Date: Thursday 19 September 2019
Time: 9.30am
Meeting Room: Upper Harbour Local Board Office
Venue: 30 Kell Drive
Albany

Upper Harbour Local Board

OPEN ATTACHMENTS

ATTACHMENTS UNDER SEPARATE COVER

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Note: The attachments contained within this document are for consideration and should not be construed as Council policy unless and until adopted. Should Councillors require further information relating to any reports, please contact the relevant manager, Chairperson or Deputy Chairperson.
UPPER HARBOUR Greenways Plan

September 2019
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Executive Summary

Overview of the Greenways Plan

The original Upper Harbour Greenways Plan was published in 2015, in response to objectives and key initiatives proposed within the Upper Harbour Local Board Plan 2014. The plan delivered the objective to create a network of greenways that would respond to Upper Harbour’s unique environment and provide linking circulation networks on land and water connecting parks, open spaces, and coastal environments to improve local ecological and recreational opportunities.

In 2017 the Upper Harbour Local Board released its Local Board Plan further highlighting its intention to provide efficient and effective transport links with the intention to investigate and expand on some of the projects that had transpired since the 2015 Greenways Plan.

The purpose of Auckland’s Greenways Plan was to create pathways linking parks and open spaces predominantly for recreational purposes with the intention that greenways would connect and create consistent connections throughout the Auckland region.

More recently, it has been recognised that the emphasis for walking and cycling needs to be expanded to encompass connections to services and amenities for daily trips, in addition to recreational trails as proscribed in the first generation of Greenways Plans.

The Upper Harbour Refocused Greenways network is built on the existing and planned network and includes further investigations of additional networks with the purpose of delivering effective alternative transport options to assist with the expansion of vehicle use for local trips.

The Greenways Plan presents a vision of a complete network of shared paths connecting town centres, schools, public facilities, recreation areas and public transport hubs. It is a long-term plan with the aim of significantly improving walking, cycling and ecological connections within the urban and rural environments of the Upper Harbour Local Board area. It is anticipated that this will be implemented over time to achieve the vision, objectives and outcomes prescribed by the Local Board.

The design principles and the path types in this plan are based on the Local Paths Design Guide developed for Auckland Transport and Auckland Council. It describes a set of local path types which use a combination of design treatments to ‘provide priority to people riding bikes and improve the conditions for walking’.

The Greenways Plan is designed to provide active transport options, appealing especially to those in the community who may not be comfortable cycling or walking on streets where cars are prioritised.

The four path types serve different functions and different user experiences in combination with varying landscape characters. From fast-paced Express Paths for direct commuter cycling, to Local Paths - On Streets for quiet neighbourhood connections, to Local Paths - Open Spaces for recreation and links through the parks network, and finally, to the more informal Nature Trails used purely for recreation which can sometimes include bridle paths.

The Process for developing the Upper Harbour Greenways Plan - Refresh

The process of creating the Greenways Plan involved internal and external research, consultation and engagement with Mana Whenua, key stakeholders and the wider public. This was done through a variety of workshops, hui, public open days and correspondence. Analysis of the feedback received through this process laid the foundations of the refreshed Greenways Plan. Existing proposals and aspirational paths were identified with the use of engagement feedback, and previously located routes prescribed in the 2015 Greenways Plan.

Once the path network was applied to the map, patterns of connections and links could be identified and decisions surrounding the type of path appropriate to the setting could be made. In some cases, paths that already exist are identified as proposed/aspirational. This occurs in locations where the existing path is not deemed to be fit for purpose or not providing an adequate level of service envisaged for the Greenways Plan. For example, Upper Harbour Drive cycle path does exist on both sides of this busy road linking Greenhithe to Albany Highway. The 5m allocated for cycle path is the absolute minimum space and does not include any form or barrier separating it from traffic. The intention of this cycle path express path is for fast access commuter cycling. The vehicle speed limit on Upper Harbour Drive is 70km/h, it is recommended that express paths on roads between 50 - 100km/h be protected and separated by a 1m safety strip or other barriers, such as fencing, bolts or planting: therefore it is identified on the Greenways Plan map as proposed/aspirational.

Focus Areas

In order to help, enable and facilitate the next stages of the path network, the Upper Harbour Local Board has been organised into six focus areas to clearly identify, evaluate and prioritise ‘key routes’ and ‘key connections’ for each area.

Constraints and opportunities have been outlined at a high level to help frame the key phases necessary to take next steps.

Focus Areas are:

- Focus Area 1. Albany, Albany Village and Rosedale
- Focus Area 2. Northern Corridor Improvement Project
- Focus Area 3. Lucas Heights and Paraparaumu
- Focus Area 4. Greenhithe and Schnapper Rock
- Focus Area 5. Whenuapai and Herold Island
- Focus Area 6. Holmville and West Harbour

The key routes are identified as primary routes supplying express connections and between the focus area. Key connections provide the finer grain links to and between local destinations.

Next Steps

Next steps outline the core phases necessary to implement the Greenways Plan. The next steps involve:

- Consideration of best practice guidelines including consideration of the design principles of the Local Path Design Guide which sets a framework for paths to be safe, connected, accessible, comfortable and enabling. These principles are intended to work with the key objectives and values of the Ta Aranga Design Principles to develop a more fine-grained means of expressing cultural landscapes and enhance our collective appreciation of ‘sense of place’.

- Ongoing community engagement, stakeholder collaboration and partnerships with key council departments and community organisations. Securing and allocation of funding. Funding has been allocated for road improvements in the Local Board areas in Auckland Council’s Long Term Plan (LTP) for the next 10 years, and some of this funding could be used to implement the Greenways Plan. Further funding avenues include Auckland Transport and the NZTA’s regional cycleways fund.

- An investigation phase to test the feasibility and viability of a key route and/or key connection. The investigation phase will identify and confirm the best way to make the route work, considering factors such as cost, time and other constraints.

- A design phase to develop, refine and confirm the alignment and design requirements developed through the investigation phase.

- The delivery phase including the procurement of a contractor to build the proposed project and resolve any issues that may have emerged through the process before practical completion.

- The ongoing management and maintenance of the path, needs to be established during the design phase and confirmed by the time the construction of the project is complete. Responsibility for ongoing maintenance and costs need to be agreed with the part of Auckland Council or Auckland Transport responsible for the path type. The design surrounding durability of surfacing, furnishings and landscape features, maintenance requirements of plants and the provision of emergency vehicle access into path design are detail elements that require foresight and attention in order to successfully deliver each local path project and future-proof the effective continuation of the Upper Harbour Greenways Plan.
Part One
Overview
1.1 Purpose of the Document

The purpose of this document is to update or ‘refresh’ the Upper Harbour Greenways Plan developed in 2015 and to fulfil on some of the aspirational outcomes outlined in the Upper Harbour Local Board Plan 2017.

The rationale behind the document is to identify potential links between local open spaces, streets, educational and community facilities, libraries and parks, to create safe and accessible walking and cycling networks that will improve community health and ecological connections and inspire a reduction in private vehicle use for local trips.

This is a visionary and guiding document intended for use by elected members, Council officers, community groups, private developers and other interested parties. The Upper Harbour Greenways Refresh Plan outlines long-term actions for the Upper Harbour area, with a view to setting priority projects up for funding and implementation over the coming years.

1.2 Strategic Fit

Links to the Auckland Plan 2050

The Auckland Plan 2050 was adopted in June 2018, replacing the Auckland Plan 2012.

The Auckland Plan 2050 is a streamlined spatial plan presenting a simple structure with clear links between outcomes, directions and measures. It shows how Auckland is expected to grow and change during the next 30 years.

Six visionary outcomes set Auckland’s strategy to 2050. Each outcome is accompanied with directions and areas of focus. Four outcomes have a direct relationship to the development of this Greenways Plan.

Outcome: Belonging and Participation

All Aucklanders will be part of and contribute to society, access opportunities, and have the chance to develop to their full potential.

Outcome: Homes and Places

Auckanders live in secure, healthy, and affordable homes, and have access to a range of inclusive public places. Connecting areas and residents to each other and to the public amenities they value.

Outcome: Transport and Access

For Auckland to be a truly accessible city there is a need to make sure that people of all ages and abilities, including people with reduced mobility levels, can go about their daily lives and get from one place to another easily, affordably and safely. A well-connected society enables access to community resources, and provides for positive experiences and better life outcomes.

Direction 1: Better connect people, places, goods and services.

Direction 2: Increase genuine travel choices for a healthy, vibrant and equitable Auckland.

Direction 3: Maximise safety and environmental protection. A key focus area is to make walking, cycling and public transport preferred choices for many more Aucklanders.

Outcome: Environment and Cultural Heritage

Aucklanders preserve, protect and care for the natural environment as our shared cultural heritage, for its intrinsic value and for the benefit of present and future generations.

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:

- The Auckland Unitary Plan
- The Auckland Plan 2050
- The Upper Harbour Local Board Plan 2017
- Parks and Open Spaces Strategic Action Plan 2013
- Adopted Greenways Plans
- Local Path Design Guide
- Te Aroha Design Principles
- Parks, Sports and Recreation Action Plans
- Walking school bus routes
- Initiatives currently underway or proposed by community and ecological restoration groups
- New Zealand Transport Authority (NZTA) proposals, such as the Northern Corridor Improvement (NCI) project
- Homes, Land and Communities Ltd (formerly Hodsonville Land Company) plans and development
- Auckland Tourism Events and Economic Development proposals
- Watercare proposals
- Auckland Transport projects
1.3 Upper Harbour Local Board Area

** Auckland Context **

This aerial map shows the Upper Harbour Local Board area in its wider context within the Auckland region.

The Upper Harbour Local Board comprises a land area of approximately 6930 hectares and is sited on the upper reaches of the Waitemata Harbour. Waterways and motorways characterise the area creating challenges and opportunities to deliver a connected community.

The landscape in the north east of the Upper Harbour is dominated by steep day hills that surround more fertile, low lying alluvial soils to the south in the Albany basin.

The landscape in the south west of the Upper Harbour mostly comprises low-lying, fertile soils that historically have been intensively developed for horticulture and lifestyle blocks.

The area is bordered by Henderson, Massey, Rodney, Hihitou and Bays, Devonport - Takapuna and Waitakere Local Board areas. The Upper Harbour Local Board area is home to the centres of Albany, Wintona Park, Greenhithe, Holmesville, Whenuapai, residential neighbourhoods of Northcross, Pinehill, and Greerle, and countryside areas of Lucas Heights and Paraparaumu.

** Site Location **

** Upper Harbour **

The adjacent aerial photograph shows the broad landscape patterns of the Upper Harbour Local Board area within its surrounding context.

The area is dissected by the upper reaches of the Waitemata Harbour, with the SH18 bridge from Holmesville and Greenhithe being the only connection between the eastern and western land areas. Both the SH1 and SH18 motorways further dissect the Local Board area.

The area is bounded:
- To the north-east, predominantly by residential land sloping down towards the east coast.
- To the south-east, by the Waitemata Harbour, with Hellyers Creek to the north and Linbourns Bay to the south.
- To the south-west, by residential and pastoral areas;
- and to the north-west, by countryside living with a small area of residential land.

The mixed land use types of Upper Harbour Local Board area can be clearly seen in this aerial photograph – featuring waters of residential land, vegetated areas, countryside living, and pockets of industrial land.

** Residential land **

Large areas of residential land exist throughout Upper Harbour. These areas are somewhat disjointed – being dissected by the Waitemata Harbour, motorway system, rural land and vegetated excrements.

** Vegetation **

Significant areas of vegetation exist within Upper Harbour Local Board area, including the southern excrements leading down to both Lucas Creek and Hellyers Creek, as well as the Scenic Reserves at Paraparaumu and Fernhill excrements.

** Countryside living **

Countryside living largely exists on northwestern portion of local board area. On the northern side of Upper Harbour Motorway and Lucas Creek.

** Industrial land **

Industrial land is generally located adjacent to motorways, at Rosedale, Schnapper Rock and Albany, and heightens their severance aspect, from a greenways perspective.

** Upper Harbour 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 have been instrumental in shaping these plans, and they provide a touchstone for the aspirations of each area’s community.

The Upper Harbour Local Board plan 2017 comprises aspirational outcomes and objectives to achieve them, including some of the key initiatives to be carried out. It reaffirms the priority, set out in the 2015 Greenways Plan to provide cycling and walking connections that are safe, enjoyable and ecologically friendly.

The following aspiration outcomes and objectives are supported by this Greenways Plan:

Outcome 1: Empowered, engaged and connected Upper Harbour communities

People living in Upper Harbour are able to influence what happens in their neighbourhoods.

Outcome 2: Efficient and effective transport links

A well-connected and accessible network that provides a variety of transport options.

Outcome 3: Healthy and active communities

Our residents have access to open space and a wide variety of sports and recreation opportunities.

Outcome 5: Our environment is valued, protected and enhanced

Communities are actively engaged in enjoying, preserving and restoring our natural areas.

A key transport link initiative in the local board plan is to: “Investigate opportunities to progress options identified in our Upper Harbour Greenways Plan, such as the proposed Saunders Reserve link”. 

Attachments
1.5 What is a 'Greenways Plan’

A Greenways Plan is a blueprint document to guide the creation of a network of walking and shared/cycling paths that safely connect people to key destinations such as public transport, schools, local shops, libraries, parks and reserves. Walking or cycling for short local trips instead of driving reduces stress on the transportation network, supports local businesses, provides wider health benefits, for people and the environment, and helps create more connected communities.

The Upper Harbour Greenways Plan will connect Upper Harbour to wider Auckland, by linking into regional transport networks, and neighboring local board greenways/local path networks. Conveying the greenways plan network beyond the boundaries of Upper Harbour is an essential part of building a connected Auckland.

The Upper Harbour Greenways Plan outlines stakeholder and community engagement strategies, key design principles and environmental benefits that have helped define the outcomes. The local board area has been divided into focus areas to simplify the identification of strategic key routes and connections to fulfill the objectives of the plan. This also includes an overview of potential constraints, opportunities and strategic questions that would need to be considered when developing the next stages of the plan.

Opportunities and Benefits of a Greenways Plan

Greenways plans provide opportunities for the local board and the community to engage with the social, cultural and environmental context of their local and wider neighbourhoods.

There are many benefits from developing a network of neighborhood local paths, including:

Transport
Cycle and walking paths can be used to link schools, workplaces and communities with parks, shops, and public transport routes, reducing reliance on private vehicle use.

Recreation
Improving people’s access to outdoor recreation and enjoyment close to their homes.

Environmental
Creating cycle and walking networks within natural landscapes present opportunities to enhance and maintain the health of local waterways and bush environments, in addition to preserving Māori cultural and spiritual significance of these places. Sensitive and inclusive design principles applied to natural landscape corridors and open spaces enhance ecosystems, floodplain sources and ecological niches. They also provide opportunities for communities to interact with their natural environments and understand kaitiakitanga.

Reducing our reliance on fossil fuels by providing attractive and safe alternative transport choices, improving water quality and reducing flooding events through water sensitive design (WSD) measures are important steps to improve environmental safety and wellbeing for future generations.

Social
Providing improved opportunities for people to get out of their cars and engage with safe, accessible and connected networks provide opportunities for street based initiatives to happen. Community projects initiatives such as beard gardening, street parties, play streets, bike trains and walking school buses empower citizens to re-imagine their streets and create opportunities to reclaim them as valuable open spaces that accommodate people of all ages and abilities.

Health
Providing improved opportunities for activity and fitness which benefits both physical and mental health.

Education
Providing opportunities to learn about the vegetation, wildlife, ecology, history and people of the landscapes that they pass through.

Economic
High-performing greenway paths can create improved local employment opportunities as areas become more desirable for businesses and shoppers. They can also provide tourist destination interest areas for international and national visitors.

Placemaking
Incorporating artwork such as murals, sculpture and information boards can infuse a local flavour into the network and serve the purpose of wayfinding signage, education and provide opportunity to exhibit a celebration of place.
1.6 Different Types of Paths

The Greenways Plan walking and cycle path network is comprised of four distinct path types, each having a design treatment based on their proposed use and environmental context.

**Express Path**
Forming the base structure of the path network, express paths are cross city connections that provide walking and cycling separated from vehicles, creating links to regional and local centres.

**Local Path - Street**
An On-street Local Path has pedestrians accommodated on footpaths with streets that are safe enough to cycle on without the need for separated cycle lanes. Traffic calming tools, pavement markings and signage are used to improve safety for all street users.

**Local Path - Open Space**
Off-road Local Paths run through parks and open spaces and accommodate both cyclists and pedestrians. Together with On-street Paths they are designed to create links to local centres parks, schools and transport links including express paths.

**Trail**
Distinct from a Local Path, a Trail is found alongside streams, coasts or in rural or bush settings and are primarily for recreation. Trails may connect to off road local paths and can also allow for horse riding along side walking and cycling. Trails are not generally intended to form a connection between destinations, and often run in loops through and around open spaces.
**Express Path**
Creating connections within and between local board areas

**Key Attributes**

**Vehicle Volumes**
- Average daily transport 1500+

**Vehicle Speed (Km/h)**
- 50-100 km

**Arterial Road Crossing**
- Include pedestrian or signalised crossings
- 50 - 100 per hour

**Accessibility and Safety**
- Ministry of Justice 7 Qualities of Safe Spaces
- 1m safety strip separating cyclists from vehicles and opening car doors

**Off-Road Paths**
- Can be one-way or two way
- Protected and separated from major road corridor by clear barriers, such as fencing, ballards or planting

**Separated Cycleway with Road Way (single direction)**

![Illustrative example](image1)

*Victoria St & Norlinge St, artist impression*

**Separated Shared Path**

![Illustrative example](image2)

*Croydon Gully Cycleway*

**Separated Cycleway (both directions)**

![Illustrative example](image3)

*Beach Road Cycleway*

**Express Path Cross-urban connections Examples**

![Nelson Street Cycleway](image4)

**Beach Road Cycleway**
Local Path - Street
Creating safe streets and shared pedestrian paths linking local destinations

Key Attributes

Vehicle Volumes
- Average Daily Transport 1000 ideal, 2000 max

Vehicle Speed (Km/h)
- 30km/h average

Arterial Road Crossing
- Include pedestrian or signalised crossings
- 50 - 100 per hour

Accessibility and Safety
- Ministry of Justice 7 Qualities of Safe Spaces

Green Infrastructure
- Impervious surface 70 - 90%
- Tree canopy coverage greater than 30 - 40%

Illustrative example

Local Path - Street Cycling, Auckland, NZTA Stock Photo 2019

Local Path - Street _Safe streets and shared pedestrian paths linking local destinations _Examples

Local Path - Suburban Street Cycling

Local Path - Suburban Street Cycling

NZTA Stock Photo

Local Path - Street Cycling, Wellington, NZTA Stock Photo 2017
Local Path - Open Space
Creating shared paths through open spaces for local connections and recreation

Key attributes
Vehicle Volumes
• N/A
Vehicle Speed (Km/h)
• N/A
Arterial Road Crossing
• N/A

Accessibility and Safety
• 20 km/h design speed and 20 metre sight lines and stopping distance

Green Infrastructure
• Tree park: Continuous canopy with grass and assorted low level planting

Illustrative example

Waterfront Shared Local Path

Local Path - Open Space _Shared paths through open spaces for recreation and local connections _Examples

Hobsonville Point - Shared Local Path

Pink Path, Auckland - Shared Local Path

Waterfront - Shared Local Path

Devonport to Takapuna - Shared Local Path
Key attributes

Vehicle Volumes
- N/A

Vehicle Speed(Km/h)
- N/A

Arterial Road Crossing
- N/A

Accessibility and Safety
- 20 km/h design speed/20 metre sight lines and stopping distance

Green Infrastructure
- Park land/water systems/self regenerating forest

Illustrative example

Te Wa O Tereha / Opanuku Stream

Trails _Shared paths along coastal edges and through bush settings for recreation_ Examples

Trail - West Coast (Adams, Adventure South NZ, 2018)

Trail - Shared Ride Trail

Trail - West Coast (Adventure South NZ, 2019)

Trail - Hongi and National Park
Part Two
Methodology
2.1 Overview of Methodology

The process to create the Greenways Plan consisted of internal and external research, consultation and engagement. An important part of the process was to ensure the Greenways Plan would be a robust guiding document that in the course of time maintains its functionality and correspondence to other projects being undertaken within the Upper Harbour area and surrounding local board areas. The Upper Harbour Greenways Plan was developed via an iterative eight-phase process, as outlined below:

**Upper Harbour Greenways Refresh Plan Process**

![Diagram showing the Greenways Refresh Plan Process]

**Objectives of the Engagement Strategy**

The engagement strategy builds on relationships previously established by the Upper Harbour Local Board with Auckland Council, Mana Whenua, and incorporates ways of engaging with the wider community.

- Inform stakeholders of the Greenways Plan project and the stages of the consultation process.
- Engage with Mana Whenua about the plan and seek direction and guidance on how to best entitle Mana Whenua values, aspirations and concerns in the Greenways Plan and subsequent phases.
- To involve project partners and key stakeholders on aspects of the proposed design and encourage input and feedback on the options as they relate to them.
- To consult with stakeholders on the functional and operational aspects of the Greenways Plan.
- To consult with community stakeholders on aspects of the proposed design and encourage feedback on the options as they relate to them.
- To promote the greenway network as a significant community asset for the existing and future residents of the region.
- To use engagement activities as opportunities to inform the design and development of the greenways network through stakeholder feedback.
- To record and transparently report on the outcome of the engagement activities.
- To ensure communication occurs throughout all stages of the project.
## 2.2 Who Has Been Involved

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<td>Final decision-making is guided by this group</td>
<td>To partner with in each aspect of decision making including the development of alternatives and the identification of preferred solutions</td>
<td>To work directly with throughout the process to ensure that concerns and aspirations are consistently understood and considered</td>
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<td>To obtain public feedback on analysis, alternatives and/or decisions</td>
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<td>&quot;We will implement what you decide&quot;</td>
<td>&quot;We will look to you for advice and innovation and incorporate this in decisions as much as possible&quot;</td>
<td>&quot;We will work with you to ensure your concerns and aspirations are directly reflected in the decisions made&quot;</td>
<td>&quot;We will listen to and acknowledge your concerns&quot;</td>
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2.3 Detail of Process

Project Initiation

Meetings with Upper Harbour Local Board and project partners to discuss the purpose, programme and definition of the project.

Background Research Mapping and Refinement

Previous studies and planning documents relevant to the area were collected and reviewed. The Upper Harbour Local Board Plan 2017 was reviewed to gain an understanding of both the communities‘ strategic vision and their planned projects. Workshops with project partners and key stakeholders were attended to discuss the process and agree on next steps.

The previous Upper Harbour Greenways Plan 2015 was used as a guide to identify and re-confirm existing and aspirational connections between parks and reserves, maps identifying conventional destinations, transport routes, social and cultural sites and environmental elements of the Upper Harbour area were created. Board desire lines were drawn to illustrate potential key connections between neighborhoods and destinations. Further desktop studies were carried out to identify strategic routes that would link into both the existing network and to proposed aspirational connections, forming a high-level draft overview of potential strategic greenway paths.

This desktop Greenways Plan was taken to the project group for review to ensure that it was aligned with the local board’s aspirations and objectives of the project. The project group consisted of project partners - Auckland Council, Upper Harbour Local Board, Mana Whenua and Auckland Transport.

Key Stakeholder Engagement and Consultation

Following analysis and review, a presentation meeting with internal and external stakeholders was held. The purpose of this meeting was to discuss the state of the project, gain insights from their ‘Key Stakeholder knowledge of the area and to gain a better understanding of their ambitions for the Greenways Plan.

Mana Whenua Engagement

The project was presented at the North West Mana Whenua Forum on June 6, 2019 to inform Tamaki Makaurau iwi of this project and ensure as to which iwi, and how, they would like to be involved.

During the process Te Kawerau A Maki, Ngā Mana Whakahī O Kapara and Te Akitai re-affirmed their interest in involvement.

It was agreed that exploring the place-based applications of Te Aranga Design Principles was a good first step to the process and that we would like to be involved in reviewing the design details relevant to Te Aranga Design Principles, as the Greenways Plan progresses through subsequent phases.

Public Engagement

Following project partner and key stakeholder consultation, an open public engagement afternoon/evening was held at the Albany Local Board offices. Despite not being well attended, there was a good amount of information and ideas shared that were useful to the development of the project. Online feedback was activated through the council website ‘Have Your Say’ for three weeks. This achieved some quality response and useful feedback.

Identify Focus Areas

The Upper Harbour area was organised into a series of focus areas. Within each focus area key routes and connections paths were identified. This includes strategic questions to inform next steps and further investigations that will be required, to create the desired network, have been identified for each focus area.

Review and Refine

Public feedback was analysed and collated into themes and patterns and applied to the design process of the network. The updated network was presented to the Working Group for review. Subsequently, a refined 80% draft of document was presented to the Local Board and Mana Whenua for final review.

Ratification by Local Board

Final Greenways Plan presented to the Upper Harbour Local Board for ratification.

All project partners and consultation groups updated on release of final adopted plan.
Part Three
Greenways Plan

Auckland Council Stock Photo; 2012.
3.1 Introduction

The Greenways Plan map shows the long term network of walking and cycling in the Upper Harbour area. As outlined in part one, this is a visionary document similar to others developed by Local Boards in Auckland.

The scale of the Greenways Plan network provided a base to analyse the main road, streets and open space network and was used in all engagement processes. It was critical to identifying the desirable and practical links that would strengthen walking, cycling and ecological connections throughout the Upper Harbour area.
3.2 Overview of Greenways Plan Map

The greenways network has been structured according to four path types. Each path type is influenced by its purpose and the landscape character of the environment it is located in.

Additionally, these path types have been allocated a status according to their stage of planning, commitment or aspiration, which were determined through the consultation process.

The ‘existing’ network includes express paths that appear along arterial roads and motorways, local paths through parks, and trails through reserves. There are very few local paths on streets identified as ‘existing’ in the Upper Harbour area.

‘Planned’ path status refers to paths that are currently within the planned and/or construction phase and have a foreseeable completion date. The northern corridor express path is an example of this, with sections complete, or near complete, with remaining sections subject to funding availability.

The ‘proposed’ path network occurs where there is currently no formed path and a proposed future path would improve network connectivity. The proposed path network has been collated from the Upper Harbour Greenways Plan 2015 and other published plans and strategies created by transport agencies and local interest groups.

‘Aspirational’ paths refer to paths that have been proposed or suggested by the local community or local board through the consultation phase of this project. They have been included in the same key as ‘proposed paths’ as they are regarded as desirable connections that present as much comparable value to network connectivity as ‘proposed paths’.

An example of this is to continue the Northern Corridor shared path, past the Albany Highway off ramp, along Upper Harbour Highway and connecting to the existing express path at Takanini Road to cross the Greenhithe bridge.

The extension of this express path opens up a future potential connection to the North Western Motorway express path and completes a cycle connection from central North Shore to central Auckland.

The proposed development of the Sky Path across the Auckland Harbour Bridge presents future opportunities to further extend an express path along the Northern Motorway, linking back into the Northern Corridor shared path.

These aspirational express paths would create a significant cycle loop connecting the central, northern and western areas of Auckland, providing an efficient and effective transport link and viable commuting option.

Aspirational paths also include ‘existing paths that need upgrading’ to improve their level of service. This has been proposed based on the level of planning and construction involved in repairing and widening an existing path being very similar to constructing a new path.

Future Growth and Development

There are a number of projects underway or in the planning phase in and around the Upper Harbour Local Board area. The following projects offer opportunities to incorporate the development of the Greenways network.

Hobsonville Point has been developed by Homes Land and Communities Ltd (previously Hobsonville Land Company), a subsidiary of Housing New Zealand. Development is well underway and works already completed include schools, a ferry terminal, housing, paths, reserves, open space, and community halls and gardens. Works in progress include a commercial hub, apartments and housing, retirement living and coastal walkway.

Scott Point has been identified as a Special Housing Area (SHA). The predict will provide for a residential area integrated with public transport and movement networks, a neighbourhood centre, a range of public open spaces, and a variety of housing options. A new primary school has been confirmed and will begin construction 2019. Scott Point is proposed to have 2500 houses built.

Whenuapai has been earmarked for future urban development. The Whenuapai Structure plan presents a framework to develop the semi rural environment into an urbanised community over the next 10 - 20 years. The structure plan includes the development of a rapid transit network stations and park and ride facilities in addition to a well connected cycle - pedestrian network. Phase one is estimated to provide up to 1800 homes, with completion expected by 2021.

A busway station is proposed for Rosedale Road, estimated to open 2021. It is forecast that the busway will integrate into existing busway, walking, and cycling improvements.

The Northern Interceptor project is a Watercare project, proposing to build new wastewater pipelines and associated infrastructure to convey wastewater from north western parts of Auckland to the Rosedale Wastewater Treatment Plant in Albany. Construction of the Northern Interceptor is intended to be staged. Phase One, Hobsonville to Rosedale Wastewater Treatment Plant began construction 2017 and is expected to be completed in 2020. Future phases are projected to occur between 2020 - 2030.
3.3 Upper Harbour Greenways Plan

[Map of Upper Harbour with various paths and network types indicated]

KEY:
- Local Board Boundary
- Parcel Boundaries
- Network
- Recreation Areas

PATH TYPE STATUS:
- Existing
- Proposed/Advisory
- Boundabout

PATH TYPE:
- Northern Corridor
- Express Network
- Local Network - Street
- Local Network - Open Space
- Trail Network

Notes:
1. Paths currently within the planning and/or construction phase
2. Paths advocated to improve network connectivity, with a high degree of value and/or commitment.
4.1 Focus Areas

The Upper Harbour Local Board area has been organised into six focus areas to clarify identify, evaluate and prioritise key routes and key connections for each area. The six focus areas are:

1. Albany, Albany Village and Rosedale
2. Northern Corridor Improvement Project
3. Lucas Heights and Paremata
4. Greenhithe and Schnapper Rock
5. Whiritoa and Heretaunga
6. Hobsonville and West Harbour

Each focus area has its own character, community, needs, aspirations and unique set of constraints, challenges and opportunities.

In order to help frame next steps and to prioritise specific projects and funding, key routes and connections have been identified for each focus area.

Routes align along roads, streets and through parks and open spaces. In some cases a path already exists that requires an upgrade to accommodate a greater number of users, and/or to improve accessibility, safety, amenity and ecological performance. In other cases a new route will be introduced.

Key routes are often express paths and provide a primary cycling network within and between the focus areas.

Key connections highlight a link to and between key destinations, such as a residential area with a school, a village centre, transport facilities or another connecting path. Key connections are often local paths along streets or through parks and open spaces. They form a finer grain of connectivity to and between local destinations as well as into the express path network and are critical to encouraging local trips for daily needs and connecting into recreational trails.

For all of the focus areas the following constraints, challenges and opportunities will exist:

**Constraints and Challenges**

- Major arterial roads, particularly State Highway 1 and 18 restrict connections between neighbourhoods.
- Significant conflict between on street parking, cycling, buses and bus stops along main arterials.
- Streets and intersections are typically designed to prioritise private vehicles.
- Significant vehicle movement through peak hours of the day.
- The steep topography in parts of the Upper Harbour Local Board area.
- High numbers of unconnected cul-de-sacs.
- Single use land areas and a lack of mixed use encourage car use for daily trips.
- Transit through large roundabouts.
- Large scale of block size.
- Constrained access along coastal margin.

**Opportunities**

- Create clear and safe connections to the Northern Corridor shared path.
- Create an express path network to connect centres of employment and key destinations with residential areas and neighbouring focus areas and communities.
- Reduce vehicle volumes and speeds on local street network to improve safety for pedestrians and cyclists.
- Enhance intersections to improve accessibility and safety for pedestrians and cyclists.
- Create new crossings for pedestrians and cyclists on main roads and busy streets where they don’t already exist.
- Create link storage locations at local transport hubs and bus stations.
- Improve tree coverage and integrate water sensitive design into street network, parks and open spaces to improve character, amenity and ecological function.
4.2 Focus Areas in Context of the Local Board Area Boundary

The adjacent map shows the boundary of the six focus areas. The borders of each focus area overlap to show shared strategic connections.
Focus Area 1 - Albany, Albany Village and Rosedale

Character

This focus area includes Albany Town Centre, Pinhill and Greville to the north east of the Upper Harbour area, travelling south to include parts of the south eastern suburbs of Unsworth Heights and Windsor Park and encompasses the entire business industrial area of Rosedale.

Albany is the primary retail centre of the Upper Harbour area and has been identified for significant growth and intensification over the next 30 years. State Highway 1 currently restricts connectivity east west through the area, however the implementation of the Northern Corridor Improvement project (NCI) is likely to improve this significantly. For purposes of this greenways plan the NCI is represented as the focus area. Albany and Rosedale provide the business and commercial centre of the Local Board area and support major sport and educational facilities such as the North Harbour Stadium, Albany Swimming Pool and Massey University. The surrounding eastern suburbs consist predominantly of residential neighbourhoods and corresponding parks and local amenities.

