow into the harbour, and implementation of the greenways plan can help achieve this.

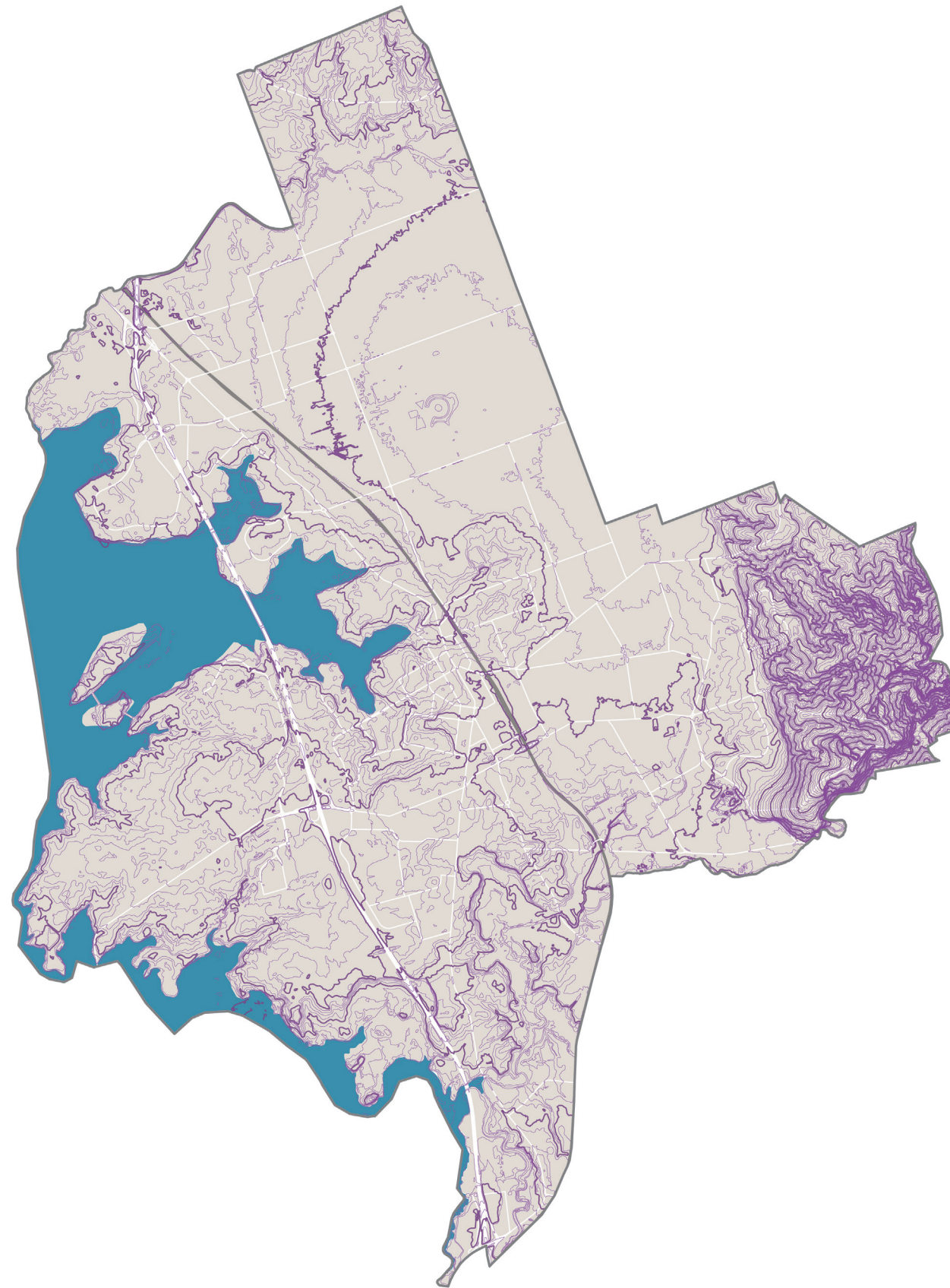
One notable feature of the board area is the extensive flood prone areas covering the flat farmland areas to the north. These come about as a result of the contour and the underlying peat soils. These areas are tagged for significant residential development in the future, and this issue will need to be resolved. Resolution of this issue may result in future greenways, as evidenced by the currently-planned ‘Takanini Cascades’ project, which is a conveyance channel designed to take water flow away from SHA areas south of Bruce Pulman Park. Such projects feature naturalised watercourses, supported by native riparian planting and walking/cycling and recreational facilities, and have the potential to form/drive the greenways network in this area as development proceeds.

LEGEND:

- | | |
|------------|---------------------|
| Roads | Floodplains |
| Rail | Streams/Rivers |
| Catchments | Overland Flow Paths |

Scale 1:42,000





LEGEND:

— Roads
— Rail

— 10m contours
— 2m contours

Scale 1:42,000



Topography

The majority of Papakura is relatively flat – the exception being the residential suburb of Red Hill in the southeast, which grades up steeply to a high point around Pukekiwiri Pa, and offers views over the suburb to the coast. There are minor local incisions carved by the stream network, but topography along these corridors is generally non-challenging.

From a Greenways' perspective the flat contour is favourable, as it allows for a range of route options, avoiding busy roads; and is suitable for a wider range of ages and physical abilities. Where Greenways encounter more sloping areas, routes will be selected to minimise vertical climb, by orientating the paths along cross slopes. In terms of the proposed greenway routes, further investigation is required at a detailed stage to determine the feasibility of providing cycle access. There may be walking-only tracks provided where cycling is not possible due to slope.



Public Transport Network

Existing and planned public transport routes are illustrated on the adjacent map, showing that the residential areas of Papakura are relatively well served by public bus services, although it is a long trip for most residents to the nearest train station. It is expected that these routes would develop further as population in the surrounding region increases. At this stage, the only major extension to this network is the planned rail station at Drury, although timing and funding of this project is currently unconfirmed. No ferry services exist, and none are planned.

In planning the Greenways routes, train stations in particular were taken into account as these are less regularly distributed than bus stops, and have potential to bring visitors into the area on 'day trips' and walk the greenways network - particularly the more scenic coastal routes. The future planned rail stations were also taken into consideration, although the staging of Greenways to connect to these would not necessarily be prioritised until their timing is better known. It is worth noting that the rail corridor - while currently severing the board area into two portions - may in the future be able to be used as a greenway, due to the space in the corridor, combined with large areas of adjoining reserve or road corridor land. This could be further explored, although will be restricted somewhat by the planned third line. Such an approach is being constructed in the Whau.

Bus routes were also taken into consideration, as these routes offer less potential for creating 'slow speed' Greenways street environments, and the buses themselves create more risk to cyclists. On-road Greenways therefore avoid bus routes wherever possible, although links to bus stops have been considered.

LEGEND:

- | | |
|---|---|
| Park and reserve land | Rail Station |
| Roads | Bus Route |
| Rail | Bus Stop |

Scale 1:42,000





LEGEND:

- | | | |
|--|--|---|
| ■ Park and reserve land | — Motorway | — Medium Road |
| — Rail | — Major & Arterial Roads | — Minor Road |

Scale 1:42,000



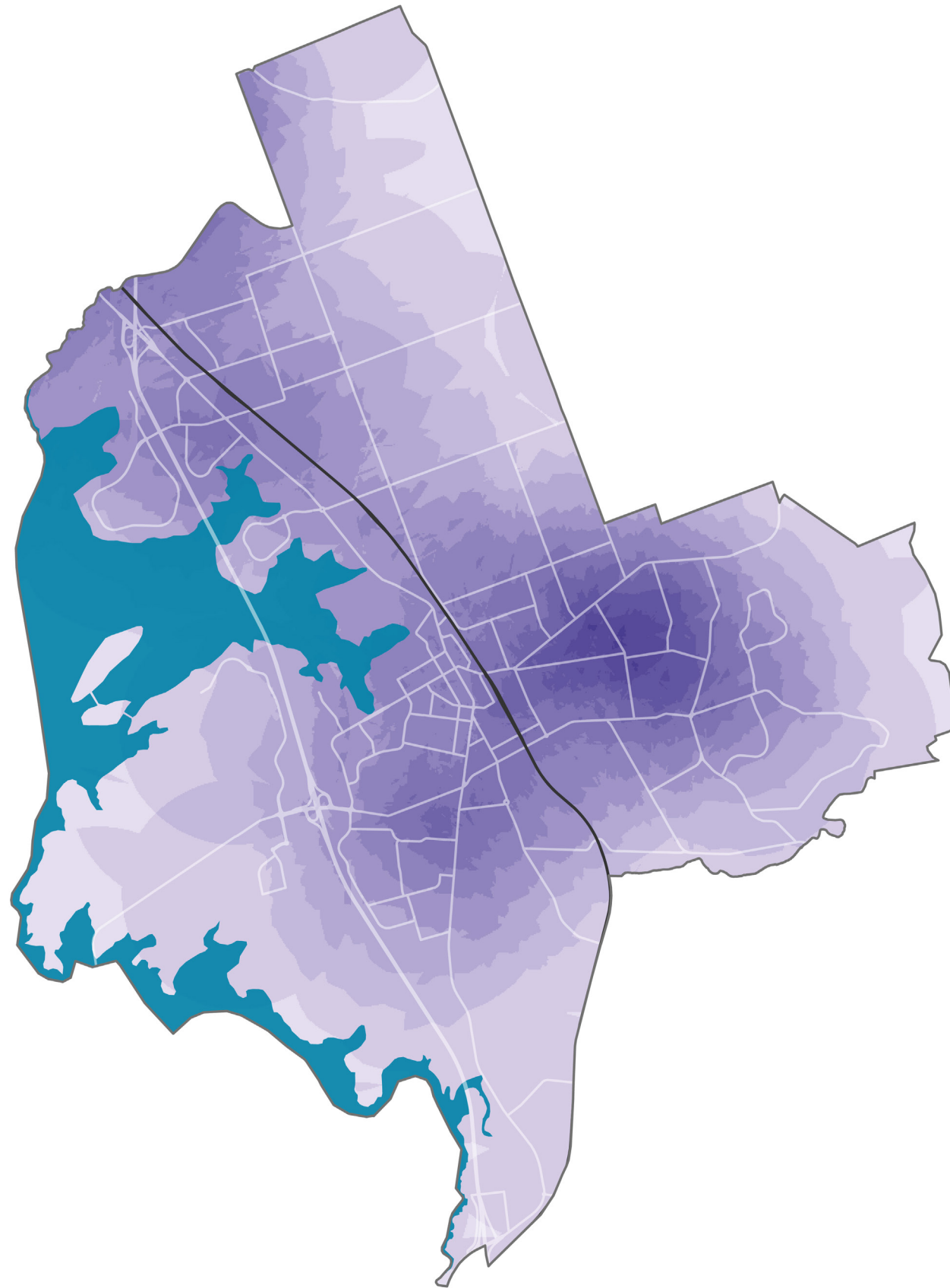
Road Hierarchy

Existing road hierarchy has been considered when determining the Greenways routes, in order to create safe, desirable and high-amenity environments, encouraging use by as many Aucklanders as possible.

