The Hīhīaua Studio

Unitec Institute of Technology Te Whare Wānanga o Wairaka Architecture / Landscape Architecture

2017

Authors: Matthew Bradbury, Lucia Camargos Melchiors, Xinxin Wang, Hugh Byrd

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Designed by Lucia Camargos Melchiors

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epress@unitec.ac.nz www.unitec.ac.nz/epress/

Unitec Institute of Technology Private Bag 92025, Victoria Street West Auckland 1142 New Zealand

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Cover image by Benjamin Joseph Meredith, Losa Nimo, Max Sun and Nick Slattery



Hīhīaua – "Ahi Kaa (keep the home fires burning). In ancient times beacon fires were lit at Hīhīaua to guide the people home. Hīhīaua will be a contemporary location allowing for the sharing of knowledge and experiences. It will exhibit chiefliness and will be a place for all people" – Momentum North

The Hiniaua Studio

In 2016, the Momentum North Hīhīaua Community Group asked the United Architecture Pathway to investigate the development of a new masterplan for the Hīhīaua Peninsula, Whangarei, Northland. This request became the basis of a twelve-week joint Landscape Architecture /Architecture studio project. The Hīhīaua Peninsula studio helped the community to develop their aspirations and produced an innovative urban design to propose a more sustainable development.

To help students learn how to address real-world problems, the studio was interdisciplinary and integrated with the community throughout the process. Working in teams through a process of site investigation, discussion, presentation and critique, students gained valuable experience in developing research and design ideas with clients. Critics from the community, architects and other practitioners provided important feedback for students to examine their

ideas. The use of this active practice provokes students to take the initiative in their learning procedure, they not only listen but are responsible for their own learning process (Verbeke, 2011; Weimer, 2012).

Research by design was adopted as the methodology for the development of the studio. Research by design is a model of academic investigation through which design is explored as a method of inquiry through the development of a project (Verbeke, 2011; Barbosa et al., 2014). In this case, as pointed out by Barbosa et al. (2014, p. 250), "Design is both method and outcome. It is the instrument to generate ideas, and to test and communicate them. [...] Design is never silent. It provokes, takes position, and sharpens the discussion". Hauberg (2011) suggests that drawings and sketches, created during the investigation process, are active representations of cognitive processes and help to visualise things in a different way than words.

Rob Roggema (2016) writes that when faced with speculative future problems, especially ones with critical environmental import, using conventional research methods to obtain measurable data is difficult, if not impossible. Instead, Roggema points to the efficacy of the research by design methodology. With opened-ended problems, the design process, with its intuitive leaps, can furnish a range of possible solutions that can open up new research fields.

Examples of this innovative thinking included exploring how the site could respond to the threat of sealevel rise, from allowing flooding to occur in specific areas, to the raising of the whole terrain of the Hīhīaua Peninsula. Pasifika students drew on traditional village organisations such as the malae to help organise and structure the site development, and to provide architectural inspiration. The discussion of the studio outcomes brought alternative perspectives for the development of the Hīhīaua Peninsula,