Key Routes and Connections

1A - 1.1 Create a network of express paths to connect into and around Albany and Rosedale

Constraints and Challenges*
- Vehicle congestion on all major arterial roads
- Varying topography of the area
- Limited space for separated cycle paths on main arterial roads
- Busy roundabouts and intersections
- Some arterials such as Albany Highway already have shared paths which may need realigning
- Major intersections and roundabouts

Opportunities*
- An express path key route from north Albany along the Albany Highway will enhance the commercial heart of Upper Harbour
- Provide safe and direct cycle routes into the main employment hubs of the Upper Harbour area
- Create east-west connections by linking express paths along arterial streets into the Northern Corridor shared path

1.1 - 1.K Create north south local path connections from Albany through Rosedale to Unsworth Heights

Constraints and Challenges*
- Access across Orakei Stream
- Steep bush within Bunsilde escarpment

Opportunities*
- Link into an off-road east west connection through Bunsilde and Pinhill Escarpment
- Make connection into the Northern Corridor shared path
- Utilise the existing open space corridor to make off road connections

1J Create safe and accessible connections into and around Albany Town Centre

Constraints and Challenges*
- Under utilised pedestrian environment
- Numerous large roundabouts

Opportunities*
- Introduce a more people oriented street atmosphere to the town centre
- Link walking and cycling paths for people to enjoy
- Incorporate Massey University into the town centre
- Develop signage for safer transit through roundabouts
- Connect to established shared path network
- Install wayfinding signage
- Typography of the area is conducive to walking and cycling

* In addition to the constraints, challenges and opportunities in section 4.7
Focus Area 2 - Northern Corridor Improvement

Character
The Northern Corridor Improvement (NCI) project includes shared use walking and cycling paths which run down to Constellation Drive and then access and along SH10, joining up to the new cycle path on Albany Highway. The corridor has an east-west pedestrian/cycling over bridge located at Spencer Road and has a number of walking and cycling connection points, for exit and entry, along the length of the shared path. The shared path is to be 5m wide in most places and is expected to be completed by 2022.

Key Routes and Connections

2A - 2G
Create safe and accessible connections to all available on/off ramps proposed on the NCI shared path

Constraints and Challenges:
• Ensuring the Northern Corridor shared path provides on/off ramps with equal access to both eastern and western sides of the Upper Harbour area
• Significant vehicle movement through peak hours of the day
• Balancing pedestrian safety with fast moving cyclists

Opportunities:
• Connect into greenways network
• Increase cyclist commuter traffic and decrease vehicle use for local trips
• Create bike storage locations at local transport hubs and bus stations
• Extend express path along SH10 to connect with SH18

2H - 2J
Create key Connections from shared path into open space network

Constraints and Challenges:
• Typology of landscape
• Barriers formed by busy intersections and arterial roads
• Transitioning cycle speed from express path to local path-open space

Opportunities:
• Create unique wayfinding signage promoting key connections around Upper Harbour
• Improve recreational links and connections
• Increase non-vehicle exploration and transit through Upper Harbour

* In addition to the constraints, challenges and opportunities in section 6.1
Northern Corridor Improvement

KEY

PATH TYPE STATUS
- Local Board Boundary
- Planned
- Proposed / Aspirational
- Road Network
- Recreational Areas

PATH TYPE
- Express Network
- Local Network - Street
- Local Network - Open Space
- Trail Network
- Northern Corridor Network

RECREATION
- Active Recreation
- Passive Recreation

SOCIAL
- Community Centres
- Community Hubs
- Neighbourhood Centre

PUBLIC FACILITIES
- Pools / Swimming facilities
- Hospital
- Place of Worship
- Public Library
- School

TRANSPORT
- Possible Boat/Kayak Ramp
- Park & Ride RTM
- Public Transport

* Paths currently under the planning and/or construction phase
* Paths proposed to improve network connectivity and/or with a high degree of greenway.
Focus Area 3 - Lucas Heights and Paremamore

Character

Most of this focus area is rural in character and is located just beyond the Auckland rural urban boundary. Consistent with the rural character, the primary land uses of the focus area are lifestyle blocks and larger farm lots. Albany Village forms the primary retail and commercial centre servicing this focus area. The rural fringe of Albany village has experienced transformational residential growth over the last 20-30 years and now reflects a suburban character more common to other parts of the local board area.

Bordered to the west by the Rodney Local Board and to the east by the Lucas Creek, and overlooked by the Albany Heights hills to the north, the rural topography of the area is a combination of bush clad ridges, gullies, open pastures and steep coastal edges.

Paremamore has three large scenic reserves and is the location of New Zealand’s highest security prison.

Key Routes and Connections

3.A Reinstate connection along Lucas Creek at Dairy Flat Highway bridge

Constraints and Challenges*
- Ecological restrictions along Lucas Creek edge
- Space restrictions

Opportunities*
- Upgrade and enhance ecological function along Lucas Creek corridor
- Engage the community to protect and maintain Lucas Creek
- Off road connection to Gibbs Road area

3.B Create a safe express path connection to the new Albany Town Centre

Constraints and Challenges*
- Creating safe crossing points on Oteha Valley Road

Opportunities*
- Connect residents on rural urban boundary into wider express path network
- Introduce suitably located signalized pedestrian crossing points on Oteha Valley Road

3.C Create a loop cycle path connecting Lucas Heights, Lucas Creek Scenic Reserve, Sanders Reserve and Paremamore Scenic Reserves

Constraints and Challenges*
- Substantial scale of rural lifestyle blocks
- Width of road corridor
- Variety of rural vehicle types using roads
- No street lighting

Opportunities*
- Extend path network to link into Riverhead Greenways
- Improve safety for local pedestrian and cyclist travel on rural roads
- Increase cyclist commuting from Rodney area
- Improve safety of commuters and recreational cyclists

* In addition to the constraints, challenges and opportunities in section 4.1
Focus Area 4 - Greenhithe and Schnapper Rock

Character

Greenhithe is bordered by Lucas Creek in the north and Helyers Creek in the south and is connected to the western side of the Waitemata by the Greenhithe Bridge, originally built in the 1970s. The Upper Harbour Motorway was built through Greenhithe by Transit NZ and was completed in late 2007. For the purpose of these focus areas, the area located south of the Upper Harbour Motorway will be also be referred to as Greenhithe.

Located north of Greenhithe, Schnapper Rock has emerged over the last 20 years. Topographically located on a ridge line, the western edge of the suburb extends to the coastal edge of the Lucas Creek. The area has a well connected street system with modern single lot dwellings and large areas of open space. Much of its coastal edge is occupied by the North Shore Memorial Park cemetery and the North Shore Golf Club.

Key Routes and Connections

Introduce an express path on Upper Harbour Motorway

Constraints and Challenges*
• Spatial constraints on vegetative edge of road corridor
• Navigating on and off ramps
• Topography of landscape

Opportunities*
• Create safe and direct cyclist commuter link to central North Shore
• Create safe and direct cyclist commuter link to Northern Motorway
• Improve connection to Hobsonville and Whenuapai
• Create a North to West express link
• Reduce traffic on Upper Harbour and Northwestern motorways

4. C - 4. D
Create an express path connection along Greenhithe Road

Constraints and Challenges*
• Spatial constraints of road corridor
• Navigating through roundabouts
• On-street parking

Opportunities*
• Improve the connectivity of Greenhithe to the wider Upper Harbour community

4. E - 4. F
Create local street path network through Schnapper Rock

Constraints and Challenges*
• Navigating roundabouts
• Kyle Road and Waiwhare Lane both narrow rear type roads
• Hidden entrances on narrow roads
• Navigating busy intersections on Albany Highway
• Varying topography of area

Opportunities*
• Establish local path - street paths through Schnapper Rock while suburb is still young
• Connect to existing shared paths
• Increase bike planting in Schnapper Rock
• Link to shared path between Schippana Park and Mt Eden Road
• Create safe local on-street path connecting to local schools
• Improve cycle connection to Rosedale commercial district
• Utilise wide streets for safe cycle routes

* in addition to the constraints, challenges and opportunities in section 4.1
Focus Area 5 - Whenuapai and Herald Island

Character

Whenuapai is on the southwestern edge of the Upper Harbour area and lies just beyond the Auckland rural urban boundary. Land within Whenuapai is predominantly low-lying and flat to undulating, with the lowest elevated areas to the north and adjacent to the harbour, the land gently rising to the south as it joins Hobsonville Road. The coastal edge comprises a combination of steep cliffs to moderate slopes and gentle slopes grading down to the tidal zone which is fringed with mangrove forest.

The coastline of the Upper Waitakere Harbour, an area ranked highly in terms of vulnerability and ecological value, forms Whenuapai’s northern boundary.

Up until recently Whenuapai has been a small village supporting the RNZAF base. The Whenuapai airbase has been located on the site since 1937 and is New Zealand’s largest operational airbase. The airbase provides a unique sense of place to Whenuapai and occupies a large section of the area. Strategic plans for higher density residential and commercial development are currently under development.

Located on the north west of the Waitakere Harbour, Herald Island is connected to Whenuapai by a causeway over the tidal mangrove forest. The small island community of under 300 houses has a rural atmosphere and has a simple street and local path system looping the island and touring the public reserves/parks and coastal edge. The Island has a rich cultural history with some heritage buildings remaining. The original post office now houses a local museum and the old fire station located next door is a community arts and craft centre and library.

Key Routes and Connections

Key Routes and Connections

5.A Create an express path extension connecting SH18 to SH16

Constraints and Challenges*
- Road corridor spatial constraints between Airport and Brigham Creek Road
- Narrow bridge on Brigham Creek Road

Opportunities*
- Extend existing shared path on Brigham Creek Road
- Safety connect Westgate to Whenuapai and Hobsonville
- Increase options for commuter cyclists
- Provide safe cyclist access to Hobsonville Point ferry

5.B - 5.E Create a safe local path network linking to Brigham Creek Road express path

Constraints and Challenges*
- Narrow rural roads
- Kingsway Road is the only access road to Herald Island and is extremely busy
- Open slabs on Totara Road limiting footpath expansion
- Links through private land

Opportunities*
- Upgrade existing paths
- Protect and improve ecological quality of coastal margin
- Involve community in protection and maintenance of coastal margin
- Encourage non vehicle use for local trips around the island

* In addition to the constraints, challenges and opportunities indicated in section 4.1
Whenuapai and Herald Island Greenway Plan

KEY

PATH TYPE
- Local Board Boundary
- Parcel Boundaries
- Road Network
- Recreation Areas

PATH TYPE STATUS
- Existing
- Planned
- Proposed / Aspirational
- Roundabout

PATH TYPE
- Express Network
- Local Network - Street
- Local Network - Open Space
- Trail Network

RECREATION
- Active Recreation
- Passive Recreation

SOCIAL
- Community Centres
- Community Hubs
- Neighbourhood Centre

PUBLIC FACILITIES
- Pools / Swimming facilities
- Hospital
- Place of Worship
- Public Urn
- School

TRANSPORT
- Possible Boat/Kayak Ramp
- Park & Ride RTN
- Public Transport

1. Paths currently within the planning and/or construction phase
2. Paths proposed to expose network connectivity and/ or with a high degree of greenways.

Item 13
Focus Area 6 - Hobsonville and West Harbour

Character

Hobsonville and West Harbour are located on the northwestern edge of the Waterman’s Harbour. Both are suburban in nature and lie on the eastern side of Hobsonville Road, just inside the line of the Auckland rural urban boundary. The sloping terrain of West Harbour provides magnificent views over the harbour towards the central city. Its coastal edge consists of steep cliffs that reduce in height towards Waiwera Beach and the edge of Hobsonville Marina.

The suburb of Hobsonville extends beyond the marina and consists largely of residential cul-de-sacs branching off the main spine of the suburb via Wesley Road. Hobsonville extends to Hobsonville Point, which is essentially a peninsula surrounded by water.

Hobsonville Point was an RNZAF airfield until the late twentieth century. In 2002, the land was sold to the government and masterplanning of a high density residential village began. Construction was started in 2011, and although still under development, Hobsonville Point has become a popular destination for living and entertainment.

Accessible by SH16, SH10 and a ferry to the city, the area is one of the fastest growing parts of Auckland and due to it being masterplanned, Hobsonville Point has a well-designed street layout, generous amounts of outdoor amenities and a skillfully designed existing shared path and trail network.

Key Routes and Connections

6.A - 6.C Create an express path network along arterial spine roads

Constraints and Challenges*
- Width of road corridors
- Width of footpaths
- Judder bars
- Concrete driveways

Opportunities*
- Reduce vehicle traffic on residential roads
- Improve means of travel choice for residents
- Create safer streets
- Join into shared path that already exists along Hobsonville Road at Hobsonville Point

6.D Extend express and trail paths from Hobsonville Point to West Harbour

Constraints and Challenges*
- Private land ownership
- Varying topography

Opportunities*
- Create a high quality recreational link
- Trail becoming a key tourist and visitor destination
- Protect and improve ecological quality of coastal margin
- Involve community in protection and maintenance of coastal margin
- Create an on-street-based key connection to from Hobsonville to West Harbour

* In addition to the constraints, challenges and opportunities in section 4.1
Part Five
Next steps
5.1 Overview

The Upper Harbour Greenways Plan will be implemented over time to achieve 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 paths on existing streets, within open space land, through dereliction areas, and/or via property easements.

Best Practice Guides

Future detailed planning and design shall also take into consideration best practice guidelines, which include:

- Auckland Design Manual
- Te Aranga Design Principles
- Auckland Transport Code of Practice: Cycle Infrastructure Design (2013)
- Stormwater Code of Practice (SWCP 2015)

Related "best practice" documents such as NZTA's "Bridging the Gap – Urban Design Guidelines (2013)," DoC's "Caring for Archaeological Sites" (2007) 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 management layers and area-specific policies.

Engagement and Consultation

Ongoing community engagement, stakeholder collaboration and partnerships are key to the successful implementation of the Upper Harbour Greenways Plan and will require coordination and commitment from the Upper Harbour Local Board, Mana Whenua, key stakeholder groups, Auckland Council, Transport and Watercare, vector, and others.

As with this Greenways Plan, it is recommended that project partners and key stakeholders are organised into different groups with corresponding levels of engagement, with different levels of participation at different stages of the project utilising the International Association for Public Participation (IA2P) Spectrum of Participation. This means that the engagement and consultation process is organised into different engagement streams that run concurrently.

For example, project partners, who include Auckland Council staff, Auckland Transport, Mana Whenua, and the Upper Harbour Local Board, will be involved in key decisions regarding the design, and their concerns and aspirations will be considered and understood throughout the decision-making process. Engagement with Mana Whenua will focus on understanding the values, aspirations and cultural narratives specific to the place. Engagement with Auckland Council staff will be more focused on regulatory compliance and practical matters concerning buildability and maintenance.

Understanding Mana Whenua values, aspirations and cultural narratives specific to the place will require further engagement and collaboration with iwi to deliver positive outcomes. It was agreed that exploring the place-based applications of Te Aranga Design Principles was a good first step to the process and that iwi would like to be involved in revising the design details, relevant to Te Aranga Design Principles, as the Greenways Plan progresses through subsequent phases.

Key Stakeholders, who include existing network users and the general public, should continue to be involved and consulted during the design process to ensure their concerns and aspirations have been understood and considered. Further engagement will assist key stakeholders to understand the intricacies involved in developing the next stages of the Greenways Plan.

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 include but should not be limited to social procurement (e.g. work with community to explore innovative ways to deliver projects through social enterprises), youth employment opportunities, planting/weed clearance days, “adopt a stream” street groups, fundraising, lobbying and artistic input.

Funding

Funding has been allocated for road improvements in the local board area in Auckland Council’s Long Term Plan (LTP) for the next 10 years, and some of this funding could be used to implement the Greenways Plan. Other funding avenues include Auckland Transport and the New Zealand Transport Agency’s (NZTA) regional footways fund. Upper Harbour Local Board could also fund paths that occur within open space.

Strategic Questions and Technical Reports

As part of the sub-sequent phases to develop the design for individual paths and connections, further questions will need to be asked of the immediate community to ensure the project fits the community needs, concerns, desires and aspirations.

Examples of some strategic and qualitative questions may include, but won’t be restricted to:

- Are there particular places where the local path network needs to take extra care?
- Are the proposed walking and cycling connections likely to improve access to work, school, international travel or shopping opportunities?
- Are there any specific towns within the proposed path networks that need to be addressed?
- Are there any constraints which would reduce the use of a particular route – for example, high speed traffic, unsafe environments, difficult road crossings?
- Are there any potential heritage, cultural or social stories to be told along the path?
- Are there any potential ecological enhancement opportunities that could be incorporated into the path design?

The process for determining the feasibility and developing the design for individual paths and key connections will require further detailed studies. Further investigations/technical reports may be required but not limited to:

- Detailed topographical survey in key locations
- Geotechnical investigations in key locations
- Assessment of contaminated land
- Road safety audit for proposals that include express paths and/or local paths on-street
- Ecological assessments
- Anthropological assessments
- Geotechnical assessments
5.2 Local Path Design Principles

The following design principles are proposed to guide the implementation of the Greenways Plan. The design principles are organised under two headings: Local Path Design Principles and Te Aranga Design Principles.

Local Path networks must primarily meet the needs of all people who use the paths, whether they are walking, cycling, in wheelchairs, pushchairs or motorised scooters, with a guide dog, or whether the user is an adult or a child. The design framework is based on the principles of safety, connection, accessibility, comfort and engagement.

**Safe**

Safety and a stress-free environment are core tenets of achieving a successful local path network. A consistent level of experience and character within the path type chosen for the route is paramount to its safe function. Crime prevention and enhanced social safety are also keen outcomes of a well designed local path network. CITED pronounced ‘sep-teh’ means ‘crime prevention through environmental design’ and aims to reduce opportunities for crime and antisocial behaviour through designing environments that make committing these acts less easy – reducing opportunities for crime to occur.

**Connected**

Local path networks should connect destinations encouraging less use of the motor vehicle. They should seamlessly connect to the wider transport network including express networks. Additionally those networks should be designed to be easily navigated with clear, uncomplicated wayfinding signage. Having a consistent look and feel to each path type reduces the need for excess signage as the route can be logically inferred on the ground.

**Accessible and Comfortable**

All path network infrastructure should be accessible to all users no matter what the level of personal mobility. Considerations include ample width, gentle gradients, smooth transition surfaces and attractive surrounds.

**Enabling**

Lau, community and stakeholders should be engaged early in the process to incorporate any local initiatives. Local paths should integrate with the existing streetscape and celebrate Auckland’s unique character by responding to and incorporating elements of the surrounding natural and built environment, heritage and culture. Opportunities to include ecological function through planting, water sensitive design and low energy/low toxicity materials should be integral to each path network design.
5.3 Te Aranga Design Principles

The Auckland Design Manual (ADM) notes that the key objective of the Te Aranga Māori Design Values and Principles is to enhance the protection, reinstatement, development and articulation of Mana Whenua cultural landscapes and to enable all of us (Mana Whenua, Māori, non-Māori and visitors) to connect with and to deepen our collective appreciation of 'sense of place'. The following core Māori values have informed the development of the outcomes-oriented Te Aranga Māori Design Principles:

- Rangetaratanga
- Kaupatikanga
- Manukauikanga
- Waitiwaititanga
- Kaitaia rangatanga
- Whakapaipatanga
- Mataura

**Mana Rangatiratanga - Authority**

Outcome: The status of iwi and hapū as Mana Whenua is recognized and respected.

Attributes

- Provides a platform for working relationships where Mana Whenua values, world views, tikanga, cultural narratives and visual identity can be appropriately expressed in the design environment.
- High quality Treaty-based relationships are fundamental to the application of the other Te Aranga principles.

**Whakapapa - Names and Naming**

Outcome: Māori names are celebrated. Opportunity for re-naming sites throughout the connections network.

Attributes

- Recognizes and celebrates the significance of Mana Whenua ancestral names. Recognizes ancestral names as entry points for exploring and honouring tikanga, historical narratives and customary practices associated with development sites and their ability to enhance sense of place connections.

**Tāiao - The Natural Environment**

Outcome: The natural environment is protected, restored and/or enhanced.

Attributes

- Sustains and enhances the natural environment.
- Local flora and fauna which are familiar and significant to Mana Whenua are key natural landscape elements within urban and/or modified areas.
- Natural environments are protected, restored or enhanced to levels where sustainable Mana Whenua harvesting is possible.

Māri Tū - Environmental Health

Outcome: Environmental health is protected, maintained and/or enhanced.

Attributes

- The wider development area and all elements and developments within the site are considered on the basis of protecting, maintaining or enhancing māuri
- The quality of wai, whenua, ngātahi and air are actively monitored
- Community wellbeing is enhanced.

Māhī Tōi - Creative Expression

Outcome: Iwi/hapū narratives are captured and expressed creatively and appropriately.

Attributes

- Ancestral names, local tohu and iwi narratives are creatively reinserted into the design environment including landscape, architecture, interior design and public art.
- Iwi/hapū mandated design professionals and artists are appropriately engaged in such processes.

Tohu - The Wider Cultural Landscape

Outcome: Mana Whenua significant sites and cultural landmarks are acknowledged.

Attributes

- Acknowledges a Māori world view of the wider significance of tohunga/landmarks and their ability to inform the design of specific development sites.
- Supports a process whereby significant sites can be identified, managed, protected and enhanced.
- Celebrates local and wider unique cultural heritage and community characteristics that reinforce sense of place and identity.

Ahi Kā - The Living Presence

Outcome: Iwi/hapū have a living and enduring presence and are secure and valued within their role.

Attributes

- Mana Whenua live, work and play within their own realm.
- Acknowledges the past Treaty of Waitangi settlement environment where iwi living presences can include customary, cultural and commercial dimensions.
- Living iwi/hapū presences and associated karakia roles are reserved within urban areas.

Application

While the Te Aranga Design Principles are well recognized and formally adopted by Auckland Council it is important to note, that in keeping with the principle Mana Rangatiratanga, it should not be assumed that Mana Whenua want to use these principles to inform their contribution to the design. Whether to use this framework or not should be confirmed as part of the initial engagement with the relevant iwi authorities.
5.4 Summary of Process

The Upper Harbour Greenways Plan presents a vision of an entire network of greenway paths connecting town centres, schools, public facilities, recreation areas and public transport hubs. It is a long-term plan with the aim to significantly improve walking, cycling and ecological connections within the urban environs of the Upper Harbour Local Area. The Greenways Plan provides a thorough exploration of the phases and destinations which would greatly benefit from walking and cycling connections. Key routes and key connections have been identified and constraints, challenges and opportunities have been outlined at a high level to help frame the key phases necessary to plan, design, implement and maintain a path as part of the Upper Harbour Greenways Plan.

Upper Harbour Greenways Plan Process

Next Steps

Investigation Phase

The purpose of the investigation phase is to test the feasibility and viability of a key route and/or key connection. A feasibility study is often completed to fulfill the requirements of the investigation phase.

The investigation phase will involve continued engagement with project partners and stakeholders. At a minimum, a draft feasibility design should be prepared with project partners and stakeholders and the public should be consulted.

The investigation phase can be organised into a sequence of 5 key phases:

- Identify and confirm neighbourhood destinations, key routes and connections
- Collect and analyse base data
- Identify and prioritise paths
- Identify key design requirements
- Rough order of costs

Design Phase

The design phase will continue to develop, refine and confirm the alignment and design requirements developed through the investigation phase. The design phase typically consists of 3 phases - concept design, developed design and detailed design and tender documentation for construction. The design phase will also include the preparation for lodgement of resource and building consent and as with the investigation phase, continued engagement with project partners and stakeholders.

Delivery Phase

The delivery phase involves the procurement of a contractor to build the proposed project, the construction of the project and resolution of any issues that emerged through construction before practical completion and the project is formally handed over to the asset owner and party responsible for managing and maintaining the path over the long term. In most cases this will be Auckland Council.

The delivery phase will need to consider:

- Tender evaluation process
- Staging options
- Construction timetables and seasonal considerations
- Any approvals required during construction such as traffic management plans
- Quality assurance and quality control processes
- Construction observation and monitoring

Management and Maintenance

The ongoing management and maintenance of the project needs to be established early in the process and by the time the construction of the project is complete responsibility for ongoing maintenance and costs need to be agreed with the part of Auckland Council or Auckland Transport responsible for future maintenance of these features prior to the design being completed.

During the design phase, consideration should be given, but not limited to:

- Durability and ease of maintenance of all surfaces and hard landscape features such as furnishing and lighting
- Establishment and maintenance requirements of plants and with the expectation that in most cases maintenance is going to be sporadic and low maintenance native plants are recommended
- In some situations, provision will need to be made to ensure there is access for emergency response and maintenance vehicles.
Part Six
Appendices
The following maps display the priority features of the Upper Harbour Local Board area which need to be considered when determining and designing a successful greenways path network.
A.1 Environment

This map presents the Upper Harbour Blue Green Networks including the priority features of the environment that need to be considered.

The southwestern section of Upper Harbour is predominantly coastal, whilst the inner area is parceled with streams from the Waitamata Harbour.

The map shows flood prone areas, floodplains, and flood sensitive areas as well as the existing permanent watercourses. Some of the greenways will naturally follow streams and waterways as many parks and recreation areas are also located on these areas. Locations that are prone to excess water pooling from extreme weather events, should be considered in the alignment and materiality design process of the path network.

Green/Vegetation Network

Significant Ecological Areas
A SIA is an area of significant indigenous vegetation or a significant habitat of indigenous fauna, that is identified for protection within the Unitary Plan. Any vegetation removal or alteration within SIA would require a resource consent.

More stringent provisions may also apply for earthworks and other activities, to ensure development is directed away from SIA as much as possible.

Auckland Council used five criteria to assess whether or not a natural area was significant; these were: representativeness; threat status and rarity; diversity; stepping stones; migration pathways; and buffers; and uniqueness or distinctiveness. An ecological assessment of a site against these criteria was used to determine the site’s significance.

Unitary Plan Overlays
A number of coastal areas within Upper Harbour are indicated as having high and outstanding natural qualities. These areas must be maintained, preserved and protected and any land-use practices require enhancement of the character or landscape integrity and visual coherence.

Ancient relationships with Māori Whenua, archaeological sites and outstanding or high natural landscapes overlays must also be recognised and provided for when considering key routes and greenway connections.

Terrestrial and Wetland Ecosystems

Shown on the map are the regional variants of potential indigenous ecosystem vegetation.

This comprises thirty-six terrestrial and wetland ecosystems, and their regional variants that have been identified by Auckland Council as occurring in the Auckland region. The work is based on the national ecosystem classification system developed by the Department of Conservation.

In simple terms, an ecosystem is a biological community of interacting organisms and their physical environment. As defined by Kitch et al. (2012), ecosystems are units of assessment that represent complexes of organisms and their associated physical environment within an area. Three categories occur in the Upper Harbour Local Board area.

North-West Link

The Upper Harbour Local Board area is situated within the North-West Wildlink. The North-West Wildlink (NWL) is a corridor of ecosystems linking regional biodiversity/conservation hotspots across Auckland’s east and west coasts. The NWL is expected to provide improved migration routes from Tiritiri Matangi Island to Shakespeare Regional Park and the Waitakere Ranges. The NWL project is a collaborative effort between Farne & Bird, Auckland Council and DoC.

The development of the greenways network will contribute positively to the success of the NWL project, as their aims are inter-linked by provisions in the Auckland Unitary Plan to ensure they are not damaged or destroyed.

Notable Trees

Trees shown on this map have been considered to be notable and identified for protection.
A.2 Destinations

This map shows the variety of destinations generally regarded as places of service, recreation and social concourse.

Identifying local community destinations assist the decision making and design process in order to allocate and deliver the appropriate routes and paths type which will encourage safe and accessible walking and cycle passage for local trips.

Active and passive recreation parks and reserves have been indicated separately as the path type may vary between them. Active Recreation includes sports grounds, Albany Stadium - including the pool and golf courses. Passive recreation consists of parks and reserves that have children’s playgrounds and conservation areas used for walking and informal recreation.

Neighbourhood centres are small shopping strips that provide retail and commercial service needs for the surrounding neighbourhood. These tend to be in more residential locations, however they also appear in business zones.

Schools are critical points of focus for a Greenways Plan. Providing safer and more accessible connections to schools has the potential to reduce private vehicle use and make the streets around schools safer places. Proposed connections to schools may be influenced by existing ‘walking school bus’ routes or may influence the development of ‘walking school bus’ routes.

Park and Ride facilities provide local commuters to connect with core public transport routes. Bike racks and lockers are also available at the Park and Rides encouraging and supporting the objective to reduce private motor vehicle use.

There are currently two Park and Rides in Upper Harbour however a future facility is planned near Whenuapai to accommodate travel demands associated with future urbanisation proposed for the area.

A Busway Station is proposed for Rosehill Road, estimated to open 2021. It is forecast that the busway will integrate into the existing Northern Corridor walking and cycling improvements. No park and ride is planned, however the same symbol has been used indicating its location on the map.

Community gardens are becoming a more common feature in Auckland neighbourhoods. Community gardening attracts a variety of people for a diversity of reasons and have the potential to become active and inclusive community spaces.

Libraries provide multiple opportunities to contribute to community connections.

Churches and places of worship are weekly gathering venues and are often used for other community events. Predominantly located in residential areas they provide an important area of focus for local greenways. Cycle and walkway connections to places of worship will assist the reduction of weekend traffic and parking congestion.
A.3 Socio-cultural

This map indicates population size according to the designated focus area.*

The total population of Upper Harbour was recorded as 53,670 in the 2013 Census, a 25% rise since the 2006 census. Population distribution is concentrated around the Albany metropolitan centre with smaller suburban centres accommodating most of the residential population.

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.\]

Heritage

The map also displays historic heritage sites as indicated on the Auckland Council Historic Heritage Overlay. A historic heritage place may include cultural landscapes, buildings, structures, monuments, gardens and plantings, archaeological sites and features, traditional sites, sacred places, townscapes, streetscapes and settlements. Identifying the location of heritage sites is crucial to each design of a greenway for both protection of the site and opportunity to incorporate its significance into greenway design details.

Community Centres and Marae

Community Centres come in a variety of forms and are used for a wide variety of community activities. Traditionally, council-owned stand-alone buildings were found on main streets or in a council-owned park. More recently, Community Centres have become part of libraries, recreation centres or repurposed council buildings, such as the 1960s art deco RNZAF-Headquarters building on Hobsonville Point.

Community Centres and Marae are located within this map to highlight their significance and to assist in identifying key routes that could further link them into their surrounding neighbourhoods.
A.4 Transport

Road Hierarchy

Auckland’s road network is organised into a hierarchical network of motorways, roads and streets. Highways and main arterial roads are typically for heavy traffic and fast direct travel whereas local roads are slower speed environments with lower traffic volumes and speeds. Consideration of the road hierarchy is crucial to determining the appropriate path design and safest route choices.

Ideally the greenways network design will have a symbiotic relationship with the road hierarchy and safety provide for the needs of the user, whether it is for passive recreational use or active commuter use. The different path types reflect these variations and involve safety measures appropriate to each environment.

The road hierarchy also affects potential street ‘greening’ initiatives to support the green links network. Methods for providing safe crossing points will also be affected by the road hierarchy – for instance, un-grassed crossings are unlikely to be permitted on arterial roads.

Public Transport

Park and Ride facilities provide the opportunity for local commuters to connect with core public transport routes. There are two Park and Ride facilities servicing the Upper Harbour area. The proposed bus station at Horeke Drive has also been indicated on the map with a Park and Ride symbol (although it is not proposed to include a Park and Ride at this point of the planning/design process).

Walking Routes

This map also shows existing walking routes within the Upper Harbour area. The intention of the Greenways Plan is to link into these established local path - open space and trail networks expanding pedestrian mobility and survivability.

Walking School Bus (WSB) routes (not shown on the map) have been developed by Auckland Transport, to provide a safe and healthy environment for children to walk to and from school along quiet streets under the supervision of an adult. Upper Harbour has an increasing number of WSB routes which could be considered when the Greenways Plan key routes proceed to feasibility stages.

Cycling Routes

The map combines the existing street and open space local path network throughout the Upper Harbour area. Identifying these paths is a necessary part of the process to assist the creation of new paths that provide links to local destinations in addition to recreational purposes.

Recent inclusion of dedicated walking and cycling bridges over busy motorways have improved safety by providing linkages over major obstacles that were traditionally avoided by cyclists and pedestrians, resulting in an expanded area of connectivity, e.g. the Tindahou Whau Bridge over SH1 connecting eastern suburbs to Albany centre.

Boat Ramps

This map outlines existing and potential entry/exit and stop off points for kayak access along the Upper Harbour coastline. These points have been identified as the first step in developing a Kayak trail or a ‘blue-way’ for the Upper Harbour Local Board area.

Recreational kayakers have been considered in the development of this Greenways Plan, as the kayak trail has a recreational focus which is consistent with the aspirations of the Upper Harbour Greenways Plan.
A.5 Pedestrian and Cycle Sheds

A pedestrian or cycle shed (ped shed) refers to the walkable or cycleable catchment displayed in map form showing the area that can be covered within a 5 or 10 minute distance from any centre, transport hub or specific destination. The walkable or cycleable catchment is simply a technique for the comparative evaluation of how easy it is to move through an urban area to get to and from centres or facilities.

With the help of geospatial analytical data, sourced from Taragano, analysis of cycling and pedestrian catchments surrounding key destinations in the Upper Harbour area were measured and displayed on a series of maps.

They show the actual street area covered within a 5 minute walking distance and a 10 minute cycling distance. These maps inspired some of the proposed and anticipated paths within the Greenways Plan.

Maps created
Local Retail Centres
Recreational Destinations
Schools
Transport

Analysing destination-based ped shed maps can assist the process of prioritising key routes and connections. As a form of digital ground proofing tool, ped sheds can provide valuable insight into which streets or pathways provide the most trouble-free, energy efficient and convenient route to a targeted destination.

They supply an additional element of detail to assess the extent of pedestrian and cycle movement within communities, and between areas, and can assist decision making surrounding which key routes and connections would be worth investigating further.
Local Retail Centres

Recreational Destinations

Schools

Transport Hubs

**KEY**
- Local Board Boundary
- Parcel Boundaries
- Road Network
- Recreation Areas
- Pedestrian Shed 5 min
- Cycle Shed 10 min
Third Party Partnership Opportunities Study
Upper Harbour Local Board

Prepared for Upper Harbour Local Board
July 2019
Information

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Authors: Anita Coy-Macken, Craig Jones, Andy Adams and Gordon Cessford

Sign off: Craig Jones

Version: Final

Date: 8 August 2019

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1.0 INTRODUCTION

1.1 The Brief

Visitor Solutions was commissioned by Auckland Council to undertake an assessment of third party facilities in the Upper Harbour Local Board area that may be available for sport and recreation purposes.