Major, medium and arterial roads are typically busy roads that provide for a range of transport types, including cars, buses and trucks. Careful consideration needs to be taken where the green links network intersects or runs along these roads, to ensure desirable/safe routes are formed, and Greenways generally avoid these routes.

Minor or local roads are slower speed environments with lower traffic flows and typically provide more desirable Greenway connections. While these tend to be prioritised when planning Greenway routes, careful consideration at the design stage will still be required in order to ensure adequate passive surveillance and motorist awareness of pedestrians, cyclists and recreational users.

The road hierarchy also affects potential for street 'greening' initiatives, such as narrowing traffic lanes, providing vegetated chicanes and shared spaces, and treating stormwater on site. Methods for providing safe crossing points will also be affected by the road hierarchy - for instance, un-signalised crossings are unlikely to be permitted on arterial roads.



Population Density & Growth Centres

The adjoining map shows population density as of the 2006 Census – this being the most up to date data that has been mapped for the area. Population density is important in Greenways planning as it shows where potential users will be coming from, and it is logical to focus efforts in these areas (in addition to providing strategic regional connections, which are not as influenced by proximity to housing).

This map excludes the recent growth on the Hingaia Peninsula and around the Addison development, and is forecast to change significantly over the next five years. It illustrates that traditionally, Papakura has comprised three main residential areas;

- Conifer Grove to the north
- Pahurehure/Rosehill west of the town centre
- Papakura Central, east of the town centre

Areas of low population density reflect the rural areas to the edges, industrial land, and the larger-sized lots around Red Hill.

In terms of greenways, this illustrates the challenges of making connections through areas of low population, and the inherent safety challenges in this. It also shows that there is a significant population density east of the town centre and the challenge will be to provide safe, high amenity links out to the coast, where many of the initial greenways are likely to be located, in order to open these up to the maximum number of people.

In general, as a city intensifies, residential section sizes become smaller, and residents require recreation facilities beyond their backyard. While this can be perceived as a negative impact of intensification, if well planned, these public open spaces can actually build communities by providing locations and facilities where people from different communities can come together and meet.

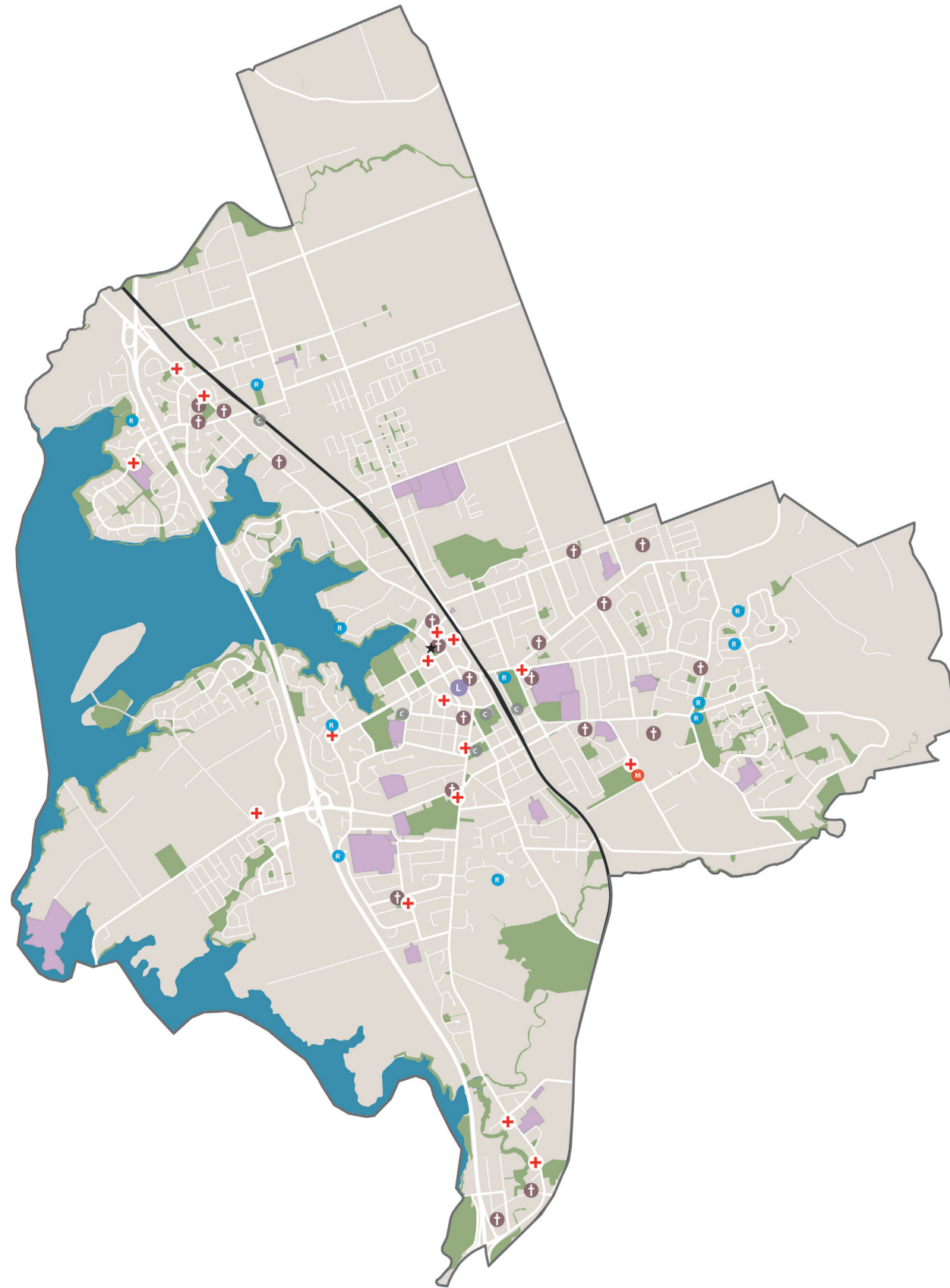
LEGEND:

— Roads
— Rail

Population density:
↓ High Density to Low Density

Scale 1:42,000





LEGEND:

- | | | |
|-----------------------|-----------------------|-----------------------------|
| Park and reserve land | Education Facilities | Communities Centres & Halls |
| Roads | Recreation Facilities | Library |
| Rail | Places of Worship | Marae |
| | Medical Facilities | |

Scale 1:42,000



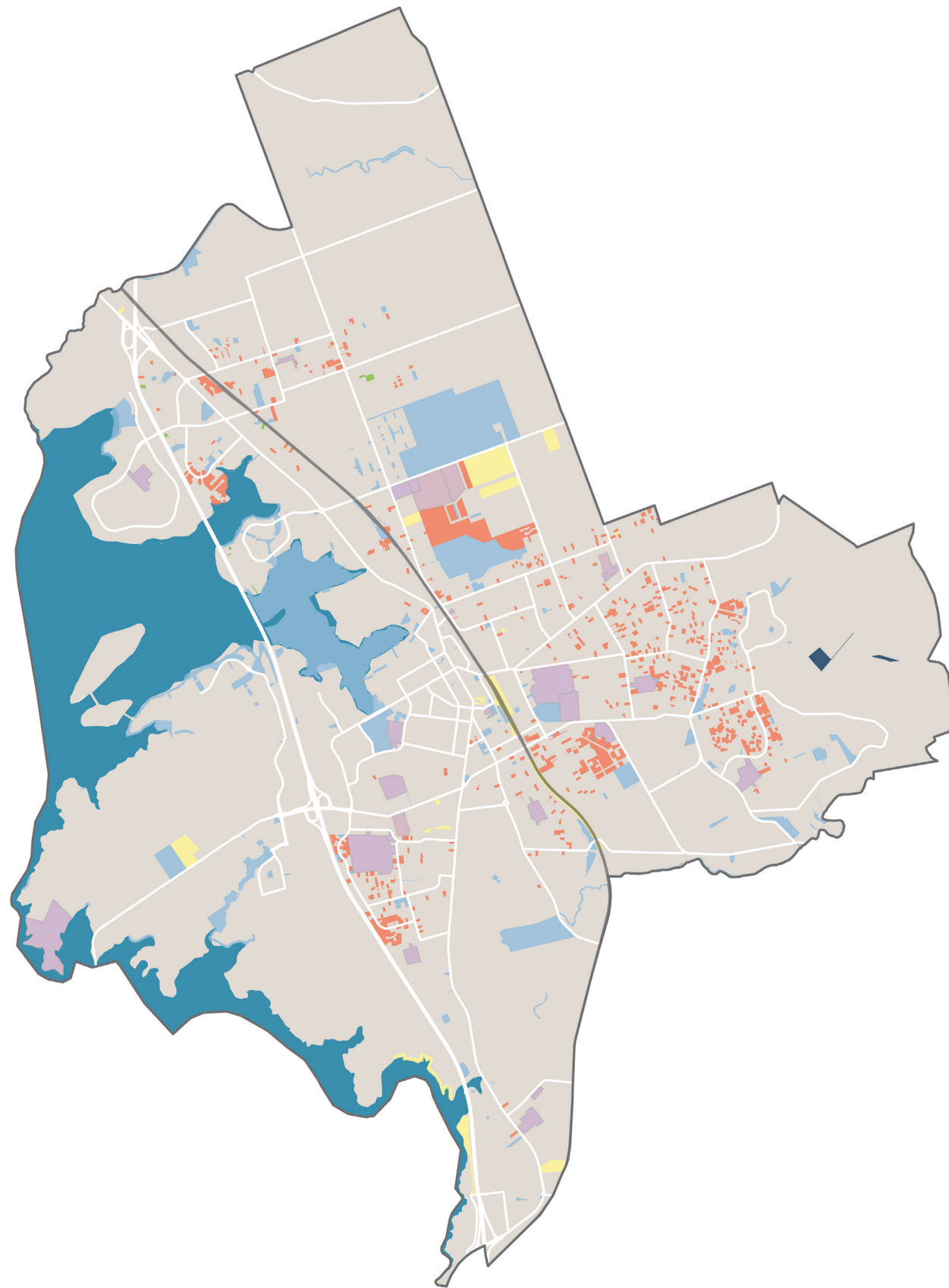
Social Infrastructure

This map shows community facilities in the Papakura Local Board area, including community halls, places of worship, community centres, libraries, swimming pools, recreation facilities and Marae.

Schools and community facilities are critical points in the Greenways plan, providing both an opportunity to create connections via easements, while also providing destinations in their own right. These facilities are visited on a frequent basis, and providing safer, higher amenity and more accessible connections has great potential to reduce reliance on private vehicles.

Proposed connections to schools may be influenced by existing 'walking school bus' routes. Auckland Transport makes funding available for walking school bus routes, and it is possible that some connections could be supplemented by this funding stream.

Any easement proposal within the boundaries of a community facility would need to be firstly consulted with the landowner or leaseholder, and needs to be carefully considered to ensure the safety of students/facility users, and minimise risk of property damage. Some accesses may need to be limited to certain times of day for these reasons.