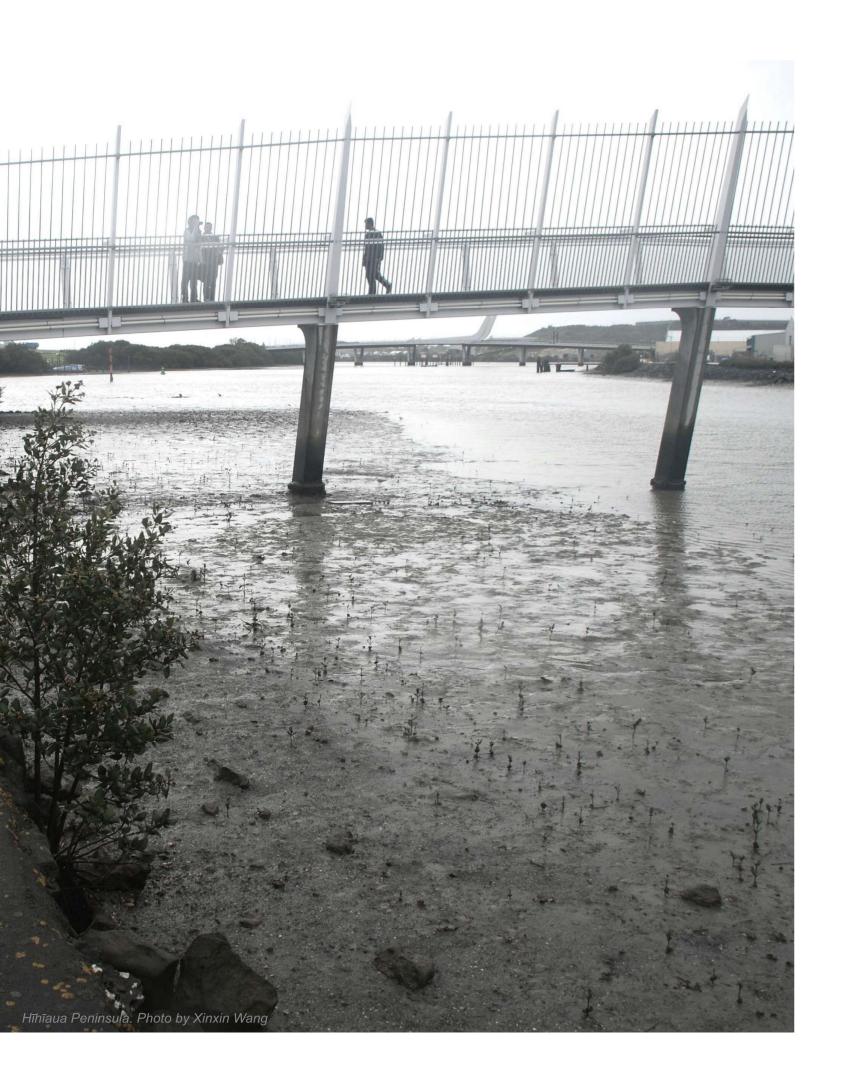


Surroundings of the Hīhīaua Peninsula. Photo by Lucia Melchiors

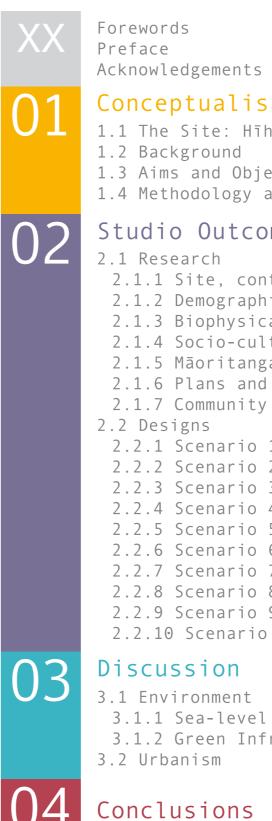
alternatives that directly responded to community aspirations.

Beyond the immediate goals of the studio project, the experience of the collaboration demonstrated a number of gains. The idea that collaboration supported the student learning process was an important finding - students learnt to collaborate in teams, exchange skills, share experiences and discuss complementary views. Students learnt how to work with a community group, in particular how to distil a working design programme, how to respond honestly to the needs of a disparate group of people, and how to explain their thinking in a clear and accessible manner. The opportunity to work and discuss in interdisciplinary teams enhanced the students' learning experience (Hirt & Luescher, 2007; Canizaro, 2012). With generous help from the mana whenua of Hīhīaua and colleagues from the Nga Aho Network of Māori Design Professionals, students began to understand how obligations under Te Tiriti o Waitangi might be addressed.

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Forewords Momentum North - Hīhīaua Peninsula

Ben Tomason – MBA, Dip Con M (Unitec Alumnus), Momentum North

Momentum North was founded in early 2016 by a small group of committed and passionate Northland community volunteers, with support from Northland's economic development generator, Northland Inc.

Momentum North came about due to the recognition of huge, yet for the most part untapped, potential across the Northland region. The founding group members identified the fact that there was potential for a lot of synergy between many community groups, leaders and everyday people working for the most part in isolation from each other. We also identified the potential for community feedback, by the community and for the community, on Whangarei District Council's proposed 20/20 and 30/50 growth plans - that project 20 and 30-50 years into the future respectively - but also generally within this space between council and community. These particular documents, whilst a very good platform, didn't fully bridge the gap to garner quality community feedback, buy-in, support and, in turn, eventual adoption as the ultimate objective.

Through a series of workshops, Momentum North, who now have approximately 60 regular members, selected Hīhīaua Peninsula as the most suitable project to tackle first, given that it is located near the CBD, is under single ownership, and has fantastic natural features. It is also an area well supported by the council's Whangarei 20/20 Momentum plan, making way for constructive community discussion within some guiding parameters.

With months of workshops, meetings, collaboration and research the group formed a brief based on the consensus of our members. The intention was that it could be used as a guide for adoption or discussion with councils and other user groups, with pre-existing and ongoing support from Momentum North. During finalisation of this process we were privileged to be introduced by Northland Inc. to Professor Dushko Bogunovich and Matthew Bradbury from the Architecture Pathway, at Unitec.

After a conversation between Momentum and Unitec it was agreed that Unitec would run a master studio on the Momentum proposal, allowing some of Momentum North's ideas to be thrashed out, challenged and interpreted into a story, drawings, models and videos. It's fair to say we were all very excited about this generous gift and golden opportunity given to us by Unitec.

After several site visits, meetings, workshops – with much blood, sweat, passion – and reviews in Whangarei and Auckland, the Unitec students have presented a truly masterful piece of work that far exceeded any of our expectations. We are so grateful to have this amazing piece of work completed on our special peninsula and are committed to ensuring that we continue to try to bring as much as is possible of this work into realisation for the benefit of our Northland community and generations to come. Our sincerest thanks to all involved – and watch this space.

Peter Ogle – Momentum North

On Thursday, 8th June 2017 I attended the final critique session for the proposals by Landscape and Architecture students at Auckland's Unitec and was suitably awed. The calibre of the people who were present to challenge and advise was of a very high standard and they were a pleasure to work with.

I would like to pay tribute to some special people. Firstly to the students involved – an amazing group of very talented young people who rose to the challenge and took on the risk of building a strategy for an area that none of you had a local connection to, other than perhaps a passing visit. You have done a wonderful service to our city and provided us with so many thought-provoking options. When we first conceived the idea, I think most of that loose group of people known as Momentum North had a very different strategy for development of the area than we do now, after having had the benefit of your thinking. That is a wonderful success for all stakeholders. To Matthew Bradbury, a big thanks for keeping the focus, supporting the groups through the project and for keeping us involved.