Third party facilities are facilities not operated by Auckland Council, but includes any facility which has the capacity to accommodate sport and recreation provision including: schools, churches, marae, community halls, buildings/clubrooms on a ground lease, military bases and tertiary institutions.

The key objectives of the assessment include:

- Identify public access opportunities, for sport and recreation purposes, within local facilities owned/operated by third parties;
- Identify capacity available within third party facilities;
- Ascertain the current issues and challenges regarding third party facility access;
- Review background information and studies already completed to understand the context and project need;
- Research any other similar plans and how their success or learnings can be applied to this project.

1.2 Methodology

The methodology for the project was:

- Review existing data relating to sport facilities within the local board area;
- Interviews with key stakeholders including sport organisations, schools, community organisations and facility providers to understand current needs, provision, barriers/challenges and potential opportunities;
- Composition of facility inventory for the local board area and analysis of facility capacity/challenges /opportunities;
- Identification and scoping of potential partnership opportunities;
- Local board workshops to test the findings;
- Prioritisation of the potential partnership opportunities for final reporting.

---

Interviews with secondary schools were conducted by Harbour Sport. All other interviews were conducted by Visitor Solutions.
2.0 DEMOGRAPHIC CONTEXT

2.1 Introduction

It is important to have an overview of the local board demographics as this helps to inform the community needs we are likely to encounter through the study.

In this section, we have compared the main demographic features of the Upper Harbour Local Board population with those of neighbouring local boards on the “Wider North Shore” and the Auckland Region population. This comparison aims to identify any specific local features or trends that may influence current and/or future sport and recreation facility demand.

2.2 Summary of key demographic features

The overall summary of the key demographic features of the Upper Harbour Local Board are:

- **Population** – at the 2013 census there were over 54,000 residents in Upper Harbour.
- **Growth** - there has been strong population growth of 6.7% over the last 10+ years, particularly in comparison with the Wider North Shore and the Auckland Region.
- **Projected growth** - strong population growth (85%) is projected over the next 25 years, with over 50,000 more residents by 2046.
- **Age profile** - Upper Harbour’s population has an age profile similar to the Auckland Region, apart from a lower proportion of older adults (60+) compared to the Wider North Shore.
- **Projected age group growth** - all age-groups are projected to grow, but the older age-groups will increase the most, and consequently the local board population is projected to be progressively aging.
- **Playing age group** - among the typical sport ‘playing age’ from 5-35 years, Upper Harbour is projected to increase by almost 20,000 residents by 2043 (75%). This is proportionally greater than the Wider North Shore and Auckland Region.
- **Ethnic profile** - Upper Harbour has a high proportion of Asian residents (39%) along with European residents (66%) and low proportions of Māori (3%) and Pacific (3%) residents.
- **Ethnic growth** – The number of Asian residents will continue to increase in Upper Harbour by 2038 - Asians are projected to make up 43% of the population and Europeans 51% of the population.
- **Socio-economic** – personal, family and household incomes in Upper Harbour are on par with the Wider North Shore but higher in comparison to the Auckland Region.
- **Deprivation** - the combination of socio-economic variables in the ‘Deprivation Index’ indicate mostly high socio-economic conditions in the local board area.
- **Overall** – there will be significant population growth indicating more demand for sport and recreation opportunities. Growing Asian population and gradual aging population indicate an importance to consider the sport and recreation needs and demands of these population groups.

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2. Unless otherwise stated, all population projections come from Auckland Council’s Auckland Regional Transport (ART) model (output: Scenario 11, Version 3) which refined standard Statistics NZ projections by incorporating local planning strategy and development approval factors to more accurately reflect likely localised population growth. These are used for the Council’s Long-Term Plan and Infrastructure Strategy, subject to change from any future changes in planning decisions and directions. Other information on age and ethnicity come from Statistics NZ Census 2013 counts and derivative official projections.

3. The ‘Wider North Shore’ comprises the combined Devonport-Takapuna, Habiscus and Bays, Kaipatiki and Upper Harbour Local Board areas.
2.3 Population numbers and trends

Table 2.1 summarises the relative changes between the 2001 and 2013 Statistics New Zealand censuses. Over the last decade the resident population of the Upper Harbour Local Board area has grown at a rate significantly higher than the rate of the Wider North Shore and Auckland Region.

<table>
<thead>
<tr>
<th></th>
<th>2001</th>
<th>2006</th>
<th>2013</th>
<th>change 2001-2013</th>
<th>% change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upper Harbour</td>
<td>32,214</td>
<td>42,076</td>
<td>53,670</td>
<td>21,456</td>
<td>67</td>
</tr>
<tr>
<td>Wider North Shore</td>
<td>226,564</td>
<td>256,515</td>
<td>281,463</td>
<td>52,899</td>
<td>23</td>
</tr>
<tr>
<td>Auckland Region</td>
<td>1,160,271</td>
<td>1,304,961</td>
<td>1,415,550</td>
<td>255,279</td>
<td>22</td>
</tr>
</tbody>
</table>

Source: Statistics New Zealand census data

Looking forward there is strong projected population growth over the next 30 years. Table 2.2 outlines the projected growth rate in Upper Harbour at 85% which is significantly higher than the Wider North Shore and the Auckland Region.

<table>
<thead>
<tr>
<th></th>
<th>2016</th>
<th>2026</th>
<th>2036</th>
<th>2046</th>
<th>change 2016-2046</th>
<th>% change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upper Harbour</td>
<td>61,799</td>
<td>93,330</td>
<td>106,622</td>
<td>114,358</td>
<td>52,460</td>
<td>85</td>
</tr>
<tr>
<td>Wider North Shore</td>
<td>312,102</td>
<td>365,759</td>
<td>394,757</td>
<td>414,341</td>
<td>102,239</td>
<td>33</td>
</tr>
<tr>
<td>Auckland Region</td>
<td>1,380,690</td>
<td>1,899,660</td>
<td>2,136,064</td>
<td>2,338,564</td>
<td>757,873</td>
<td>49</td>
</tr>
</tbody>
</table>

Source: Auckland Council ART Projections (Scenario 11, V3, 2018)

2.4 Age-group profile and projections

Upper Harbour’s age-group profile is relatively similar to the Wider North Shore and Auckland Region, but has more 40-49 year olds and fewer 60+ year olds compared to the Auckland Region.

<table>
<thead>
<tr>
<th></th>
<th>0-9</th>
<th>10-19</th>
<th>20-29</th>
<th>30-39</th>
<th>40-49</th>
<th>50-59</th>
<th>60+</th>
<th>Total</th>
<th>Median Age</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upper Harbour</td>
<td>13</td>
<td>15</td>
<td>15</td>
<td>13</td>
<td>16</td>
<td>13</td>
<td>16</td>
<td>53,661</td>
<td>36</td>
</tr>
<tr>
<td>Wider North Shore</td>
<td>13</td>
<td>14</td>
<td>13</td>
<td>13</td>
<td>16</td>
<td>13</td>
<td>19</td>
<td>281,460</td>
<td>38</td>
</tr>
<tr>
<td>Greater Auckland</td>
<td>14</td>
<td>14</td>
<td>15</td>
<td>14</td>
<td>15</td>
<td>12</td>
<td>16</td>
<td>1,415,547</td>
<td>35</td>
</tr>
</tbody>
</table>

Sources: Statistics NZ Census (2013)
All age-groups comprising of the Upper Harbour population are projected to grow and by large proportions. As the older age-groups 40-64 years and 65+ years are projected to grow the most, the population is progressively aging. Based on Statistics NZ age-group projections, figure 2.2 and table 2.4 show all age-groups will increase in numbers.

**Figure 2.2: Projected change in Upper Harbour age-group profile (2018-2043)**

<table>
<thead>
<tr>
<th>Year</th>
<th>0-14 yrs</th>
<th>15-39 yrs</th>
<th>40-64 yrs</th>
<th>65+ yrs</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>11,000</td>
<td>26,400</td>
<td>19,500</td>
<td>5,900</td>
<td>52,800</td>
</tr>
<tr>
<td>2018</td>
<td>12,200</td>
<td>26,700</td>
<td>21,900</td>
<td>8,200</td>
<td>59,400</td>
</tr>
<tr>
<td>2023</td>
<td>14,000</td>
<td>30,900</td>
<td>24,600</td>
<td>11,000</td>
<td>69,600</td>
</tr>
<tr>
<td>2028</td>
<td>15,900</td>
<td>33,200</td>
<td>27,600</td>
<td>14,300</td>
<td>79,000</td>
</tr>
<tr>
<td>2033</td>
<td>17,500</td>
<td>34,000</td>
<td>32,400</td>
<td>17,800</td>
<td>90,500</td>
</tr>
<tr>
<td>2038</td>
<td>18,200</td>
<td>35,400</td>
<td>36,700</td>
<td>21,300</td>
<td>96,000</td>
</tr>
<tr>
<td>2043</td>
<td>18,700</td>
<td>37,800</td>
<td>41,100</td>
<td>23,900</td>
<td>105,500</td>
</tr>
</tbody>
</table>

Looking specifically at the majority of sport's active 'playing age'4, table 2.5 outlines the number of 5-35 year olds projected to reside in Upper Harbour. By 2043 there is projected to be 42,470 playing age residents, over 18,000 higher compared with 2013. This is particularly important given the rate of change is significantly higher compared with the Wider North Shore and Auckland Region.

**Table 2.5: Projected 'playing age' population (2013-2043)**

<table>
<thead>
<tr>
<th>Region</th>
<th>2013</th>
<th>2018</th>
<th>2023</th>
<th>2028</th>
<th>2033</th>
<th>2038</th>
<th>2043</th>
<th>change 2013-43</th>
<th>% change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upper Harbour</td>
<td>24,290</td>
<td>30,240</td>
<td>35,410</td>
<td>37,410</td>
<td>39,920</td>
<td>42,470</td>
<td>48,180</td>
<td>18,180</td>
<td>75</td>
</tr>
<tr>
<td>Wider North Shore</td>
<td>117,230</td>
<td>139,730</td>
<td>148,000</td>
<td>150,680</td>
<td>156,170</td>
<td>160,820</td>
<td>163,590</td>
<td>43,360</td>
<td>37</td>
</tr>
<tr>
<td>Greater Auckland</td>
<td>641,740</td>
<td>767,750</td>
<td>797,920</td>
<td>803,330</td>
<td>822,850</td>
<td>839,400</td>
<td>877,660</td>
<td>194,320</td>
<td>31</td>
</tr>
</tbody>
</table>

Source: Subnational population projections, by age, Medium series, 2013 (base) - 2040

---

4 Those aged between 5.35 years for most active sport - overall (recognising that exceptions do occur).

Upper Harbour Local Board Third Party Partnerships Opportunities Study August 2019
2.5 Ethnic profile and projections

Upper Harbour Local Board population is predominantly made up by European and Asian residents and very low proportions of Māori and Pacific residents. Figure 2.3 and table 2.6 show the age-profile of the Upper Harbour Local Board compared to Wider North Shore and Auckland Region.

Figure 2.3: Ethnic composition (% of population)

<table>
<thead>
<tr>
<th>Ethnic Group</th>
<th>European</th>
<th>Māori</th>
<th>Pacific</th>
<th>Asian</th>
<th>Other ethnicities</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upper Harbour</td>
<td>66</td>
<td>5</td>
<td>2</td>
<td>29</td>
<td>4</td>
<td>51,045</td>
</tr>
<tr>
<td>Wider North Shore</td>
<td>75</td>
<td>6</td>
<td>3</td>
<td>20</td>
<td>3</td>
<td>268,542</td>
</tr>
<tr>
<td>Greater Auckland</td>
<td>59</td>
<td>11</td>
<td>13</td>
<td>23</td>
<td>3</td>
<td>1,331,427</td>
</tr>
</tbody>
</table>

Source: Statistics NZ Census 2013

Table 2.6: Ethnic composition of the population

Based on current trends, Statistics NZ projects the Asian and European residents to grow the most numerically in Upper Harbour, as shown in table 2.7 and figure 2.4.

Table 2.7: Projected ethnic group numbers (2013-2038)

<table>
<thead>
<tr>
<th>Ethnic Group</th>
<th>2013</th>
<th>2018</th>
<th>2023</th>
<th>2028</th>
<th>2033</th>
<th>2038</th>
<th>Change 2013-38</th>
<th>% Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>European</td>
<td>37,500</td>
<td>41,100</td>
<td>46,900</td>
<td>46,900</td>
<td>49,500</td>
<td>51,900</td>
<td>14,400</td>
<td>38</td>
</tr>
<tr>
<td>Māori</td>
<td>3,280</td>
<td>3,850</td>
<td>4,470</td>
<td>5,130</td>
<td>5,850</td>
<td>6,600</td>
<td>3,320</td>
<td>101</td>
</tr>
<tr>
<td>Asian</td>
<td>16,800</td>
<td>21,000</td>
<td>28,000</td>
<td>33,200</td>
<td>38,200</td>
<td>43,200</td>
<td>26,400</td>
<td>157</td>
</tr>
<tr>
<td>Pacific</td>
<td>1,430</td>
<td>1,780</td>
<td>2,150</td>
<td>2,530</td>
<td>2,920</td>
<td>3,330</td>
<td>1,700</td>
<td>133</td>
</tr>
<tr>
<td>Total pop</td>
<td>56,860</td>
<td>67,400</td>
<td>78,000</td>
<td>84,800</td>
<td>93,400</td>
<td>101,600</td>
<td>44,800</td>
<td>79</td>
</tr>
</tbody>
</table>

Source: Statistics NZ Census 2013
Almost a half of Upper Harbour residents (46%) were born overseas, which is higher than the Wider North Shore and Auckland Region. This proportion has grown steadily over recent years from 32% in 2001 to 46% in 2013.

Table 2.8: Resident birthplace

<table>
<thead>
<tr>
<th></th>
<th>NZ Born</th>
<th>Overseas Born</th>
<th>Total pop</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upper Harbour</td>
<td>54</td>
<td>46</td>
<td>50,847</td>
</tr>
<tr>
<td>Wider North Shore</td>
<td>59</td>
<td>41</td>
<td>150,918</td>
</tr>
<tr>
<td>Greater Auckland</td>
<td>61</td>
<td>39</td>
<td>1,322,535</td>
</tr>
</tbody>
</table>

Source: Statistics NZ Census 2013

2.6 Socio-economic indicators

Socio-economic variables are examined to indicate the relative economic capacity of the population to engage in recreational activities.

Residents of Upper Harbour have higher median personal, household and family incomes compared to the Auckland Region, but similar to the Wider North Shore, as shown in Table 2.9.

Table 2.9: Median personal and household income (2013 Census)

<table>
<thead>
<tr>
<th></th>
<th>Median personal Income</th>
<th>Median Family Income</th>
<th>Median Household Income</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upper Harbour</td>
<td>$31,100</td>
<td>$88,300</td>
<td>$89,000</td>
</tr>
<tr>
<td>Wider North Shore</td>
<td>$32,300</td>
<td>$96,350</td>
<td>$92,875</td>
</tr>
<tr>
<td>Greater Auckland</td>
<td>$26,900</td>
<td>$78,600</td>
<td>$76,500</td>
</tr>
</tbody>
</table>

Source: Statistics NZ Census 2013
Deprivation Index

Another indicator of socio-economic conditions in an area is provided by the Deprivation Index, created by the University of Otago using data from Statistics New Zealand Census (2013). The index combines census data relating to income, home ownership, employment, qualifications, family structure, housing, access to transport and communications. Figure 4.5 summarises the deprivation index scores for Statistics NZ Area Units in and around Upper Harbour. The key features are the low levels of relative deprivation index scores suggesting the population is relatively well-placed in socio-economic terms to engage in recreation and leisure activities.

Figure 4.5: Deprivation index levels across Upper Harbour (by Statistics NZ Area Units)

Source: NZ Deprivation Index – University of Otago and Statistics NZ (Interactive map NZ Herald)
3.0 WHAT DO WE NEED?

3.1 Introduction

Part of the study is to understand the current sport facility needs in the local board area. The focus of this study is on indoor sports and selected outdoor sports which do not utilise sport fields (as sports which utilise sport fields are already addressed through Auckland Council’s Sport Field Demand Studies).

The needs assessment has drawn information from:

- Area based plans which provide strategic context for the local board area;
- Regional sport facility plans which provide region-wide context and direction for sport facilities;
- Regional code facility plans which provide information about the facility needs for different codes;
- Engagement with Regional Sport Organisations to provide current needs statements (where possible this information has been validated by the codes). If it is important to note, there has been no direct engagement with clubs at a local level.

The purpose of the needs assessment is to understand sport facility capacity issues and where there may be opportunities for partnerships with third party organisations. The needs assessment has not collected information about club facility needs or development projects.

3.2 Strategic Context

3.2.1 Upper Harbour Local Board Plan 2017

Outcome three in the Upper Harbour Local Board Plan 2017 is relevant to this study “Our residents have access to open space and a wide variety of sports and recreation opportunities”. Under this outcome, the following objective and key initiatives are relevant:

Objective: Upper Harbour has a range of world-class, multi-use sports and recreation facilities.

Key initiative: Investigate improving sporting infrastructure through public and private partnerships.

3.2.2 Community Facilities Network Plan 2015

The Community Facilities Network Plan provides a roadmap for how Auckland Council will invest in community facilities over the next 20 years. The vision for community facilities are “vibrant, welcoming places at the heart of where and how people connect and participate”. To achieve this vision, the council focuses on four objectives:

- Integrate and coordinate planning across all types of community facilities;
- Maintain, improve and optimise existing community facilities;
- Develop fit-for-purpose, integrated and connected community facilities;
- Leverage and support partnerships.

This study reinforces council’s objectives by considering the role of existing facilities and leveraging partnership opportunities.

3.3 Sport Facility Plans

3.3.1 Auckland Sport and Recreation Strategic Action Plan – Refreshed 2017

Auckland Sport and Recreation Strategic Action Plan sets out a 10-year strategic direction for sport and recreation with actions to guide the future planning and delivery of recreation and sport in Auckland. The shared vision is Aucklanders: more active, more often with four priority areas around participation, infrastructure, sector development and excellence in sport.

Of relevance to this study is Action 8 Facility Partnerships – “Facilitate partnerships to make the most of local facilities and resources.” Intiative 8.1 – Continue to support collaborative partnerships to provide sustainable delivery of recreation and sport facilities.
3.3.2 Auckland Sport Sector Facility Priorities Plan

The Auckland Sport Sector Facility Priorities Plan (ASSPPP) is a sector-based plan to inform sport code planning and future sport facilities investment. The plan provides strategic principles and priorities for facility investment, a process to evaluate and prioritise significant sport facility proposals and provides guidance for the planning and development of sport facilities.

The ASSPPP appendices summarises the sport code priorities articulated by the codes in August 2017. Table 3.1 summarises these priorities relevant to the study area and codes focused on.

Table 3.1 - Summary of ASSPPP code priorities as at August 2017 relevant to the study area and focus

<table>
<thead>
<tr>
<th>Code</th>
<th>Priorities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bowls</td>
<td>Up to 8 covered greens geographically across Auckland</td>
</tr>
<tr>
<td>Gymnastics</td>
<td>Development of a regional hub on the North Shore</td>
</tr>
<tr>
<td>Hockey</td>
<td>National Hockey Centre</td>
</tr>
<tr>
<td>Netball</td>
<td>Court facility in North-west corridor</td>
</tr>
<tr>
<td></td>
<td>General upgrade programme for community courts</td>
</tr>
<tr>
<td></td>
<td>Indoor courts in partnership with other court sports</td>
</tr>
<tr>
<td>Tennis</td>
<td>Sustainable operation of key regional and sub-regional facilities including</td>
</tr>
<tr>
<td></td>
<td>Albany Tennis Park and Forrest Hill Tennis Centre</td>
</tr>
<tr>
<td></td>
<td>Network of sustainable clubs</td>
</tr>
<tr>
<td></td>
<td>Provision of additional indoor and covered courts</td>
</tr>
<tr>
<td></td>
<td>Provision of facilities for tennis in areas of significant population growth</td>
</tr>
<tr>
<td>Basketball</td>
<td>Extension of Eventfinda Stadium</td>
</tr>
<tr>
<td></td>
<td>Hobsonville Point</td>
</tr>
<tr>
<td>Swimming</td>
<td>More training space</td>
</tr>
<tr>
<td></td>
<td>Maintain / upgrade existing pools to be fit for purpose</td>
</tr>
<tr>
<td>Table tennis</td>
<td>New bespoke table tennis facility on North Shore</td>
</tr>
</tbody>
</table>

3.3.3 Auckland Regional Indoor Court Plan 2019

The Auckland Regional Indoor Court Plan is a cross-code plan developed to guide decisions and investment in the future provision of indoor courts. The indoor sports addressed by the plan include badminton, basketball, futsal, netball, table tennis and volleyball.

Several studies into indoor court facilities have been completed, all highlighting a deficiency of indoor courts across the Auckland Region. The analysis completed in the Regional Indoor Court Plan is consistent with earlier studies and provides added insight into the spatial distribution of indoor court demand.

Analysis of indoor court users found the difficulty in accessing facilities, including accessibility (good locations) and sufficiency (enough venues) are major issues for indoor sports. Users also expressed an intention to increase participation by 75% - 80%. Without additional indoor court capacity, this cannot occur.

The plan indicates demand for indoor courts will increase by between 20% and 25% over current levels over the next 15 years to 2033, based purely on population growth. Growth in indoor court demand will not be spread evenly across Auckland as population growth will occur around greenfield areas and through intensification. There are several other factors that could influence future demand including current backlogs in supply, changes to sport programmes, growing population diversity, effects of an ageing population on people staying active longer. It is difficult to quantify the scale of demand, meaning the population-driven growth of 20-25% should be seen as the minimum of future participation demand for indoor courts.

Due to the existing pressures in the current network of indoor courts, both short and medium/long-term interventions are required to ensure future participation growth can be accommodated. Short term actions are likely to include securing access to existing facilities that aren’t currently being used by codes. Medium and longer-term solutions could include developing new facilities or refurbishing/renovating facilities to enable codes to use existing venues.
3.4 Sport Needs

The following sections provide a summary of the sport needs by code. This information has been informed by the relevant regional sport facility, where one is available, and through discussions with the regional sport organisation.

The codes that are summarised include:

- Badminton
- Basketball
- Bowls
- Futsal
- Gymnastics
- Hockey
- Netball
- Table Tennis
- Tennis
- Volleyball

3.4.1 Badminton

Badminton North Harbour is the regional sport organisation for badminton on the North Shore and operates two of the largest badminton venues in Auckland, Forest Hill and Active Badminton Centre in Apollo Drive.

There is no regional sport facility plan for badminton but the recently completed Auckland Regional Indoor Court Plan 2019 provides an assessment of the badminton needs, as follows:

- During 2017, the two North-Shore badminton facilities were used for a total of 66,502 player hours, an increase of 76% between 2010 and 2016. This represents just under 200,000 player visits per year.
- Club membership has had small growth in 2018, but the major growth is in casual play (pay as you play) including both card holders and casual drop-in players.
- Badminton is popular with the Asian community, so as the Asian population increases the demand for badminton courts is also likely to be prevalent.
- Most badminton participants live within 10km distance from current badminton facilities, but some travel greater distances to reach the facilities.
- Growth for badminton is forecasted between 15% to 32% depending on the level of population growth. Around half of this growth is expected in the high growth areas and the rest region-wide.
- Based on the dataset, there is a strong need for more badminton courts available for public use.

<table>
<thead>
<tr>
<th>Current Facilities</th>
<th>Needs</th>
<th>Opportunities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Forrest Hill Badminton Centre – 11 courts which are full at peak times which includes the morning and from 3pm to 11pm.</td>
<td>There is a secondary school programme in terms 2 and 3 at both facilities.</td>
<td>Badminton was part of the Community Sport Village project at Albany Tennis Park for racquet sports, but this is no longer progressing. Waiting to hear about the Albany Tennis Park project and possible opportunities to be involved in additional court space.</td>
</tr>
<tr>
<td>Active Badminton Centre, Apollo Drive – 8 badminton courts which are full at peak times which includes the morning and from 3pm to 11pm.</td>
<td>The Forrest Hill courts are at full capacity and the ability to cater for the badminton community and projected growth levels cannot be facilitated.</td>
<td>Would be interested in land to build facilities or access to new facilities through sport centre-type projects.</td>
</tr>
<tr>
<td>Both courts are open to the public from 6am to 11pm for bookings, but there is limited availability due to current volume of activity.</td>
<td>The Apollo Drive facility is also reaching capacity at key times and cannot cater for proposed growth of badminton.</td>
<td>Access to additional indoor courts is a priority to meet growing demand.</td>
</tr>
<tr>
<td></td>
<td>Large Asian population growth leads to increased demand for courts.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>The need is immediate as teams and participants cannot be accommodated.</td>
<td></td>
</tr>
</tbody>
</table>

Table 3.2 Summary of Badminton North Harbour - current facilities, needs and opportunities
3.4.2 Basketball

North Harbour Basketball Association (NHBA) is the regional sport organisation for basketball on the North Shore. The Association manages competitions, leagues, holiday camps and other programmes. There are an estimated 6,500 players participating in basketball each week across the North Shore.

There is no regional sport facility plan for basketball but the recently completed Auckland Regional Indoor Court Plan 2019 provides an assessment of the basketball needs, as follows:

- Access to courts is limited and scheduling constraints mean there is limited scope to increase use.
- Some venues have a commercial focus which means at times the code’s activities are disrupted and postponed by commercial events. These disruptions compound and affect the basketball programme.
- Based on the survey undertaken, 80% of basketball players live within 10km of their home playing venue, although this distance increases for “away” games.
- Basketball participants voiced there is insufficient court space, both indoor and outdoor.
- Based on the distance participants are currently travelling, and the expected growth patterns, suggests basketball demand will increase between 10% and 33% over the next 10 years. This equates to roughly 650 to 2,145 more basketball participants across the North Shore.
- Almost half of the growth is expected in high growth areas and 20% in concentrated urban areas.

<table>
<thead>
<tr>
<th>Current Facilities</th>
<th>Eventfinda Stadium (dominant centre on North Shore)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Massey University indoor courts</td>
</tr>
<tr>
<td></td>
<td>Albany Junior High School indoor courts</td>
</tr>
<tr>
<td></td>
<td>Kristin School indoor court</td>
</tr>
<tr>
<td></td>
<td>Carmel College indoor court</td>
</tr>
<tr>
<td></td>
<td>Takapuna Grammar School indoor court</td>
</tr>
<tr>
<td></td>
<td>Westlake Boys indoor courts</td>
</tr>
<tr>
<td></td>
<td>Rangitoto College indoor courts</td>
</tr>
<tr>
<td></td>
<td>AUT Indoor courts</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Needs</th>
<th>The sport is growing and there is considerable pressure to source enough indoor courts to meet demand</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Primary and Intermediate leagues are running at an all-time high and the Association is reducing game time to fit everyone in</td>
</tr>
<tr>
<td></td>
<td>Secondary School leagues are also experiencing high growth</td>
</tr>
<tr>
<td></td>
<td>There is growing demand for outdoor basketball and social basketball leagues</td>
</tr>
<tr>
<td></td>
<td>More variation in the format of basketball with modified games such as half court and 3x3</td>
</tr>
<tr>
<td></td>
<td>Casual basketball courts are heavily used by community</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Opportunities</th>
<th>The Association is keen to develop more outdoor covered courts to grow the casual game.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Would like to run basketball leagues outdoors under cover (asphalt or Rebound ACE with cover)</td>
</tr>
<tr>
<td></td>
<td>Working on a programme to install more basketball hoops into school at a cost of $7,000 plus GST (2 hoops). Schools currently focused on are Birkenhead College, Birkdale Primary, Kauri Park Primary, Windy Ridge School and Coatesville Primary School (none in Upper Harbour Local Board).</td>
</tr>
</tbody>
</table>

> The Auckland Regional Indoor Court Plan conducted a survey to assess where participants live relative to the facilities they used. The survey also asessed participants views on the sport and facilities. The survey had 750 basketball responses representing 1,605 players.

Upper Harbour Local Board Third Party Partnership Opportunities Study August 2019
3.4.3 Bowls
Bowls North Harbour leads the development, growth and delivery of bowls in North Harbour. Its role includes centre competitions and supporting clubs.

Table 3.4 Summary of bowls - current facilities, needs and opportunities

<table>
<thead>
<tr>
<th>Current Facilities</th>
<th>Needs</th>
</tr>
</thead>
<tbody>
<tr>
<td>One Bowling Club In The Upper Harbour Local Board</td>
<td>Investigating the potential for covered bowling greens as has been completed in Hutt City.</td>
</tr>
<tr>
<td></td>
<td>Bowls is an all-year round facility. Starting to attract young people who want to play evening and providing more social activity.</td>
</tr>
<tr>
<td></td>
<td>Some clubs need assistance with maintenance of greens and clubrooms</td>
</tr>
<tr>
<td></td>
<td>Using the bowling clubs for community events – corporate events.</td>
</tr>
</tbody>
</table>

| Opportunities       | Desire for 3-4 covered greens across North Harbour - potentially at Birkenhead, Sunnybrae and Bowns Bay. |

3.4.4 Futsal
Futsal is the affiliated modified version of football played with less players, on a hard court with smaller dimensions than a football pitch. Futsal is ideally played indoors on a wooden court and can be customised to fit within the dimensions of a netball or basketball court. Futsal can also be played on other surfaces including synthetic/acrylic surface, astro-turf, asphalt and Rebound ACE (although the last three are less than ideal).

Futsal is one of the fastest growing sports worldwide and this trend is replicated in New Zealand with recent growth from around 5,000 players in 2011 to close to 30,000 players in 2018.

Northern Football Federation oversees the delivery of futsal on the North Shore. Due to a lack of venues, Futsal is only currently offered at Netball North Harbour Centre, but there is significant demand for both more venues and more competitions.

There is no regional sport facility plan for futsal but the recently completed Auckland Regional Indoor Court Plan 2019 provides an assessment of futsal demand, as follows:

- There is an increase in players looking to participate in futsal competitions, but the games must be in accessible and convenient locations.
- There is a lack of access to facilities across the region to grow junior and youth futsal.
- The cost of venues is a debilitating factor as these costs are passed onto the players.
- Growth in futsal is forecasted between 13% to 29% depending on the level of population growth.
- Based on the data set, there is growing need for more courts to be available for futsal.

Table 3.5 Summary of Northern Football current facilities, needs and opportunities for futsal

<table>
<thead>
<tr>
<th>Current Facilities</th>
<th>Needs</th>
</tr>
</thead>
<tbody>
<tr>
<td>Friday nights at Netball North Harbour.</td>
<td>Can’t get into Evertrans Stadium as the availability is too inconsistent.</td>
</tr>
<tr>
<td>Friday nights at the Trusts Arena (west).</td>
<td>Need a minimum of two netball courts to deliver a quality programme.</td>
</tr>
<tr>
<td></td>
<td>However, one court available for consistent periods could work.</td>
</tr>
<tr>
<td></td>
<td>Ideal surface is indoor wooden floor but does not have to be sprung.</td>
</tr>
<tr>
<td></td>
<td>Preference not to use Rebound Ace as it scuffs the balls up too quickly.</td>
</tr>
<tr>
<td></td>
<td>Can play on short astro-turf.</td>
</tr>
<tr>
<td></td>
<td>Would consider outdoor or covered courts if the availability was consistent.</td>
</tr>
<tr>
<td></td>
<td>Regular consistent time is most important to grow the programme.</td>
</tr>
</tbody>
</table>

| Opportunities       | Any venues available consistently at a reasonable cost |

---

There are other forms of small-side and modified versions of football which are typically delivered by commercial providers and not affiliated to New Zealand Football.
3.4.5 Gymnastics

North Harbour Gymnastics is the main gymnastics club serving the North Shore. The main base is at Eventfinda Stadium and they also operate a number of satellite sites across the North Shore. The satellite sites provide recreational and junior gymnastics for local participants. When participants progress through the athlete pathway, they transfer to the main hub facility at Eventfinda Stadium.

Gymnastics New Zealand recently completed a Gymnastics National Facility Plan which provides a high-level strategic framework for planning facilities. The Auckland Regional Facility Plan was also developed in 2018, which provides the following assessment of gymnastics in the Auckland region as follows:

- Gymnastics participation has increased by 34% over the last 5 years with over 11,000 members in 2018.
- Many Auckland based gymnastics facilities are under pressure due to capacity, condition or location.
- On the North Shore the plan recommends developing and accessing localised satellite venues to reduce capacity issues at the Eventfinda Stadium, enabling it to be optimised as a regional hub.

<table>
<thead>
<tr>
<th>Table 3.6 summary of gymnastics - current facilities, needs and opportunities</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Current Facilities</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>Needs</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>Opportunities</strong></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

3.4.6 Hockey

Hockey is the regional sport organisation responsible for managing the North Harbour Hockey Centre (under development as the National Hockey Centre) and the delivery of regional competitions.

<table>
<thead>
<tr>
<th>Table 3.7 summary of hockey - current facilities, needs and opportunities</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Current Facilities</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td><strong>Needs</strong></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>
| **Opportunities** | **The southern area of the North Shore is strategically important and is identified as the next area for turf development after the completion of the National Hockey Centre.**
3.4.7 Netball

Netball North Harbour is the main netball centre on the North Shore. They own and manage the netball facility on Northcote Road and deliver several satellite competitions across the North Shore. There is also a non-affiliated league for Years 1-6 run by Kidsplay at Pinehurst School.