Land Ownership

This map shows land within the Papakura Local Board area that is in some form in public ownership. This information is important, as connections on publicly-owned land are more readily achieved than those on privately-owned property.

Publicly-owned land within the study area has been divided in to five types of ownership:

Auckland Council: This land may be available for Greenway connections, dependent on the current or proposed usage of the site. Council Controlled Organisations include Watercare Services Ltd, Auckland Transport, Panuku (Development Auckland), Regional Facilities Auckland and Auckland Tourism, Events and Economic Development Ltd (ATEED).

Government Departments and Ministries: Educational institutions generally feature large areas of open space, and discussions may be held regarding public use and/or connection easements over this land.

Housing New Zealand (HNZ): In areas where there is a cluster of HNZ properties, discussions may be held regarding redevelopment of housing stock, and the redistribution of public open space to a layout which suits both housing and recreational purposes better.

Crown transport agencies (NZTA and Kiwirail): In some instances the land adjacent to motorway or rail corridors may be used to establish pedestrian and cycle connections, either along side of or crossing over and beneath the corridor. Ecological improvements to these areas may also be possible - NZTA for instance is undertaking a significant 'greening' programme across its highway network.

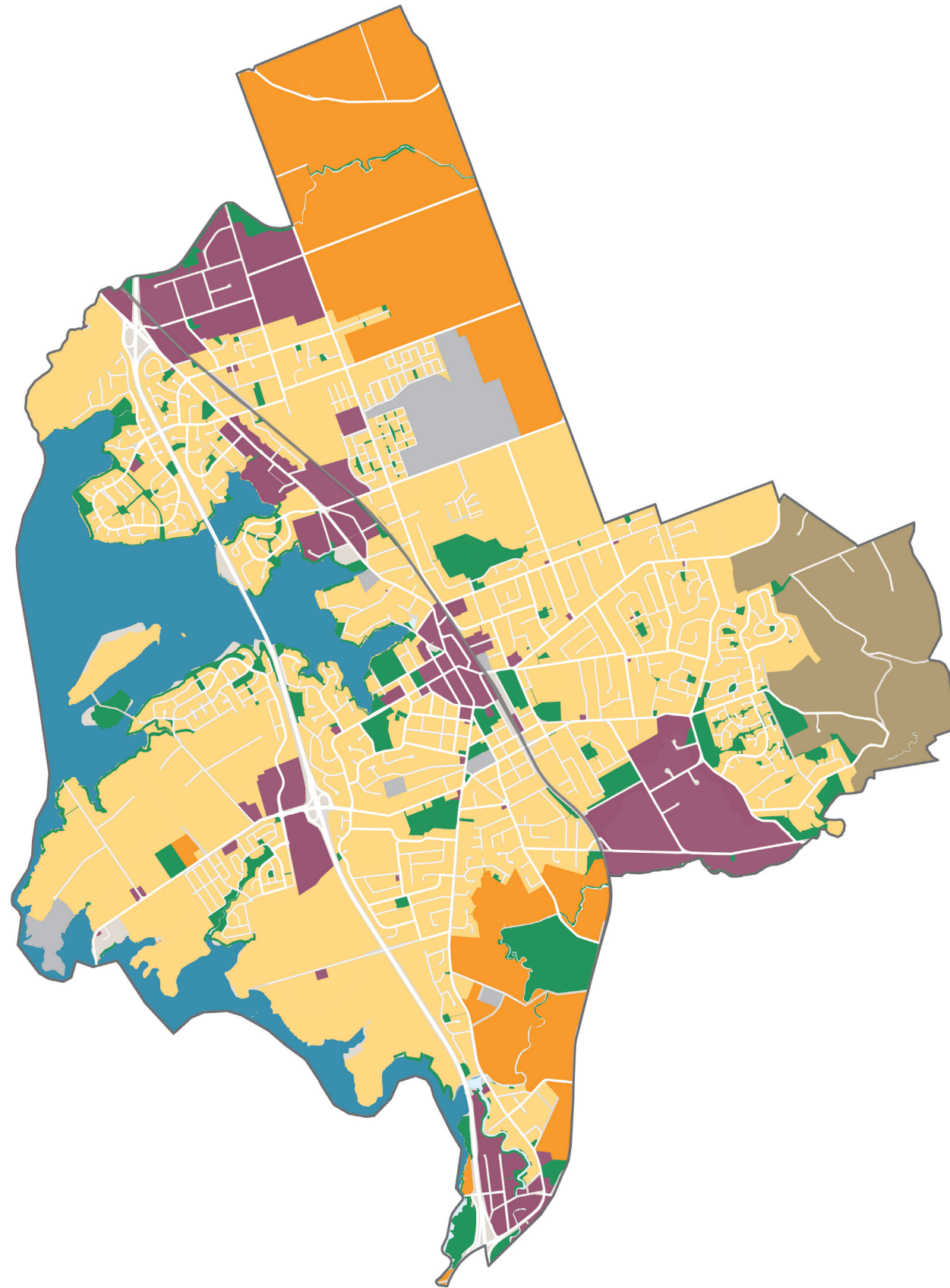
Crown generally: This is land owned by the Crown and may include commercial forests, leased pastoral land, conservation land (administered by the Department of Conservation) and marine and coastal areas.

LEGEND:

■ Park and reserve land	■ Auckland Council	■ Ministry of Education
■ Roads	■ Crown	■ Watercare
— Rail	■ Housing NZ	■ Energy Company

Scale 1:42,000





LEGEND:

— Roads
— Rail

Residential
Open Space
Business

Future Urban Zone
Rural
Special Purpose Zone

Scale 1:42,000



Unitary Plan

This map shows Auckland Council Unitary Plan zoning, which was not operative at the time of writing the report, but which is likely to become operative in the very near future. To futureproof this report, zoning has been described under the Unitary Plan. Zoning in the Papakura area can be summarised as:

Business Zone: Relates to commercial and industrial activities, including retailing, servicing, offices, warehousing, manufacturing and research. orientated activities.

Residential Zone: Is the largest land use, and relates to areas that are predominately but not exclusively used for residential activity. One of the most significant changes in the unitary plan is the rezoning of large areas of Papakura from 'Future Urban' to 'Residential zone, particularly around Hingaia.

Open Space Zone: Relates to a range of open space used for recreation activities, and conservation and visual purposes, and applies to both public and privately-owned land.

Special Purpose Zone: Relates to sites or areas that require special treatment and are of particular consequence to the communities well-being, health and safety but do not conform to the provisions of the standard zones.

Rural Zone: Relates to rural activities, including rural production, rural character and amenity, rural industry and services. Rural areas may include areas of ecological significance as well as countryside living.

Future Urban Zone: This zone is applied to land located on the periphery of existing urban areas within the Rural Urban Boundary (RUB), which Council has determined is suitable for future urban development. This is a transitional zone, which provides for the land to be used for rural activities until it is able to be developed, via the structure plan and plan change process. A structure plan or plan change can be initiated by Council, an individual, group or partnership (source; Unitary Plan).

Large areas of Future Urban Zone exist around Opaheke Park and in the northeast of the Local Board area. Any plan change process as described above should include greenway connections, which tie into the overall network, as should the plans for the developing residential areas around Hingaia and Papakura east.



Auckland Cycle Network (ACN)

This map shows the Auckland Cycle Network (ACN) overlaid onto the Papakura Local board area. The ACN is based on the Regional Cycle Network (RCN), which was developed by the former Auckland Regional Transport Authority in conjunction with former legacy Auckland councils and the NZTA. The ACN is driven by the Auckland Plan growth projections and the Auckland Integrated Transport Plan 'One Network' approach, both of which share an estimated completion date of 2040.

The draft ACN is broken into three types of cycleways:

- **Metros**
- **Connectors**
- **Feeders**

'Cycle metros' offer the highest level of service to the cyclist, in that they are dedicated connections, continuous, direct and traffic free. They typically exist along motorway or railway corridors. 'Connectors' follow arterial routes, and are designed to connect people quickly and directly to key destinations and public transport nodes. They are 'on road' connections. A number of these exist already, many in shared bus lanes.

'Feeders' are local neighbourhood connections. These may include and/or double up with Greenways routes. 'Feeder routes' are intended to connect open spaces, and like Greenways, are likely to follow quieter streets.

Within internal officer workshops for the development of the Greenways, Auckland Transport has expressed an interest adjusting their 'feeder' routes over time to align more closely with those routes developed via the Greenways plans – so as to align delivery and funding.

LEGEND:

- | | |
|--|--|
| ■ Park and reserve land | — Metro |
| ■ Roads | — Connector |
| — Rail | — Feeder |

Scale 1:42,000





LEGEND:

- | | | |
|--|--|---|
| ■ Park and reserve land | ● Archaeological Site | ● Maritime Site |
| ■ Roads | ● Historical Botanical Site | ● Reported Historic Site |
| — Rail | ● Historic Structure | |

Scale 1:42,000



Cultural Heritage Inventory

This map shows sites that identified by the Cultural Heritage Inventory (CHI) that was created by the former Auckland Regional Council. The CHI was established to promote sustainable management of our cultural heritage by providing easy access to relevant information, and should be used as a resource when developing the network.

CHI sites are classified as follows:

- **Archaeological Sites** - e.g. midden and pa sites;
- **Historic Botanical Sites** - e.g. specimen trees;
- **Built Heritage Sites** - e.g. typically early European buildings;
- **Maritime Sites** - e.g. shipwrecks, wharfs, boatsheds; and
- **Reported Historic Sites** - e.g. known locations of battles.

Compared to other parts of Auckland, there are a relatively low number of recorded archaeological sites in Papakura. This is not necessarily reflective of a lack of historical features/sites, but perhaps rather a lack of investigations that have occurred in this area. Of those that do exist, a relatively large number are botanical sites, clustered around the town centre.

Archaeological sites are also relatively well represented, illustrating the significance of the area to Maori. These are clustered around sites which were desirable for occupation and food gathering - notably the coastline and streams, as well as the pa site at Puke-Kiwi-O-Riki (Red Hill). The Greenways routes will take in many of these historic sites, and while this will create specific development constraints, it can also add greatly to the interest of the routes.