Kia ora Tui Shortland. Nga mihi nui ki a koe for the guidance, reinforcement and support you have provided to the groups in all things tikanga Māori and Pasifika. The knowledge you were able to impart was obviously critical to the whole project. Tui and Raewyn Tipene have been pivotal in getting this next stage energised. Taku whakawhetai ki a korua.

To Ben Tomason, for having the foresight to get Unitec involved at the early stage and for all his work on it. And lastly, to all of the members of Momentum North for providing that impetus to get things started. The goal has been to stimulate Northland's economy by developing strategies, and then to provide our local and national governments with the backing and support of community members to turn these aspirations into reality. This has been the first small step and it has turned into a leap.

Preface

The Hīhīaua Studio started late in 2016 when Momentum North, a group of concerned stakeholders from the Hīhīaua Peninsula in Whangarei, invited Unitec faculty, Professor Dushko Bogunovich and Matthew Bradbury, to visit the site. The visit was organised by the inimitable Ben Tomason, who took us to the location, a 16.5ha peninsula adjacent to the town basin, and introduced us to his colleagues in the Momentum North group. They explained to us their desire for a vision for Hīhīaua.

While the Whangarei District Council owns most of the land, the Momentum North group wanted to find a way in which an alternative to a conventional waterfront masterplan development could be found. The group wanted new and fresh ideas from the Unitec students to inform any future development of the site.

It was at this first meeting at Hīhīaua that we saw the extraordinary site, a long skinny peninsula at the confluence of two watercourses, the Hatea River

and the Waiarohia Stream. Dominated by Parihaka to the north and opening to the Whangarei Harbour to the east, Hīhīaua is a powerful site in the Whangarei basin but at the same time fragile, subject to the obvious threat of sea-level rise.

We also started to feel something of the cultural power of the site, with master carver Te Warihi Hetaraka revealing to us the proposed Hīhīaua Cultural Centre. Located at the end of the peninsula, this building will be used as an exhibition space for both taonga and new work by young Māori artists. The centre will also be used for conferences and meetings, gatherings and performances. We also met Raewyn Tipene, Chief Executive of the He Puna Marama Trust who showed us the amazing work she and her team are doing at Te Kura Hourua o Whangarei Terenga Paraoa.

The strong wairua of the site was further confirmed on our subsequent visit to attend a powhiri for the opening of the Pacific Indigenous and Local

Knowledge Centre of Distinction. There are only seven such indigenous centres in the world, and this is the only one in the Pacific. Run by Tui Shortland, the role of the centre is as a forum in which contemporary issues in New Zealand society, especially ones that relate to the environment and the social, can be discussed and framed using traditional indigenous knowledge. The powhiri, with representatives from the many indigenous peoples of the Pacific, emphasised to us that Hihiaua was not only a powerful landscape linked to a regional setting through water and topography, but a powerful cultural nexus with international connections throughout the Pacific.

Senior students from the Landscape and Architecture programmes at Unitec Institute of Technology met the powerful challenges of this important site head on. Working collaboratively in mixed groups of architects and landscape architects they grappled with the complexity of the site and the programme, producing a number of design projects. The work produced



was open-ended and propositional rather than the typically closed and conventional masterplans. Students learnt how to work with a community group, explored a number of innovative solutions and started to learn how to work with mana whenua. And lastly, students made a start on what they will be doing every day after graduation; working with their colleagues in all the different professions that they will need to collaborate with to get their projects built.

The work of the Hīhīaua Studio project has been collated into this publication, which has been organised in four parts. Part 1 presents the research background that supports the studio exercise. Part 2 shows the studio outcomes, presenting a summarised idea of the material produced by students in their research and designs. Part 3 is a discussion presenting the main issues followed during this course. Part 4 presents the conclusions and a reflection on what was learnt. – Matthew Bradbury, Lucia Camargos Melchiors and Xinxin Wang, Editors.

Hīhīaua Peninsula, Hatea River and surroundings. Photo by Xinxin Wang

Acknowledgements

Firstly our thanks go to everyone at Momentum North for their generosity in providing an opportunity for Unitec students to help with contributing to resolving a real issue on the Whangarei waterfront.

The students were also greatly helped by a number of critics who gave insightful feedback. Thanks to Rau Hoskins, Jeanette Budgett, Craig Moller, Tui Shortland, John Walsh, Peter Griffiths, Peter McPherson, Sibyl Bloomfield, Alan Titchener, Damian Powley and Kerry Francis.

And lastly thanks to the Unitec Bachelor of Landscape Year 4 (2017) and Unitec Master of Architecture Professional Year 1 (2017) students:

Sharon Eccleshall, Vignesh Krishnamoorthy, Aleesha Kumar, Shibing Li, Sianne Smith, Yamen Jawish, Jill Koh, Sarah Mosley, Wesley Twiss, Yujie Zou, Trina Gaston, Rory Gray, Torben Laubscher, Thomas Smith, William Giles, Yanan Li, Knher Santos, Jingcai Shi, Doyle Eccleshall, Aynnezele Lomboy, Madhuvanthi Padmanabhan, Rui Su, Dexell Aita, Sui Guo, Michael Macfarlane, Shiying Tao, Tevita Vea, Yuhao Wu, Yi Luo, Kelsey Metcalfe, Samuel Pillay, Glenn



Ridley, Chantelle Lubbe, Pearl Patel, Jacqueline Paul, Brian Law, Logan Autagavaia, Georgina Dean, Yaqing Guo, Shanker Kumaracheliyan, Kenneth Shum, Losa Nimo, Benjamin Meredith, Nick Slattery, Jingqian Sun.