The Auckland Regional Netball Facility Plan 2015 identifies the future netball facility needs for the Auckland Region. Demand and gap analysis show a shortfall of 23 courts across the North Shore by 2031. This has been further assessed through a North-Shore scoping study 2016, which identifies the priority areas in the North-Shore are in the Upper Harbour Local Board and Orewa areas. The study shows the additional courts are needed to meet the demand for training, junior and localised competitions, and where possible, should consider the use of school/public courts or as part of multi-sport developments.

Table 3.8 Summary of netball - current facilities, needs and opportunities

<table>
<thead>
<tr>
<th>Current Facilities</th>
<th>Needs</th>
<th>Opportunities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Netball North Harbour is at capacity during the winter, but there is some capacity in summer.</td>
<td>With North Harbour at capacity, the key is to develop more capacity through satellites to grow participation in junior and social netball competitions.</td>
<td>Consider another satellite around Albany, but need 4-6 courts for a viable competition.</td>
</tr>
<tr>
<td>Currently have Saturday satellites at Westlake Girls and Glenfield College</td>
<td>Devonport Navy base – there is a small competition focused on Year 1-4</td>
<td></td>
</tr>
</tbody>
</table>

3.4.8 Table Tennis

Table Tennis New Zealand oversees the delivery of table tennis in New Zealand. Table Tennis New Zealand have advised they are working through issues around affiliated organisations to support the delivery of table tennis on the North Shore. There are a number of table tennis clubs on the North Shore with the largest being North Shore Table Tennis at ActiveZone in Glenfield.

There is no regional sport facility plan for table tennis, but the recently completed Auckland Regional Indoor Court Plan 2019 provides an assessment of table tennis demand, as follows:

- Table Tennis is played in a range of venues from dedicated venues to small, non-dedicated venues and include community, school and church halls.
- There appears to be a growing casual player-base.
- Growth in table tennis is forecasted between 13% to 31% depending on population growth. This growth is expected to be more dispersed across Auckland.

Table 3.9 Summary of table tennis - current facilities, needs and opportunities

<table>
<thead>
<tr>
<th>Current Facilities</th>
<th>Needs</th>
<th>Opportunities</th>
</tr>
</thead>
<tbody>
<tr>
<td>ActiveZone at Glenfield</td>
<td>Volunteers are stretched managing part-time table set-ups. Desperately need permanent facility where tables are up all the time so coaching can focus on delivering a quality programme. Ideally this would provide 100 hours a week for permanent tables as a centralised hub.</td>
<td>Shared facility in Massey/Hobsonville – four tables and ability to store tables, Multi-sport facility.</td>
</tr>
<tr>
<td>Massey University</td>
<td>Would like to develop mini-clusters on the North-Shore at community level. Ideally at a school where training and events can be established. These would feed into a centralised hub.</td>
<td>Albany shared facility – 8-12 tables with expansion opportunity.</td>
</tr>
<tr>
<td>Hobsonville Point Primary School Hall – new satellite</td>
<td>Also need storage site to store and distribute equipment around at a local level.</td>
<td></td>
</tr>
</tbody>
</table>
3.4.9 Tennis

Tennis Northern are the regional sport organisation overseeing the provision of tennis on the North Shore and are responsible for managing regional facilities at Albany Tennis Park and Forrest Hill Tennis Centre.

The Auckland Regional Tennis Facility Plan 2015 provides guidance for the provision of tennis facilities across Auckland. While the quantity of courts is not the major issue for the North Shore, maintaining the quality and financial sustainability of the current tennis facilities is a major issue.

<table>
<thead>
<tr>
<th>Current Facilities</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Forrest Hill Tennis Centre has a large number of outdoor courts</td>
<td></td>
</tr>
<tr>
<td>Albany Tennis Centre has indoor and outdoor courts</td>
<td></td>
</tr>
<tr>
<td>2 tennis clubs within the Upper Harbour Local Board</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Needs</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Sustainability of the tennis clubs – maintaining existing assets.</td>
<td></td>
</tr>
<tr>
<td>Need more examples of how to utilise tennis courts for a variety of activity.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Opportunities</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>West Harbour Tennis Club – might be a possibility to consider for multi-activity</td>
<td></td>
</tr>
<tr>
<td>Many tennis clubs could make their clubhouse facilities available to community groups – probably need incentives to make this happen through a grant.</td>
<td></td>
</tr>
</tbody>
</table>

3.4.10 Volleyball

Harbour Volleyball Association governs the sport of volleyball both indoor and beach on the North Shore.

There is no regional sport facility plan for volleyball but the recently completed Auckland Regional Indoor Court Plan 2019 provides an assessment of volleyball, as follows:

- The principal playing age-group is school-age, both primary and secondary. There are 350 teams across the Auckland Region translating to an estimated player base of 4,100 students.
- Adult player numbers are small and estimated at 820 across the Auckland Region.
- Other providers of volleyball opportunities service an estimated 1,020 players.
- Volleyball has a very strong connection with schools, so the growth patterns align with population increases and distribution patterns.
- Accessing facilities for training is very difficult and the cost of court space is expensive.
- Growth in volleyball is forecasted between 10% to 26% depending on the level of population growth. Growth is expected to be tied with the trends in school aged individuals and younger age groups.
- Based on the dataset, there is a need for more volleyball courts.

<table>
<thead>
<tr>
<th>Current Facilities</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>AUT</td>
<td></td>
</tr>
<tr>
<td>Netball North Harbour Centre</td>
<td></td>
</tr>
<tr>
<td>Eventfinda Stadium (tournaments)</td>
<td></td>
</tr>
<tr>
<td>Albany Junior College</td>
<td></td>
</tr>
<tr>
<td>Rangitoto College</td>
<td></td>
</tr>
<tr>
<td>Westlake Girls</td>
<td></td>
</tr>
<tr>
<td>Westlake Boys</td>
<td></td>
</tr>
<tr>
<td>Kiwivolley at Takapuna Grammar, Birkenhead College, Rangitoto College</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Needs</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Strategically want to establish 5-6 sites with 32 teams at each.</td>
<td></td>
</tr>
<tr>
<td>Strong secondary school programme and social programmes; driving more demand for game capacity and training space.</td>
<td></td>
</tr>
<tr>
<td>Kiwivolley – modified game that can be undertaken on badminton courts, just need extension of the net poles to make it suitable.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Opportunities</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Albany Junior High School – already used for social volleyball. Storage and equipment needed.</td>
<td></td>
</tr>
<tr>
<td>Eventfinda Stadium – funding for volleyball gear approximately $20,000 for 9 courts. Currently using one night a week in summer in terms 1 and 4.</td>
<td></td>
</tr>
<tr>
<td>Looking for more space in Upper Harbour – Albany Senior, Pinehurst, Massey University if there was capacity. Upgrade to pole systems would allow Kiwivolley to be played and covering of lights with grates.</td>
<td></td>
</tr>
<tr>
<td>Given volleyball’s close association with schools, a template for MOUs with schools would be advantageous.</td>
<td></td>
</tr>
</tbody>
</table>
4.4 Summary of sport facility needs

Summarising the available information, the following key facility needs have been identified:

- Access to indoor courts to support participation in basketball, badminton, volleyball and futsal
- Access to covered outdoor courts to support participation in basketball, futsal and netball
- Dedicated space for table tennis
- Access to existing spaces to create satellites for gymnastics and netball
- Incentives and/or examples of successful multi-use / multi-sport facility developments to showcase best practice.
4.0 WHAT FACILITIES DO WE HAVE?

4.1 Introduction

This section provides a high-level inventory of the sport and recreation facilities in the Upper Harbour Local Board area. The inventory is focused on non-field based sports, so the facilities scoped include:

- Swimming pools
- Indoor court / indoor halls
- Outdoor courts
- Multi-purpose turf

The facility inventory is summarised by schools, sport organisations and other third-party organisations, and geographically displayed via maps. For efficiency in the report, the following sections also include a summary of the potential developments and opportunities where this information is available.

4.2 Schools

Within the Upper Harbour Local Board, there are 22 schools on the Ministry of Education database, mapped on Figure 4.1. Almost all schools have sports facilities that contribute to the local facility network. These include:

- 3 outdoor swimming pools, all less than 20 metres long.
- 8 indoor court facilities providing 10 netball/basketball courts.
- 1 school hall marketed as available for community hire and use.
- 58 outdoor courts which are marked for netball/basketball or tennis.

Table 4.1 (over-page) summarises the school facilities in Upper Harbour and the potential opportunities.

4.3 Sport organisations

Within Upper Harbour there are a range of sport facilities, mapped on Figure 4.2. Table 4.2 summarises the sports facilities and possible opportunities.

4.4 Other organisations

Within Upper Harbour there are a range of other organisations which have facilities which may contribute to the sport facility network. Table 4.3 summarises the facilities available at other organisations. It was difficult to make contact with some of the organisations, therefore there is limited information presented.

Overall, there are two good opportunities identified for further assessment in Section 5:

- West Harbour Tennis at Picasso Reserve
- Hangar Building at Hobsonville Point

The following sites may also have potential partnership or community capacity, but there are limitations which are outlined in section 5:

- Whenuapai School
- Albany Junior High School
- Kirsten School
- Pinehurst School
- Northcross Intermediate School (not located within the Upper Harbour Local Board area but a good opportunity which will potentially benefit Upper Harbour residents).
<table>
<thead>
<tr>
<th>School</th>
<th>School Type</th>
<th>Pool</th>
<th>Indoor court Hall</th>
<th>Outdoor Court</th>
<th>Discussion</th>
<th>Opportunities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Albany Junior</td>
<td>Secondary Y7-10</td>
<td>-</td>
<td>1 court</td>
<td>6 netball courts</td>
<td>Open to more community use of outdoor courts, but quality of the facilities and access are the big issue. Security system could improve access</td>
<td>Discuss willingness to develop and/or upgrade facilities to facilitate greater community use</td>
</tr>
<tr>
<td>Albany Senior</td>
<td>Secondary Y11-13</td>
<td>-</td>
<td>1 court</td>
<td>1 netball court</td>
<td>Current facilities are heavily used so limited capacity for further use</td>
<td></td>
</tr>
<tr>
<td>Kestin School</td>
<td>Private Y1-13</td>
<td>-</td>
<td>2 court</td>
<td>4 netball courts 5 tennis courts</td>
<td>Current facilities heavily used by school so there is limited capacity for community use</td>
<td>Possibly considering covering netball courts and upgrading indoor courts in the future</td>
</tr>
<tr>
<td>Pinehurst School</td>
<td>Private Y1-13</td>
<td>-</td>
<td>1 court</td>
<td>10 netball courts</td>
<td>Facilities are almost at full capacity.</td>
<td>Tennis/Netball courts are floodlit. Capacity on 1-2 nights per week for more use.</td>
</tr>
<tr>
<td>Rangitoto College</td>
<td>Secondary</td>
<td>-</td>
<td>2 courts</td>
<td>3 netball courts</td>
<td>No feedback</td>
<td></td>
</tr>
<tr>
<td>Hobsonville Point</td>
<td>Secondary</td>
<td>-</td>
<td>1 court</td>
<td>2 netball courts</td>
<td></td>
<td>Open to community use through application</td>
</tr>
<tr>
<td>Secondary School</td>
<td>Primary</td>
<td>-</td>
<td>2 courts</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hobsonville Point</td>
<td>Primary</td>
<td>-</td>
<td>2 courts</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Primary School</td>
<td>Primary</td>
<td>&lt;20 m</td>
<td>2 netball courts</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Greenhills School</td>
<td>Primary</td>
<td>&lt;20 m</td>
<td>2 netball courts</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hobsonville School</td>
<td>Full Primary Y1-6</td>
<td>-</td>
<td>3 courts</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ridgeview School</td>
<td>Primary</td>
<td>&lt;20 m</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Marina View School</td>
<td>Full Primary Y1-6</td>
<td>-</td>
<td>1 court</td>
<td>2 courts</td>
<td>Half fully booked with karate, dance, Zumba etc.</td>
<td></td>
</tr>
<tr>
<td>TKKM o te Raki School</td>
<td>Composite (Primary-Secondary)</td>
<td>-</td>
<td>1 court</td>
<td></td>
<td>Outdoor court are astro-turf</td>
<td></td>
</tr>
<tr>
<td>Paewherenua (Rosedale)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Albany Primary School</td>
<td>Primary</td>
<td>-</td>
<td>2 courts</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>School Type</td>
<td>School</td>
<td>Indoor Court</td>
<td>Outdoor Court</td>
<td>Pool</td>
<td>Hall</td>
<td></td>
</tr>
<tr>
<td>-------------</td>
<td>--------</td>
<td>-------------</td>
<td>--------------</td>
<td>------</td>
<td>------</td>
<td></td>
</tr>
<tr>
<td>Primary</td>
<td>Whenuepo School</td>
<td>-</td>
<td>2 courts</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Primary</td>
<td>Pinetree Primary School</td>
<td>-</td>
<td>2 courts</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Primary</td>
<td>Upper Harbour Primary School</td>
<td>-</td>
<td>2 courts</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Private</td>
<td>City Impact Primary School</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Primary</td>
<td>Church School</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Primary</td>
<td>Bayview Primary School</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Secondary</td>
<td>Vanguard Military School</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Primary</td>
<td>Timatanga Community School</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
</tbody>
</table>

**Discussion**

Facilities are not regularly used by the community, about 1 night a week. Currently, used after school and carpooling. Has security and car parking. Charges at $50 per hour.

**Opportunities**

Generally, facilities are rarely used by the community. Indoor court which is a full year round all weather indoor court used for indoor court. Tiger turf which has 5 tennis/tennis ball courts and 3 hockey field with flood lights. Hired out to community for a reasonable rate fee to cover lighting and maintenance. Used in terms of coaches. 3 tennis courts with 3 tennis lights. 3 netball courts with 3 netball lights. 3 football fields with no lights. 3 rugby fields with no lights. 3 cricket fields with no lights.
Table 4.2 - Inventory of Sports Facilities

<table>
<thead>
<tr>
<th>Sport Facility</th>
<th>Type</th>
<th>Location</th>
<th>Pool</th>
<th>Indoor</th>
<th>Outdoor</th>
<th>Opportunity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Active Badminton Centre</td>
<td>Badminton</td>
<td>Apollo Drive</td>
<td>8 Badminton Court</td>
<td>-</td>
<td>At 99% capacity. Keen to develop new facilities or additional capacity in partnership</td>
<td></td>
</tr>
<tr>
<td>North Harbour BMX</td>
<td>BMX</td>
<td>Hooton Reserve</td>
<td>BMX track</td>
<td>New facility</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hobsonville War Memorial Bowling Club</td>
<td>Bowling</td>
<td>Hobsonville War Memorial</td>
<td>2 greens</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Whenuapai Hall</td>
<td>Council Hall</td>
<td>Malcolm Hahn Memorial Reserve</td>
<td>Hall</td>
<td>1 court</td>
<td>May be potential for more community use particularly with outdoor court</td>
<td></td>
</tr>
<tr>
<td>Albany Stadium Pool</td>
<td>Council Pool</td>
<td>QBE Stadium</td>
<td>Leisure</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>North Harbour Hockey</td>
<td>Hockey</td>
<td>Constellation Reserve</td>
<td>4 hockey fields</td>
<td>Under major redevelopment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>North Harbour Softball</td>
<td>Softball</td>
<td>Rosedale Park</td>
<td>2 diamonds</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Greenhithe Tennis Club</td>
<td>Tennis</td>
<td>Greenhithe War Memorial Park</td>
<td>4 tennis courts</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>West Harbour Tennis Club</td>
<td>Tennis</td>
<td>Picasso Reserve</td>
<td>9 courts</td>
<td>Opportunity for partnership development with other codes to utilise space. Courts in good condition.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Albany Tennis Park</td>
<td>Tennis</td>
<td>Hooton Reserve</td>
<td>4 tennis</td>
<td>17 courts</td>
<td>Site already under investigation. Has potential for partnerships and development.</td>
<td></td>
</tr>
</tbody>
</table>

*Item 16*
## Table 4.3 - Inventory of other community facilities

<table>
<thead>
<tr>
<th>Community Facility</th>
<th>Type</th>
<th>Location</th>
<th>Pool</th>
<th>Indoor</th>
<th>Outdoor</th>
<th>Opportunity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Massey University</td>
<td>Tertiary</td>
<td>Gate 1, Albany Highway, Albany</td>
<td>-</td>
<td>2 basketball courts Cricket centre</td>
<td>2 tennis courts</td>
<td>Facility at capacity at peak times</td>
</tr>
<tr>
<td>RNZAF Airbase</td>
<td>Military</td>
<td>Whenuapai</td>
<td>33 metre</td>
<td>-</td>
<td>2 tennis courts 2 fields</td>
<td>Used to full capacity. Access onto military base is an issue for community use</td>
</tr>
<tr>
<td>Heritage Aircraft Hangar (Panuku)</td>
<td>Heritage</td>
<td>299 Hobsonville Point Road, Hobsonville</td>
<td></td>
<td>Yes</td>
<td></td>
<td>Opportunity to develop for temporary indoor courts</td>
</tr>
<tr>
<td>North Harbour 7th Day Adventists</td>
<td>Church</td>
<td>40 Bronzewing Terrace, Unsworth Heights</td>
<td></td>
<td></td>
<td></td>
<td>No response</td>
</tr>
<tr>
<td>Shore Baptist Church</td>
<td>Church</td>
<td>Westminster Christian School, 31 Westminster Gardens, Unsworth Heights</td>
<td></td>
<td></td>
<td></td>
<td>No response</td>
</tr>
<tr>
<td>Shore Community Church</td>
<td>Church</td>
<td>98 Plemerk Drive, Rosedale</td>
<td></td>
<td></td>
<td></td>
<td>No response</td>
</tr>
<tr>
<td>Inspire Church</td>
<td>Church</td>
<td>28 William Pickering Drive, Albany</td>
<td></td>
<td></td>
<td></td>
<td>No response</td>
</tr>
<tr>
<td>C3 Church</td>
<td>Church</td>
<td>65 Paul Matthews Drive, Unit 12 Rosedale</td>
<td></td>
<td>Indoor space</td>
<td></td>
<td>Large space in Elerslie available, currently used as an indoor carpark.</td>
</tr>
<tr>
<td>Northcross Church</td>
<td>Church</td>
<td>825a East Coast Road, Otaha</td>
<td></td>
<td>Indoor space</td>
<td></td>
<td>No response</td>
</tr>
<tr>
<td>West Harbour Alliance Church</td>
<td>Church</td>
<td>145 Mair Road, West Harbour</td>
<td></td>
<td>Indoor space</td>
<td></td>
<td>No response</td>
</tr>
<tr>
<td>Westgate Baptist Church</td>
<td>Church</td>
<td>67 Hobsonville Road, West Harbour</td>
<td></td>
<td>2 Auditoriums</td>
<td></td>
<td>Unsuitable for sport and recreation use</td>
</tr>
<tr>
<td>Hobsonville Reformed Church</td>
<td>Church</td>
<td>1 Scott Road, Hobsonville Auckland</td>
<td></td>
<td></td>
<td></td>
<td>Unsuitable for sport and recreation use</td>
</tr>
</tbody>
</table>
Figure 4.1 – Schools in the Upper Harbour Local Board area

Key to map:

1. Tamaki College
2. Heathcote School
3. Wesley College
4. St. Peters College
5. Wesley College
6. Wesley College
7. Wesley College
8. Wesley College
9. Wesley College
10. Wesley College
11. Wesley College
12. Wesley College
13. Wesley College
14. Wesley College
15. Wesley College
16. Wesley College
17. Wesley College
18. Wesley College
19. Wesley College
20. Wesley College
21. Wesley College
22. Wesley College
23. Wesley College
24. Wesley College
25. Wesley College
26. Wesley College
27. Wesley College
28. Wesley College
29. Wesley College
30. Wesley College
31. Wesley College
32. Wesley College
33. Wesley College
34. Wesley College
35. Wesley College
36. Wesley College
37. Wesley College
38. Wesley College
39. Wesley College
40. Wesley College
41. Wesley College
42. Wesley College
43. Wesley College
44. Wesley College
45. Wesley College
46. Wesley College
47. Wesley College
48. Wesley College
49. Wesley College
50. Wesley College
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140. Wesley College

Legend:

- Local Board Area
- Local Council Parks and Reserves
- Primary Education
- Intermediate Education
- Secondary Education
- Tertiary Education

Scale: 1:60,078

Land Information New Zealand, Esri Technology

Upper Harbour Local Board Third Party Partnership Opportunities Study
August 2019
Figure 4.2 - Sports Facilities in the Upper Harbour Local Board area

attachment A

Item 16
5.0 POTENTIAL PARTNERSHIP OPPORTUNITIES

5.1 Introduction

When collating and analysing the information on sport’s needs, current state and inventory assessment, the study has found there are limited opportunities in the Upper Harbour Local Board area. This is probably reflective of the growing nature of the community.

This study identified two potential opportunities for investigation, and six other sites, which may have capacity or interest in more community use.

The study also sought to understand the barriers that prevented community use. The responses are no different to previous studies and include:

• Concerns regarding damage, security of facilities and increased wear and tear leading to greater cost
• Additional administrative burden of managing the bookings and opening/closing facilities
• Concerns around sufficient carparking and amenities such as ramps, toilets
• Concerns on the impact of evening use within residential zones - particularly with noisy activities and nearby housing
• Bad experiences with particular user groups or bookings
• The income from bookings being insufficient to cover the costs.

The study also sought to understand if there are other mechanisms that could be applied to increase or improve community access arrangements. Suggestions include:

• Developing a simple Memorandum of Understanding or Booking Template which facility managers and user-groups can use to easily manage the relationship and bookings of spaces.
• Providing a connector service, so available capacity can be matched with appropriate user groups.

An initial list of potential opportunities was workshopped with the Upper Harbour Local Board on 13 June 2019. Following feedback, the list of potential opportunities was refined and has been separated into two groups.

Sites with potential opportunities requiring further investigation:

• West Harbour Tennis on Picasso Reserve
• Hangar Building at Scott’s Point

Sites with potential capacity and/or interest in community use:

• Huia School
• Albany Junior High School
• Kirsten School
• Pinetree School
• Northcross Intermediate School (not located within the Upper Harbour Local Board area but a good opportunity which will potentially benefit Upper Harbour residents)
5.2 West Harbour Tennis Club – Picasso Reserve

<table>
<thead>
<tr>
<th>Location</th>
<th>Picasso Drive, West Harbour</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current Facilities</td>
<td>9 outdoor tennis courts (group of 4, 3 and 2). Astroturf</td>
</tr>
<tr>
<td>Community Ethos</td>
<td>Unsure of current philosophy, but in the past has been very interested in community partnership. A feasibility study was undertaken in 2014 for multi-sport feasibility</td>
</tr>
<tr>
<td>Potential Opportunity</td>
<td>• Feasibility study undertaken in 2014 to explore multi-sport feasibility of the site. A number of options were explored including low cost option by sharing current facilities; medium cost envisioned covering some of the courts with a canopy structure – which would make the surface useable and appealing for other codes; and a high cost option to fully enclose the courts.</td>
</tr>
<tr>
<td></td>
<td>• Given the high demand for covered courts from sports such as basketball and futsal, there is potential to develop this site to realise the multi-sport opportunities</td>
</tr>
<tr>
<td>Potential Costs</td>
<td>• Upgrade of courts to Rebound Ace – circa $130,000 per court</td>
</tr>
<tr>
<td></td>
<td>• Installation of covered canopy – circa $880,000 per court*</td>
</tr>
<tr>
<td>Next Steps</td>
<td>• Meet with club to gauge current interest in multi-sport development</td>
</tr>
<tr>
<td></td>
<td>• Discuss with codes (basketball and futsal) on their level of interest</td>
</tr>
<tr>
<td></td>
<td>• Revisit feasibility study</td>
</tr>
</tbody>
</table>

Figure 5.1 – Wester Harbour Tennis Club

---

1 Potential costs are indicative high-level cost estimates based on square metre rate. The estimate includes provision for margins, fees, consents and contingency. No allowance is made for site specific conditions, development contributions, legal costs or internal fittings. The costs should be considered indicative only.

2 This cost is potentially high and could be cheaper once a scope of works is developed. Efficiencies would be available for multiple courts.
### 5.3 Hangar – Panuku site

<table>
<thead>
<tr>
<th>Location</th>
<th>299 Hobsonville Road, Panuku</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Current Facilities</strong></td>
<td>Large Heritage Building, approximately 30 metres wide by 60 metres long. Internal building height approximately 5-6 metres, has internal trusses. Was originally used to service helicopters so has large opening doors on southern side. Windows on northern and eastern side.</td>
</tr>
</tbody>
</table>
| **Potential Opportunity** | • Potential to develop the building as a temporary indoor court facility.  
• Would require installation of internal nets to protect the windows and would likely require blinds to minimise sun-glare onto courts.  
• Would require installation of wooden floor, either portable or fixed.  
• Would require temporary toilet facilities and possibly changing facilities.  
• Would require lighting.  
• Based on an external assessment of the site, it is estimated two indoor courts could be developed.  
• Provided the internal rent from Panuku is not excessive, there would be strong demand to utilise the space.  
• There is a large concrete pad adjacent to the facility which would likely meet the carparking requirements.  
• There is minimal development around the site at present, indicating use would have minimal effect on neighbouring properties. |
| **Potential costs** | • Portable wooden floor: 30 x 50m – estimate $910,000 or  
• Alternatively a permanent wooden floor is estimated at $290,000  
• Internal nets from roof – estimate $150,000  
• Sunshades for windows – estimate $60,000  
• Temporary unisex/accessible toilet block – estimate $130,000  
• Cost of installing lighting would depend on the power supply; building structure and level of lighting required but is estimated between $150,000 to $180,000 |
| **Next Steps** | • Understand from Panuku likely rent costs  
• If reasonable, undertake a brief feasibility study to fully scope capital and operating costs of opportunity |

![Figure 5.2 - Hangar Building](image-url)
5.4 Whenuapai School

<table>
<thead>
<tr>
<th>Location</th>
<th>14 Airport Road, Whenuapai, Auckland</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current Facilities</td>
<td>Hall</td>
</tr>
<tr>
<td></td>
<td>2 asphalt courts</td>
</tr>
<tr>
<td>Community Ethos</td>
<td>Open to community use.</td>
</tr>
<tr>
<td></td>
<td>School hall used approximately one night of the week.</td>
</tr>
<tr>
<td></td>
<td>Has capacity and interested in further community use.</td>
</tr>
<tr>
<td>Challenges</td>
<td>Finding suitable user groups</td>
</tr>
<tr>
<td>Potential Opportunity</td>
<td>Connect with potential user groups to utilise hall space</td>
</tr>
<tr>
<td>Potential Costs</td>
<td>No investment required</td>
</tr>
<tr>
<td>Next Steps</td>
<td>Connect with potential user groups</td>
</tr>
</tbody>
</table>

Figure 5.4 - Whenuapai School
5.5 Albany Junior High School

<table>
<thead>
<tr>
<th>Location</th>
<th>19 Appleby Road, Albany</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current Facilities</td>
<td>Indoor court</td>
</tr>
<tr>
<td></td>
<td>6 asphalt courts</td>
</tr>
<tr>
<td>Community Ethos</td>
<td>Advised through survey that the school is open to community use, but quality and quantity of facilities is the limiting factor. Repeated attempts to connect with school to explore community use and/or development of facility has not been returned which is an indication of interest.</td>
</tr>
<tr>
<td>Potential Opportunity</td>
<td>• Possibility to upgrade external courts with new surface to improve quality of play.</td>
</tr>
<tr>
<td></td>
<td>• Installation of a canopy structure would make the court suitable for wider variety of sports including basketball and futsal.</td>
</tr>
<tr>
<td>Potential Costs</td>
<td>Cost is dependent on scope and scale. Upgrade of court to astro-turf estimated $110,000 per court. Upgrade of court to Rebound ACE estimated $130,000 per court. Installation of canopy, estimated $880,000 per court.</td>
</tr>
<tr>
<td>Next Steps</td>
<td>Follow up with school on level of interest in community use</td>
</tr>
</tbody>
</table>

*This cost is potentially high and could be cheaper once a scope of work is developed. Efficiencies would be available for multiple courts.*

Figure 5.5 – Albany Junior High School
5.6 Kirstin School

<table>
<thead>
<tr>
<th>Location</th>
<th>360 Albany Highway, Albany</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current Facilities</td>
<td>4 outdoor netball courts</td>
</tr>
<tr>
<td></td>
<td>5 tennis courts</td>
</tr>
<tr>
<td></td>
<td>2 indoor court</td>
</tr>
<tr>
<td>Community Ethos</td>
<td>Current facilities are heavily used by the school so there is limited capacity for community use</td>
</tr>
<tr>
<td>Potential Opportunity</td>
<td>School is considering covering netball courts and upgrading indoor courts in the future.</td>
</tr>
<tr>
<td></td>
<td>May be a partnership opportunity if school was willing to share facilities</td>
</tr>
<tr>
<td>Potential Costs</td>
<td>Unknown</td>
</tr>
<tr>
<td>Next Steps</td>
<td>Maintain dialogue with school around development plans</td>
</tr>
</tbody>
</table>

Figure 5.6 – Kirstin School netball courts

Figure 5.7 – Kirstin School indoor courts
### 5.7 Pinehurst School

<table>
<thead>
<tr>
<th>Location</th>
<th>75 Bush Road, Albany</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current Facilities</td>
<td>1 indoor court</td>
</tr>
<tr>
<td></td>
<td>10 netball courts</td>
</tr>
<tr>
<td>Community Ethos</td>
<td>Netball courts currently used by independent netball organization to run Saturday junior netball leagues. School has advised most of the facilities are heavily used, but there is some capacity on netball/tennis courts 1-2 nights under floodlights for community hire.</td>
</tr>
<tr>
<td>Potential Opportunity</td>
<td>Spare capacity on netball courts may be suitable for netball training</td>
</tr>
<tr>
<td>Potential Costs</td>
<td>Hire costs for community users</td>
</tr>
<tr>
<td>Next Steps</td>
<td>Advise netball and other codes of potential capacity</td>
</tr>
</tbody>
</table>

![Figure 5.8 - Pinehurst School](image-url)
5.8 Northcross Intermediate School

<table>
<thead>
<tr>
<th>Location</th>
<th>10 Sarfors Avenue, Northcross</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current Facilities</td>
<td>8 outdoor courts (5 astro-turf, 1 rebound, 2 asphalt)</td>
</tr>
<tr>
<td></td>
<td>1 indoor courts</td>
</tr>
<tr>
<td>Community ethos</td>
<td>Facilities are well used by school and community, but outdoor courts do have some capacity and will hire to community for hire fee to cover floodlights and maintenance</td>
</tr>
<tr>
<td>Potential Opportunity</td>
<td>• Connect with hockey, netball and futsal regarding potential capacity</td>
</tr>
<tr>
<td>Potential costs</td>
<td>No investment required</td>
</tr>
<tr>
<td>Next Steps</td>
<td>Advise Hibiscus and Bays Local Board of this opportunity</td>
</tr>
<tr>
<td></td>
<td>Determine whether any further investigation required</td>
</tr>
</tbody>
</table>

Figure 5.9 – Northcross Intermediate School

---

10 Northcross Intermediate School is located in the Hibiscus and Bays Local Board, however but given the close proximity to the Upper Harbour Local Board and the sport and recreation facilities at this school, the opportunity was included as a potential benefit to Upper Harbour residents.
5.10 Summary of Opportunities

Two potential opportunities have been identified in the Upper Harbour Local Board area which have the potential for development for sport use. Five other sites have been identified with potential capacity and/or interest in community use but would require no or small investment. The opportunities are summarised below against the following criteria:

- Investment – the level of capital or operational investment required.
- Community benefit – the level of community benefit likely to result. This is a judgement on the number of people likely to benefit.
- Achievability – assessed on the complexity of the project and the scale of investment required.
- Partnership willingness – determined by how willing the organisation is to partner or make their facilities available to the community.
- Timeframe – assessed on how long the opportunity will exist, immediate means the window of opportunity is now, short-term means the timeframe is within the next 1-3 years and long-term means is no set timeframe for the opportunity.

The urgency provides guidance on how quickly the opportunity should be pursued (it is not a judgement on the merits of the opportunity).