B. Case Studies

B.1 Lloyds Crossing, Portland (USA)

Lloyds Crossing in Portland is a brownfields redevelopment site in the central city area, with the aim of:

"Developing a conceptual design for a sustainable, financially feasible, mixed-use development project that will catalyse future private development in the district.. Following conceptual master planning, a stakeholder engagement process is now underway, to create the 'Lloyd Green District'

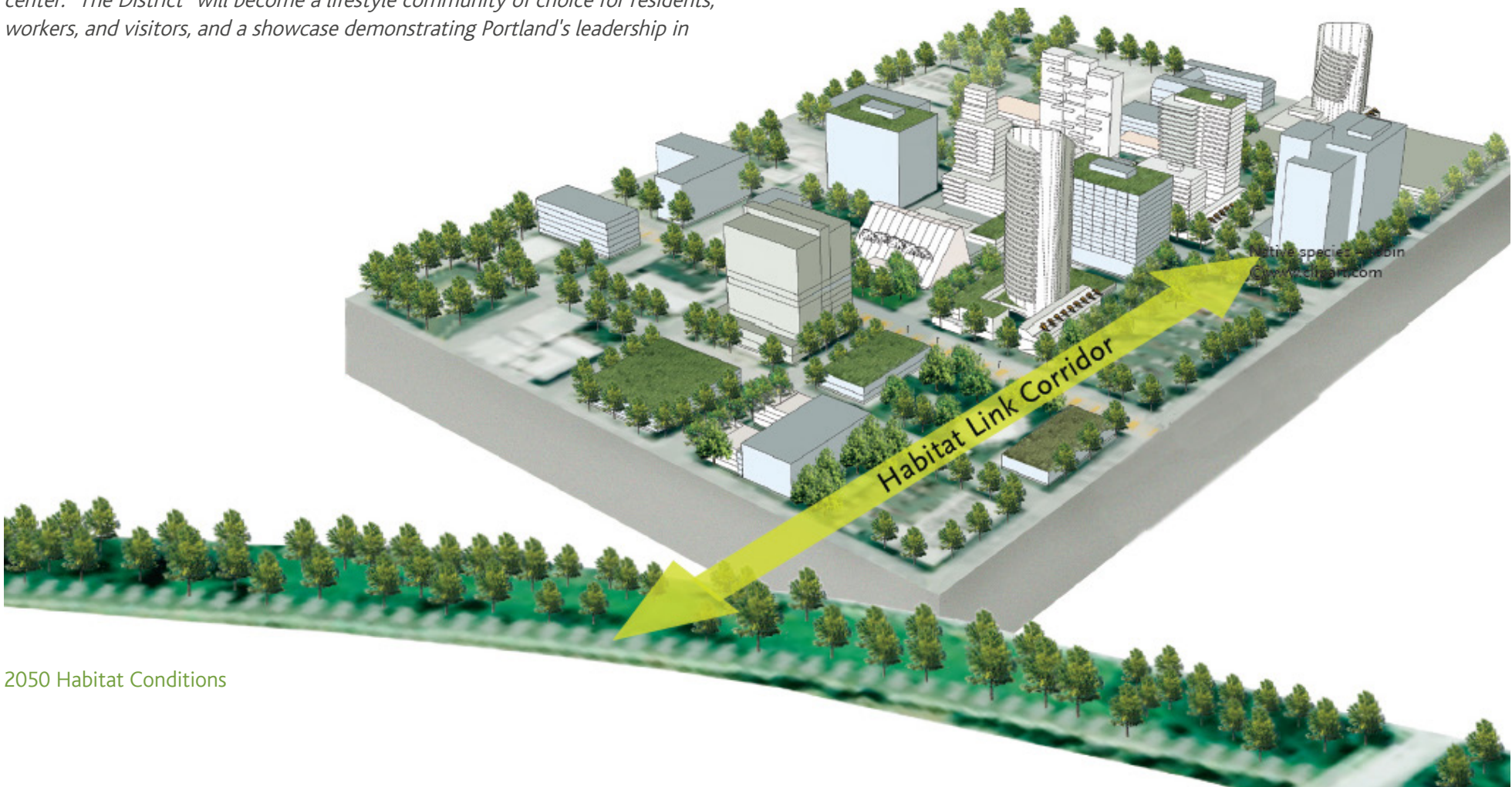
Co-conveners of the stakeholder group are the Mayor of Portland, Council President Metro and Multnomah County Commissioner. Forming the "Lloyd Green District," the group includes sponsors (Portland Development Commission, METRO, City of Portland and Lloyd TMA/BID), invited property owners, employers and developers in the proposed district area and other local and state agencies and civic organizations.

Their goal is to:

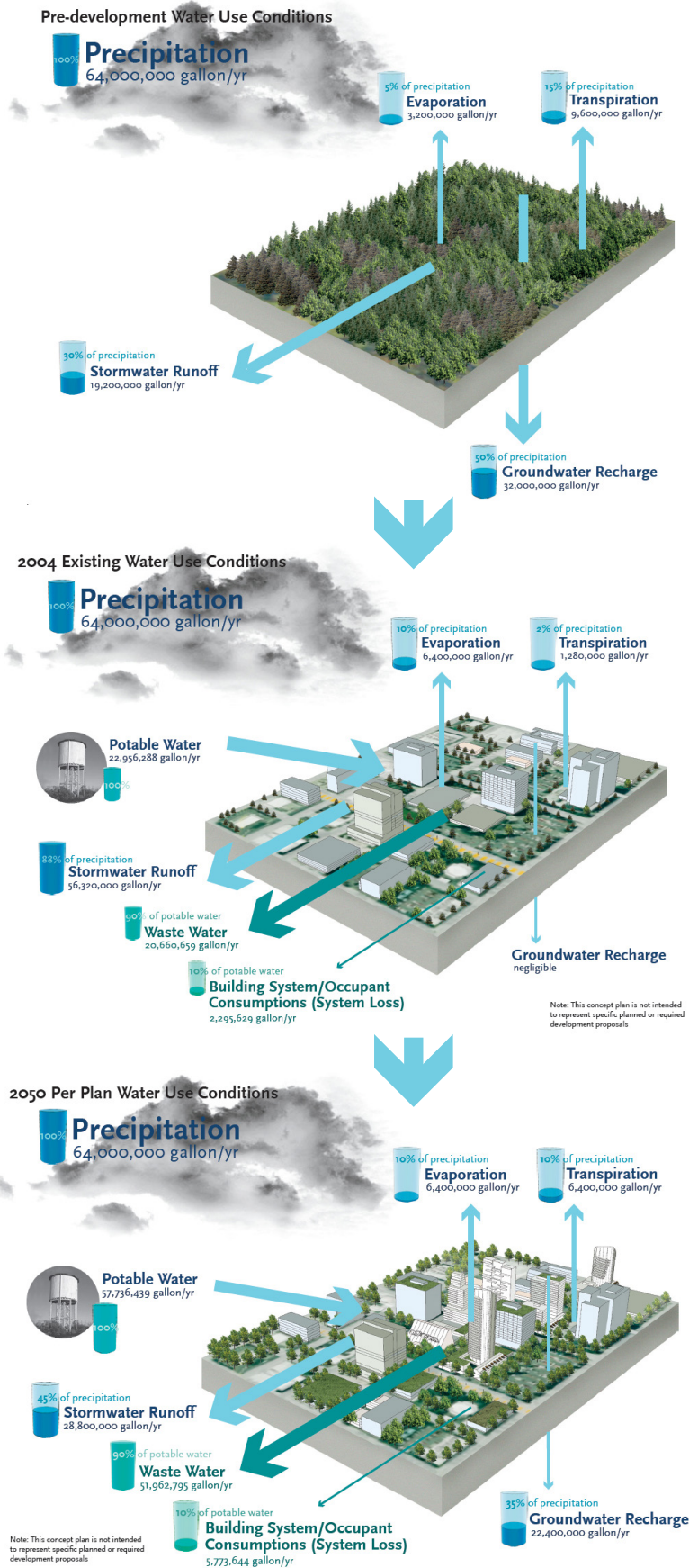
"create a premier sustainable multi-use development district within an urban center." The District "will become a lifestyle community of choice for residents, workers, and visitors, and a showcase demonstrating Portland's leadership in

creating economically viable earth-friendly development." This will become one of the first redevelopments under Washington State's developing programme of Climate Benefit Districts - a programme which aims to:

- support the creation of "green jobs";
- support livable, diverse and affordable urban neighbourhoods;
- reduce the impact of urban development on the environment;
- capture the innovations and life cycle cost savings for district level energy and infrastructure solutions;
- rebuild and reinvest in communities in ways that reduce the demand for driving;
- help public and private interests to work together in developing healthy, vibrant urban communities aimed at achieving carbon reduction goals;
- send a clear policy signal to attract desirable private investment and coordinate public action from multiple levels of government; and
- give communities the means to meet major environmental and economic challenges while remaining responsive to local conditions and opportunities.



2050 Habitat Conditions



B.2 Portland Green Streets (USA)

Portland has been designing and building Green Streets for many years. Their consistent monitoring has proven that they successfully reduced peak stormwater flows and runoff volumes. The images to the right show a variety of Green Streets in Portland that have been successfully implemented.

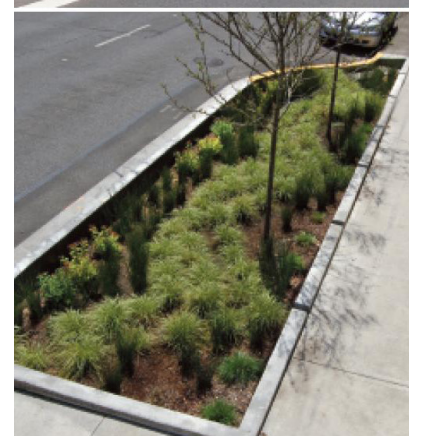
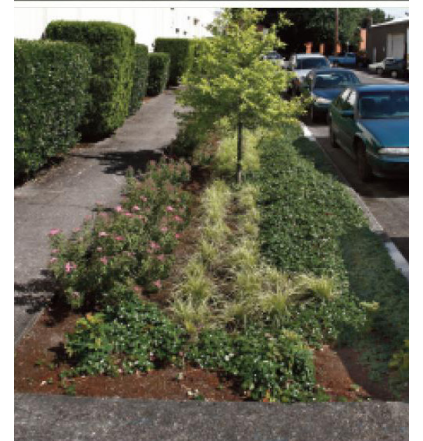
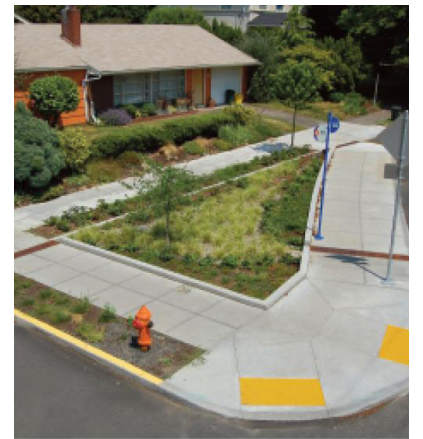
Green Streets convert impervious street surfaces into green spaces that capture stormwater runoff and allow the water to permeate through the ground as plants and soil remove pollutants. Green Streets help to create attractive open spaces, streetscapes, provide ecological urban habitats, and help to connect neighbourhoods, open spaces, schools and other areas within the city.

The city of Portland is:

"Committed to green development practices and sustainable stormwater management. Green Streets are an innovative, effective way to restore watershed health. They protect water quality in rivers and streams, manage stormwater from impervious surfaces, and can be more cost efficient than new sewer pipes. Green Streets offer many benefits that sewer pipes can't."