Without their hard work and dedication this publication would not be possible.





1.1 The site: Hīhīaua Peninsula

Located in the central area of Whangarei, Hīhīaua Peninsula has strong connections with the history of the city

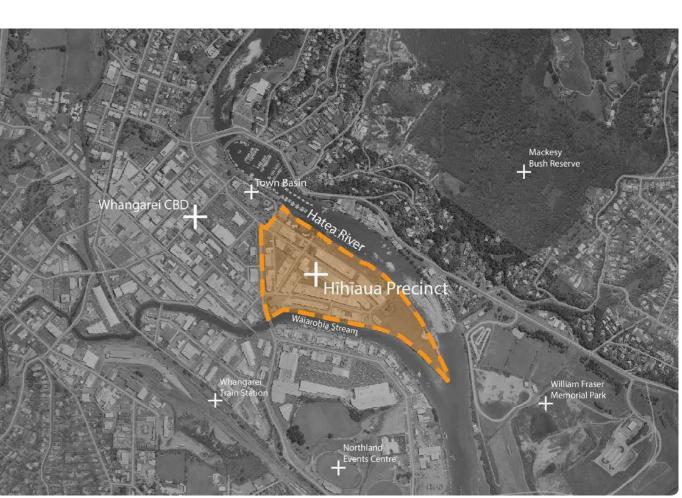
> The project site is the Hīhīaua Peninsula in the city of Whangarei. The 16.5ha area is located at the confluence of the Hatea River and the Waiarohia Stream, near the city centre.

> The Hīhīaua Peninsula has strong connections to early European and Māori settlement. In the past, Hīhīaua was occupied by local Māori and used as a canoe landing place, a shellfish gathering ground, a camping area and a small fishing village, with a pā built on the Ōkara hills. What is now the Town Basin, and wider area, were occupied by the first European settlers in Whangarei and used for shipping and recreation (Prentice, 2015).

> The site was formed by a series of reclamations from the 1920s until the early 1970s. During this time the Northland Harbour Board transformed the site, creating industrial reclamations and diverting the flow of the surroundings streams, to create more commercial land in Whangarei. At the beginning of 1920, the Town Basin became a riverside marina, which still exists today (Prentice, 2015).

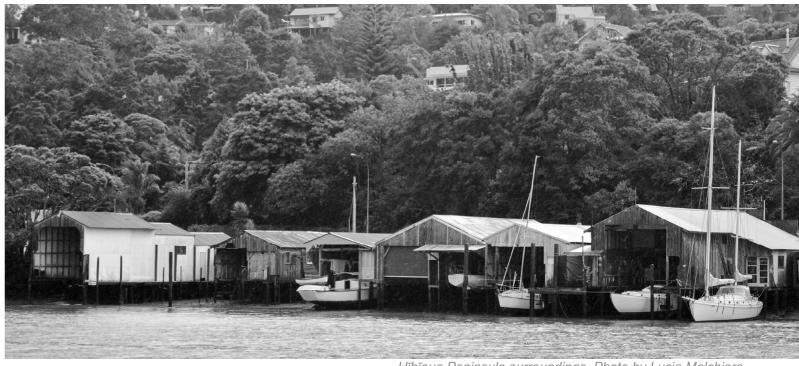
The area is triangular in shape, with Reyburn Street at the base of the triangle, and Dent and Herekino Streets forming the two sides. The apex of the triangle is a large park, which is to be the site of a cultural centre.

The council owns the majority of the site. At present Hīhīaua Peninsula is occupied mostly by industrial buildings of one-to-two storeys, and has some marine-related activities, warehousing, trade servicing, retail, open space and residential units. Recently, new cultural and education users have emerged in the area: He Puna Marama Charitable Trust has transformed a number of the industrial buildings for a new charter school, Te Kura Hourua o Whangarei Terenga Paraoa. One of New Zealand's leading contemporary artists, master carver Te Warihi Hetaraka, has established a carving workshop, the Pacific Indigenous and Local Knowledge Centre of Distinction (Pacific Centre) has recently been formed, opening in an existing building with a future building plan in development, and the Hīhīaua Cultural Centre has been designed to occupy a key site at the end of the peninsula.



Map showing the Hīhīaua Peninsula and surroundings Authors: Trina Gaston, Rory Gray, Thomas Smith, Torben Laubscher





1.2 Background

Developing a masterplan for the waterfront on Hīhīaua Peninsula

Waterfront redevelopment has been an extremely popular form of urban redevelopment around the world since the 1970s (Portas, 2003). The transformation of the (usually) nineteenth and early twentieth century industrial waterfronts into a consumerist landscape of apartments, retail, and commercial buildings with a sprinkling of public buildings and public space has been an extremely lucrative real estate opportunity for many property owners, both government and corporate.

At the same time, waterfronts are traditionally full of symbolism, history and memories representing a huge potential to be explored (Melchiors & Wagner, 2016). In this way, these sites represent the possibility to not only create spaces for people to meet, enhancing the cultural sociability, but they can also revive the cultural and environmental heritage of the area, becoming places of memory for the local population. This kind of development offers the possibility of restoring the relationship between a community and its history, preserving memories and enhancing social links with the place.