<table>
<thead>
<tr>
<th>Site</th>
<th>Opportunity</th>
<th>Investment</th>
<th>Benefit</th>
<th>Achievability</th>
<th>Willingness</th>
<th>Timeframe</th>
<th>Urgency</th>
</tr>
</thead>
<tbody>
<tr>
<td>West Harbour Tennis</td>
<td>Development of existing courts into a multi-sport site</td>
<td>Depends on scope, Potentially from nil cost up to $1 million or more</td>
<td>Potentially High</td>
<td>Average</td>
<td>Assume High</td>
<td>Short-term</td>
<td>Medium</td>
</tr>
<tr>
<td>Hangar Building</td>
<td>Development of temporary indoor court venue</td>
<td>Depends on feasibility study but between $800,000 to $1.25 million</td>
<td>High</td>
<td>Average</td>
<td>Assume High</td>
<td>Immediate</td>
<td>High</td>
</tr>
<tr>
<td>Whenuapai School</td>
<td>Capacity within existing hall</td>
<td>None</td>
<td>Medium</td>
<td>High</td>
<td>High</td>
<td>Immediate</td>
<td>High</td>
</tr>
<tr>
<td>Albany Junior High</td>
<td>Potential development of outdoor courts</td>
<td>Depends on scope, Potentially up to $1 million</td>
<td>High</td>
<td>Complex</td>
<td>Assume Low</td>
<td>Long-term</td>
<td>Low</td>
</tr>
<tr>
<td>Kirstin School</td>
<td>Potential development of netball courts or indoor courts</td>
<td>Unknown</td>
<td>Potentially High</td>
<td>Complex</td>
<td>Assume Low</td>
<td>Long-term</td>
<td>Low</td>
</tr>
<tr>
<td>Pinehurst School</td>
<td>Some capacity in existing outdoor courts</td>
<td>None</td>
<td>Low</td>
<td>High</td>
<td>High</td>
<td>Immediate</td>
<td>High</td>
</tr>
<tr>
<td>Northcross Intermediate</td>
<td>Some capacity in existing outdoor courts</td>
<td>None</td>
<td>Low-medium</td>
<td>High</td>
<td>High</td>
<td>Immediate</td>
<td>Medium</td>
</tr>
</tbody>
</table>
6.0 SUMMARY AND CONCLUSIONS

Visitor Solutions was commissioned by Auckland Council to undertake an assessment of third-party facilities in the Upper Harbour Local Board area that may be available for sport and recreation purposes. Third-party facilities are facilities not operated by Auckland Council, but includes any facility which has the capacity to accommodate sport and recreation provision including schools, churches, marae, community halls, buildings/clubrooms on a ground lease, military bases and tertiary institutions.

The study sought to understand the current sport facility needs in the local board area. The focus was on indoor sports and selected outdoor sports which do not utilise sport fields. Collating the available information, the following sport facility needs were identified:

- Access to indoor courts to support participation in basketball, badminton, volleyball and futsal
- Access to covered outdoor courts to support participation in basketball, futsal and netball
- Dedicated space for table tennis
- Access to existing spaces to develop satellites for gymnastics and netball
- Incentives and/or examples of successful multi-use / multi-sport facility developments.

A high-level inventory of the sport and recreation facilities provides information about school, sport and other facilities. Potential capacity or opportunities for development were identified.

Seven potential opportunities were identified, a combination of utilising existing facility capacity and investing in the development of facilities to increase capacity or suitability for community use. The eight opportunities are summarised in Table 6.1, along with guidance on how urgent the opportunity should be pursued. All projects require a level of engagement, investigation or feasibility to progress to the next stage.

Table 6.1 List of Potential Opportunity in Upper Harbour and their recommended priority.

<table>
<thead>
<tr>
<th>Site</th>
<th>Opportunity</th>
<th>Urgency</th>
</tr>
</thead>
<tbody>
<tr>
<td>West Harbour Tennis</td>
<td>Development of existing courts into a multi-sport site</td>
<td>Medium</td>
</tr>
<tr>
<td>Hangar Building</td>
<td>Development of temporary indoor court venue</td>
<td>High</td>
</tr>
<tr>
<td>Whenuapai School</td>
<td>Capacity within existing hall</td>
<td>High</td>
</tr>
<tr>
<td>Albany Junior High</td>
<td>Potential development of outdoor courts</td>
<td>Low</td>
</tr>
<tr>
<td>Kauri School</td>
<td>Potential development of netball courts or indoor courts</td>
<td>Low</td>
</tr>
<tr>
<td>Pineshurst School</td>
<td>Some capacity in existing outdoor courts</td>
<td>High</td>
</tr>
<tr>
<td>Northcross Intermediate</td>
<td>Some capacity in existing outdoor courts</td>
<td>Medium</td>
</tr>
</tbody>
</table>

Recommendations:

1. Review the identified opportunities with the Upper Harbour Local Board and Harbour Sport.
2. Advise sport organisations of potential existing opportunities to see whether this can be utilised.
3. Undertake further investigation of potential projects where recommended.
WATER ACCESS ASSESSMENT
UPPER HARBOUR LOCAL BOARD, AUCKLAND

NETWORK STUDY
September 2019
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INTRODUCTION

Recreational use of coastal and inland waters of the Waitemata Harbour provides significant benefits to social, environmental, and the economic well-being of the region. It is also well documented that access to the water and provision of a fit-for-purpose network of facilities fosters health, wellbeing and an appreciation of the natural environment. Participation is also encouraged by providing a range of affordable and accessible options to encourage participation in diverse communities.

The 2017 Upper Harbour Local Board Plan identifies the importance of open space and connectivity and provision of access to the water in providing opportunities for social connections and participation in recreational and cultural activities for a range of ages and abilities.

Given the challenges associated with providing valuable water access for the public within fiscal constraints, this report builds on several related existing studies and the Upper Harbour Local Board’s interest to establish an holistic understanding of existing water access provision and opportunities to inform investment decisions within the upper harbour study area.

UPPER HARBOUR STUDY AREA

The Upper Harbour Local Board area is located in the upper reaches of the Waitemata Harbour and is comprised of the coastal and inland suburbs of Whenuapai, Herald Island and Hobsonville in the west, and Paremoremo, Greenhithe, Albany, Rosevale, Unsworth and Pinfold in the east.

The study area is defined as the coastal and marine areas within the Upper Harbour Local Board area. The estuarine area is characterised by extensive tidal mudflats and intertidal wetlands that experience significant tidal fluctuations. This tidal fluctuation limits water access from mid - high tide for the majority of existing network structures.

Water based activity typologies present in the area range from swimming and paddle craft activities, to fishing, sailing and motorised recreational water sports. Current infrastructure provision varies from small private structures, to public and club operated facilities.

There are obvious gaps in geographical provision due to topography and absence of suitable reserves in some areas, with the developing Hobsonville and Whenuapai areas requiring specific consideration to address baseline provision.

Refer Study Area Map on Page 02.

PURPOSE

The purpose of this study is to assess current water access provision for sport and recreation at a network level to establish a holistic understanding of relationships between:

- Current facility distribution and associated catchment level of service
- Activity type and related enabling infrastructure provision
- Limitations of existing provision including but not limited to tidal access, aged infrastructure, topographical and carparking constraints, and how these restrict use
- Anticipated demand based on current population density and forecast growth areas

Then, through mapping and analysis, identify:

- Geographical gaps or over supply in water access provision
- Relationships between facilities and activities, and high-level opportunities to improve network functionality and / or flexibility of use
- Areas of forecast population growth as they relate to gaps or over supply in network provision and perceived future demand on infrastructure
- Potential options to increase access to, and utilisation of the marine area for sport and recreation including upgrade of existing, or provision of new facilities to address network gaps

Followed by on site ground truthing of public assets and the provision of recommendations on network improvements to address gaps, and enable the local board to make informed decisions on water access development priorities.

POLICY CONTEXT

Several documents have informed the development of this report and relevant strategies, plans and policies considered to ensure alignment where applicable.

Key documents include:
- The Auckland Plan 2050 (2018)
- Auckland Council Parks and Open Space Strategic Action Plan 2013
- Auckland Council Open Space Provision Policy 2016
- Upper Harbour Local Board Plan 2017
- DRAFT Upper Harbour Open Space Network Plan MARCH 2018
- Sport and Recreation in the Lives of Young Aucklanders Upper Harbour Local Board Area Report (2013)

Refer to Appendix C Bibliography for additional research references.

SCOPE AND LIMITATIONS

The following outlines scope and associated limitations associated with this water access provision assessment:

- High level pedestrian radial catchment analysis provides an acceptable level of information to enable gap analysis assessment in the absence of identifying actual measured walking distances / pedestrian; though it is acknowledged that assessment of walking distances is indicative, with related topographical and physical constraints considered at a high level only.

- In order to alleviate bias in evaluation and provide opportunities for debate and creative discussion, assessments were moderated and discussed by two team members to agree appropriate assessment and recommended priority.

- Priority assessment is based on a high-level perception of water access infrastructure and perceived contribution to the network as a whole.

- Unless council asset registers supplied provided a specific condition rating, commentary on asset condition relates to visual inspection of facilities only and further structural assessment may be required in some instances to validate

- Community / user group consultation was not conducted in the preparation of this report. Future investigation and consultation, particularly with local community, will be required to inform design and implementation of renewal and / or new facilities.

- Schools have been indicated on the maps to provide a general understanding of the relationship between water access provision, proximity and opportunities to improve access for activities and youth engagement with the water.

- Specific in-depth analysis of club facilities, requirements and the feasibility of co locating user groups does not form part of this scope. This report does however consider the nature of infrastructure required to enable specific activity types and commentary has been provided on this basis.

- This document identifies opportunities to improve water access infrastructure and is not intended to serve as a detailed feasibility analysis. Further investigation will be required to assess the feasibility of identified development opportunities.

- Data collection is largely quantitative from a network planning perspective with limited qualitative assessment of facilities based on site assessment. Where applicable, high level commentary is provided to address gaps and inform potential investment.

- Accurately evaluating the extent of participation of water based activities and provision of appropriate infrastructure is complex, as participants are often engaged in varied and independent recreation making the recording of information and associated demand difficult to measure. This report therefore focuses on the review of population growth data from the Transport Modelling Population Projection (previously ART model), projected age distribution (Census data) and relationship with current available participation and ethnic data to establish perceived demand on facilities in relation to activity types and geographic distribution.

METODOLOGY

ASSESSMENT PROCESS

Assessment to establish gaps in water access provision and prioritise investment opportunities at a network level is as follows:

- Prepare Network Prioritisation Principles, Catchment Assessment Parameters and Data Capture Spreadsheet to inform overall network area assessment and recommendations.
- Collect raw data and record information on data capture spreadsheets.
- Collate raw data and prepare maps to articulate:
  + Existing facility and activity provision
  + Gaps in provision and relationships between individual facilities
- Prepare population analysis maps addressing current and projected population trends and changes in population density. Cross reference against Census data to provide an understanding of age distribution relationships and potential demand for activity types.
- Undertake analysis of water access relationships at a network level, evaluating data to rationalise geographic provision and communicate options for network optimisation.
Following background research and network assessment, conduct targeted site investigations of public assets and sites with the potential to address network gaps to assess facilities, immediate site context, sensitivities, and development potential.

Prepare Network Development Opportunities Table and Priorities Map with concise recommendations and commentary, moderating recommendations where necessary to accurately reflect network requirements and priorities.

KEY NETWORK PRIORITISATION PRINCIPLES
All water access facilities will be assessed using key principles to determine network priorities (high, medium or low).

Where appropriate, brief commentary on priority considerations and development options from a network perspective will be included within the data capture spreadsheet and/or study synopsis.

Key prioritisation principles are as follows:

Network Provision
- New or existing facilities that, through investment, are able to address significant network provision gaps or improve synergies with adjacent facilities shall generally have higher priority than those with limited opportunity to contribute positively towards balanced and appropriate network provision.

- Where significant catchment overlap exists, facility clusters may be considered for optimisation or complementary facility development as part of a holistic review of network provision.

Location and Access
- Facilities that are well-connected, close to complementary activities and/or are easily accessible from residential areas shall have higher priority than those not located near residential and community amenities. In this regard, barriers to access and connectivity shall be considered to ensure appropriate prioritisation of facilities.

Activity Provision
- Facilities with potential to address significant activity gaps or perceived user group conflicts shall be prioritised over those that do not.

Population
- Facilities located within population growth areas shall generally have higher priority than those within limited growth areas.

CATCHMENT ASSESSMENT PARAMETERS
Based on review of empirical research that investigates the theory behind travelling distances and access relationships, the following catchment provisions have been adopted to assess high level gaps in network provision:

Vehicular Access
- A 4km distance (or 5 – 10min drive @ 50km / hr). This equates to a radial proxy assessment radius of 2.8km
• This assessment parameter is aimed at assessing provision for activity types that require the use of vehicles for transportation of equipment.

**Pedestrian Access (Suburbs Level)**
• A 1500m distance (or approx. 15 min walk @ 5km / hr). This equates to a radial proxy assessment radius of 1125m.
• This parameter is aimed at assessing provision for those participating in non-vehicle activities, or those that may not have access to vehicular transport.

It is important to note that pedestrian access distances sit independent of relationships with open space / water access typologies and represent global thinking on acceptable traveling distances as they relate to the travel / time accessibility of public destinations.

**ACTIVITY ASSESSMENT PARAMETERS**

Determining the suitability of facilities and locations for water based activity types has been assessed in relation to:

• Facility Provision (that supports the activity); including complementary relationships with open space and amenities.
• Environmental factors, including tidal access restrictions, user group conflicts etc.
• Route Synergies: including facilitating on water route and open space connectivity.

Where available, information from clubs, associations, guideline publications and the like have been reviewed to establish and reinforce suitability of locations and facilities for activity types.

**PRIORITY ASSESSMENT AND RECOMMENDATIONS**

As outlined above, water access and network relationships have been assessed against Key Network Prioritisation Principles to determine high, medium or low development priority. Where appropriate, brief commentary on priority considerations and development options from a network perspective has been included. Refer Development Recommendations section and Data Capture Spreadsheet in Appendix A for additional information.

Commentary also considers gaps in activity provision where improvement in infrastructure may provide additional flexibility of use and enable a wider range of user groups to use facilities.

**Network Development Opportunities Table**
The Network Development Opportunities Table groups key high and medium priority sites and graphically summarises network opportunities to enable an holistic comparison of key network improvements.

**Network Development Priority Map**
The Network Development Priority Map identifies the geographic location of sites identified for improvement in the Network Development Opportunities Table, relative priority and proposed locations of new sites to address network gaps where applicable.
CURRENT NETWORK
EXISTING PROVISION
Characterised by estuarine coastline with extensive tidal mudflats and inlets, we reiterate that the majority of the upper harbour catchment experiences significant tidal restrictions to access, with the majority of sites providing access at mid – high tide.

Statements around good geographic provision therefore relate to catchment coverage and the provision of access to the water at high tide. Refer to current infrastructure, facilities and activities maps, and Appendix A Data Capture Spreadsheet for location and additional contextual information.

The following summaries the current provision of publicly accessible and private facilities within the Upper Harbour Local Board area:

PUBLIC FACILITIES

West Harbour
- Has 1 public boat ramp and pontoon facility in good condition with dedicated carpark at termination of Clearwater Cove in association with Ferry terminal and Hobsonville Marina.
- This facility is a fit for purpose launching ramp for motorised craft though inherently provides for other activities due to all tide access and narrow pontoon structure.
- The facility provides good catchment provision to the West Harbour area and vehicular catchment overlap with lower Hobsonville / Scott Point. Supplementary access to the south at Luckens Reserve and associated West Harbour Esplanade would improve provision at a local, pedestrian level.
- It is noted that access in the Limestone Bay area is restricted by mangroves and shallow mudflats coastal interface, with a legacy inlet to the historic Limestone Reserve site providing for potential high tide water access in this location.

Hobsonville
- Has no public facilities listed on current asset register supplied, though Auckland Council holds the coastal permit for the boardwalk from Catalina Bay to Marine Parade and the majority of this access is now vested with council.
- The boardwalk facility is in good condition and provides for coastal access and rest / stop off points between destinations at high tide, but the structure is not fit for purpose in accommodating land based access for launching paddle craft.
- The existing Hobsonville seaplane ramp coastal permit is held by the Home Land and Community (HLC) company and is effectively a private asset that is open to the public. The ramp is also used by several clubs but the asset is nearing the end of its lifecycle and renewal is required to maintain access to the water for the full tidal cycle.
- Residential development is planned for the sites currently occupied by sailing / rowing clubs. Without the provision of long term water access or ability to store equipment these activities would likely be faced with relocation.
- Apart from partial vehicular catchment overlap with Hobsonville Marina, geographic catchment coverage in the Hobsonville, Scott Point and Limestone Bay areas is poor due to the absence of accessible, fit for purpose public facilities and it is noted that the Catalina Bay area is one of six sites in the upper harbour area that provide water access for the full tide cycle.
- It is acknowledged however that Auckland Council is currently working with HLC to lodge resource consent for a Marine Recreation Centre at Catalina Bay which includes a jetty and pontoon to replace the seaplane ramp and provide deep water access.

Whenuapai
- Has 1 public boat ramp facility located at termination of Pohutakawa Road. All structures are in good working condition apart from timber stair access to small open space area that requires renewal.
- The ramp and associated open space provides for coastal access and rest / stop off points between destinations at high tide.
- There is no dedicated parking with limited space to provide formal car or trailer parking on side of road.
- Geographic catchment coverage in the Whenuapai area is poor due to the absence of accessible, fit for purpose public facilities, particularly in the west - northwest noting that there is potential to provide water access for the full tide cycle at Riverside Reserve depending upon length of structure.
- It is acknowledged that the area is currently has a very low population density with significant area occupied by the Whenuapai RNZAF Air base.

Herald Island
- Has 3 public facilities including:
  - 1 beach ramp in average working condition on Christmas Beach at No. 86 The Terrace within grassed open space adjacent existing playground facility.
  - 1 boat ramp in good condition on Landing Reserve at No. 56 The Terrace with dedicated, unsailed carpark
  - 1 wharf and associated pontoon in good working condition on Pahiki Reserve at No. 3 Twin Wharf Road
- 1 short wharf associated with No. 90 The Terrace appears to be publicly accessible but is under private ownership.
  - All facilities are serviced by on road or dedicated car parking, though space is limited at Twin Wharf Road and Christmas Beach provides limited on road parking access only.
  - Pahiki Reserve facilities provide shelter, seating, public toilets and water access for the full tidal cycle, with other facilities providing functional access at high tide only.
  - Herald Island has good geographic provision with significant overlapping catchment of existing facilities with no gaps in public provision.

Greenhithe
- Has 3 public facilities including:
  - 1 boat ramp in average condition on Rame Reserve
  - 1 wharf and associated pontoon in good condition on Rame Reserve
  - 1 boat ramp in average condition on Ruhua Reserve
- The boat ramp at Rame Reserve is a legacy single structure with split public / private (Saltwater Houseboatmen) access physically separated by an open chain link fence that requires consideration to improve amenity and legibility.
- The wharf and pontoon structure are fit for purpose launching facilities for rowing, canoing and similar paddle craft, though inherently accommodate other activities due to the nature of structures and the provision of water access for the full tidal cycle.
- Rame Reserve facilities also include a storage facility currently occupied by the North Shore Rowing Club, a Panuku Development dinghy locker, seating and public toilets.
- Ruhua Reserve facilities include public toilets and a small single level building currently occupied by Taunui Sea Scout Group. The ramp provides direct water access at high tide only.
- All facilities are serviced by on road or dedicated car parking, though space for expansion is limited at Rame Reserve and Ruhua Reserve provides on limited on road parking access only.
- There are conservation, tidal and steep escarpment constraints to the south eastern inlet and Lady Phoenix Reserve area that likely preclude the development of meaningful facilities along this coastal interface.
- In considering the physical and environmental constraints, current facilities provide an acceptable level of geographic provision in so far as practical with minor gaps, primarily at pedestrian / non-vehicular access level.

Schnapper Rocks
- There is 1 public boat ramp facility listed on Wharepapa Reserve at No. 286 Schnapper Rock Road. However, this facility no longer exists and was likely removed due to its poor condition status.
- There is potential to provide water access from mid - high tide in this location depending upon the length of structure.
- A geographic gap therefore exists in the Schnapper Rocks area due to the absence of a facility at Wharepapa Reserve. The provision of water access at Wharepapa Reserve would however provide good geographic provision with limited catchment overlap with other facilities.
- There are conservation, tidal and steep escarpment constraints to the southern inlet and Lady Phoenix Reserve that likely preclude the development of meaningful facilities along this coastal interface.

Albany and Albany Heights
- Has 2 public facilities including:
  - 1 boat ramp in good condition on Wharf Reserve at No. 29 Wharf Road
  - 1 short wharf / platform in good working condition on Koll Park at No. 257 Dairy Flat Highway
- The structure on Wharf Reserve is a fit for purpose boat launching facility with access to the water at low-mid tide onwards due to the proximity of current water channel. There is potential to provide improved infrastructure to access the water at low tide, particularly for recreational paddling craft.
- The Wharf Road facility also has an appropriate turning area with limited on road parking access. It is noted however that the ability to launch
motorised craft is precluded by bollards and capacity to formalise or expand car parking is limited.

- The Kell Park facility provides for coastal access and rest / stop off points between destinations at high tide, but the structure is not fit for purpose in accommodating land based access for launching paddle craft due to multiple stair transitions and notable physical separation from car parking facilities. It does however provide a structure that enables interaction with the water in association with exinenmental boardwalk and play facilities.

Lucas Heights

- Has 9 public facilities and it is noted that there are conservation, tidal and steep escarpment constraints to the eastern inlet that likely preclude the development of meaningful facilities along this coastal interface.

Paremomo

- Has 1 wharf and associated boat ramp in average working condition on Atwood reserve at No. 138 Atwood Road.
- The facility provides shelter, seating, water access for the full tidal cycle and is a notable rest / stop off point between destinations given the absence of other facilities in the area.
- There is potential to provide improved infrastructure to access the water at low tide, particularly for recreational paddling craft.
- The facility also has limited on road parking, though space is constrained with little capacity for improvement.
- Geographic catchment coverage in the Paremomo area is average due to the absence of flexible, fit for purpose public facilities to the west and east of Atwood Reserve. It is acknowledged however that this is largely due to physical and environmental constraints associated with conservation areas, tidal restrictions and steep escarpments that likely preclude the development of meaningful facilities along the coastal interface.
- It is noted that there is potential to provide water access at Sanders Reserve. The cost and complexity of providing land based launching and / or access at all tides would be considerable however, and options providing better access at mid - high tide would likely provide better value for investment.
- In considering the physical constraints, the provision of water access at Sanders Reserve would however provide good geographic provision in so far as practical with limited catchment overlap with Atwood Reserve facilities.

PRIVATE FACILITIES

West Harbour

- Has 592 private berths, boat ramp launching facilities, car parking and ancillary amenities associated with Hobsonville (West Harbour) Marina. Potential redevelopment of the marina proposes expansion and the provision of improved public access and better connectivity with parking, bus and ferry services.

- There are no individual facilities associated with private residential lots in this area.

Hobsonville

- Although publicly accessible, all facilities (apart from the public boardwalk) in the Catalina Bay area are private. These include the existing seaplane ramp (with permit currently held by HLC), Westlake Boys High School Rowing Club storage, TS Bellona Navy Sea Cadet Corps and Hobsonville Yacht Club facilities.
- It is re iterated that the seaplane / boat ramp structure is nearing the end of its functional lifecycle and requires renewal to maintain craft launching access in this area.
- There are localised private structures in the southern Scott Point / Limeburners Bay area, with no known facilities in the tidal Bomb Bay or Nimrod Inlet areas.

Whenuapai

- There are several private structures in the north eastern Whenuapai area. These are primarily located on the small headland adjacent the Herald Island Gruaexway.
- Other private structures, though limited due to the nature of land ownership, are relatively evenly distributed along the Kotukutuku Inlet.
- Several of these structures are not captured on council asset registers.

Herald Island

- Has extensive private lot access with a range of wharf and ramp structures along the coastal interface.
- Herald island boating club at Yvan Wharf Road is a private facility with pontoon and paddle craft storage area that shares access with public water access provision.

Greenhithe

- Salthouse Boarbuilders is a private wharf and ramp launching facility with an open chain link fence that separates public and private activities.
- There are several private structures in the northern Greenhithe area.
- These are primarily located on the headland to the east of Wainoni Park.

Schnupper Rocks

- There are no individual structures associated with private facilities in this area.

Albany and Albany Heights

- There are no individual structures associated with private facilities in this area.

Lucas Heights

- There are no individual structures associated with private facilities in this area.

- There are no individual structures associated with private facilities listed on council asset registers in this area. There are however several non listed private structures that provide private access to the water in this area.

NETWORK ACTIVITIES

The following outlines key activities accommodated within the upper harbour area with commentary on level of provision in relation to facilities and geographic distribution.

Rowing and Canoeing

Rowing and canoeing require fit for purpose facilities and typically this includes the provision of pontoon structures for launching, and sheltered, unobstructed straight stretches of water up to 2km in length to enable meaningful training and competition. The ability to store gear is also fundamental to effective access and operation. The are two network facilities currently in operation:

Rame Reserve (Greenhithe Wharf and pontoon)

- Existing facilities at Rame Reserve are appropriately located within the upper harbour area and provide good baseline access to the water for rowing (including the North Shore Rowing Club) and canoeing activities. There are however, complexities to improving facilities with spatial restrictions limiting potential expansion and operational improvements in Lucas Creek itself.
- This requires further investigation noting that several potential steps to improve facility functionality were identified in the ARPASS Paddling and Rowing Study 2007.

Catalina Bay (leggy sea plane access ramp)

- This ramp with craft storage facilities in close proximity currently provides launching access for the Westlake Boys High School Rowing Club, TS Bellona Navy Sea Cadet Corps and Hobsonville Yacht Club.
- However, it is noted that future residential development plan will displace the Westlake Boys High School Rowing Club and Hobsonville Yacht Club and the unknown future of the deteriorating ramp may result in the loss of facilities in this location.
- If a Marine Recreation Centre facility was unable to be built, the loss of this asset would leave a significant gap in the provision of strategic network facilities in the Hobsonville area.

Recreational Canoeing / Sea Kayaking and Paddle Craft

Although fit for purpose pontoon type facilities are preferred, the majority of recreational users are satisfied with boat ramp, and to a lesser extent wharf structures that provide for improved access. In considering this:

- Facilities at Hobsonville Marina, Rame Reserve and Herald Island provide fit for purpose facilities and good water access for paddling craft.
- Boat ramp and / or wharf facilities that enable craft access to a lesser standard are also provided at Catalina Bay, Atwood, Ranui, and Wainoni Reserves.
- Key network gaps in access and connectivity exist in the western Whenuapai (Riverlea Reserve) and Paremomo (Sander) areas.

CURRENT NETWORK SYNOPIS

WATER ACCESS ASSESSMENT

Upper Harbour Local Board
19 September 2019

REV 8

September 2019
**NETWORK GAP SUMMARY**

**GEOGRAPHIC GAPS**

The mapping of existing facilities indicates there are geographic gaps in the following areas:

- Lower West Harbour (Luckens Reserve / West Harbour Esplanade)
- Hobsonville (Bomb, Catalina, Limeburners Bay and kimrod inlet)
- West / northwest Whenuapai (Riverlea Reserve)
- Paremoremo (Sanders Reserve)

With ability to address gaps in the following areas limited by conservation, tidal and steep escarpment constraints:

- South East Greenhithe
- South Schnapper Rocks
- Lucas Heights

Refer Development Recommendations section for additional commentary and opportunities to improve water access in the upper harbour area.

**ACTIVITY GAPS**

Currently, the location of facilities and different user groups within the upper harbour area is complementary and conflicts of use largely minimised by regulation and location of facilities themselves.

Most activities are accommodated across the network via structures and / or general provision of access, though significant gaps in provision exist in the Hobsonville and western Whenuapai areas due to a lack of formal, public facilities.

**POPULATION DYNAMICS**

**GROWTH AND DENSITY**

Population growth data from the Transport Modelling Population Projection has been used to obtain an understanding of population growth and density projection in relation to water access provision.

Based on review and mapping of the above, the following areas are projected to experience significant population growth and increase in density:

- Albany
- Hobsonville
- Whenuapai
- West Harbour (Northern)

Remaining areas within the Upper Harbour catchment are projected to experience minor or neutral / negative population growth.

**AGE AND INCOME (CENSUS 2013)**

Legacy Census data indicates that:

- 89.5% of the upper harbour population are pre-retirement age (≤65) with a median household income of $89k which was the second highest in Auckland at the time.
- The median age in the upper harbour area was 36 with 69.8% of the population aged between 15 and 64.
- Ethnic distribution was largely European (65.7%) and Asian (29.4%) with Māori (5%) and Pacific (9%) minorities.
- Almost all schools received a higher than average decile rating.

Based on the above it can be assumed that on average, the upper harbour population is relatively active with a level of income that would enable participation in water based activities at a basic level (minimum).

**DEMAND**

As outlined in Scope and Limitations, accurately evaluating the extent of participation of water based activities and provision of appropriate infrastructure is complex, as participants are often engaged in varied and independent recreation making the recording of information and associated demand difficult to measure.

However, available data indicates that the popularity of the recreational paddling sports is likely to grow in the future due to:

- Increased population growth (projected) in the upper harbour area
- The higher profile of waterports on various media platforms
- The upper harbour mariner area that, although tidal, provides a varied environment with a range of bays and inlets that are complementary for a range of recreational uses

It is noted that growth in recreational activities often translates into an increased participation in structured activities that may long term require the consideration of additional facilities to support baseline provision outlined in this report.

It is also acknowledged that pressures associated with projected levels of population growth will likely have an impact on the region's waterways, where recreational activities can be increasingly expected to encroach upon each other. In this regard facilities should be developed to be as flexible as practical to aid in relieving localised network pressures associated with demand.
This map articulates public (council) owned assets and associated activity typologies that current facilities enable.

It is important to note the size of each ‘target’ is proportional to activities provision. The larger the target, the more activities enabled.

**KEY**

**Water Access Activity Typologies**
- Rowing
- Canoeing/ Kayaking/ paddlesporting
- Swiming
- Fishing
- Boating
- Scuba diving

**Fidel Passages**
- Total Flat
- Intermediate
- Fermsomrent Channel
- Deep water

**Open Space Typologies**
- Conservation
- Informal recreation
- Sport and Active recreation
- Community

**Recreational Service Area Catchments**
- 1km radius, equivalent to 2-15 minute walk (Public water access only)
- 3km radius, equivalent to 20-30 minute drive (Public water access only)
- Local Board extent
DEVELOPMENT RECOMMENDATIONS
### Network Development Opportunities Table

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<thead>
<tr>
<th>Catchment Area</th>
<th>Network Improvements and Opportunities</th>
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</thead>
<tbody>
<tr>
<td><strong>West Harbour</strong></td>
<td><strong>Attachment A</strong></td>
</tr>
<tr>
<td>Hobsonville Marina</td>
<td>Addresses Geographic Gap, Projected Population Growth, Proposed New Facility, Improvements to Existing Facility, Preventative Maintenance Required, Priority. Low: The nature of any future expansion will need to be investigated in order to understand how this may improve capacity for the growing Hobsonville population. The presence of regulatory information restricting parking on Clearwater Road in the weekend suggests the facility is already under pressure and this should be considered in any planned redevelopment. Low priority status is assigned as existing infrastructure is in good condition and appropriate given current spatial constraints.</td>
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<tr>
<td>Luckens Reserve</td>
<td>Investigate locations at Luckens Reserve for a potential stop point for paddle oriented activities to address a geographic gap in access complement Hobsonville Marina facilities and provide an option to separate paddle and motorised user groups.</td>
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<tr>
<td>Hobsonville</td>
<td><strong>Item 20</strong></td>
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<tr>
<td>Catalina Bay</td>
<td>The existing seaplane / boat ramp structure is nearing the end of its functional lifecycle and requires renewal to maintain craft launching access in this area. Given the complexities associated with establishing new structures in the coastal marine area, and the ramp provides low tide access to the water, it is recommended that this structure be retained and renewed. Ownership and management issues will need to be investigated further to establish the feasibility of this recommendation. It is noted that the existing boardwalk under council ownership does not provide fit for purpose land based launching access, and no other launching facilities currently exist in the Hobsonville area. Any potential new facility (including Marine Recreation Centre currently being considered) will require the investigation of supporting access facilities and status confirmation to ensure appropriate catchment coverage. Should the existing seaplane / boat ramp be disestablished, synergies between the Hobsonville Yacht Club, TS Bellona Navy Sea Cadet Corps, North Shore and Westlake Boys Rowing Clubs should be investigated, or other potential options within the Hobsonville / Catalina Bay area considered to provide access at mid - high tide (minimum). High priority status is triggered by the significant geographic gap the absence of a facility in this location would create in tandem with projected population growth pressures.</td>
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<tr>
<td>Limeburner Bay</td>
<td>Investigate locations at Limeburners Bay Reserve for a potential stop point for paddle oriented activities to complement Hobsonville Marina and address a geographic access gap in the Scott Point area. Given tidal restrictions, a short boardwalk / jetty structure would be considered an appropriate facility to improve access at high tide. There is also opportunity to acknowledge historical brickworks activities as part of establishing access. High priority status is triggered by the absence of any facilities, associated geographic gap in provision and projected population growth pressures.</td>
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<tr>
<td>Nimrod Inlet</td>
<td>Investigate locations Nimrod Inlet / Esplanade reserve and associated open space for a potential stop point for paddle oriented activities. Given tidal restrictions, a short boardwalk / jetty structure would be considered an appropriate facility to improve access at high tide. High priority status is triggered by the absence of any facilities, associated geographic gap in provision and projected population growth pressures.</td>
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</table>
### Network Development Opportunities Table

<table>
<thead>
<tr>
<th>Catchment Area</th>
<th>Network Improvements and Opportunities</th>
<th>Addressing Geographic Gap</th>
<th>Projected Population Growth</th>
<th>Proposed New Facility</th>
<th>Improvements to Existing Facility</th>
<th>Preventative Maintenance Required</th>
<th>Priority</th>
<th>Comments and Recommendations</th>
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<td>Whenuapai</td>
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<td>Facility in good working order and provides appropriate high tide access given proximity to permanent channel. Retain and renew to ensure appropriate access in this catchment area. At renewal consider improving beach transition and widening the facility to improve functionality. Existing stair to open space should be repaired in the short term. Investigate opportunities to improve car and trailer parking access, use and capacity noting likely increase in use due to population growth. Medium priority status is triggered by the current absence of other facilities in the area and projected population growth pressures.</td>
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<td>Waimate Beach</td>
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<td>Riverlea Reserve is strategically positioned within the Whenuapai area to address a significant geographic gap and has the potential to provide water access for the full tide cycle. It is recommended that the feasibility of establishing ramp and/or wharf options are investigated. This should include also an assessment of opportunities to widen Riverlea Road to improve functional access, and provide car and trailer parking. High priority status is triggered by the absence of any facilities, associated geographic gap in provision and projected population growth pressures.</td>
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<td>Riverlea Reserve</td>
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<td>Herald Island</td>
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<td>Existing beach ramp surface in average working condition though appears structurally sound. The structure provides an appropriate level of access to this tidal beach. Renew at end of natural lifecycle to retain public access in this location. At renewal consider improving widening the facility to improve functionality. Low priority status is assigned as existing infrastructure is functional working condition and a significant percentage of Herald Island residents have their own private water access with associated reduction in perceived demand.</td>
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<td>Christmas Beach</td>
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<td>Landing Reserve</td>
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<td>Existing boat ramp and associated retaining in good condition. Renew at end of natural lifecycle to retain public access in this location. It is recommended that the existing unsealed carpark be sealed to improve functionality and durability, and that residential boundaries are addressed with a view to providing improved public amenity. Low priority status is assigned as existing infrastructure is in good condition and car parking provides functional access.</td>
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<td>Pahiki Reserve</td>
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<td>Facilities in good working order with supporting public amenities. Renew at end of natural lifecycle to retain public access in this catchment area. Low priority status is assigned as existing infrastructure is in good condition and are appropriate given current spatial constraints.</td>
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<td>Greenhithe</td>
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<td>Wharf and pontoon facilities are in good working condition and provide good baseline access for all typical activities with adjacent supporting amenities. It appears that wharf and pontoon structures have been upgraded as stipulated in the ARPASS (Auckland Regional Paddling and Rowing Facilities) Study prepared by Visitor Solutions. The boat ramp is in average condition and should be considered for renewal. Given there are social, spatial environmental and financial constraints that potentially limit this facility reaching its full potential, it is recommended that key stakeholders are engaged to discuss the feasibility of implementing outstanding items required to enable competition and improve functionality as outlined in the Visitor Solutions report. Options to improve public private relationship between boat builder and rowing club should also be investigated including the provision of reserve signage to improve legibility of public realm. Medium priority status is triggered due to the strategic location of this facility in the Greenhithe catchment and its potential to provide quality sub regional rowing / canoeing facilities.</td>
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<td>Rame Reserve</td>
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**Development Recommendations**

**Water Access Assessment**

**REV B**

September 2019
## Network Development Opportunities Table

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<td>Addressed Geographic Gap</td>
<td>Projected Population Growth</td>
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<td>Greenhithe</td>
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<td>Rahul Reserve</td>
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<td>Schnapper Rock</td>
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<td>Wharepapa Reserve</td>
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<td>Albany and Albany Heights</td>
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<td>Kell Park</td>
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<td>Wharf Reserve</td>
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<td>Atwood Reserve</td>
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<td>Sanders Reserve</td>
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</table>
This map identifies high, medium and low priorities of public water access facilities for network improvements and opportunities. Refer Network Development Opportunities Table in previous section for further information, commentary and recommendation on individual location.