Green Streets offer the following benefits:

- convert stormwater from a waste diverted into a pipe, to a resource that replenishes groundwater supplies;
- 80%+ of storm water volume to be infiltrated on site;
- add urban green space and wildlife habitat;
- reduce stormwater in the sewer system;
- save money on wastewater pumping and treatment costs;
- use plants and soil to slow, filter, cleanse, and infiltrate runoff; and
- design facilities that aesthetically enhance the neighbourhood livability and property values.



B.3 Jellicoe Street, Auckland (NZ)

Jellicoe street features over 600m² of purpose-built rain gardens. Run-off from over 9000m² of the surrounding roads and surfaces flows into the rain gardens. Other key objects for the project include:

- integrate Best Practice Stormwater Design and the efficient use of water resources;
- re-use existing structures and infrastructure where possible
- generate renewable energy on site;
- preserve coastal water quality and protect waterfront ecologies;
- protect air quality and reduce traffic congestion;
- improve permeability and establish pedestrian priority and safety;
- facilitate better access and circulation between transport modes;
- enable visual connections through the precinct to the water; and
- promote pedestrian and cycle activity.

This new initiative in a high-use area has proven to be a great way to educate visitors and residents about the merits of low traffic speed, shared space environments and 'green' infrastructure approaches.



B.4 Greenpark, Thames Valley (UK)

This new industrial development is an exemplary model of best-practice industrial/commercial development. It is acknowledged that retrofitting an existing industrial zone (such as that found in Papakura) is a significantly more difficult task than greenfield development, but this case study shows a range of solutions which can be employed to improve conditions for workers, visitors and the environment. Solutions employed at Greenpark include:

Landscaped parkland:

- a network of cycleways;
- nature trails; and
- paths running around the banks of the stormwater treatment wetlands.

Community life:

- frequent, comfortable buses to bring people into Green Park from Reading station or nearby town centres;
- well-maintained, well-lit walkways make it easy to get around the Park;
- cafés and restaurants;
- health club;
- a day nursery; and
- acres of natural parkland.

Event hosting:

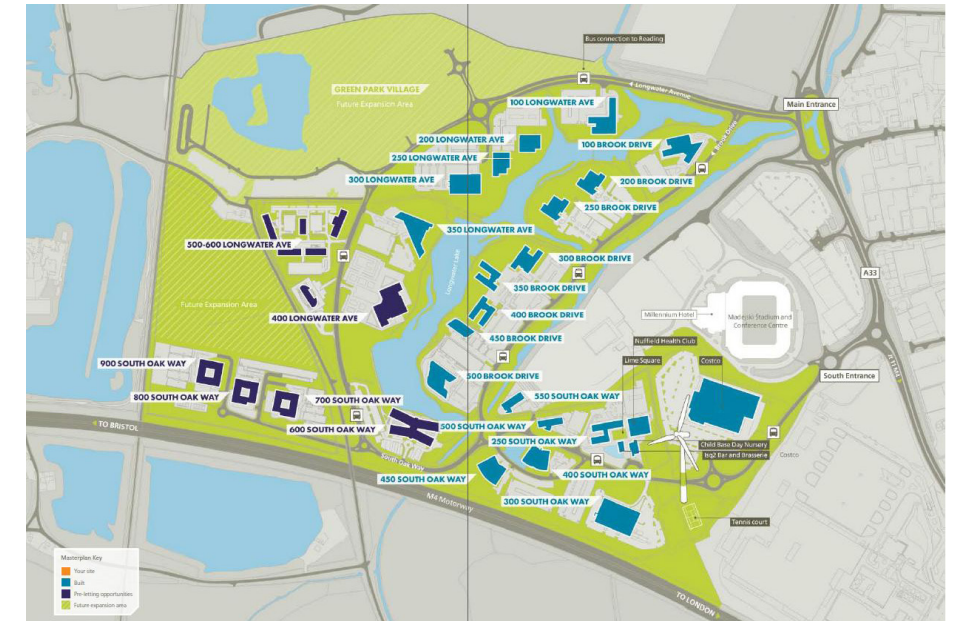
- Events throughout the year, attract workers and nearby residents alike, and these include a range of organised annual events and one off events, including the Reading half-marathon and the Corus Triathlon. Longwater Lake also hosts regular angling competitions.

Green energy (wind and solar):

- The development generates 2.3 megawatts of clean energy, enough to power around 1200 homes.

Green Park fast track:

- A fleet of low emission eco-friendly buses. These are among the first in the UK to meet the stringent 'Euro 4' European emission standards and produce significantly lower levels of carbon dioxide and nitrogen oxide than regular fleets.
- Buses include full wireless access and a real time information system for maximum passenger comfort and security.



C. Priority Greenways



LEGEND:

Base information

- Schools
- Park and reserve land

- Flood Plains
- Streams & Rivers
- Existing Paths

Greenway connections

- Priority greenway project
- Proposed greenway route (straightforward delivery)
- Proposed greenway route (complex delivery)

Scale 1:2000 @ A3



PRIORITY GREENWAY PROJECTS

1

2

Location

Keywella Drive to Walter Strevens Drive, via Brylee Drive Reserve.

Description

Two priority routes have been combined in this section; the southerly connection (2) is a relatively straightforward widening of an existing path, while the northerly route (1) is more complex, likely requiring sections of boardwalks and possibly some steps, due to gradient.

Ecology and cultural considerations

This area sits within a marine ecological area, and the entire Pahurehure Inlet is also of significant wildlife interest, meaning that construction activities and the design/of any boardwalks in this area needs to be carefully managed. While the coastline was of significance to Mana whenua, this area does not feature any CHI logs.

Constraints

- gradient may require steps - bike gutters need to be included
- some issues around passive surveillance and encroachment/privatisation

Opportunities

- Connections into the new development at the Golf course, which will feature a series of greenways
- revegetation and habitat creation to improve coastal ecology

Budget Requirements (approx)

- [P1] Boardwalk 175K, Pathworks 120K, earthworks and sundries 50K ecological allowance 25K, PS and consenting 65K. Total 435K
- [P2] Pathworks 150K, earthworks and sundries 50K ecological allowance 50K, PS and consenting 45K, total 295K

Funding and Delivery Options

Parks Growth Programme (Greenways), Locally Driven Initiatives (LDI) CAPEX, Individual LTP line item, volunteer/partnership work (planting)

NB: Contours placed every 1m



LEGEND:

Base information

- Schools
- Park and reserve land

- Flood Plains
- Streams & Rivers
- Existing Paths

Greenway connections

- Priority greenway project
- Proposed greenway route (straightforward delivery)
- Proposed greenway route (complex delivery)

Scale 1:2500 @ A3

PRIORITY GREENWAY PROJECTS

3

4

Location

Conifer Grove Esplanade to Elana Court

Description

Two priority routes are combined again here, in the interests of brevity. Priority route three is a new connection, while route four is an upgrade of an existing one. Both routes would be supported by ecological improvements.

Ecology and cultural considerations

As with the previous priorities, the inlet here forms part of a marine ecological area, and is of significant wildlife interest, meaning that construction activities need to be carefully managed. No boardwalks are envisaged in this section, minimising ecological impacts. The coastal habitat could be greatly enhanced by native replanting. While the coastline was of significance to Mana whenua, this area does not feature any CHI logs.

Constraints

- safety issues need consideration along coastal wall - would this require a rail?
- steep topography in parts

Opportunities

- relatively low cost improvements, due to easy contour and existing infrastructure
- revegetation and habitat creation along coastal edge to improve ecology

Budget Requirements (approx)

- [P3] Pathway 100K, ecological allowance 40K, Consenting and professional services 25K, Total 165K
- [P4] Pathway 250K, ecological allowance 50K, earthworks and sundries 50K Consenting and professional services 60K, Total 410K

Funding and Delivery Options

Locally Driven Initiatives (LDI) CAPEX, Individual LTP line item, volunteer/partnership work (planting)

NB: Contours placed every 1m



LEGEND:

Base information

- Schools
- Park and reserve land

- Flood Plains
- Streams & Rivers
- Existing Paths

Greenway connections

- Priority greenway project
- Proposed greenway route (straightforward delivery)
- Proposed greenway route (complex delivery)

Scale 1:1500 @ A3

PRIORITY GREENWAY PROJECTS

5

6

Location

Roundtree Reserve to Waimana Reserve

Description

This connection takes in two priority routes, the easier being priority 6 - a connection through the flat grassed area on Waimana Reserve, and the more complicated being priority 5, which would likely need to be a boardwalk through the mangroves. These are linked, as they would need to be delivered together, to avoid a dead end.

Ecology and cultural considerations

These routes sit within an area of significant wildlife interest, meaning the planning of the boardwalk envisaged by p5 needs to be carefully assessed. The coastal edge of Waimana Reserve could be enhanced ecologically by replanting. There is a site of cultural significance on the headland south of Waimana Reserve.

Constraints

- P5 relatively expensive due to boardwalk
- issues around passive surveillance

Opportunities

- Potential connection out to Kindergarten Ave, if an easement could be agreed.
- Ecological improvements possible along the Waimana Reserve coastal edge
- P5 could be carried out on land, if a broader redevelopment was carried out by landowners in this area.

Budget Requirements (CAPEX)

- [P5] Boardwalk 220K, Pathworks 20K, earthworks and sundries 15K ecological allowance 10K, PS and consenting 45K. Total 310K
- [P6] Pathworks 90K, earthworks and sundries 20K ecological allowance 10K, PS and consenting 20K. Total 140K.

Funding and Delivery Options

Locally Driven Initiatives (LDI) CAPEX, Individual LTP line item, volunteer/partnership work (planting)

NB: Contours placed every 1m

PRIORITY GREENWAY PROJECTS

Location

Waimana Reserve to Longford Park Reserve

Description

It may be possible to run this connection along the sloping coastal edge, but geotech/slope considerations may rule this out. The more expensive boardwalk option has therefore been costed, meaning some savings may be possible if geotech proves favourable, and it can occur on land. This would also require a partnership with Fonterra, as they own the coastal edge.

Ecology and cultural considerations

These routes sit within an area of significant wildlife interest, meaning the planning of the boardwalk would need to be carefully assessed. There is a site of cultural significance on the headland south of Waimana Reserve, and the coastal edge along the Fonterra site would benefit from weed removal and native planting to improve habitat and amenity - particularly around the overland flow points shown.

Constraints

- Lack of an esplanade strip in this area
- Back of Fonterra property has its 'back turned' to the coast

Opportunities

- Reintegration of Fonterra property with the coast
- Ecological improvements along coastal edge
- Possible joint project with Fonterra, possible cost sharing?

Budget Requirements (Capex)

- Boardwalk 520K, Pathworks 20K, earthworks and sundries 50K ecological allowance 50K, PS and consenting 110K. Total 750K

Funding and Delivery Options

Partnership with adjacent landowner, Locally Driven Initiatives (LDI) CAPEX, Individual LTP line item, volunteer/community work (planting)

NB: Contours placed every 1m



LEGEND:

Base information

- Schools
- Park and reserve land

- Flood Plains
- Streams & Rivers
- Existing Paths

Greenway connections

- Priority greenway project
- Proposed greenway route (straightforward delivery)
- Proposed greenway route (complex delivery)

Scale 1:1500 @ A3



PRIORITY GREENWAY PROJECTS

Location

Longford Park Reserve to Longford Park Link Reserve

Description

There are two options for this route, an 'upper' route which would follow the flat land abutting residential fences, and a 'lower' route, which would more closely follow the coastline. The lower route is likely to be preferred, but this would need confirmation at detailed design stage. The lower route has been costed.