However, many waterfront developments have considerable challenges. Waterfront sites often have many serious environmental problems and severely contaminated ground conditions, a legacy of their former industrial occupation. They can also be subject to flooding from the surrounding impervious urban catchments and, more recently, subject to the effects of sea-level rise as a result of climate change.

Historically, waterfront developers have found ways in which to conceal these problems from the new users of refurbished waterfronts. Contaminated soils are capped with impervious materials, flooding is contained in large piped infrastructure and sea-level rise is usually ignored. However, with the advent of climate change, these environmental problems will become exacerbated and will overwhelm the conventionally planned waterfront, leaving the financial viability of waterfronts as an investment opportunity seemingly in doubt.

Whangarei District Council's proposal

In 2015, the Whangarei District Council initiated the writing of an urban strategy document for the development of the city centre. This document is titled *Whangarei 20/20 Momentum: Strategic projects for the next 10 years* (Whangarei District Council, 2016). As part of this report, the Hīhīaua Peninsula was identified as a site for waterfront development.

In the same year, a comprehensive redevelopment plan for Hīhīaua was advanced in *The Hīhīaua Precinct Plan* (Prentice, 2015). This is a thorough

Hīhīaua Peninsula surroundings. Photo by Lucia Melchiors

examination of the site, with a number of detailed recommendations for the real estate development of the zone.

The Hīhīaua Precinct Plan (Prentice, 2015) outlines the environmental challenges for the site, such as flooding, the existing pollution and the critical cultural issues. However, the document mainly focuses on the subdivision of existing land and the proposed intensification of the built form. The masterplan does not offer any solutions to address the important environmental and social issues.

It was in response to The Hīhīaua Precinct Plan (Prentice, 2015) that the Momentum North group was established. This group is made up of a number of people in Whangarei, independent of the council, including local business owners, property owners, stakeholders, and mana whenua

The Momentum North group wished to develop a more nuanced masterplan



Hīhīaua Peninsula and the riverside marina. Photo by Lucia Melchiors

for the site, where working and living together forms a rounded community with an emphasis on the importance of cultural values and a sustainable environment.

It was these aspirations that inspired the students' design work as they addressed the central question of the project:

How can a waterfront development respond to the challenges of climate change, the social and cultural aspirations of stakeholders, and make an economic return for the landowners?



Existing buildings in the Hīhīaua Peninsula. Photo by Lucia Melchiors

The Hīhīaua project was an opportunity not only to address the community's aspirations but also to explore one of the most popular urban development types, the urban waterfront. By understanding the underlying environmental conditions of the urban waterfront, addressing the desires and wishes of the stakeholders, and understanding the reality of the expected real estate returns, students would develop insights into this popular development trope.

Working with these conditions, students were asked to privilege the environmental and cultural factors, to develop a new planning methodology that ensured an ecologically and socially sustainable waterfront.

The community brief

Hīhīaua should be a contemporary location allowing for the sharing of knowledge and experiences; a place that exhibits chiefliness and also could be a place for all people to meet. (Momentum North, 2017). To fulfil this vision the community has identified five themes that need to be addressed, that were used during the process of investigation:

WORK: The community wants to have more opportunity for employment in the area.

PLAY: The group wants the Hīhīaua Peninsula to be a recreation destination for the citizens of Whangarei. LIVE: Not many people live in the CBD, yet Whangarei is growing rapidly. Development in Hīhīaua is a great opportunity for people to live in the centre of Whangarei.

LEARN: With the presence of He Puna Marama Charitable Trust, the Pacific Indigenous and Local Knowledge Centre of Distinction (Pacific Centre), the Northland Youth Theatre and the proposed Hīhīaua Cultural Centre, the peninsula could become a cultural and educational hub for Whangarei.

VISIT: Hīhīaua has great potential as a tourist attraction.



Hīhīaua Peninsula and the Kotuitui Whitinga bridge. Photo by Xinxin Wang



Hīhīaua Peninsula, Hatea River and the northeast riverside. Photo by Lucia Melchiors

1.3 Aims and Objectives

Dealing with real and complex issues



Studio. Photo by Xinxin Wang



The studio aimed to engage students with the typical problems around the development of a waterfront that respects the community's aspirations; covers a range of territorial scales; and develops an innovative urban design solution through a collaboration of architects and landscape architects.

The main aims of this studio were:

- To build an understanding of some of the larger-scale urban/environmental, economic, social and cultural issues that affect the production of architecture and landscape work.
- To acknowledge the Māori occupation and history of the site, via Te Aranga Principles for Māori Design (Auckland Council, 2016).
- To engage with critical questions about the development of the contemporary waterfront in the age of climate change.
- To develop the ability to understand and consider a site design at a range of scales, from the regional overview to the construction detail. To be able

Model illustrating part of the masterplan designed by Aleesha Kumar, Sharon Eccleshall, Shibing Li, Sianne Smith, Vignesh Krishnamoorthy

to develop a confident and coherent design logic through design work at a range of scales.

- To explore the disciplinary boundary of architecture and landscape practice, and to seek connective possibilities between them, while considering new trends in infrastructure/ engineering, such as:
- Nature functioning as infrastructure
- Landscape supporting buildings
- Urban design as an interface with an ecosystem
- To develop a capability in the design of complex architectural projects, with particular reference to high-rise, longspan and large-volume typologies.

Understanding how to deal with the complexity of an unfamiliar site and comprehending how design decisions could work across different scales is challenging and often provokes students to go beyond their experiences and limits (Barbosa et al., 2014).