**KEY**

- **Priority Typologies**
  - High
  - Medium
  - Low

- **Inlet Typologies**
  - Tidal/Mudflat
  - Intertidal
  - Permanent Channel
  - Thames

- **Open Space Typologies**
  - Conservation
  - Informal Recreation
  - Sport and Active Recreation
  - Community

**Local Service Area Catchments**

- 1125m radius, equivalent to ≈15 minute walk (Public water access only)
- 2800m radius, equivalent to ≈5 minute drive (Public water access only)

- Local Board extent
- NSW

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**Development Recommendations**

1:2000 at A3

**Water Access Assessment**

Upper Harbour Local Board

**REV B**

September 2019
This map identifies high, medium and low priorities for network improvements and opportunities. Refer Network Development Opportunities Table in previous section for further information, commentary and recommendation on individual location.

**KEY**

**Priority Type:**
- High
- Medium
- Low

**Location Type:**
- Road
- Rail

**Open Space Type:**
- Conservation
- Informal Recreation
- Sport and Active Recreation
- Community

**Radar Service Area Grade:**
- 1:125m (radius, equivalent to 15 minute walk; Public water access only)
- 250m (radius, equivalent to 3 minute drive; Public water access only)

**Local Board/Region:**
- Local Board
- MHWS
### DATA CAPTURE SPREADSHEET - PUBLIC FACILITY

<table>
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<tr>
<th>Name</th>
<th>Location/Address</th>
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**Item 20**

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**Attachment A**

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**Upper Harbour Local Board**

**19 September 2019**

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**DATA CAPTURE SPREADSHEET**

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**WATER ACCESS ASSESSMENT**

**Upper Harbour Local Board**

**REV 09**

**September 2019**
### DATA CAPTURE SPREADSHEET - PRIVATE FACILITY

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APPENDIX B
POPULATION DENSITY AND GROWTH MAPS
This map articulates the projected cumulative change in population density from 2016 - 2046 to illustrate key growth areas within the Upper Harbour Local Board area relative to play provision.

KEY
Water Access Typologies
- Public Wharf Access
- Public Boat Ramp Access

Percentage decrease:
- > 100%
- 100 - 500%
- 50 - 99%
- 10 - 99%
- 1 - 10%

Local Board Extent
EXISTING POPULATION DENSITY MAP

This map uses 2016 population projection data to articulate water access locations relative to existing population density.

KEY
Water Access Typology:
- Public Wharf Access
- Public Boat Ramp Access

Persons per hectare:
- 50-60
- 40-49
- 30-39
- 20-29
- 10-19
- 0-9

- Local Board extent
Attachment A

Item 20

This map uses 2016 population projection data to articulate water access locations relative to existing population density.

**KEY**
- Water Access Typology:
  - Public Boat Ramp
  - Public Boat Ramp Access

**Persons per hectare**
- 50-69
- 40-49
- 30-39
- 20-29
- 10-19
- 0-9

- Local Board water
FUTURE POPULATION DENSITY MAP

This map uses 2046 population projection data to articulate water access locations relative to future population density.

**KEY**

- Water Access Types:
  - Public Wharf Access
  - Public Boat Ramp Access

- Persons per Acre:
  - Purple: 50 - 99
  - Red: 30 - 49
  - Brown: 20 - 29
  - Light Brown: 10 - 19
  - Lightest Brown: 0 - 9

- Local Board extent
APPENDIX C

BIBLIOGRAPHY
BIBLIOGRAPHY

Auckland Council (2014). Upper Harbour Local Board Profile: Initial Results from the 2013 Census.
Sport New Zealand and Auckland Council (2016). Sport and Active Recreation in the Lives of Auckland Adults: Results from the 2013/14 Active New Zealand Survey.
Local Development Initiative – Ngahere Work Program

Year 1 Knowing Phase

Urban Ngahere Analysis report 2019
Local Board assessment of urban tree cover

An analysis of the size, percentage cover, tenure and benefits of trees in the Upper Harbour Local Board area

EXECUTIVE SUMMARY

The data presented in this report is a snapshot of urban forest cover in Upper Harbour in 2013. It provides a useful baseline for future comparisons, and will assist decision-making and strategic planning. Prior to the 2013 LiDAR survey, there was no reliable information on Auckland's urban forests. The data is discussed in the context of current land cover, demographic, socioeconomic and environmental issues in Upper Harbour.

Upper Harbour contains some of the largest areas of continuous urban native vegetation remaining in Auckland’s ecological region, forming part of the North-West Wildlink. There are about 24 native bush reserves in Upper Harbour. There are also extensive plantings of amenity trees in public parks. This urban ngahere (forest) is an extraordinary asset important for the well-being of Upper Harbour residents, providing valuable green infrastructure and is a drawcard for visitors.

There has been rapid growth in the Upper Harbour population, which is predicted to continue, and this is putting pressure on the environment, including negative impacts on water quality. However, the Upper Harbour Local Board is proactive on environmental issues and has a strong commitment to sustainable development and environmental best practice; this includes support for ecological restoration, green infrastructure and urban forest plantings.

Analyses of further LiDAR data, collected in 2017, will soon be available. This will be used as a comparison to determine how tree cover and characteristics of urban ngahere have been changing, and identify issues that need action.

Aims of this project

- This report was written for the Upper Harbour Local Board, to provide background information on the distribution, size-class structure, ownership, and protection status of urban forest in Upper Harbour.
- This will provide direction for planning, e.g., help identify key areas for greater protection of existing trees, and help direct planting efforts to where the most value can be realised.
- The overall aim of Auckland’s Urban Forest Strategy is to increase average canopy cover from 18 to 30%.

Threats to Auckland’s urban ngahere

- There is concern that recent changes to the Resource Management Act have removed the ability of Auckland Council to use general tree protection rules to protect urban forest.
- There is anecdotal evidence that the urban tree cover is undergoing a period of rapid change.
- There are other threats, including climate change, existing biosecurity issues (particularly kauri dieback), and incursions of new pests and diseases, which would be better managed if there is a better understanding of the characteristics and trends in tree cover.
2013 LiDAR results for Upper Harbour

- Canopy cover in Upper Harbour in 2013 was 27%, which is considerably higher than the 18% overall cover for Auckland. It was the second highest tree cover in 2013 for all urban boards in Auckland (after Kaipatiki at 30%).
- However, canopy cover varied greatly across Upper Harbour.
- Two leafy suburbs (Greenhithe and Schnapper Rock) of central Upper Harbour were classified as ‘forested suburbs’, whereas Rosedale and Oteha were classified as having ‘bare’ cover.

Canopy cover and land tenure

- Compared with the overall figures for Auckland, 50% of public parks had tree cover in Upper Harbour in 2013, the second highest percentage after Kaipatiki.
- However, tree cover for road parcels (i.e., street trees) and for ‘other public land’ (school grounds, etc.) was similar compared with the Auckland averages.
- Looking at tree cover from a different perspective, in 2013, 67% of tree cover in Upper Harbour was on private land and 21% was in public parks. There was only 6% tree cover on other public land (such as school grounds) and only 4% was in road parcels (street trees).
- Most areas in Upper Harbour had over half their urban forest on private land in 2013.
- Parts of Upper Harbour that proportionally have a very low canopy cover on public land are Fairview, Herald, and Whenuapai West.
- This has important implications, as trees on public land are much more accessible to the public and are more likely to be protected.

When the tree cover data is analysed per person, and per child, a slightly different trend was observed, as described below in forest cover and demographics.

Forest structure

- In 2013, most of the trees in Upper Harbour were in the smaller size classes: 76% was less than 15 m; only 5% was 20 to 30 m, and only 2% was taller than 30 m.
- This has important implications because larger trees provide a disproportionate amount of the many of the benefits associated with urban ngahere.
- The relatively high proportion of smaller trees across much of the local board indicates that, in 2013, there was either a relatively recent surge of tree planting (assuming the smaller stature trees correspond to younger trees), or a large proportion of shrubs with a limited mature height.
- When broken down into census area units, it is apparent that there were areas in Upper Harbour in 2013 that had a relatively high proportion of trees over 15 m tall.
- Areas that had proportionally more trees with a lower stature were Lucken Point, Northcross and Unsworth Heights.

Forest protection status

- A high proportion (68%) of the urban forest in Upper Harbour has some form of protection, much higher than most other local board areas, and much higher than the overall figure for Auckland’s ngahere, where only 50% has some form of protection.
- Also, over half (57%) of the total tree cover in Upper Harbour has a high protection status, i.e., it is in Significant Ecological Areas (SEAs) or is registered as Notable Trees.
• Protection status varies widely across Upper Harbour.
• Areas that have trees with little or no protection are Northcross, Pinehill and Herald — these areas also have a low level of forest cover.
• Upper Harbour is centrally located between the significant natural areas of the Hauraki Gulf Islands and the Waitakere Ranges — and has some of the largest areas of continuous urban native vegetation remaining in Auckland’s ecological region, forming part of the North-West Wildlink (NWW), i.e., has an important role in providing a corridor of ecosystems between the Waitakere Ranges and Hauraki Gulf Islands.

**Forest cover and demographics**
• Recently, there has been considerable urban intensification in Upper Harbour and significant further development is anticipated, which may have a negative impact on canopy cover.
• In comparison with other urban boards, Upper Harbour ranks the highest for forest cover, at 352 m² per person.
• In terms of tree cover per person under different land tenures, Upper Harbour ranks the highest for tree cover per person in public parks, other public land, and private land, in comparison with other urban boards in Auckland.
• Forest cover per person varied widely in different areas of Upper Harbour in 2013. Paremoremo East had an exceptionally high forest cover per person (over 2500 m²); however, four census area units had less than 100 m² forest cover per person — Lucken Point, Northcross, Pinehill and Unsworth Heights.
• Probably the most important data to examine is the proportion of urban forest cover by land tenure, per child (under 15 years). The areas in Upper Harbour that had a proportionally low amount of canopy cover on public land, per child, are: Fairview, Herald, Lucken Point, Northcross, Pinehill, and Unsworth Heights. These areas also have a low total overall canopy cover per child.

**Shade Analysis**
• The shade analysis found that of the 40 playgrounds, half had negligible or no shade provided by trees, 11 had a moderate amount of canopy cover and only nine had a high canopy cover (i.e., 51 to 100% cover).
• Where there is little or no shade in playgrounds, there are implications for the health and well-being of residents, particularly children.
• This could be improved by increased specimen tree planting closer to playgrounds and planting species that will develop a wider crown canopy area at maturity.

**Change in urban forest cover 2013 – 2016**
There is growing evidence from Auckland Council that suggests there has been an increase in the felling of trees on private land across the Auckland metropolitan area. In order to assess change in the urban forest canopy, the 2013 LiDAR needs to be compared with a more recent 2017 LiDAR dataset. A high level comparison of the 2013 and 2017 data sets will be provided in a subsequent update report to the council’s Environment Committee and as a result of this the local board will receive an updated comparison on the changes to tree canopy cover. The update detail will be provided to the board as the information becomes available.
PRIORITY AREAS FOR FUTURE URBAN FOREST IMPROVEMENT WORK

Urban ngahere improvement work needs to be considered in the context of land cover, and local environmental, demographic, and socioeconomic issues. Upper Harbour has excellent tree cover overall, compared with other local board areas. However, tree cover varies greatly across Upper Harbour: there are parts of the local board where there is less than ideal forest cover. Also, in many areas, a high proportion of the tree cover is in the smaller size classes.

As well as focussed efforts for maintaining and improving tree cover where it is currently low; focus could also be placed where there are:

- greater population densities (current and anticipated), referencing the Auckland Plans future area zoning and the expectation of future growth;
- higher numbers of children, with particular emphasis on tree planting to provide shade in playgrounds, and in road parcels where children walk to school;
- areas with a low number of large trees – these trees should be a priority for protection;
- areas that are flood prone or predicted to be impacted by sea level rise;
- environmental values, including water quality, that are currently (or could potentially be) compromised by urban development;
- opportunities to improve ecological corridors, where biodiversity values would be enhanced; and
- aesthetic landscape and recreational values that would be improved by plantings
- new residential developments where well-planned green infrastructure and amenity plantings would help counteract the negative impacts of urban intensification.

Strong synergies and mutual benefits could be realised through a coordinated approach in overarching strategic planning at the local level. Urban ngahere strategy would benefit from coordination and integration with the following:

- Upper Harbour Greenways Plan;
- planning for open space in new urban developments;
- the North-West Wildlink (NWW) project; and
- ecological restoration and tree planting initiatives undertaken by iwi and community groups.

There would be multiple benefits from investment in tree plantings and ecosystem restoration where the Greenways Plan currently runs through areas with little vegetation cover. These benefits include: improvement of amenity and ecological values, improved safety and a better experience for pedestrians and cyclists, and improved green infrastructure and environmental outcomes, including increased biodiversity values through habitat restoration and provision of ecological corridors.

Another consideration is future-proofing measures to help combat the impact of predicted sea level rise and increased frequency of intense weather events associated with climate change. These issues will be particularly important in low-lying coastal and estuarine areas of Upper Harbour. Ongoing restoration of wetlands and tree planting efforts could be designed to boost green infrastructure, helping to restore the natural hydrological cycle and mitigate some of the negative impacts of climate change. Green infrastructure is effective, economical, and has many other benefits that enhance quality of life in urban areas.
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1.0 PREFACE

This report was produced by Dr Jacqui Aimers and Mark Kimberley, of Tāne’s Tree Trust. This work was directed by the Auckland Council Urban Ngahere (Forest) Strategy. The development of this report was led by Howell Davies (Senior Advisor Urban Forest) and supported by Craig Bishop (RIMU – Research Investigation & Monitoring Unit). The key outcomes of this report for the Upper Harbour Local Board are directly to the Knowing Phase of the Ngahere Strategy.

The data in this report were supplied by Auckland Council. This included photos, data files, GIS maps, other relevant documents, and information relevant to tree cover within the Upper Harbour Local Board Area.

Council staff who have contributed to this report are Howell Davies (Parks), Hannah Chapman-Carr (Parks), Craig Bishop (RIMU), and Sam Brown & Joseph Zhao (Geospatial IT).

The Upper Harbour Local Board provided the funding to enable this analysis work to be completed.

The authors thank Dr David Bergin, for his support throughout the data analysis and report writing. We also acknowledge Dr Mike Wilcox’s book ‘Auckland’s Remarkable Urban Forest’ (Wilcox 2012) which an excellent resource. Appendix 2 – Urban Trees in Upper Harbour Parks – is a summarised excerpt taken from this book (reproduced with permission from the author).
2.0 PROJECT OVERVIEW AND OBJECTIVES

The report was written for the Upper Harbour Local Board, to provide background information, direction and context for work on local urban forest improvement. The aim is to provide an evidence-based approach to ensure decision-makers are well informed on the distribution, structure, health and diversity of the urban trees in the Upper Harbour Local Board Area to enable the development of a sound and structured approach for future decisions.

This report summarises the distribution, size-class structure, ownership, and protection status of trees and urban ngahere (forest) within the Upper Harbour Local Board area. The data is based on an analysis of 2013 Light Detection and Ranging (LiDAR) data captured for Auckland Council by NZ Aerial Mapping and Aerial Surveys Limited. The LiDAR dataset was supplied in raw, above-ground, point classified form. Points in the data set classified as vegetation were used to form the foundation of an urban forest layer for further analysis and interpretation with ArcGIS10.2 spatial software, in conjunction with other spatial datasets.

There are many benefits of urban trees, as described below. Trees also bring problems: fallen leaves blocking gutters; branches or whole trees falling over; shading of properties; blocking views; roots damaging pavements and underground infrastructure; branches tangling in overhead wires (Wilcox 2012). So care must be taken to plant the right trees in the right place, and ongoing maintenance must also be factored into any strategic planning.

The urban ngahere within the Upper Harbour Local Board area is among the most exceptional found in urban Auckland, particularly in regards to the large amount of native forest protected in bush reserves. However, rapid population growth and recent legislative change to the Resource Management Act are leading to significant changes in Auckland’s urban landscape, which is reflected in the scale, maturity and size of the urban ngahere. It is imperative that decision-makers are well informed on the distribution, scale, health and diversity of urban trees in their local board area so that they can develop a sound and structured approach for future decision making.

This report is framed around the following research queries:

1. What is the distribution and height-class composition of urban forest within the CBD and suburban zones of the Upper Harbour Local Board Area?
2. What is the ownership distribution of the urban forest within the suburban zones of the Upper Harbour Local Board Area?
3. What is the protection status of the urban forest within the Upper Harbour Local Board Area, and what is the strength of that protection?
4. Does the urban forest cover of the Upper Harbour Local Board vary between suburb areas within the board, and is this related to socio-economic factors?
5. How is the urban forest of the Upper Harbour Local Board changing over time, and what are future priority areas for investigation and research?
6. Where can efforts best be focussed for maintaining and improving tree cover?
3.0 INTRODUCTION

3.1 What is Urban Ngahere?

Urban forest comprises all the trees within a city – including parks, coastal cliffs, stream corridors, private gardens and streets – both native and naturalised exotic species. This comprehensive definition is sourced from the North American view of urban forest (Miller et al. 2015, Wilcox 2012), rather than the European one, which instead defines urban forest as natural enclaves of forest within the city limits (Cliffin 2005, Carreiro and Zipperer 2008).

For the purposes of this report, urban forest is defined as all of the trees and other vegetation 3 m or taller within the Upper Harbour Local Board Area, and the soil and water systems that support these trees. This urban forest definition encompasses trees and shrubs in streets, parks, private gardens, stream embankments, coastal cliffs, rail corridors, and masonry margins and embankments. It also includes both planted and naturally established plants, of both exotic and native provenance.

The ngahere in the local board area may not represent a forest in comparison to the image of the old-growth kauri forests of Northland. However, the scale of the tree cover and shrubland is sufficiently extensive on public and private land across the local board area to make a meaningful contribution to the liveability and sense of place for its residents, as well as provide significant environmental values, including biodiversity conservation and maintenance of water quality.

3.2 Benefits of Urban Ngahere

An urban ngahere provides a multitude of benefits for the environment, the economy, and community health and well-being. Trees are crucial from an ecological standpoint, and provide a wide range of benefits for urban residents, as described below.

New Zealand is one of the most urbanised countries in the world, with 86% of our population living in cities and towns (OECD 2017a). Urban forests are the primary form of contact with nature for many city-dwellers, and spending time in urban forest has been shown to improve mental health and well-being as described below (Hartig et al. 2003).

Urban forests also provide a wide range of environmental services in New Zealand cities, including regulatory services that positively impact water quality, storm water management, flood and erosion control, waste disposal, protection from wind, carbon sequestration, noise reduction and improvement of air quality (Vesely 2007; Meurk et al. 2013), and street trees have been shown to assist with the calming and slowing of traffic (see Case Study 13, page 73 of Trees and Design Action Group 2014).

The USDA Forest Service estimated that trees in New York City provide US$5.60 in benefits for every US$1.00 spent on tree planting and ongoing maintenance (Peper et al. 2007). Trees provide shade, protect people from harmful ultraviolet radiation and reduce the risk of heat stroke. And the cooling effect of trees, due to evapotranspiration and provision of shade, reduces the urban heat island effect, all of which are increasingly important in an era of climate change (Peper et al. 2007; Salmont et al. 2016).
Urban forests and wetland complexes help moderate the impact of severe weather events (Forest Research 2010; Meurk et al. 2013). Lack of natural vegetation in many urban areas reduces interception of precipitation, and use of impermeable materials in urban construction decreases ground infiltration of precipitation. This subsequently increases the speed of run-off, and therefore, the risk of flooding is increased in urban areas. Green infrastructure in urban areas helps restore natural environmental services related to the hydrological cycle, such as flood alleviation and improvement and ongoing protection of water quality (Forest Research 2010). Green infrastructure can be created by planting trees and restoring wetlands, as opposed to creating man-made infrastructures. It is effective, economical, and has many other benefits that enhance quality of life in urban areas (Auckland Council 2018a).

Internationally, urban areas have been associated with poor air quality (Meurk et al. 2013). However, trees and vegetation are effective in absorption of gaseous air pollutants and the interception of air-borne particulate matter (PM), resulting in an improvement in air quality. This has a positive impact on people’s health, i.e., lower incidences of respiratory and cardiovascular diseases, and a reduction in hospital admissions and health costs (Tiwary et al., 2009; Forest Research 2010).

There is limited information available on how effective urban trees are in improving air quality in New Zealand and how this translates into monetary values. However, there is a significant amount of evidence in international literature; e.g., Tiwary et al., (2009), Forest Research (2010), Nilsson et al. (2013), and UK National Ecosystem Assessment (2011).

The most widespread air quality problem in New Zealand is PM pollution, which is known to cause a wide array of health problems, including respiratory illness, cardiovascular diseases and premature death (World Health Organization 2013; Health Effects Institute 2018: Ministry for the Environment and Stats NZ 2018). In cooler months in some towns and cities in New Zealand, emissions from home heating can raise levels of airborne PM to above national standards and international guidelines, especially when air pollution is trapped near ground level by temperature inversions (Ministry for the Environment and Stats NZ 2018).

Urban vegetation mitigates the effects of gaseous and particulate air pollution, as shown in the UK (UK National Ecosystem Assessment 2011) and New Zealand (Fisher et al. 2007). Cavanagh et al. (2009) measured a 30% attenuation of PM_{10} (airborne particles that are 10 micrometres or less in diameter, i.e., includes coarse and fine PM) from the edge of the interior of native forest in Christchurch, New Zealand. This was in a distance of less than 200 metres in Riccarton Bush, which is a remnant podocarp-hardwood, floodplain forest, dominated by kahikatea.

Cavanagh and Clemons (2006) and Cavanagh (2008) (cited in Meurk et al 2013 and Roberts et al. 2015) estimated the many tonnes of various air pollutants that urban trees remove in Christchurch and Auckland, which is worth tens of millions of dollars in terms of health benefits. In Auckland, Cavanagh and Clemons (2006) estimated that the city’s trees annually removed 1230 tonnes of nitrogen dioxide, 1990 tonnes of ozone, and 1320 tonnes of PM. Cavanagh (2008, cited in Meurk et al 2013 and Roberts et al. 2015) estimated that Christchurch urban trees removed 300 tonnes of pollutants, including 150 tonnes of PM_{10} (equivalent to 4.5% of the estimated PM emissions in 2002)
and estimated that the value of urban trees in Christchurch was NZ$19.6 million. This value was largely due to PM$_{10}$ removal and the significant health benefits of reduced exposure to PM$_{10}$.

There are differences in how various species of trees help improve air quality (Meurk et al. 2013; Roberts et al. 2015). In winter, evergreen trees are more effective at removing air pollutants (Meurk et al. 2013). Most deciduous trees cease these functions after leaf drop, which often occurs at the time of year when pollutant levels are highest in New Zealand (Cavanagh 2008, cited in Roberts et al. 2015). However, some [mainly exotic] species emit natural volatile organic compounds that can contribute to air quality issues (Meurk et al. 2013).

A recent New Zealand study has demonstrated that exposure to natural vegetation can protect against asthma in children, but this was not thought to be due to a reduction in air pollution. Donovan et al. (2018) assessed the association between the natural environment and asthma in a longitudinal study of 49,956 New Zealand children born in 1998 and followed up until 2016. They found that children who lived in greener areas were found to be less likely to be asthmatic. Also, exposure to a greater number of natural vegetation-cover types provided an additional increment of protection. Not all land-cover types were protective; exposure to gorse (Ulex europaeus) and exotic conifers was found to be a risk factor for asthma.

The reasons for the observed protective effects of exposure to greenness and a diversity of vegetation are unclear. However, Donovan et al. (2018) found no evidence that it was due to a reduction in air pollution. Instead, they hypothesized that the natural environment may protect against asthma through greater and more diverse microbial exposure (i.e., the hygiene hypothesis), or via currently unknown biological mechanisms.

Urban forests are also important for biodiversity values (Meurk et al. 2013). Cities are often biodiversity 'hotspots', because they frequently sit astride convergences of several biomes, and there is often an educated and well-resourced population that is actively involved in conservation efforts. Remnants of natural vegetation commonly remain in gullies, floodplains and aquifer protection zones. These urban forest remnants provide habitat for native birds, reptiles, and insects and help provide ecological corridors connecting the mountains to the sea (Meurk et al. 2013).

Many of the remnants of natural ecosystems within Auckland’s urban boundary are unique in their own right, being representative examples of unique ecosystems that have largely been cleared to make way for urban growth (Lindsay et al. 2009; Wiicox 2012; Snger et al 2017; Auckland Council 2019a).

Urban forests also provide cultural services such as recreation and education about nature, and spiritual values that contribute to mental health and well-being, including providing ‘a sense of place’. These cultural services are difficult to value economically, but are:

“valued very highly by most urban residents and contribute significantly to quality of life and social capital in cities, with consequences for mental well-being, innovation, and economic activity” (page 254, Meurk et al. 2013).

Meurk et al. (2013) noted that while many ecosystem services may be provided equally, or sometimes better, by introduced tree species in urban settings, it is native biodiversity that
underpins New Zealand’s unique sense of place (e.g., silver fern), cultural values (e.g., harakeke), and adds to tourism, international obligations and reputation (e.g., conservation of indigenous flora and fauna).

Within the New Zealand context, Durie (1999) describes the strong link between human health and the surrounding environment under the concept of *weiaora*, i.e., human well-being and the natural environment are strongly interconnected. Durie emphasises the importance of striking a balance between development and environmental protection for the benefit of human wellbeing:

“... health promotion must take into account the nature and quality of the interaction between people and the surrounding environment. It is not simply a call for a return to nature, but an attempt to strike balance between development and environmental protection and recognition of the fact that the human condition is intimately connected to the wider domains of Rangi and Papa” [the sky father and earth mother, respectively] (page 3, Durie 1999).

Durie states that this involves environmental protection, so that “water is free from pollutants, earth is abundant in vegetation” and “opportunities are created for people to experience the natural environment” (page 3, Durie 1999).

Urban trees are highly valued by local residents. A study was undertaken by Vesely (2007) to determine the perceived value of urban trees in New Zealand using the contingent valuation method. Households in 2003 were, on average, willing to annually pay NZ$184 over a 3-year period to avoid a (hypothetical) 20% reduction in urban trees in their local area. The benefits perceived to be most important were aesthetics, followed closely by having nature in the city, habitat for wildlife, and fresh air - these benefits were rated important or very important by 80% of respondents. Shade, carbon storage and protection from wind and noise were rated important or very important by 60% to 73% of respondents. Urban forest has also been linked to enhanced property values (Vesely 2007; Forest Research 2010; Meurk et al. 2013).

Swedish and American researchers (Hartig et al. 2003) provided evidence of the positive effects of natural settings on well-being, including improved attention functioning, emotional gains and lowered blood pressure. Participants in the research were either required to drive to a natural area or were asked to perform a 40-minute cognitive task designed to induce mental fatigue. Participants were then exposed to various environments and activities. Walking in a nature reserve had a more positive impact, including greater stress reduction, than walking in a purely urban setting, and even sitting in a room with views of trees resulted in a rapid decline in diastolic blood pressure, compared with sitting in a viewless room.

A study based in the UK examined the value of urban green space for health enhancing activities such as walking, running or cycling (Forest Research 2010). The authors reviewed international epidemiological studies, and found evidence for a positive relationship between green space and population health. This included research showing evidence for the restorative effects of green space on the well-being and development of children, as well as the mental health and well-being of adults (Forest Research 2010). This is presumed to be due to an increase in exercise and reduction in health issues associated with a sedentary lifestyle, as well as improved mental health and well-being. There is evidence that people living in urban areas tend to experience more stress and have poorer
mental health, but it is not clear why this is so. However, green spaces in urban areas counteract this by providing a restorative environment that helps alleviate stress and mental fatigue. This has important economic implications because a healthy population is more productive and has less health costs (Forest Research 2010).

Considering the considerable economic burden of mental health illnesses on the economy (RANZCP 2018) and research showing evidence for the positive impact that natural areas have on mental well-being and social cohesion, there is good justification for investing in green space in urban areas. Ecotourism, which involves exercise activities in nature, has become a recognised treatment programme that utilises the restorative effects of green space to benefit mental health and well-being (Forest Research 2010).

In a study in the USA, Bratman et al. (2015) showed that spending time in nature improves mental health. Participants who went on a 90-minute walk through urban green spaces, with scattered oak trees and shrubs, were compared with participants who walked nearby, in a highly urbanised area by a busy highway. Participants who went on the 90-minute nature walk showed reductions in self-reported rumination, a known risk factor for mental illness, and also decreases in neural activity in an area of the brain linked to risk for mental illness. Those who went on a walk in the highly urbanised area did not show these effects. The authors argue that these results suggest that access to natural areas may be vital for mental health in our rapidly urbanising world (Bratman et al. 2015).

When cultural and environmental services of urban trees are aggregated, these benefits can:

"make a considerable contribution to adaptation and mitigation against climate change, helping climate proof our towns and cities and their communities, whilst improving people’s mental and physical health” (page 195, Forest Research 2010).

Many of the benefits attributed to urban forests are disproportionately provided by larger trees (Davies et al. 2011, Nowak et al. 2013, Trees and Design Action Group 2014, Moser et al. 2015). Because of the larger and wider canopy spread:

- they create more shade per tree (Moser et al. 2015);
- intercept larger amounts of particulate pollutants and absorb more gaseous pollutants (Nowak and Crane 2000);
- intercept more rainfall due to larger leaf areas and assist with the reduction of volume and rate of surface water runoff entering the drainage system (Trees and Design Action Group 2014);
- contain more carbon and have higher carbon sequestration rates (Beets et al. 2012, Schwendeman and Mitchell 2014, Dahlhausen et al. 2016);
- are often less susceptible to careless or malicious vandalism by passers-by, can be pruned to provide higher canopy clearance over roadways, parking lots and pedestrian footpaths;
- and contribute more to calming and slowing traffic on local streets than small trees (Howell Davies pers. comm.).

Retention of existing, larger-growing trees should be a priority, particularly in densely built-up areas where the associated benefits are high, and opportunities are limited for new plantings (Trees and Design Action Group 2014).
3.3 Why do we need Data on Urban Ngahere?

Decision-makers need to be well informed on the trends and status of the urban trees in their region, so that they can support evidence-based, strategic approach for future decisions about tree cover. A better understanding of the trends and status of the canopy cover will help identify key areas for greater protection of existing urban tree cover and also help direct planting efforts to where the most value can be realised.

Section 35(2) of the Resource Management Act 1991 ("RMA") requires councils to monitor the efficiency and effectiveness of any policy statements and plans prepared under the RMA. However, prior to the analysis presented in this report (and other local board reports), Auckland Council had no reliable information on the extent, ownership, and protection status of Auckland’s urban forest assets.