Ecology and cultural considerations

These routes sit within an area of significant wildlife interest, meaning the planning of any boardwalk (if selected) would need to be carefully assessed. The coastal edge could be enhanced ecologically by replanting, although native regeneration is occurring naturally in this area. No CHI logs are showing along this section of coast.

Constraints

- steep topography in parts, difficult links at either end to traverse bank - may require steps and bike channels
- issues around passive surveillance

Opportunities

- Revegetation of the coastal edge

Budget Requirements (Capex)

- Boardwalk 170K, Pathworks 100K, earthworks and sundries 50K ecological allowance 30K, PS and consenting 60K. Total 410K

Funding and Delivery Options

Locally Driven Initiatives (LDI) CAPEX, Individual LTP line item, volunteer/partnership work (planting)

NB: Contours placed every 1m



LEGEND:

Base information

- Schools
- Park and reserve land

- Flood Plains
- Streams & Rivers
- Existing Paths

Greenway connections

- P1 Priority greenway project
- Proposed greenway route (straightforward delivery)
- - - Proposed greenway route (complex delivery)

Scale 1:1500 @ A3





LEGEND:

Base information

Schools

Park and reserve land

Flood Plains

Streams & Rivers

Existing Paths

Greenway connections

P1 Priority greenway project

Proposed greenway route (straightforward delivery)

Proposed greenway route (complex delivery)

Scale 1:3000 @ A3



PRIORITY GREENWAY PROJECTS

Location

Morewa Place to Wellington Park

Description

This connection is relatively straightforward, occurring on a flat, grassed esplanade strip for most of its length, and taking in the existing stormwater pond at Longford Park Esplanade. The eastern half of the shared path has already been constructed recently, and is excluded from the costs, other than the tie in with P10.

Ecology and cultural considerations

There are pockets of terrestrial ecological significance in this area, but these are generally in the intertidal zone, below the proposed route shown. The marine area is also of significant wildlife interest, so construction impacts would need to be carefully monitored, and ecological impacts checked as part of the consenting process. No CHI logs exist in this area.

Constraints

- Minor topography issues at western end.
- Reconfiguration required of some Wellington Park elements to improve CPTED.

Opportunities

- Ecological improvements along coastal edge
- Possible tie in with any wider reconfiguration at Wellington Park

Budget Requirements (Capex)

- Pathworks 320K, earthworks and sundries 50K ecological allowance 75K, PS and consenting 50K. Total 495K

Funding and Delivery Options

Local Board Transport Capital Fund (LBTCF), Urban Cycleway Fund, Parks Growth Programme (Greenways), Locally Driven Initiatives (LDI) CAPEX, Individual LTP line item, volunteer/partnership work (planting)

NB: Contours placed every 1m



PRIORITY GREENWAY PROJECTS

10

11

Location

Wellington Park to Prince Edward Park

Description

Two adjoining priorities are shown here, which can be delivered independently of each other. P10 is the more complicated of the two, most likely being boardwalked for much of the route. P11 is much more straightforward, being generally straightforward improvements to existing routes.

Ecology and cultural considerations

The marine area in this section is of significant wildlife interest, and the same triggers as priority route 9 would be expected. No CHI logs exist here.

Constraints

- some 'privatisation' of the esplanade strip
- steep topography in parts - boardwalk assumed for P10.
- beach north of Pahurehure Esplanade Reserve not suitable for formal access due to natural landscape values and limited space - retain informal access only.

Opportunities

- restoration of native bush along this coastal edge
- working with AT to improve amenity/safety along Gills Avenue
- Improvements to stormwater outfall at Shepherds Rd

Budget Requirements (Capex)

- [P10] Boardwalk 620K, Pathworks 60K, earthworks and sundries 50K ecological allowance 50K, PS and consenting 120K. Total 900K
- [P11] Pathworks 375K, earthworks and sundries 25K ecological allowance 20K, PS and consenting 50K. Total 470K

Funding and Delivery Options

Locally Driven Initiatives (LDI) CAPEX, Individual LTP line item, volunteer/partnership work (planting), Local Board Transport Capital Fund (LBTCF)

NB: Contours placed every 1m

LEGEND:

Base information

- Schools
- Park and reserve land

- Flood Plains
- Streams & Rivers
- Existing Paths

Greenway connections

- P1 Priority greenway project
- Proposed greenway route (straightforward delivery)
- - - Proposed greenway route (complex delivery)
- ⋈ Retained informal low-tide access along beach

Scale 1:3000 @ A3



PRIORITY GREENWAY PROJECTS

Location

Elliot Street to Freelance Terrace

Description

This connection forms the southern part of a link between Elliot St and the proposed NZTA bridge at Rushgreen Ave to the north. This route is strategically important to the regional cycle network and could be delivered in conjunction with AT.

Ecology and cultural considerations

The marine area in this section is of significant wildlife interest, and the same triggers as priority route 9 would be expected. No CHI logs exist here. It is worth noting that most of the mangroves shown in the aerial photo have since been removed.

Constraints

- steep topography and narrow esplanade strip in places, some boardwalk required
- issues around passive surveillance

Opportunities

- Ecological improvements along coastal edge
- joint funding project with AT. Note that this would require a reasonably direct route, as shown by the blue lines on the map.

Budget Requirements (Capex)

- Boardwalk 700K, Pathworks 25K, earthworks and sundries 25K ecological allowance 25K, PS and consenting 125K. Total 900K

Funding and Delivery Options

Urban Cycleways fund, AT Auckland Cycle Network funding, Local Board Transport Capital Fund (LBTCF), Locally Driven Initiatives (LDI) CAPEX, Individual LTP line item, volunteer/partnership work (planting)



LEGEND:

Base information

- Schools
- Park and reserve land

- Flood Plains
- Streams & Rivers
- Existing Paths

Greenway connections

- P1 Priority greenway project
- Proposed greenway route (straightforward delivery)
- - - Proposed greenway route (complex delivery)
- ➡ - - - Additional potential AT connection

NB: Contours placed every 1m

PRIORITY GREENWAY PROJECTS

Location

Freelance Terrace to proposed SH1 overbridge at Pescara Point

Description

A walking/cycling overbridge is currently being constructed as part of NZTA's southern corridor improvements project, and this route forms a connection between this bridge and Ray Small Park, along the coastal edge.

Ecology and cultural considerations

There are pockets of terrestrial ecological significance in the intertidal zone of the central inlet, below the proposed route shown. The marine area is also of significant wildlife interest, so construction impacts would need to be carefully monitored, and ecological impacts checked as part of the consenting process. No CHI logs exist in this area.

Constraints

- appears to have few constraints

Opportunities

- joint funding project with AT. Note that this would require a reasonably direct route, as shown by the blue lines on the map.
- ecological improvements along the coastal edge
- At inlets, an inlet link could remain walking only, with the boardwalk section (blue) forming the shared path

Budget Requirements (Capex)

- Boardwalk 150K, Pathworks 200K, earthworks and sundries 40K ecological allowance 25K, PS and consenting 70K. Total 485K

Funding and Delivery Options

Urban Cycleways fund, AT Auckland Cycle Network funding, Local Board Transport Capital Fund (LBTCF), Locally Driven Initiatives (LDI) CAPEX, Individual LTP line item, volunteer/partnership work (planting)

NB: Contours placed every 1m



LEGEND:

Base information

- Schools
- Park and reserve land

- Flood Plains
- Streams & Rivers
- Existing Paths

Greenway connections

- Priority greenway project
- Proposed greenway route (straightforward delivery)
- Proposed greenway route (complex delivery)
- Additional potential AT connection

Scale 1:2500 @ A3

PRIORITY GREENWAY PROJECTS

Location

Prictor St to View Road

Description

This route links the residential neighbourhoods of central and eastern Papakura to the town centre, via the Takanini Conveyance channel, McLennan Park, and this 'on road' section. Interventions here could be in the form of sharrows, intersection treatments and planting to improve road safety and amenity for walkers and cyclists.

Ecology and cultural considerations

This is a highly modified area, and no ecological or cultural features of note exist here.

Constraints

- works in the road corridor are more expensive overall than those in parks
- Prictor St is a busier than usual road for a greenway, and has power poles both sides of the road. Careful planning is required to deliver a quality greenway in this environment
- connections across Clevedon Rd could be complicated to resolve

Opportunities

- this route connects large areas of population to the town centre, train station, and (in the opposite direction) out to the Takanini Cascades.
- could be staged to reduce initial cost

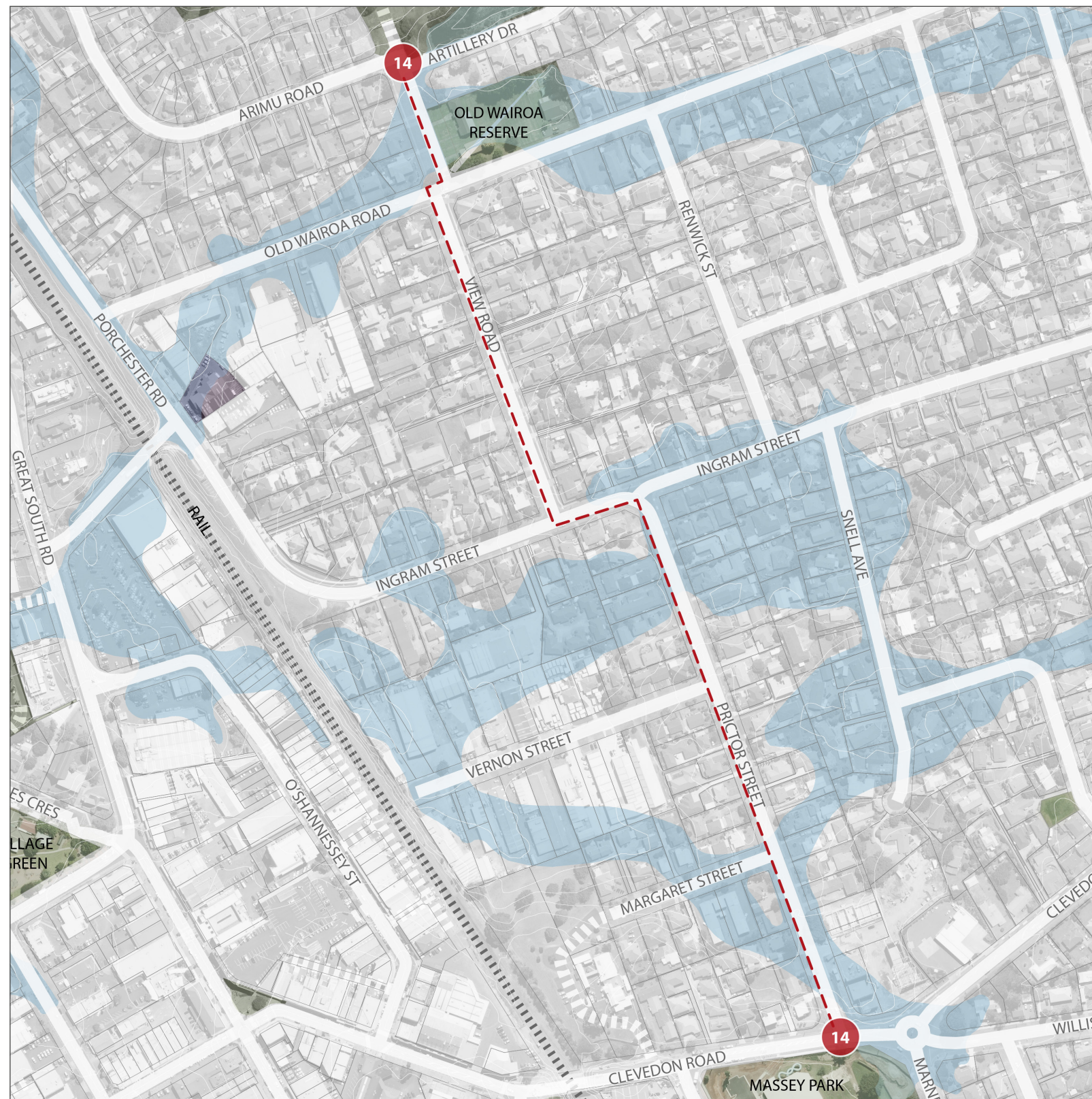
Budget Requirements (Capex)

This project requires scoping and budget estimating by AT at a project phase.