1.4 Methodology and Pedagogy

Research by design and collaboration

Studio. Photos by Xinxin Wang

The studio was developed as a joint course, integrating architecture and landscape architecture courses at the Unitec Institute of Technology during the first semester of 2017. The studio included students in the fourth year of the Bachelor in Landscape Architecture and students in the first year of the Master of Architecture Professional.

The collaborative work between architecture and landscape architecture students enhanced the learning process by increasing the teamwork and by the exercise of explaining the ideas to peers and teachers (Weimer, 2012). This active method contributed to the students' learning experience and also creating a process closer to professional reality. The process also brought complementary views to the subjects analysed during this project work. Rather than simply developing a design concept, students were encouraged to think critically, search for innovative strategies, and develop their own ideas about the real and complex issues related to urban design, culture, ecology, and sustainable and resilient strategies in a student-centred learning process (Hirt & Luescher, 2007).

Hirt and Luescher (2007) highlight the importance of interdisciplinary activities in the academic curriculum, indicating the benefits of a process in which learning occurs via conversation, collaboration and constructive conflict, because, "knowledge is not absolute, but socially constructed" (p. 4). Architecture and landscape architecture students have many differences in their respective design work. The benefits of a collaborative approach include building mutual respect and fomenting the appreciation of diverse views (ethical, political, disciplinary), and preparing the students to become more socially aware and democratically minded citizens (Hirt & Luescher, 2007).

The collaboration between the studio and the community group was an important part of the project, enhancing both student and community growth. Community engagement allowed students to deal with a real situation, and identify and analyse critical issues specific to the community. This process enriched the learning experience and showed students the civic responsibility that is implicit in their future professions. The methodology of this project was based on research by design. The use of this research methodology has been highlighted as suited to the creative disciplines in academia (Verbeke, 2011; Hauberg, 2011; Barbosa et al., 2014). Using this methodology, design is explored as a method of inquiry, through the development of a project, and as an outcome, in the final design (Verbeke, 2011; Barbosa et al., 2014). The methodology is used to generate ideas, test them through design exploration and communicate the results (Barbosa et al., 2014). The process includes the exploration of different materials through which a design is carried out - sketches, mapping, videos, technical drawings, among others, are used as active representations of cognitive processes that help to visualise things in a different way than words (Hauberg, 2011).

Roggema (2016) suggests that the process of research by design follows three stages. The first stage is a pre-design phase characterised by developing an understanding of the design problem. The work at this stage aims to bring out the initial perceptions



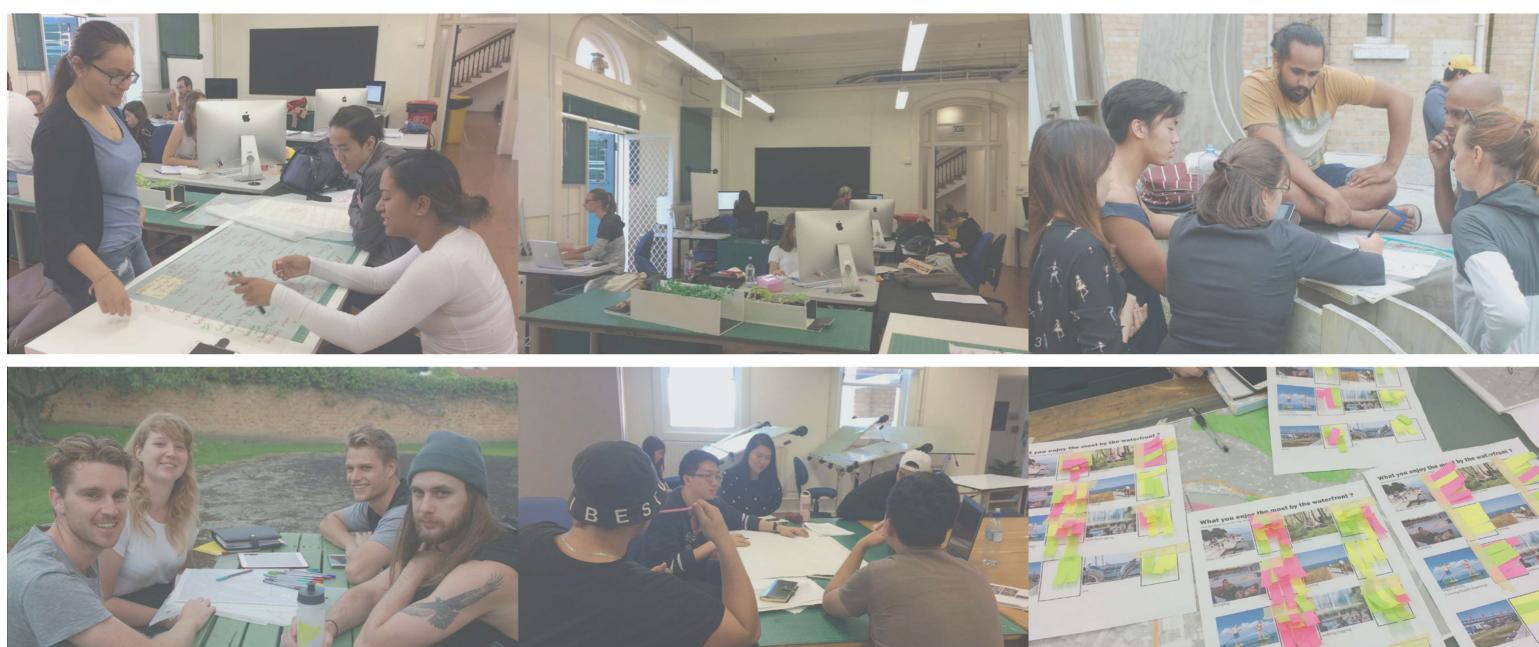
of the problem, and specifically investigate the context and the site. Looking at the solutions to similar problems also helps to educate the designer. In the second stage, potential design solutions are projected and research is drawn into the design process. Programme, proposals and rationalisation are formulated. Finally, the communication stage brings the synthesis and outcomes of the research. This work is presented in the form of drawings, videos, models (amongst other forms of representation) that explain the consistent and reasoned solutions to the problem. The knowledge generated by these nontextual artefacts is then transferred and delivered to a wider community (Roggema, 2016).