This report aims to verify locally specific details on urban tree cover in Upper Harbour to enable more accurate tracking on the changes that the urban tree cover is undergoing, with the development of urban and peri-urban areas in the current and future urban zone parts of the board's area.

Baseline information about Auckland's urban forest is particularly important in light of the recent changes to the RMA that have removed the ability of Auckland Council to use general tree protection rules to protect urban forest. Sections 76(4A) and 76(4B) of the RMA were inserted under the RMA (Simplifying and Streamlining) Amendment Act 2009 (RMAA09). This was amended under the RMA Act 2013 (RMAA13) to align with the original policy intent of prohibiting blanket tree protection rules in urban areas.

It was hoped that removal of general tree protection would occur in conjunction with a systematic program to identify and protect important trees through their incorporation onto the notable tree schedule; however, in Auckland this has not been fully realised. While the Auckland Unitary Plan (Operative in Part) 2016 offers degrees of protection to urban forest, meeting specific characteristics (e.g. pre-identified significance, vegetation by coasts or streams), other important urban forest assets have no statutory protection and can, therefore, be removed.

The Environmental Defence Society of New Zealand (EDS) stated in its findings in 2015:

"While other cities have targets of achieving 40% tree cover or more, Auckland is moving backwards with a minimalist approach reliant on a cumbersome and costly scheduling process" (EDS 2015).

Many of the cities comparable to Auckland, which score consistently high on the various international indices of liveability, have adopted ambitious urban forest strategies and targets:

- Brisbane’s canopy cover is currently 44% (Brisbane City Council 2019). There has been extensive use of green infrastructure with native bush retained in riparian areas of newer suburbs. Brisbane also has extensive plantings of amenity trees in its many parks throughout the city. Protected heritage trees are a prominent feature of the CBD.
- Melbourne has a 40% target for tree cover in the public realm by 2040 (City of Melbourne 2012), an almost doubling of urban forest cover in 2012. The latest data shows that current
canopy cover is at 23.7% (The Urban Forest and Ecology Team, City of Melbourne, pers. comm.)

- In 2013, the City of Sydney published strategic plans to increase its average total canopy cover from 16% (2013) to 23% by 2030, and then to 27% by 2050, through targeted programmes for trees located in streets, parks and private property (City of Sydney 2013). Sydney’s total canopy cover, based on a 2019 assessment, is 18.1% (Karen Sweeney, Urban Forest Manager, pers. comm.).

The aim of Auckland’s Urban Ngahere (Forest) Strategy is to increase average canopy cover from 18 to 30% (Auckland Council 2019a). This is a proactive first step towards enhancing the region’s tree cover for the benefit of all of its residents and visitors.

3.4 Why use LiDAR data?

The techniques considered for mapping Auckland’s urban forest at a high resolution included LiDAR, along with manual digitisation (marking up) of aerial imagery and field-work with aerial imagery followed by manual digitisation of field maps, or some combination of these methods. However both the latter approaches involved considerable man hours and were therefore too expensive to allow us to obtain a universal sample of urban forest within the Auckland urban area. Computer automated classification of satellite imagery could have provided a universal sample, but the resolution of this approach would not provide the scale required for more detailed analysis work, i.e., down to the level of individual trees and shrubs.

For these reasons, LiDAR was considered the best method for obtaining a universal sample of the urban forest for the purposes of this study.

The term LiDAR stands for Light Detection and Ranging, it is an airborne optical remote sensing technology that measures scattered light to find a range and other information on a distant target. The range to the target is measured using the time delay between transmission of a pulse and detection of a reflected signal. This technology allows for the direct measurement of three-dimensional features and structures and the underlying terrain. The ability to measure height of features on the ground or above the ground is the principle advantage over conventional optical remote sensing technologies such as aerial imagery.
4.0 METHODS

Data suitable for the urban forest analysis was available from LiDAR data captured in 2013. Auckland Council has recently undertaken another series of aerial LiDAR surveying. The fly-overs of the Auckland region were completed in 2017 as part of a 2-year project, and the processing of this data is underway. Final results for the Local Board were not available at the time when this report was being prepared. The Local Board will be updated on the outcomes of the comparative analysis later this year, as results become available.

4.1 Desktop Analysis – Environmental and Socioeconomic Context

Context relevant to urban ngahere in Upper Harbour was obtained via a literature search. This included Auckland Council reports and Mike Wilcox’s book ‘Auckland’s Remarkable Urban Forest’ (Wilcox 2012) as well as other relevant information found on-line.

4.2 LiDAR Analysis Methodology

The 2013 urban forest data presented in this report was created from airborne LiDAR sensor data collected between 17/07/2013 and 23/11/2013. This was around the time trees first lost their blanket protection. The classified Raw Point Cloud data, which the urban forest layer was created from, is at least 1.5 points per square metre over open ground. Vertical accuracy is +/- 0.1m @ 68% confidence. Data-points classified as ‘vegetation’ were extracted to form the foundation of an urban forest layer for further analysis and interrogation within the ArcGIS 10.2 geospatial software through combination with other spatial datasets. These other datasets are shown in Table 1, below.

Table 1: List of data sources and descriptions used in analysis

<table>
<thead>
<tr>
<th>Data</th>
<th>Description</th>
<th>Organisation source</th>
<th>Retrieved</th>
</tr>
</thead>
<tbody>
<tr>
<td>Local Board</td>
<td>Upper Harbour Local Board area. A political division of the Auckland Council that includes the suburbs of Whenuapai, Herald Island, Hobsonville, Paremomo, Greenhilte, Albany, Rosedale, Northcross, Unsworth and Pinehill.</td>
<td>Statistics NZ</td>
<td>January 2016</td>
</tr>
<tr>
<td>Public Owner Land (parcel level)</td>
<td>This includes roads (both formed and unformed), public parks administered by the Auckland Council and land administered by central government agencies (e.g. Department of Conservation and Ministry of Education).</td>
<td>RIMU, Auckland Council</td>
<td>November 2015</td>
</tr>
<tr>
<td>Private Parcels (all primary parcels except above)</td>
<td>Current land parcel polygons with associated descriptive data (Land information New Zealand, 2010). This dataset does not include parcels that have been vested in council for roading.</td>
<td>LINZ</td>
<td>January 2016</td>
</tr>
<tr>
<td>Protected Land</td>
<td>See Table 3. Covers land within open space zones or protected in the Proposed Auckland Unitary Plan (e.g., as part of a Significant Ecological Area or Outstanding Natural Feature).</td>
<td>RIMU</td>
<td>August 2016</td>
</tr>
</tbody>
</table>
Quality control checks on the urban forest layer generated by the LiDAR data eliminated obvious errors found in the supplied classified point-cloud data. Misclassified areas of man-made materials and other non-vegetation surfaces were removed in the processing of the raw data. These types of errors are symptomatic of classification functions that classify surface objects of varying composition based on the strength of the LiDAR pulse return. Objects with similar reflectivity to vegetation, such as transparent materials (glass) and power lines, were common sources of these errors.

4.3 Urban Forest Structure

LiDAR data includes a height component and we used this information to set a cut-off point for urban ‘forest’ vegetation at 3 m. That is, LiDAR data-points classified as vegetation that were over 3 m in height were used to derive the urban forest layer. This means that low-lying vegetation such as mown grassland, low stature hedges and gardens were not included in the urban forest layer. It also means that new restoration and street tree plantings that have taken place since 2013 will not be visible in this analysis.

4.4 Urban Forest Tenure

To determine the tenure of urban forest, the data points were compared to the zoning of different land parcels within the Upper Harbour Local Board. The zoning as corresponding to land tenure classification is summarised in Table 2.

Table 2: Classification of land parcels in relation to land tenure assessment

<table>
<thead>
<tr>
<th>Tenure Category</th>
<th>Detail on classification in relation to zoning and land ownership</th>
</tr>
</thead>
<tbody>
<tr>
<td>Street Trees</td>
<td>Trees within the road network, located in road reserves (i.e., along footpaths and berms) and within the motorway corridor.</td>
</tr>
<tr>
<td>Private Land</td>
<td>Private residential land and privately owned businesses and commercial space.</td>
</tr>
<tr>
<td>Public Parks</td>
<td>Publicly owned land accessible to the public for recreational and conservation purposes, including all public parks.</td>
</tr>
<tr>
<td>Other Public Land</td>
<td>All publicly owned land that is not classified as a public park, including tertiary campuses, schools, road reserves without formed roads on them, and Council owned commercial spaces.</td>
</tr>
</tbody>
</table>

4.5 Urban Forest Protection Status

The level of urban forest protection was determined through an analysis of the underlying zones and protection layers in the Auckland Unitary Plan. Note that this classification method is arbitrary and has no legal weighting. It reflects work to develop five different protection levels (shown in Table 3) based on the rules applying to vegetation clearance in the Unitary Plan, or other practical constraints to vegetation clearance for different zones and land uses, based on past experience.

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3 Note that the motorway corridor is actually owned and managed by the New Zealand Transport Agency (NZTA). The Council has no control over the motorway corridor greenspace and trees planted here are not covered by the street tree rules in the Auckland Unitary Plan.
<table>
<thead>
<tr>
<th>Protection zone</th>
<th>Detail on rules and restrictions</th>
</tr>
</thead>
<tbody>
<tr>
<td>0—no protection</td>
<td>There is no statutory protection for urban forest and/or rules preventing tree or vegetation clearance in this location.</td>
</tr>
<tr>
<td>1—some protection</td>
<td>Within an open space active recreation zone or a road corridor. For both these areas, restricted discretionary resource consents are required to clear trees &gt; 4m in height. However, development pressures are often high in these locations and trees are often regarded as incompatible with the main land uses. The proposed Auckland Unitary Plan rules for street trees are more permissive in terms of what utilities can do around and to trees—including pruning as a permitted activity.</td>
</tr>
<tr>
<td>2—low protection</td>
<td>Within a coastal natural character area, or an area zoned as ‘Open Space Informal Recreation’ (restricted discretionary consent needed to remove trees/vegetation 4m+ in height). The proposed Auckland Unitary Plan rules for park trees are more permissive in terms of what utilities can do around and to trees—including pruning as a permitted activity.</td>
</tr>
<tr>
<td>3—moderate protection</td>
<td>Includes the following:  - Outstanding Natural Feature (restricted discretionary consent needed to remove 25m²+ of contiguous indigenous vegetation)¹,  - Outstanding Natural Landscape (restricted discretionary consent needed for alteration or removal of 50 m²+ of any contiguous indigenous vegetation)¹,  - Coastal yard (restricted discretionary consent needed to remove native trees/vegetation 3m+ in height)¹,  - Open Space Conservation (restricted discretionary consent needed to remove trees/vegetation 4m+ in height),</td>
</tr>
<tr>
<td>4—moderately high protection</td>
<td>Includes the following:  - Historic heritage (discretionary consent needed to remove trees/vegetation 3m+ in height),  - Riparian yard (restricted discretionary consent needed to remove any trees or shrubs),  - Lake protection zone (restricted discretionary consent needed to remove any trees or shrubs).</td>
</tr>
<tr>
<td>5—high protection</td>
<td>Significant Ecological Areas (SEAs) (discretionary consent needed to remove any trees or vegetation), Notable trees (discretionary consent needed to remove any notable tree or shrub).</td>
</tr>
</tbody>
</table>

¹ Vegetation protection in these areas is restricted to indigenous species and does not cover exotic plants. In some cases (e.g. coastal zone) the removal of exotic vegetation is specifically mentioned as a permitted activity. Exotic trees can provide many of the same benefits as native species so this is a negative in terms of protection of urban forest values.

For the Notable Trees, the operative list in Schedule 10 of the Auckland Unitary Plan was utilised. This list is dated February 2017, so does not include the latest plan updates. This list includes some anomalies, such as trees that have been removed since being scheduled, errors in individual versus group listings, and entries that have not been ground-truthed. However, on the whole, the list...
provides a useful tool for examining the distribution of Notable Trees throughout the Local Board area. GIS maps showing the spatial distribution of the trees have been based on the same schedule. The Significant Ecological Areas (SEAs) identified in this study are from the operative list in the Auckland Unitary Plan. Terrestrial SEAs are identified as having significant indigenous vegetation or significant habitats of indigenous fauna located on land. In order to maintain indigenous biodiversity, these areas are protected from the adverse effects of subdivision, land use and development.

4.6 Urban Forest in Relation to Socio-Economic Factors
The socio-economic census data included in this report has been sourced from the 2013 New Zealand census records. This includes data on resident population and age distribution. The urban forest data was categorised into Census Area Units (CAU) for the Upper Harbour Local Board to potentially identify trends between the data and demographic and socioeconomic factors. The CAUs covered by the Local Board area are shown in Figure 1, below, with 15 CAU in total.

![Figure 1: Census Area Units (2013) of the Upper Harbour Local Board (highlighted in green)](image-url)
Where CAUs within Upper Harbour cross over the Local Board boundary (e.g., Unsworth Height, Windsor Park and Whenuapai West CAUs) they are covered in this report, unless the area of overlap is very small (e.g., Glendhu CAU, which is largely in Kaipatiki Board Area).

4.6.1 Parks and Open Space Shade Analysis Study

In addition, a previous study undertaken by Auckland Council RIMU (the Research and Evaluation Unit) was consulted in regard to assessment of trees in local parks, including nearby sports fields and playgrounds. This Parks and Open Space Shade Analysis Study was undertaken through desktop analysis of high-resolution aerial imagery, with interpretation on park maintenance (i.e., maintained or unmaintained), size of park, number of trees present, percentage of canopy cover, presence of playgrounds or sports fields, and amount of shade provided to playgrounds where trees were present. All the parks within the Upper Harbour Local Board were assessed.

Further information on the methodology for The Parks and Open Space Shade Analysis Study is presented in Appendix 1. The aim of the study is to show where there are opportunities for improvements in tree cover in local parks, to benefit the well-being of the local and wider community.

4.7 Change in Urban Forest Cover 2013 – 2016

In addition to the 2013 LiDAR data, Auckland Council has recently undertaken another series of aerial LiDAR surveying. The fly-overs of the Auckland region were completed in 2017 as part of a 2-year project. The data has been through quality control and council staff are currently processing the data to produce a vegetation or canopy extent layer that can then be used to develop the metrics for tree sizes, heights and a range of other factors including canopy coverage. A comparison of the 2013 and 2017 data sets will be provided in a subsequent update report on progress of the urban ngahere work programme for the Upper Harbour Local Board.

The 2016-17 LiDAR produced a data set of 88 billion data points so processing of this requires time, it is expected that early results, which will show a comparison between the 2013 and 2016-17 datasets, will be available later this year.
5.0 RESULTS OF ANALYSES

5.1 Upper Harbour Local Board Context

5.1.1 Geographic, Demographic and Socioeconomic Factors relevant to urban ngahere

The Upper Harbour Local Board is located in the upper reaches of the Waitemata Harbour (Auckland Council 2018b). The Upper Waitematā Harbour divides into a series of streams which are an important feature of the Upper Harbour landscape, and results in local communities being dissected by waterways (Auckland Council 2018b). The Upper Harbour Local Board area is 6,961 ha (Wilcox 2012) and the population was estimated at 67,830 with 3.6% growth in 2018 (infometrics 2019).

The Board area has a mix of rural, residential and business areas (Auckland 2017). It includes the suburbs of Whenuapai, Herald Island and Hobsonville in the west; and Paremoremo, Greenhithe, Albany, Rosedale, Northcross, Unsworth and Pinehill in the east (Figure 2, below).

Upper Harbour neighbours Henderson-Massey Board to the south, Rodney Board to the west, Hibiscus and Bays Board to the north-east, Devonport-Takapuna Local Board to the east, and Kaipātiki Local Board to the south-east. Town centres include Albany, Greville, Windsor Park, Greenhithe and Hobsonville (Auckland Council 2015). The area includes Massey University (Albany campus), North Shore Golf Course, the air base at Whenuapai, Hobsonville Marina, and Auckland Prison at Paremoremo (Auckland Council 2016a).

The landscape of north-east Upper Harbour is dominated by steep clay hills that surround more fertile, low-lying alluvial soils in the Albany basin (Auckland Council 2018b). Lucas Creek and the Upper Harbour Motorway form physical barriers to the communities and the Northern Motorway separates the communities in the east. The south-west of Upper Harbour mostly comprises low-lying, fertile soils that have been intensively developed for horticulture and life style blocks (Auckland Council 2018b).

The soils of Upper Harbour are relatively fertile, but have a high risk of erosion (Auckland Council 2018b). The alluvial soils are the most fertile and historically would have been home to kahikatea and native broadleaf species. Some areas, particularly to the north of the harbour, are relatively steep while the southern areas of Whenuapai, Hobsonville and Rosedale have areas of more gentle topography (Auckland Council 2018b).

Between the 2006 and 2013 census surveys, the population increased by 25%, which was considerably higher than the regional growth rate of 8% (Auckland Council 2016a) and this rapid increase in population is predicted to continue (Auckland Council 2017). In 2013, the median age was 36.2 years, slightly older than the regional median of 35.1 years. Along with Kaipātiki, the Upper Harbour Local Board area has the highest proportion of Asian residents across all the local board areas on the North Shore. And 43% of the population was born overseas, with a good number having lived in New Zealand for fewer than 10 years (Auckland Council 2016a).

The median household income was $89,000, which is higher than the regional median of $76,500, and the second highest after Orakei (Auckland Council 2016a). Home ownership rates are relatively high at 70% of households, compared with 61% regionally. Local residents generally have a high level
of formal education. Most of the 22 schools have a decile rating of 8 to 10, reflecting the affluence of the local board (Auckland Council 2015a).

Figure 2: Map of Upper Harbour Local Board area

Upper Harbour has an extensive network of 261 parks and open spaces that total approximately 843 ha (Auckland Council 2018b). The Local Board recognises the importance of the many parks and bush reserves and how they contribute to resident's quality of life and environmental values (Auckland Council 2017, 2018b). There is one destination park in the Upper Harbour - Sanders
Reserve in Paremoremo (Auckland Council 2018b). Destination parks provide for a large number of visitors who may travel from other areas.

Amenity trees in Upper Harbour parks are described in Appendix 2 and remnant and regenerating native forest in the many bush reserves is described in section 5.5.1 of this report. Notable Trees are described section 5.5.2.

However, many streets and arterial roads lack the benefits of street trees (Auckland Council 2018b) which is typical of the North Shore (Wilcox 2012).

### 5.1.2 Land Use and Environmental Factors in Upper Harbour

Upper Harbour has mix of urban, rural and natural landscapes (Auckland Council 2017). Industrial land is generally located adjacent to motorways, at Rosedale, Schnapper Rock and Albany (Auckland Council 2015). There are large areas of residential land throughout Upper Harbour. These areas are somewhat disjointed as they are dissected by the Waitemata Harbour, motorway system, rural land and vegetated escarpments (Auckland Council 2015).

The most recent Local Board Plan acknowledges that Upper Harbour’s rapid growth is having an impact on the environment (Auckland Council 2017). The Board encourages developers to adopt environmental best practice and minimise negative environmental impacts. The Board also supports the mayor’s vision to create an urban forest with aims to plant a million trees throughout the region.

The Hobsonville airbase is being redeveloped in the southern part of the board with a new housing subdivision, with ferry links to Auckland CBD (Auckland Council 2019b). This new development includes parks and schools, with 26 ha reserved for public parks and open space, and planning initiatives to encourage most children to walk or cycle to school (Hobsonville Point 2019). A description of trees planted in Hobsonville Point Park and Playground is provided in Appendix 2.

Despite these extensive areas of remnant natural vegetation and the large number of parks and green space, there are large areas of Upper Harbour that are highly urbanised, particularly in the northeast of the board (Auckland Council 2015). This has led to moderately high levels of impervious (hard) surfaces in parts of Upper Harbour, as shown below in Figure 3a (red-shaded surfaces), particularly in the suburbs of West Harbour, Greenhithe, Rosedale, Unsworth Heights, Windsor Park, Pinehill and Oteha. However, there are large parts of Upper Harbour that still have extensive areas of pervious (permeable) surfaces Figure 3b (green-shaded surfaces).

A high level of impervious surface prevents rainfall from soaking into the ground and this has been associated with poor water quality (Auckland Council 2016b, 2016c). Upper Harbour Local Board area has an estimated 20% impervious surface area (Figures 3a and 3b) compared with the regional average of 9% (Auckland Council 2016b). However, Upper Harbour has lower levels of impervious surfaces compared with neighbouring North Shore local board areas. Kaipātiki Local Board area has as an estimated 43% impervious surface area, while the North Shore reporting area (which includes Devonport-Takapuna and Kaipātiki Local Board areas) has a very high (52%) impervious surface area.

The health of the local waterways is compromised where there are high levels of impervious surfaces, leading to higher water temperatures, changes to natural flow patterns and increased
pollution from contaminated stormwater (Auckland Council 2017). There is also concern about climate change, particularly the impact of increased frequency of severe weather events, sea level rises and coastal erosion (Auckland Council 2017).

**Figure 3a:** Impervious (hard) surfaces in Upper Harbour Local Board area (highlighted in red)
In 2016, the freshwater report card was assessed at **Grade C** for the Upper Harbour reporting area. While water quality, flow patterns, nutrient cycling and habitat quality all scored a B or C, biodiversity in the area was rated as an E (Auckland Council 2016c).
Auckland Council’s State of the Environment monitoring programme has been collecting data for over 30 years (Auckland Council 2016b, 2016c). The data shows that there is a strong relationship between the health of waterways and the type of land cover in the catchment. Waterways that drain through forested catchments (particularly native forest) typically have excellent water quality and high ecological values, while rivers that drain from urban catchments typically have poor water quality and lower ecological values (Auckland Council 2016b, 2016c). This is corroborated by data collected from other regions of New Zealand (Gluckman 2017) and overseas (Forest Research 2010).

In addition to this, lack of natural vegetation reduces interception of precipitation, and reduced ground infiltration also increases the speed of run-off, therefore, the risk of flooding is increased in urban areas with high levels of impervious surfaces (Forest Research 2010; Meurk et al. 2013). Therefore, ongoing efforts to restore vegetation in riparian and estuarine areas, and wetland complexes, as well as maintaining parklands and planting trees where there is low tree cover, will improve green infrastructure and environmental outcomes.

Significant population growth and increased development in the new communities of Scott Point, Hobsonville Point and Whenuapai (Auckland Council 2017) is likely to increase impervious surface area and associated water quality issues, unless there is adequate planning for green infrastructure.

The Upper Waitematā Harbour marine water quality has been assessed at an overall grade of D. (Note that the overall environmental health grade from A to F is based on the average of the scores for water quality, contaminants in sediment and ecology). Many of the issues with poor water quality in the Upper Waitematā Harbour reflect decades of human impact including sedimentation and water contamination (Auckland Council 2016c).

Another identified environmental issue is coastal inundation, which is caused by high tides combined with adverse weather conditions, leading to storm surge events which inundate low-lying coastal land (Auckland Council 2018b). This is likely to be exacerbated by projected sea-level rise and increased storm events associated with climate change.

5.1.3 Upper Harbour Greenways Plan

The Upper Harbour Greenways Plan is a long-term plan aimed at improving walking, cycling and ecological connections across the local board area, with the commitment to promoting connections between local communities and connections to the coastline, harbour and natural spaces (Auckland Council 2015, 2018). The aims are to make natural areas and parklands more accessible to local residents by improving the walking and cycling connections through parks and reserves, easing pressure on roads, and encouraging people to stay healthy and active.

Where the network runs through areas with little vegetation cover, there would be significant benefit from investment in tree planting - for pedestrian and cyclist safety, and improvement of ecological and amenity values.

There is an opportunity for coordinating the urban forestry improvement work with the Greenways Plan, so that when fully completed, ecological areas and amenity trees planted in public places would be connected across the entire local board area. This process would be expedited by consultation (and ideally partnership) with the many highly engaged and experienced stakeholders.
in Upper Harbour, who are actively involved in restoration of natural areas and tree planting initiatives.

3.1.4 Community Partnerships in Ecological Restoration

The most recent Local Board Plan (released in 2017) recognises the importance of the work undertaken by community groups to maintain ecological values in Upper Harbour. The Board Plan acknowledges the community’s concerns about the health of waterways, the harbour, and native biodiversity, and actively supports targeted restoration and conservation efforts. The Board has a proactive approach of acknowledging, empowering and supporting community groups who are restoring green spaces and planting trees (Auckland Council 2017).

Best-practice ecological restoration starts with eco-sourced seed, i.e., seed collected from the closest remnant stands, wherever possible, preferably within the North Shore and at least within the Tamaki Ecological District (Wilcox 2012; Auckland Council 2018c). Eco-sourcing is defined as the sourcing of local, wild seed sources to propagate native planting stock for planting in the same locality (Ferkins 2001, MacGibbon 2009). The overall aim is to sustain (rather than undermine) the genetic integrity and resilience of local plant populations, and to ensure that planting stock is well adapted to local conditions (Porteous 1993; Ferkins 2001; MacGibbon 2009; Simpson 2009).

There is evidence that environmental volunteering and involvement in community activities in natural areas benefits the health and well-being of participants (e.g., Townsend 2006; Forest Research 2010; Roberts et al. 2015). Meurk et al. (2013) and Roberts et al. (2015) discuss, within the New Zealand context, the importance of people being involved in ecological restoration and conservation efforts and how this has benefits for personal well-being and the well-being of communities.

Roberts et al. (2015) note that thousands of New Zealanders volunteer every year for biodiversity restoration projects, and the collective action needed to protect natural ecosystems is a unifying force in communities. Blaschke (2013) suggested that volunteer ecological restoration programmes may be important for increasing health and well-being in New Zealand society. Meurk and colleagues concluded that “Ecological restoration indeed is often as much about restoring communities and spirit as it is about ecology” (Page 268, Meurk et al. 2013).

There are also cultural values associated with ecological restoration and people’s connection to the natural environment. Mātauranga Māori (the traditional knowledge base and philosophy) has become increasingly integrated into natural resource management in New Zealand. It has direct relevance to urban ōtepoti and conservation efforts, particularly the following principles:

- **Kaitiakitanga** (guardianship of natural resources) defines the important role of tangata whenua (people of the land) as temporary guardians of the environment with the responsibility to maintain it for future generations (Harmsworth and Awatere 2013; Roberts et al. 2015; OECD 2017).

- **Whanaungatanga** (community connectivity) refers to how well-being and social prosperity are improved through connection to, and interactions with, the natural environment. (Scheele et al. 2016).
• Tūrangawaewae (sense of place) refers to how well whanau, hapu and iwi well-being is reflected in, and connected to, the natural and urban environment (Harmsworth and Awatere 2013; Scheele et al. 2016).

These Māori principles now go beyond Mātauranga Māori - they have become increasingly part of the wider New Zealand ethos. And they have relevance to urban ngāhere and the well-being of city dwellers. The principles of Whanaungatanga and Tūrangawaewae are important to uphold in communities where many residents were born overseas, such as in Upper Harbour.

5.1.5 The Battle Against Kauri Dieback

Kauri dieback has recently been found in Paremoremo Scenic Reserve, and also in kauri forest in neighbouring Kaipatiki, resulting in the closure of some tracks. A map of kauri locations in Upper Harbour, including trees confirmed to have kauri dieback, is provided in Appendix 3. In some cases the cause of the symptoms of poor health has not been fully established.

_Physopththora aesthetidis_ (PA) is the causal agent for kauri dieback and it is a major threat to the iconic kauri. It is a soil-borne disease that is spread primarily through movement of contaminated soil (Black and Dickie; Waipara 2018). However, zoospores (mobile spores specialised for dispersal) can also be released under flood conditions and swim towards plant roots. Once they reach a host root, they penetrate the root and initiate infection. Also, recent research indicates that PA can potentially survive in the soil for many years, even in the absence of a suitable host (Black and Dickie; Waipara 2018).

Any soil-borne diseases such as _Physopththora_ species are difficult to contain. The Kauri Dieback Programme has recently produced best practice guidelines for all aspects of interactions with, and protection of kauri (Kauri Dieback Programme 2019). This includes the following guidelines:

- How to help save kauri...
  - when walking your dog.
  - when horse riding.
  - when mountain biking.
  - when walking or running.
  - when hunting.
  - when trapping.
  - by looking after the ones you’ve got.
  - by following hygiene guidelines.
  - when disposing of material contaminated with the disease.
  - when working around kauri.
  - when operating vehicles and heavy machinery near kauri.
  - when pruning or removing kauri.
  - during propagation and planting of kauri.

In addition to this, New Zealand Plant Producers Incorporated (NZPPI) is developing the National Kauri Dieback Management Plan and Kauri Dieback Module, which will be available later this year.
5.1.6 Myrtle Rust

Myrtle rust (Austrocyclus pseudii) has now been found across most of the North Island, Taranaki, Auckland, and Bay of Plenty are the most seriously affected areas (Biosecurity New Zealand 2019). Myrtle rust spores are microscopic and easily spread across large distances via wind, insects, birds, people, or machinery. Most infections have been found on two types of native myrtle: ramarama (Lophomyrtus species) – used widely for residential hedging; and in the iconic pōhutukawa and rātā (Metrosideros species). Introduced myrtles have also been affected, including lilypilly (Syzygium), bottlebrush (Callistemon) and eucalypts (Eucalyptus) (Biosecurity New Zealand 2019).

Excellent resources have been made freely available to assist local government, organisations and groups to effectively manage the biosecurity risks associated with myrtle rust.

Project Crimson update on myrtle rust is a web page that is regularly updated: https://projectcrimson.org.nz/myrtle-rust-update-february-2019/. It includes an excellent fact sheet that Biosecurity New Zealand has developed in collaboration with the Department of Conservation. The update also includes a link to an online training course about myrtle rust that Biosecurity New Zealand has developed, in collaboration with the Department of Conservation. The courses are available to everyone but are particularly suited to those running community education events.

Myrtle rust resources are provided in a web page: https://www.biosecurity.govt.nz/protection-and-response/responding/alerts/myrtle-rust/ that is regularly updated by the myrtle rust programme, which is a partnership between Biosecurity New Zealand and DOC. A step-by-step guide is available to help landowners on managing myrtle rust on their property. There is also specific advice for:

- planting and restoration programmes,
- nurseries,
- orchardists,
- beekeepers.

New Zealand Plant Producers Incorporated (NZPPI) has excellent biosecurity resources available on the Biosecurity Myrtle Rust webpage: (https://nzppl.org.nz/biosecurity). This has the latest information and updated protocols including:

- nursery management for myrtle rust,
- plant survey methods,
- myrtle rust spray programme,
- nursery dispatch declaration, and plant transport protocol and declaration.
5.2 An Overview of Urban Forest Cover in 2013

Canopy cover varied greatly across Auckland suburbs in 2013 and also within Upper Harbour Local Board area (Figure 4, below).

*Figure 4:* Auckland’s urban forest canopy cover by suburb, in 2013 (data shown in Appendix 4)
These results are from the LiDAR data captured in 2013, which was around the time trees first lost their blanket protection.

Two leafy suburbs of central Upper Harbour have been classified as ‘forested suburbs’ with canopy covers of 42% for Greenhithe, and 30% for Schnapper Rock (Figure 4 and Appendix 4). The northern suburbs of Fairview Heights (23%) and Northcross (21%) have ‘good cover’, as does the more southern Herald Island (24%). Northern suburbs Albany Heights (15%) and Unsworth Heights (17%) have ‘moderate cover’. Windsor Park (10%) in the north and West Harbour in the south (14%) have ‘low cover’. Pinehill (9%), Rosedale (8%) and Oteha (8%) are classified as having ‘bare’ cover.

Canopy cover in Upper Harbour in 2013 was 27% overall, which is considerably higher than the 18% overall cover for Auckland (Table 4, below). It was the second highest tree cover in 2013 for all urban boards in Auckland (after Kaipātiki at 30%). In terms of land tenure, 50% of public land in Upper Harbour had tree cover, second only to Kaipātiki. And Upper Harbour had the highest percentage of tree cover on private land (23%) compared with other boards. However, tree cover for road parcels (i.e., Street Trees) in Upper Harbour was the same as the Auckland average (11%); and for ‘other public land’ (school grounds, etc.) tree cover was 13% compared with the Auckland average of 14%.

Table 4: Percentage of land with tree cover for each of Auckland’s urban boards in 2013. Values are given for different land tenures and overall. Area units with population density less than 1000 people per square kilometre were excluded from the calculation.

<table>
<thead>
<tr>
<th>Urban Local Board 1</th>
<th>Public open space</th>
<th>Private land</th>
<th>Roads</th>
<th>Other public land</th>
<th>Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Albert - Eden</td>
<td>30</td>
<td>19</td>
<td>18</td>
<td>17</td>
<td>20</td>
</tr>
<tr>
<td>Devonport - Takapuna</td>
<td>23</td>
<td>17</td>
<td>10</td>
<td>13</td>
<td>16</td>
</tr>
<tr>
<td>Henderson - Manse</td>
<td>31</td>
<td>14</td>
<td>7</td>
<td>13</td>
<td>15</td>
</tr>
<tr>
<td>Hibiscus and Bays</td>
<td>36</td>
<td>24</td>
<td>16</td>
<td>23</td>
<td>25</td>
</tr>
<tr>
<td>Howick</td>
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<td>17</td>
<td>6</td>
<td>13</td>
<td>16</td>
</tr>
<tr>
<td>Kaipātiki</td>
<td>63</td>
<td>25</td>
<td>12</td>
<td>27</td>
<td>30</td>
</tr>
<tr>
<td>Mangere - Otahuhu</td>
<td>17</td>
<td>7</td>
<td>7</td>
<td>7</td>
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</tr>
<tr>
<td>Manurewa</td>
<td>25</td>
<td>11</td>
<td>6</td>
<td>7</td>
<td>12</td>
</tr>
<tr>
<td>Maungakiekie - Tamaki</td>
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<td>9</td>
<td>10</td>
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<td>11</td>
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<td>Otara - Papatoetoe</td>
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</tr>
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<td>Papakura</td>
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<td>13</td>
</tr>
<tr>
<td>Puketapapa</td>
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<td>17</td>
<td>11</td>
<td>14</td>
<td>20</td>
</tr>
<tr>
<td>Upper Harbour</td>
<td>50</td>
<td>29</td>
<td>11</td>
<td>13</td>
<td>27</td>
</tr>
<tr>
<td>Waiwera</td>
<td>39</td>
<td>16</td>
<td>15</td>
<td>13</td>
<td>19</td>
</tr>
<tr>
<td>Whau</td>
<td>30</td>
<td>17</td>
<td>12</td>
<td>14</td>
<td>17</td>
</tr>
<tr>
<td>Overall</td>
<td>31</td>
<td>17</td>
<td>11</td>
<td>14</td>
<td>18</td>
</tr>
</tbody>
</table>
Some of Auckland’s local boards have been excluded from this table as they are largely rural in character (i.e. Franklin, Rodney, Waitakere Ranges, Great Barrier and Waiheke Local Boards).