Funding and Delivery Options

AT Renewals, Local Board Transport Capital Fund (LBTCF)

NB: Contours placed every 1m



LEGEND:

Base information

- Schools
- Park and reserve land

- Flood Plains
- Streams & Rivers
- Existing Paths

Greenway connections

- Priority greenway project
- Proposed greenway route (straightforward delivery)
- Proposed greenway route (complex delivery)

Scale 1:3000 @ A3

PRIORITY GREENWAY PROJECTS

Location

McLennan Park to Grove Road

Description

Parts of this connection are currently in the final planning stages, with delivery to occur shortly by the Healthy Waters team. This covers the section from Grove Rd to the first stormwater pond.

Ecology and cultural considerations

Nothing of ecological or cultural significance is flagged for this site, although the wetland ponds and associated edge planting contain habitat for native wildlife. Opportunity exists to strengthen this ecological connection through to the Takanini Cascades project (P16)

Constraints

- some existing park features may need relocation to accommodate the route
- the 2010 masterplan shows a carparking extension at the entry - planning for the greenway should allow for this to occur.

Opportunities

- delivery of a long section of greenway, for a relatively low cost, due to 'piggybacking' off an existing project.
- important link between residential areas and the Takanini Cascades.
- Possible part funding/delivery with Healthy Waters project

Budget Requirements (Capex)

- Pathworks 200K, earthworks and sundries 20K ecological allowance 15K, PS and consenting 30K. Total 265K

Funding and Delivery Options

Eastern section to be delivered by Healthy Waters (not costed). Western section most likely Locally Driven Initiatives or Parks Growth Programme (Greenways)

NB: Contours placed every 1m



LEGEND:

Base information

- Schools
- Park and reserve land

- Flood Plains
- Streams & Rivers
- Existing Paths

Greenway connections

- P1 Priority greenway project
- Proposed greenway route (straightforward delivery)
- Proposed greenway route (complex delivery)

Scale 1:3000 @ A3

PRIORITY GREENWAY PROJECTS

Location

Takanini Cascades project

Description

This project is currently in the planning stages, and is required in order to facilitate residential development in this area, as it is currently prone to flooding. When complete, it will include a new waterway, along with shared paths, riparian planting and play areas, and is funded by Healthy Waters.

Ecology and cultural considerations

This area is currently in farmland, and is not noteworthy ecologically, nor does it feature any sites of cultural significance. Great improvements are planned here though, and the creation of a new waterway is of significance to Mana whenua, so careful engagement is occurring on this project.

Constraints

- covered under project planning

Opportunities

- part funding by third parties as this area gets developed
- other opportunities covered by the project

Budget Requirements (Capex)

Fully funded.

NB: Contours placed every 1m



LEGEND:

Base information

- Schools
- Park and reserve land

- Flood Plains
- Streams & Rivers
- Existing Paths

Greenway connections

- Priority greenway project
- Proposed greenway route (straightforward delivery)
- Proposed greenway route (complex delivery)

Scale 1:4500 @ A3



PRIORITY GREENWAY PROJECTS

Location

Boundary Road Reserve to Keri Downs, via industrial properties

Description

This is a fantastic physical and ecological connection, which connects large areas of residential areas to significant parks within the Board area. Council however, does not own landholding along the waterway, so negotiation/assistance from the neighbouring landowners would be required.

Ecology and cultural considerations

This stream is in quite a degraded condition overall, and contains no ecological or cultural sites of note. That said, there is significant opportunity to improve the habitat, stream condition and water quality overall, and this would be of interest to Mana whenua in terms of restoring the health of the waterway.

Constraints

- land not in council ownership, requires cooperation by industrial property owners
- potential issues around passive surveillance
- need to ensure security of adjoining industrial properties
- Boundary Rd rail crossing needs to be dealt with as part of a wider AT project

Opportunities

- revegetation and habitat creation along waterway
- work with long-term Papakura businesses to unlock community goodwill project

Budget Requirements (Capex)

- Pathworks 575K, earthworks and sundries 50K ecological allowance 250K, Road crossings 50K, PS and consenting 150K. Total 1075K

Funding and Delivery Options

Partnership with local businesses/sponsorship/advocacy, Transport Discretionary Initiative, Local Development Initiatives (LDI) CAPEX, Individual LTP line item, Parks Growth Programme (Greenways), volunteer/partnership work (planting)

NB: Contours placed every 1m



LEGEND:

Base information

- Schools
- Park and reserve land

- Flood Plains
- Streams & Rivers
- Existing Paths

Greenway connections

- Priority greenway project
- Proposed greenway route (straightforward delivery)
- Proposed greenway route (complex delivery)

Scale 1:4500 @ A3



PRIORITY GREENWAY PROJECTS

Location

Papakura Station to Boundary Road, via rail corridor

Description

While this route follows the rail corridor, it is largely in Council land. This route would take the form of footpath upgrades, intersection treatments, and new paths/ planting within reserve areas. It would connect a large area of residential land to the south with the Train Station and town centre.

Ecology and cultural considerations

As with P18, the stream in the southern section of this route is in quite a degraded condition overall, and the route overall is highly modified, containing no ecological or cultural sites of note. That said, there is significant opportunity to improve the habitat, stream condition and water quality overall, and this would be of interest to Mana whenua.

Constraints

- some of the route occurs within KiwiRail land, and would require their approval
- difficult road crossing at Onslow Road
- some deep stormwater channels require modification/crossings

Opportunities

- Linear space that could be greatly improved as a wildlife corridor
- Extend rail station footpath improvements south to Onslow Rd

Budget Requirements (Capex)

- Pathworks 450K, footpath improvements 100K, earthworks and sundries 100K (higher due to SW bridging) ecological allowance 50K, Road crossings 90K, PS and consenting 100K. Total 890K

Funding and Delivery Options

Urban Cycleways fund, AT Auckland Cycle Network funding, Local Board Transport Capital Fund (LBTCF), Locally Driven Initiatives (LDI) CAPEX, Individual LTP line item, volunteer/partnership work (planting)

NB: Contours placed every 1m



LEGEND:

Base information

- Schools
- Park and reserve land

- Flood Plains
- Streams & Rivers
- Existing Paths

Greenway connections

- P1 Priority greenway project
- Proposed greenway route (straightforward delivery)
- Proposed greenway route (complex delivery)

PRIORITY GREENWAY PROJECTS

Location

Opaheke Park to Boundary Rd Reserve

Description

This connection would link the development at Opaheke Park along a Council-owned esplanade to Boundary Road Reserve.

Ecology and cultural considerations

This is another modified stream environment, without environmental or specific cultural items noted on record. The northern half is relatively open, and would benefit from edge planting. The southern section is well treed, which is beneficial for the stream environment, and over time this planting could be transitioned to natives.

Constraints

- Section of non-council owned land in the centre (tree nursery) would require easement negotiations or similar.
- Difficult crossing at Opaheke Road - possibly resolved via an AT project.

Opportunities

- Existing vegetation gives a nice character and means that stream health in this section will be better than in many areas.
- agreement with landowner in centre may be possible, even if it is only an ecological connection initially.
- connects a large residential area in the north to a new, regionally significant park.

Budget Requirements (Capex)

- Pathworks 125K, earthworks and sundries 40K, ecological allowance 20K, PS and consenting 25K. Total 215K* NB lower than usual spec, 2.5m wide, hoggins to suit semi-rural nature of area

Funding and Delivery Options

AT Auckland Cycle Network funding, Local Board Transport Capital Fund (LBTCF), Locally Driven Initiatives (LDI) CAPEX, Individual LTP line item, Parks Growth Programme (Greenways), volunteer/partnership work (planting)

NB: Contours placed every 1m



LEGEND:

Base information

- Schools
- Park and reserve land

- Flood Plains
- Streams & Rivers
- Existing Paths

Greenway connections

- Priority greenway project
- Proposed greenway route (straightforward delivery)
- Proposed greenway route (complex delivery)

Scale 1:2500 @ A3



PRIORITY GREENWAY PROJECTS

Location

Opaheke Park, unfunded section

Description

Much of Opaheke Park has already been developed (sportsfields) or will be developed over the coming years, in partnership with the residential development planned for the former golf course to the north. This section would complete a full circuit of the park, and is currently unfunded.

Ecology of the area

This is a modified area, and one which will remain of little ecological significance over time, due to its use as a sportsfield. No CHI records exist in at Opaheke Park.

Constraints

- steep contours at the southern end, where it connects to the riparian corridor (priority 21). May require steps and bike gutters.
- should be phased after the adjacent park development, to avoid a dead end.