Roggema (2016) suggests that a research by design project shares three characteristics: a) the project should be embedded in the local, cultural and political context; b) it should allow for unexpected exploration in order to identify the best-fitting solutions for a design problem; c) it should emphasise the development of new knowledge and be beneficial to a broad public. The pedagogic techniques conducted in the Hīhīaua Studio included:

- Studio discussion: the experience of the studio was the core component of this project, it is here that students could share research, perceptions and assessments. In the studio, the experience and knowledge is transferred in a tacit way through projects, discussions and workshops (Verbeke, 2011).
- Lectures and informal talks with experts: tutors and guests provided lectures and talks in different fields to help students to develop research methods and knowledge.
- Site visit: the site visit was used to conduct the urban and landscape analyses at the beginning of the project.
- Meeting with the community: the students had the opportunity

to talk with locals and community representatives to better understand their aspirations and needs.

- Presentation to the community: students had the chance to present their design work to members of the community, experiencing a real-world situation and developing their skills in using nontechnical language to present their ideas.
- Informal pin-ups: these presentations helped to create a collaborative learning





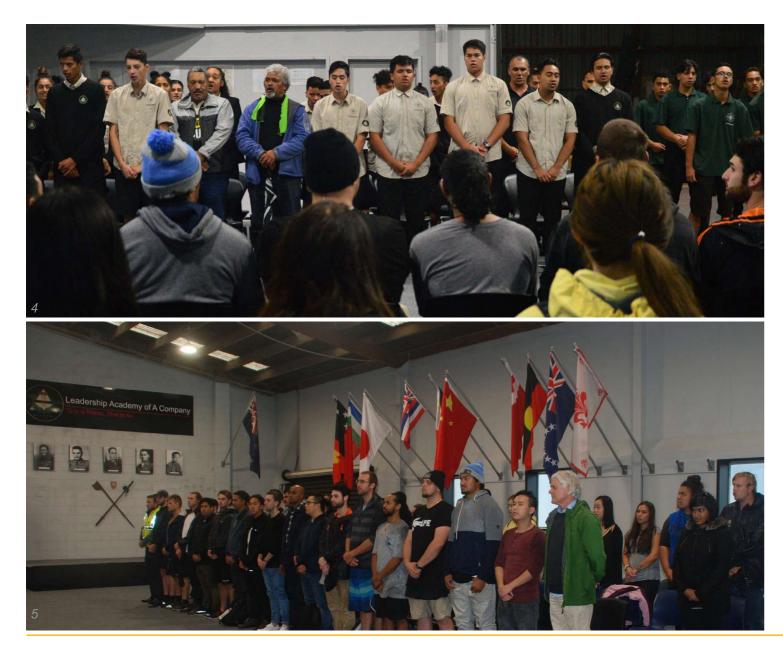
Activities developed during studio

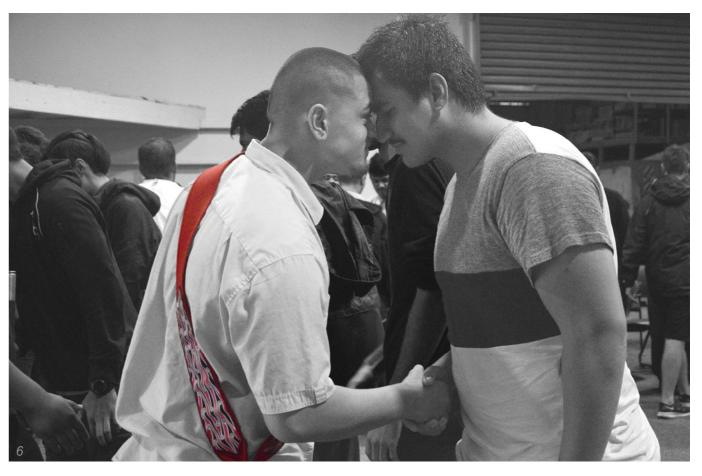
environment where students could share and discuss ideas during the studio process.

Critique sessions: the principal evaluation tool was based on periodic critique sessions in which each group of students organised an oral and graphic presentation to explain their projects and discuss their ideas with tutors and guest experts using appropriate technical language.