5.3 Urban Forest Cover and Land Tenure

Looking at tree cover from a different perspective, Figure 5 below shows how urban forest in 2013 was distributed across the different classes of land tenure in Upper Harbour. In 2013, 67% of tree cover in Upper Harbour was on private land (i.e., private gardens and lawn areas), and 21% was in public parks, which is relatively similar compared with other local boards. There was only 6% tree cover on other public land (such as school grounds) and only 4% was in road parcels (street trees), both of which are relatively low compared with other local boards.

![Figure 5: Tenure of urban forest canopy within the Upper Harbour Local Board area](image)

The tenure of urban forest cover in Upper Harbour in the different census area units (CAUs) is shown below in hectares (Figure 6) and percentages (Figure 7). Note that some CAUs (particularly Glendhu) cross over the Kāpiti Local Board boundary into neighbouring board areas (see Figure 1), therefore, include tree cover that is partly in neighbouring local boards.

Tree cover varied greatly across the various CAUs of Upper Harbour in 2013. The area with the highest forest cover was Paremoremo, which must be one of the leafiest areas of Auckland with nearly 700 ha of tree cover – although most of this was in the private domain. Greenhithe and Albany were both recorded as having over 300 ha of tree cover, but most this was in the private domain. Whenuapai West had a tree cover of over 150 ha. However, the remaining 11 CAUs had a tree cover of less than 100 ha; with Northcross, Pinehill, Unsworth Heights, Windsor Park and Lucken Point having a particularly low tree cover.

Most areas in Upper Harbour had over half their urban forest on private land in 2013 (Figure 7). Pinehill, North Harbour East, North Harbour West, and Windsor Park were the only areas that have more tree cover on public land rather than private land; however, all of these CAUs have a relatively
low tree cover, overall. Parts of Upper Harbour that proportionally have a very low canopy cover on public land are Fairview, Herald, and Whenuapai West. This has important implications, as trees on public land are more accessible to the public and more likely to be protected.

Figure 6: Tenure of urban forest per census area unit within Upper Harbour Local Board
5.4 Urban Forest Structure

The height class distribution of the urban forest canopy, in Upper Harbour in 2013, is shown below in Figure 8. Most of the trees were in the smaller size classes: 51% of the tree cover was 3 to 10 m high; 76% was less than 15 m; only 9% was 20 to 30 m, and only 2% was taller than 30 m. This has important implications because larger trees provide a disproportionate amount of the many of the benefits associated with urban ngahere, as explained earlier in this report.
Canopy height is mapped in the Significant Ecological Areas map in Figure 12 (in section 5.5.1, below).

The relatively high proportion of smaller trees across much of the local board indicates that, in 2013, there was either a relatively recent surge of tree planting (assuming the smaller stature trees correspond to younger trees), or a large proportion of shrubs with a limited mature height.

When broken down into census area units (Figure 9, below) it is apparent that there were areas in Upper Harbour in 2013 that had a relatively high proportion of trees over 15 m tall – in particularly, Windsor Park, North Harbour West, Albany and Whenuapai West; and to a lesser extent, Greenshithe, Paremoremo East, and North Harbour East.

Areas that had proportionally more trees with a lower stature were Lucken Point, Northcross and Unsworth Heights.
5.5 Urban Forest Protection Status

The protection status of urban forest within Upper Harbour is graphically illustrated below (Figure 10). A high proportion (68%) of the urban forest has some form of protection, much higher than most other local board areas, and much higher than the overall figure for Auckland’s ngahere, where only 50% has some form of protection (Auckland Council 2019a).

In addition to this, the majority of protected trees in Upper Harbour have a high protection status. Indeed, over half (57%) of the total tree cover in Upper Harbour has a high protection status, i.e., Protection Class 5, and are, therefore, either Significant Ecological Areas (SEAs) or Notable Trees, as described below. This is a very high proportion of tree cover in Protection Class 5 compared with other local boards. Only 2% has a Protection Class 4 status, which pertains to trees in riparian and lake protection zones.

Approximately 8% of the tree cover has a low to moderate degree of protection status (Protection Classes One, Two and Three, combined) (Figure 10). These Protection Classes are described in the Methodology above. In these areas, restricted discretionary resource consents are required to clear trees either over 3 m, or over 4 m in height (depending on the Protection Class). However, development pressures are generally high in these locations and trees are frequently regarded as incompatible with the main land uses (Auckland Council 2019a).

Protection status varies widely across Upper Harbour (Figure 11). The well forested areas of Paremoremo East, Greenhithe and Albany have well over half their tree cover under the highest
protection category. Areas with less forest cover, but with most of it protected, are Glendhu, North Harbour East, and North Harbour West. Whenaipai West has a low proportion of protected tree cover in spite of having a high proportion of tall trees. Areas that have trees with little or no protection are Northcross, Pinehill and Herald – these areas also have a low level of forest cover.

**Figure 10:** Protection status of urban forest within the Upper Harbour Local Board

**Figure 11:** Protection status of urban forest within area units within the Upper Harbour Local Board
5.5.1 **Significant Ecological Areas**

Terrestrial SEAs within the Upper Harbour Local Board area are shown in **Figure 12** below.

![Figure 12: Map of Upper Harbour Local Board showing Significant Ecological Areas](image)

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2 The current SEA overlay is based on the Operative Unitary Plan, whereas the data used in this study in relation to protection status is from the Proposed Unitary Plan (as of 2013). There is a slight variation between the two versions of the plan relating to submissions to the proposed overlay and consequent removals/additions.
Upper Harbour is centrally located between the significant natural areas of the Hauraki Gulf Islands and the Waitakere Ranges, within the North Shore Section of the Tamaki Ecological District (Auckland Council 2015). The Tamaki Ecological District covers the Auckland Isthmus from Manurewa to Long Bay and is one of the eight ecological districts in the wider Auckland Region.

Native vegetation cover across the Tamaki Ecological District has been significantly reduced. Much of the remaining vegetation is, therefore, of increased ecological significance (Auckland Council 2015). Indeed, Upper Harbour and Kaipātiki Local Boards, have some of the largest areas of continuous urban native vegetation remaining in Auckland’s ecological region.

This native vegetation forms part of the North-West Wildlink (NWW), i.e., has an important role in providing a corridor of ecosystems between the Waitakere Ranges and Hauraki Gulf Islands (Auckland Council 2015, 2016b). The NWW project is a collaborative effort between Forest & Bird, Auckland Council and Department of Conservation, which aims to connect and enhance natural areas, primarily for the benefit of native species and seasonal migration. The NWW focusses on enhancing natural capital across existing natural areas, parklands, stream banks, esplanade reserves, and residential backyards to provide healthy and safe habitats, and routes for native fauna (Auckland Council 2015).

The Upper Harbour has large areas identified in the Unitary Plan as Significant Ecological Areas. Many are located adjacent to streams and the upper harbour edge forming ecological corridors. In order to maintain indigenous biodiversity, SEAs are protected from the adverse effects of subdivision, land use and development (Auckland Council 2015). Some of the native forest reserves in Upper Harbour are natural remnants; some have been planted; and some are naturally regenerating within successional manuka or kanuka, or are regenerating under exotic species (particularly pine species).

The vegetation in these SEAs can be determined by comparing the SEAs map (Figure 12, above) with a map of vegetation classes in Upper Harbour (Figure 13, below).

The vegetation classes defined below are derived from the North Shore City Ecological Survey (April 2005) and information from Wilcox (2012) and Auckland Council (2015). They include the following:

- **Hard beech forest**: dominated by hard beech (*Nothofagus truncata*) growing at higher elevations with podocarp and broadleaf species. Examples of this type of forest are found in Albany at Fernhill Escarpment and Gils Reserve, and at Paremoremo Scenic Reserve, Paremoremo.

- **Kauri Forest**: dominated by kauri, this includes young kauri stands, kauri broadleaved-podocarp forest and kauri-tanekeha forest. Kauri forest was once the most common vegetation type on North Shore, found from almost sea level through to ridges. Good examples of kauri forest in Upper Harbour are found at Paremoremo Scenic Reserve and Three Streams Reserve.

- **Broadleaved - Podocarp Forest**: is present as many small remnant stands, consisting of a canopy of broadleaf species, including pūriri, taraire (*Beilschmiedia tarairi*), tawa (*Beilschmiedia tawa*) and kohekohe (*Dysoxylum spectabile*), with emergent podocarp species including kahikatea, totara (*Podocarpus totara*), tane kaha (*Phyllocladus trichomanoides*) and matai (*Prumnopitys taxifolia*).
• **Broadleaved Forest**: naturally occurring in large gully systems and lower hill slopes. Includes mature pūriri, taraire, tawa and kohekohe.

• **Pohutukawa Forest**: *Metrosideros excelsa* was once commonly distributed along the foreshore but is now mostly reduced to scattered individual trees amongst podocarp-broadleaf forest.

• **Successional vegetation**: typically dominated by manuka (*Leptospermum scoparium*) or kanuka (*Kunzea ericoides*).

• **Mixed native-exotic forest**: forest where exotic trees (typically pine species) dominate, with a native understorey. A good example of this type of forest is found in Burnside Escarpment where native forest, dominated by tanekaha and totara, is developing beneath a scattering of old Monterey pine (*Pinus radiata*) trees.

• **Freshwater wetlands/lakes**: kahikatea-dominated forest would have typically covered swampy areas. Remnant swamp forest, raupo (*Typha orientalis*) and sedg communities are associated with restored wetland areas.

• **Saltine wetlands**: typically mangroves (*Avicennia marina var. resinera*).

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**Figure 13**: Map of vegetation classes in Upper Harbour Local Board area

There are about 24 native bush reserves in Upper Harbour, which are listed in Dr Mike Wilcox’s book ‘Auckland’s Remarkable Urban Forest’ (see Table 2: Urban native bush reserves in Auckland’s northern suburbs and outlying towns, pages 29 – 35 in Wilcox 2012). They range in size from 0.4 to 100 ha, but most are less than 20 ha. The more significant reserves in Upper harbour (and other northern boards) are described on pages 24 – 28 in Wilcox (2012).

The largest native bush reserves in Upper Harbour include:

- Paremoremo Scenic Reserve, Paremoremo, 100 ha;
- Kereru Reserve, Greenhithe, 28.5 ha;
- Gills Reserve, Albany, 21.7 ha;
- Fernhill Escarpment, Albany, 19.3 ha.

Paremoremo Scenic Reserve is one of the largest areas of continuous urban native vegetation remaining in Auckland’s ecological region, i.e., and is a site of ecological significance (Auckland Council 2019b). This reserve is a critical part of the North-West Wildlink, which links the Hauraki Gulf islands and the Waitakere Ranges together, through green corridors, safe routes and refuges for native plants and animals (Auckland Council 2017). Much of it is of low stature kanuka with regenerating tanekaha, but there are fine stands of kahikatea, tawa and kowhai on the banks of the Paremoremo Stream; as well as kauri and hard beech at higher elevations (Wilcox 2012).
5.5.2 Notable Trees

The distribution of Notable Trees within Upper Harbour is shown in Figure 14, below. The Unitary Plan Schedule has 45 recorded entries of a notable tree and groups of notable trees in the local board area. Notable trees have been identified as specimens with exceptional arboricultural characteristics that contribute to the amenity, landscape and ecological values in the area (Schedule 10, Auckland Unitary Plan).

**Figure 14:** Distribution of Notable trees within the Upper Harbour Local Board
Once they are registered and numbered, these Notable Trees (and groves of trees) have a high level of legal protection (Protection Class 5). They cannot be felled or severely pruned without a resource consent (Wilcox 2012). Any significant modification applications are potentially considered as Discretionary Activities and can be subject to the public notification process along with a hearing (Auckland Council 2012).

Notable Trees in Upper Harbour include a diverse range of native and exotic species. They are scattered throughout Upper Harbour; however, there are significantly fewer Notable Trees in the local board compared with neighbouring Kaipātiki. Notable Trees are in greatest concentration in the North Harbour West – Albany area, Hobsonville South, Herald island and southern Lucken Point.

5.6 Urban Forest in Relation to Demographic and Socio-Economic Factors

5.6.1 Forest Cover and Demographics

Across the urban areas of Auckland, there is a general trend for urban forest cover to decrease as population density increases (Figure 15). Tree canopy cover per person in Upper Harbour (blue dots) follows this trend.

![Figure 15: Tree canopy cover per person versus population density for area units within the Upper Harbour Local Board (blue dots) compared with all area units within Auckland (orange dots)](image)

In recent years, there has been considerable urban intensification in Upper Harbour and significant further development is anticipated (Auckland Council 2015, 2017, 2018b). The concern is that there will be further loss of green space and canopy cover across Auckland as a whole with increasing urbanisation (Auckland Council 2019c).

Table 5 below lists the population density (number of people per m²) and tree cover per person for each of Auckland’s urban local boards. Values are given for different land tenures and also the overall figure for Auckland.
Table 5: Population density and tree cover per person for each of Auckland’s urban local boards in 2013. Values are given for different land tenures and overall.

<table>
<thead>
<tr>
<th>Urban Local Board</th>
<th>Population density (N/m²)</th>
<th>Tree cover per person (m²/head)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Public parks</td>
<td>Other public land</td>
</tr>
<tr>
<td>Albert - Eden</td>
<td>3,342</td>
<td>10</td>
</tr>
<tr>
<td>Devonport - Takapuna</td>
<td>2,794</td>
<td>10</td>
</tr>
<tr>
<td>Henderson - Manure</td>
<td>2,034</td>
<td>15</td>
</tr>
<tr>
<td>Hibiscus and Bays</td>
<td>8,389</td>
<td>64</td>
</tr>
<tr>
<td>Howick</td>
<td>1,829</td>
<td>15</td>
</tr>
<tr>
<td>Kapiti</td>
<td>2,428</td>
<td>46</td>
</tr>
<tr>
<td>Mangere - Otahuhu</td>
<td>1,370</td>
<td>14</td>
</tr>
<tr>
<td>Manurewa</td>
<td>2,220</td>
<td>17</td>
</tr>
<tr>
<td>Maungakieke - Tamaki</td>
<td>1,929</td>
<td>17</td>
</tr>
<tr>
<td>Orewa</td>
<td>2,474</td>
<td>17</td>
</tr>
<tr>
<td>Otara - Papatoetoe</td>
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<td>10</td>
</tr>
<tr>
<td>Papakura</td>
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<td>9</td>
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<tr>
<td>Puketapapa</td>
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</tr>
<tr>
<td><strong>Upper Harbour</strong></td>
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<td><strong>75</strong></td>
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<tr>
<td>Waitakere</td>
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<td>16</td>
</tr>
<tr>
<td>Whau</td>
<td>2,731</td>
<td>11</td>
</tr>
</tbody>
</table>

In 2013, Upper Harbour had the lowest population density among Auckland urban boards, although population density has recently been rapidly increasing with increasing urban development (Auckland Council 2015, 2017, 2013b). In comparison with other urban boards, Upper Harbour ranked the highest for forest cover, at 352 m² per person for overall tree cover in 2013. In terms of tree cover per person under different land tenures, Upper Harbour ranked the highest for tree cover per person in public parks, other public land, and private land, in comparison with other urban boards. For street trees, Upper Harbour ranks second for tree cover per person.

A map of Upper Harbour showing forest cover per head of population in 2013 is provided below (Figure 16). (Note that data was not available for the newer subdivisions in Hobsonville). Generally, the south-western, central, and north-western areas have a higher tree cover per person, whereas tree cover per person was generally lower in the more urbanised north and north-eastern suburbs.

The graphs below show forest cover by land tenure for suburb areas within Upper Harbour, per head of general population (Figure 17, below) and per child (under 15 years) (Figure 18, below) in 2013.
Figure 16: Map of Upper Harbour showing forest cover per head of population (m²/person) in each census area unit.

Forest cover per person varied widely in different areas of Upper Harbour in 2013 (Figure 17, below). Paremoremo East had an exceptionally high forest cover per person (over 2500 m²). Albany, Whenuapai West, and Holbornville also had a very high forest cover per person (over 700 m²). However, four census area units had less than 100 m² forest cover per person – Lucken Point, Northcross, Pinehill and Unsworth Heights.

In all suburb areas, except North Harbour East, more than half of the urban forest (per head of population) is on private land. Compared with public land, trees on private land are less likely to be protected and are less accessible to the general public. Albany and Paremoremo East are the only areas that had a considerable amount of tree cover per person in public parks. Most areas had a proportionally low tree cover per person on other public land, such as school grounds, except for Albany, Holbornville and Paremoremo East. Also, most areas had a proportionally low amount of tree cover per person in road reserves (i.e., street trees) except for Paremoremo East (Figure 17).
Figure 17: Urban forest cover per head by land tenure, per area unit within Upper Harbour.

Probably the most important data to examine is the proportion of urban forest cover by land tenure, per child (under 15 years) (Figure 18, below), particularly in regards to the amount of street trees and urban forest in public parks and other public land.

Forest cover per child (under 15 years) varies greatly between the different census area units in Upper Harbour (Figure 18, below) and follows a similar pattern to forest cover per person (Figure 17, above).

Paremoremo East had an exceptionally high forest cover per child (over 14000 m²). Albany, Whenuapai West, and Hobsonville also had a very high forest cover per child (over 2500 m²). However, five census area units had less than 500 m² forest cover per child – Lucken Point, North Harbour West, Northcross, Pinehill and Unsworth Heights.

In all suburb areas, except North Harbour East and North Harbour West, more than half of the urban forest (per child) was on private land. Albany and Paremoremo East are the only areas that had a considerable amount of tree cover per child in public parks. Most areas had a proportionally low amount of tree cover per person in road reserves (i.e., street trees) except for Paremoremo East (Figure 18).

The areas of Upper Harbour that had a proportionally low amount of canopy cover on public land, per child, are: Fairview, Herald, Lucken Point, Northcross, Pinehill, and Unsworth Heights. These areas also have a low total overall canopy cover per child.
5.6.2 Shade Analysis

The aim of the shade analysis is to show where there are opportunities for improvements in tree cover in local parks, to benefit the well-being of the local and wider community. It is based on visual estimates of high-resolution aerial imagery. More information on the methodology for The Parks and Open Space Shade Analysis Study is presented in Appendix 1.

Public parks account for approximately 1% of the Upper Harbour Local Board area. There are 232 parks in Upper Harbour, with 192 being regularly maintained by Council contractors, including all 40 playgrounds that are within parks. Parks play a vital role in the community by providing a range of recreational opportunities and opportunities to connect with nature, particularly if there are trees. There are many magnificent trees in parks in Upper Harbour (Wilcox 2012) – a description is provided in Appendix 2.

There were only two parks (Observation Green and Rosse’s Reserve) that had no trees present. Currently there are no opportunities for park users to interact with trees whilst in these parks, or enjoy the benefits of shade. However, neither of these parks has a playground.

The shade analysis assessment found that of the 40 playgrounds, half (50%) had negligible or no shade provided by trees (Figure 19, below). Eleven (27%) had a moderate amount of canopy cover (i.e., 21 to 50% tree cover) and only 9 (23%) had a high canopy cover (i.e., 51 to 100% cover). This could be improved by increased specimen tree planting closer to playgrounds and/or planting species that will develop a wider crown canopy area at maturity.
An idea of the type of tree species likely to grow well in Upper Harbour parks, and provide good shade and general amenity values, can be deduced from the description of trees in public parks provided in Appendix 2, which includes information about the parks with playgrounds.

**Figure 19**: Canopy cover of parks with playgrounds in Upper Harbour
6.0 DISCUSSION

6.1 Benefits of Urban Forest

A healthy urban ngahere provides a multitude of benefits including: a greater resilience to extreme weather events, improved water quality, improved air quality, increased biodiversity values, increased landscape values; and benefits to human well-being due to increased shade and temperature moderation, counteracting the ‘heat island’ effect, and physical and mental health benefits associated with time spent in nature.

Areas of remnant forest, as well as planted trees in Upper Harbour, are highly important for ecosystems services related to the hydrological cycle and water quality. Green infrastructure in urban areas helps restore natural environmental services related to the hydrological cycle, such as flood alleviation and improvement and ongoing protection of water quality. Green infrastructure is effective, economical, and has many other benefits that enhance quality of life in urban areas (Forest Research 2010; Auckland Council 2019a).

6.2 Urban Forest Cover 2013 Overview

Canopy cover in Upper Harbour in 2013 was 27%, which is considerably higher than the 18% overall cover for Auckland. It was the second highest tree cover in 2013 for all urban boards in Auckland (after Karapātiti at 30%).

Auckland has a moderately low level of tree cover compared with similar cities internationally. Brisbane’s canopy cover is currently 44% (Brisbane City Council 2019). Melbourne’s canopy cover was 23% in 2012 with plans to significantly increase this figure (City of Melbourne 2012). In 2013, the City of Sydney published strategic plans to increase its average total canopy cover from 16% (2013) to 23% by 2030, and then to 27% by 2050, through targeted programmes (City of Sydney 2013). Sydney’s total canopy cover is now 18.1% (Karen Sweeney, Urban Forest Manager, pers. comm.)

The aim of Auckland’s Urban Ngahere (Forest) Strategy is to increase average canopy cover from 18 to 30% (Auckland Council 2019a).

In spite a relatively high canopy cover in Upper Harbour, overall, there are obvious ‘gaps’ in tree cover in the Local Board area. Also, much of the urban tree cover in Upper Harbour is on private land and a high proportion is of low stature.

As described in the Introduction, many of the benefits attributed to urban forest are disproportionately provided by larger trees. Although Upper Harbour has good tree cover overall, most of these trees are in the lower size classes, except for a few areas. Larger trees should be a priority for protection where they are scarce, to ensure they are not removed prior to younger trees being able to grow tall enough to replace them.

Areas that had proportionally more trees with a lower stature were Lucken Point, Northcross and Unsworth Heights.
The relatively high proportion of smaller trees across the local board indicates either a relatively recent surge of tree planting (assuming the smaller stature trees correspond to younger trees), or a large proportion of shrubs with a limited mature height. Further analysis of more recent LiDAR data, in comparison to the 2013 data covered in this report, may highlight which trend is occurring, i.e., young trees versus shrubs of low stature. However, the portion of shorter trees may increase in future data sets due to restoration planting efforts, even if there is no loss of the total area of urban forest in taller height categories.

It is also important to ensure that at least some of the future urban forest plantings are prioritised in locations that can provide for the growth of large trees; i.e., sites where they do not conflict with future buildings and other infrastructure.

Compared with the overall figures for Auckland, 50% of public parkland had tree cover in Upper Harbour, the second highest percentage after Kāpākā. And Upper Harbour had the highest percentage of tree cover on private land (29%) compared with other boards. Tree cover for road parcels (i.e., street trees) and for ‘other public land’ (school grounds, etc.) was similar compared with the Auckland averages.

Most areas in Upper Harbour had over half their urban forest on private land in 2013. Pinehill, North Harbour East, North Harbour West, and Windsor Park were the only areas that have more tree cover on public land rather than private land. Parts of Upper Harbour that proportionally have a very low canopy cover on public land are Fairview, Herald, and Whenuapai West.

This has important implications, as trees on public land are much more accessible to the public and are more likely to be protected.

Rules to protect trees can be effective at slowing down vegetation loss and increasing desirable native vegetation during urban expansion and intensification, while allowing significant urban development to proceed. Without tree protection rules, it would be difficult to maintain a healthy and high-quality urban environment (Brown et al. 2015).

A high proportion (68%) of the urban forest in Upper Harbour has some form of protection, much higher than most other local board areas, and higher than the overall figure for Auckland’s region, where only 50% has some form of protection. In addition to this, the majority of protected trees in Upper Harbour have a high protection status, i.e., are either in Significant Ecological Areas (SEAs) or are registered as Notable Trees. However, protection status varies widely across Upper Harbour. The well forested areas of Paremoremo East, Greenhithe and Albany have well over half their tree cover under the highest protection category; whereas, Whenuapai West has a low proportion of protected tree cover in spite of having a high proportion of tall trees. Areas that have trees with little or no protection are Northcross, Pinehill and Herald – these areas also have a low level of forest cover.

Upper Harbour is centrally located between the significant natural areas of the Hauraki Gulf Islands and the Waitakere Ranges. Upper Harbour and Kāpākā Local Boards have some of the largest areas of continuous urban native vegetation remaining in Auckland’s ecological region, forming part of the
North-West Wildlink (NW), i.e., has an important role in providing a corridor of ecosystems between the Waitakere Ranges and Hauraki Gulf Islands.

6.3 Urban Forest Cover in Relation to Demographic Factors and Land Tenure

Demographic and socio-economic factors related to urban forest have been investigated on a broad scale in this study, with comparisons based on urban cover, land tenure and population, population density, number of children, and shade analysis in regards to playgrounds. The overarching aim has been to determine whether the urban forest is located where it has the greatest benefit.

To achieve the greatest benefit from the existing urban forest for people, it would be preferable to have higher levels of urban forest in areas with greater population density. However this study showed a general decrease in forest cover with increased population. This is probably due to one or more of the following factors: (i) urban forest being cleared in the past for development as population density increased; or (ii) newer suburbs where less urban forest has been incorporated in the development, or (iii) many of the trees are small as they are new plantings in new suburbs, i.e., less than the minimum 3 m height used in this study.

In 2013, Upper Harbour had the lowest population density among Auckland urban boards, although population density has recently been rapidly increasing and significant further urban intensification is anticipated. The concern is that, with increasing urbanisation, there will be further loss of canopy cover across Auckland.

In comparison with other urban boards, Upper Harbour ranks the highest for forest cover, at 352 m² per person for overall tree cover. In terms of tree cover per person under different land tenures, Upper Harbour ranks the highest (in comparison with other urban boards) for tree cover per person in public parks, other public land, and on private land.

Forest cover per person and per child varied widely in different areas of Upper Harbour in 2013. Paremoremo East had an exceptionally high forest cover per person (over 2500 m²). However, probably the most important data to examine is the proportion of urban forest cover by land tenure, per child (under 15 years). The areas in Upper Harbour that had a proportionally low amount of canopy cover on public land, per child, are: Fairview, Herald, Lucken Point, Northcross, Pinehill, and Unsworth Heights. These areas also have a low total overall canopy cover per child.

The shade analysis found that of the 40 playgrounds, half had negligible or no shade provided by trees, 11 had a moderate amount of canopy cover and only 9 had a high canopy cover (i.e., 51 to 100% cover).

6.4 Change in Urban Forest Cover 2013 - 2016

The data presented in this report is a 'snapshot' of urban forest cover in 2013; a one-off measure of canopy distribution and height within the Upper Harbour Local Board area. One of the most pressing issues relating to urban forest in Auckland, and the most important unknown, is the rate of change in the urban forest canopy. Questions include:

- How has the total area of urban forest in the board area changed following the removal of general tree protection?
How has the size-structure changed? For example, has there been an increase in smaller trees and a decrease in larger trees, or vice versa?

If there have been significant gains and/or losses in tree canopy cover, are they concentrated on a particular type of land tenure, or a within a specific geographical area?

In order to assess change in the urban canopy cover, the 2013 LiDAR is being compared against the more recent 2016-17 aerial LiDAR survey. The outputs of this comparative analysis is expected to be available by the end of September. The time period between these two LiDAR surveys (i.e., between 2013 and 2016/17) is likely to give insight into whether there have been noticeable changes to the extent of tree cover on public and private land. The analysis will also be further distilled to a local board scale and an update on the result of this work will be provided to the board as the information becomes available. It is a complex and very technical piece of work which councils’ specialists need to ensure is correct before public release.

There have been media reports on losses of large trees in Auckland due to urban intensification, and the changes resulting from the RMA reform and the new Unitary Plan taking effect.

6.5 Examination of Zoning and Development Potential

Combining the urban forest layer with other spatial datasets (for example Auckland Unitary Plan zoning) is a useful tool for predicting the possible impact of growth pressures on the cover and size-class distribution of urban forest. The location of unprotected trees has a significant impact on how likely a tree is to ‘survive’ the intensive phase of growth and development that is currently underway in Auckland. For example, all other things being equal, we would expect that trees on a large private land section that is ‘Residential – single house’ zoned are less likely to be felled than trees on a large site that is ‘Residential – mixed housing urban’ zoned.

A more sophisticated approach to this type of analysis is also possible, by combining urban forest spatial data with information from the Auckland Growth Model (Fredricson and Balderston 2013). The growth model incorporates proposed unitary plan zoning with a range of data on topography, location, lot size and other plan restrictions to predict the economic return of constructing new dwelling(s) on a specific lot. Combining the economic return of constructing new dwellings on individual sites with the current urban forest cover on those same sites should give a better indication of the potential loss of urban forest from the increasing density of dwellings within the Upper Harbour Local Board area.

6.6 Priority Areas for Future Urban Forest Improvement Work in Upper Harbour

The next step for the Upper Harbour Local Board is to identify priority areas for the urban ngahere work programme. This needs to be considered within the context of current and proposed future land use and local planning requirements; and local environmental, demographic and socioeconomic issues.

Upper Harbour has excellent tree cover overall, compared with Auckland’s other local board areas. However, this is in good part due to lower levels of urban intensification in the past over much of the local board area. This reflected in the current tree cover, which varies greatly within Upper Harbour.
There are areas that have an exceptionally high tree cover, and conversely, there are areas where there is less than ideal tree cover. Also, a high proportion of the tree cover is in the smaller size classes.

As well as focussed efforts for maintaining and improving tree cover where it is currently low; focus could also be placed where there are:
- greater population densities (current and anticipated), referencing the Auckland Plans future area zoning and the expectation of future growth (Auckland Council 2018a);
- higher numbers of children, with particular emphasis on tree planting to provide shade in playgrounds, and in road parcels where children walk to school;
- areas with a low number of large trees – the existing large trees should be a priority for protection;
- areas that are flood prone or are predicted to be impacted by sea level rise;
- environmental values, including water quality, that are currently (or could potentially be) compromised by urban development;
- opportunities to improve ecological corridors, where biodiversity values would be enhanced; and
- aesthetic landscape and recreational values that would be improved by plantings.
- new residential developments where well-planned green infrastructure and amenity plantings would help counteract the negative impacts of urban intensification.

Strong synergies and mutual benefits could be realised through a coordinated approach in overarching strategic planning at the local level. Urban rāpua strategy would benefit from coordination and integration with the following:
- Upper Harbour Network Plan;
- planning for open space in new urban developments;
- the North-West Wildlink (NWW) project; and
- ecological restoration and tree planting initiatives undertaken by iwi and community groups.

There are potentially multiple benefits to be gained from investment in tree plantings and ecosystem restoration where the Greenways Plan currently runs through areas with little or no vegetation cover. These benefits include: improvement of amenity values, improved safety and a better experience for pedestrians and cyclists, encouragement of environmentally-friendly and healthy alternative transport options, health benefits from time spent in nature, and improved green infrastructure and environmental outcomes, including increased biodiversity values through habitat restoration and provision of ecological corridors.

Large areas of natural vegetation in Upper Harbour form part of the North-West Wildlink. These natural areas are an extraordinary natural asset that is important not only for biodiversity and environmental values, but also for the well-being of local residents, and providing a drawcard for visitors.

There is an ongoing need to engage and work with tangata whenua, local community groups, private land owners, and the private sector to try to highlight the benefits of urban rāpua and the
importance of stakeholders helping to plant, grow and protect ngahere on their land as well as on public land.

Another consideration is future-proofing measures to help combat the impact of predicted sea level rise and increased frequency of intense weather events associated with climate change. These issues will be particularly important in vulnerable low-lying coastal and estuarine areas of Upper Harbour (Auckland Council 2018a). Ongoing restoration of wetlands and tree planting efforts could be designed to boost green infrastructure, helping to restore the natural hydrological cycle and mitigate some of the negative impacts of climate change. In addition to this, high amounts of impervious (hard) surface areas in the North Shore have been linked with water quality issues; therefore, increased green infrastructure would also help improve water quality. Green infrastructure is effective, economical, and has many other benefits that enhance quality of life in urban areas (Auckland Council 2019a).

Analysis of playground data suggests there is a need within the Upper Harbour Local Board area to provide more tree cover around playgrounds where benefits such as providing shade will make the playgrounds more attractive for families to bring their children. Low forest cover or a total lack of trees in parks and playgrounds means there is little or no shade. This has implications for the health and wellbeing of residents and is particularly critical for children due the higher risk of sun damage resulting in skin cancers later in life. The amount of shade provided could be improved by increased specimen tree planting closer to playgrounds and in parks, and by planting species that will develop a wider crown canopy area at maturity.
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