Opportunities

- relatively straightforward link to complete
- full circuit maximises fitness benefits for the local community

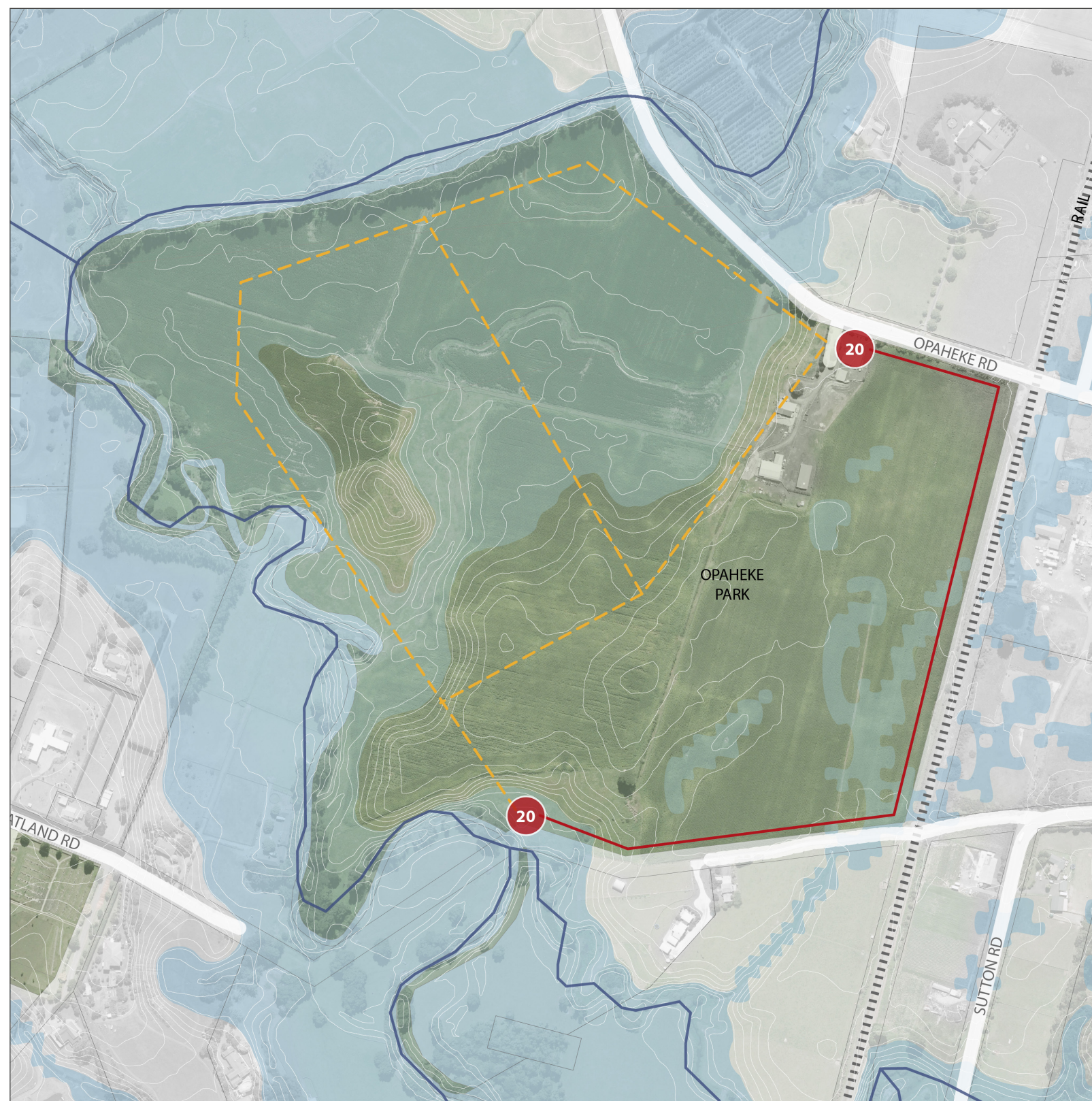
Budget Requirements (Capex)

- Pathworks 100K, earthworks and sundries 25K, ecological allowance 5K, PS and consenting 20K. Total 150K* NB lower than usual spec, 2.5m wide, hoggins to match rest of park.

Funding and Delivery Options

Locally Driven Initiatives (LDI) CAPEX, Individual LTP line item, Parks Growth Programme (Greenways), volunteer/partnership work (planting)

NB: Contours placed every 1m



LEGEND:

Base information

- Schools
- Park and reserve land

- Flood Plains
- Streams & Rivers
- Existing Paths

Greenway connections

- Priority greenway project
- Proposed greenway route (straightforward delivery)
- Proposed greenway route (complex delivery)
- Connections to be formed by others

Scale 1:3500 @ A3



PRIORITY GREENWAY PROJECTS

Location

Great South Rd to Opaheke Park via Slippery Creek

Description

This is a longer term priority, but an important one to put on the watchlist. Council holds very little riparian reserve along this portion of Slippery Creek, but should watch to acquire and develop a connection along here as the land around it develops and subdivides. Riparian planting could occur earlier.

Ecology of the area

There is a stand of bush towards the northern end of this route which is of terrestrial ecological significance, so any route through here would need to be sensitively treated. No CHI logs exist in this location. The stream corridor is partly vegetated.

Constraints

- lack of landholding currently
- uncertainty over timing and nature of any adjoining development

Opportunities

- Excellent connection between Drury and Opaheke Park
- Revegetation, habitat and water quality improvements possible along this section of stream
- could be delivered as part of adjoining developments, possibly in stages.

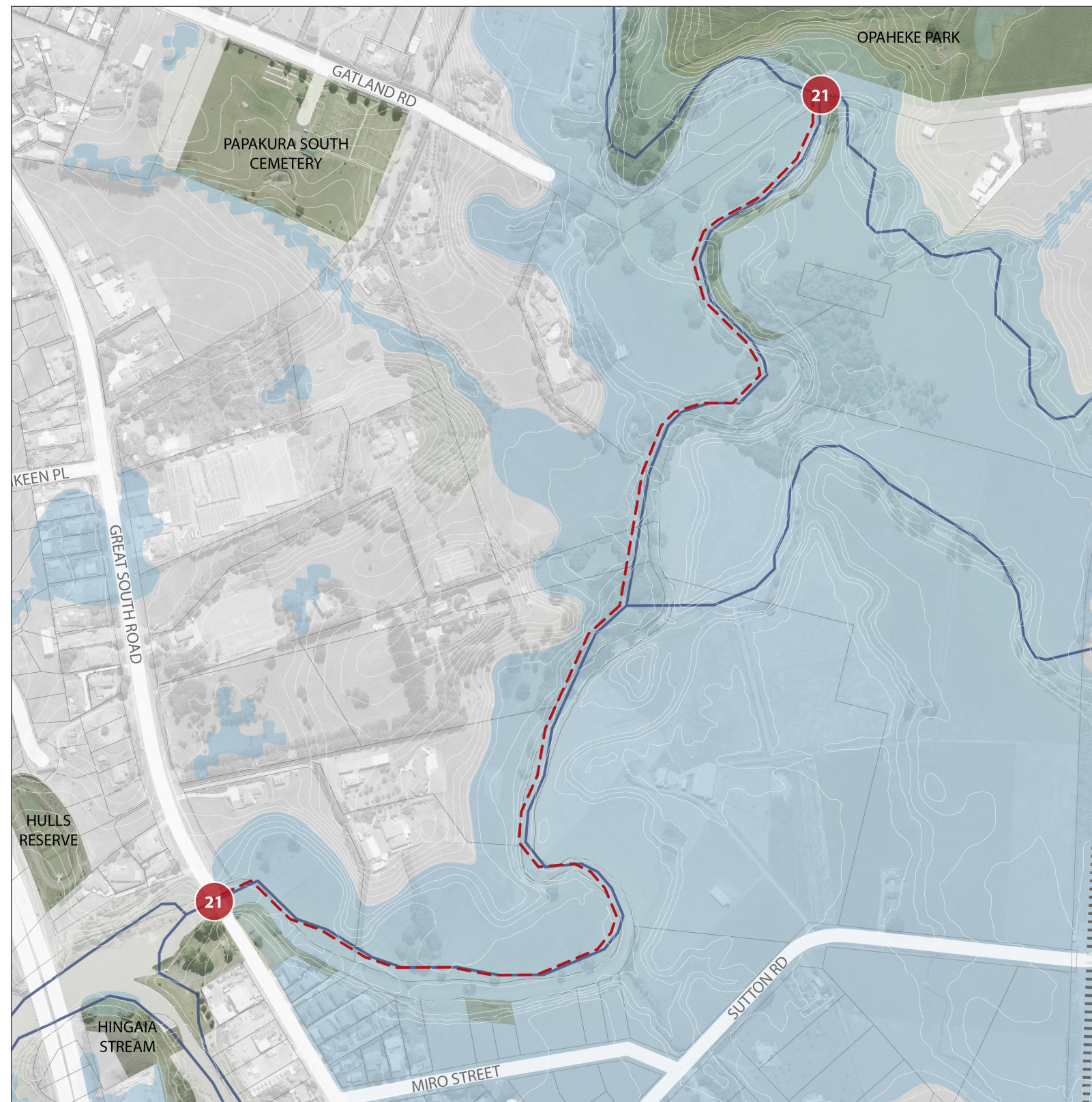
Budget Requirements (Capex)

- Pathworks 500K, earthworks and sundries 50K, ecological allowance 350K (10m riparian buffer), Bridge allowance 50K, PS and consenting 100K. Total 1050K* NB could be part funded by development.

Funding and Delivery Options

Local Board Transport Capital Fund (LBTCF), Locally Driven Initiatives (LDI) CAPEX, Individual LTP line item, Parks Growth Programme (Greenways), volunteer/partnership work (planting)

NB: Contours placed every 1m



LEGEND:

Base information

- Schools
- Park and reserve land

- Flood Plains
- Streams & Rivers
- Existing Paths

Greenway connections

- Priority greenway project
- Proposed greenway route (straightforward delivery)
- Proposed greenway route (complex delivery)

Scale 1:3500 @ A3



PRIORITY GREENWAY PROJECTS

22

23

Location

Drury Waterways

Description

These connections follow the riparian corridors either side of the Southern Motorway, and connect the residential areas of Drury around to the Sports Complex (while providing pleasant walking and cycling routes in their own right). Of these, P23 is quite complex historically and ecologically, and a feasibility study/discussions with affected parties only at this stage is recommended.

Ecology of the area

P23 takes in an area of DoC land that is of significant marine, wildlife and terrestrial ecological interest, and which is also a site of significance to Mana whenua. P22 is much less encumbered, being largely devoid of any overlays, other than an area of wildlife significance at the northern end.

Constraints

- Significant ecological and heritage sites west of SH1
- Lack of continuous land ownership in P23 would mean that sections of boardwalk are likely required.
- crossing under SH1 requires careful thought in terms of amenity and flooding

Opportunities

- Partial connection already exists in the southern half of P22 (gravel)
- revegetation and habitat creation possible in P22, much of P23 is relatively high functioning.

Budget Requirements (Capex)

- [P22] Pathworks 200K, earthworks and sundries 25K, ecological allowance 300K (10m riparian planting), PS and consenting 50K. Total 575K* NB lower than usual spec, 2.5m wide, hoggins to suit semi-rural nature of area

Funding and Delivery Options

Local Board Transport Capital Fund (LBTCF), Locally Driven Initiatives (LDI) CAPEX, Individual LTP line item, volunteer/partnership work (planting)

NB: Contours placed every 1m



LEGEND:

Base information

- Schools
- Park and reserve land
- Sites of significance to Mana Whenua

- Flood Plains
- Streams & Rivers
- Existing Paths

Greenway connections

- Priority greenway project
- Proposed greenway route (straightforward delivery)
- Proposed greenway route (complex delivery)

Scale 1:4500 @ A3