Photos 1, 2, 5, 6 by Lucia Melchiors; photos 3, 4 by Xinxin Wang







Powhiri ceremony in Whangarei

In the beginning of the process, students were welcomed in a traditional ceremony. The images show the powhiri that the Unitec team attended as guests of the He Puna Marama Trust. *Photos 1, 2, 3, 4, 6 by Lucia Melchiors; photo 5 by Xinxin Wang*



Meeting with the community

The Momentum North Hīhīaua community group received students and tutors on the Hīhīaua Peninsula and presented their aspirations and concerns from cultural, social, economic and environmental perspectives. During this day, students had the opportunity to discuss, ask questions and better understand problems and potentials of the site by sharing experiences with the local population of the Hīhīaua Peninsula.

Photos 1, 3 by Lucia Melchiors; photo 2 by Xinxin Wang





Presentation to the community

The engagement with the community was an important part of this course. Students had the opportunity to present their designs and discuss ideas with the members of the Momentum North community group. Sheryl Mai, the Mayor of Whangarei, was part of the event.

Photos 3, 5, 8 by Lucia Melchiors; photos 1, 2, 4, 7, 9 by Xinxin Wang



Critique session



BIO-PHYSICAL ANALYSIS MAP



The Hīhīaua Studio was divided into three phases:

Phase One — Research

The first phase was an investigation of the site, its surroundings and the key concepts that would drive the design in the next phases. This phase included research, data collection, GIS mapping, a literature review, a site visit and meetings with community leaders to identify their main aspirations. For three weeks, the students worked in ten groups of four or five, each group having a mix of architecture and landscape architecture students. This phase was completed with a compilation of the relevant data that demonstrated the social, cultural, physical and biological arrangement of the site. This was published online.

The main outcomes of this pha were to:

- Identify problems associated the development of the area t meetings with community lead and stakeholders.
- Review the literature and case studies that deal with urban flo and sea-level rise.
- Clarify the concept of 'resilien' and explore new strategies for urban development, such as g infrastructure, soft engineering green buildings.
- Use GIS (Geographic Information) System) to translate the collect site data into interactive maps
- Identify suitable design concer strategies for the given site.

O. How can we enrich this water-sensitive and perhaps-endangered landscape for people to continue their everyday visit, play, learning, work & living? W #. existin opportunities to drive the design

- places of visitors' interest; place-making

heritage; of historical significance

Site Synthesis Analysis 1.

the loop to make the area walker-friendly

recreational parks and existing vegetation-to utilise the multi-purposeful functions of plant

#. keys in dwelling / workplace orientation sunlight exposure and wind directions

Designed by Jason Zou, Jill Koh, Sarah Mosley, Yamen Jawish, Wesley Twiss

ase	The research involved investigation of:
with through	Site (location, surrounding precincts and services, census data).
ders e looding nce' or	 Bio-physical analysis (topography – elevation, slope, aspects; hydrology – catchments, flooding, overland flow paths; geology – soils, pervious/ impervious surface ratio; ecology – land, air and water quality; land cover – soil, vegetation).
green ig and ation cted s.	Socio-cultural analysis (land use – tenure, cadastral, function, density; transportation – road network and transport routes; infrastructure – water, stormwater, wastewater, energy, buildings and heritage, community facilities).
epts and	Development requirements.
	Planning context (from regional to local).
	Stakeholders' brief and assembly of data from community and expert consultation, interviews and public meetings.
	Case studies



Phase Two – Designing a masterplan

This phase encompassed the design of a masterplan. The masterplan should demonstrate a well-reasoned methodology, show a synthesis of GIS analysis and appropriate case-study investigations, and demonstrate innovative solutions for an increase in the population. The masterplan should also show the provision for a community space, including a place for buildings and a public space. In this phase each group created a design proposition exploring urban typologies, climate change, flooding risk, sustainable and resilient strategies.

The urban masterplan also took on board the aspirations of Momentum North's Hīhīaua Community Group: WORK / PLAY / LIVE / LEARN / VISIT. The masterplan also acknowledged the Māori history of both the immediate site and the greater landscape. Te Aranga Principles (Auckland Council, 2016) gave techniques and tools to enable the students to manifest the whakapapa of the site. The extensive GIS analysis revealed the underlying environmental conditions of the site and the very real threats of terrestrial and marine flooding. Lastly, the projected real estate programme in the Hīhīaua Precinct Plan had to be accommodated.

After the development of the masterplan for the Hīhīaua Peninsula each group designed a mini-masterplan for the Pacific Indigenous and Local Knowledge Centre of Distinction.

Phase Three – Designing a building or public space

In last phase of the project, students designed a new building and landscape for the Pacific Indigenous and Local Knowledge Centre of Distinction. The Director of the PILKCD, Tui Shortland, developed a brief for the new complex based on a number of questions:

How does this meeting place connect to the other cultural functions of the site? How does the meeting place connect to the existing landscape (natural and manmade) and to the ecology of the region? How does the meeting place connect to the masterplan, the specific landscape and urban design developed in the previous phase? How does a meeting place of indigenous people function?

The students worked in cross-discipline pairs, for three weeks, discussing ideas to create an appropriate and cohesive solution.

The main topics addressed in this phase were:

- Urban design as an interface with an ecosystem
- Nature functioning as infrastructure
- Sustainable and resilient solutions
- Indigenous and cultural issues
- Landscape supporting buildings
- complex structures)

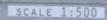
Capability to design complex architectural projects (reference to long-span/

02 Studio Outcomes

Model designed by Aleesha Kumar, Sharon Eccleshall, Shibing Li, Sianne Smith, Vignesh Krishnamoorthy

PARTIAL SITE MODEL OF HIHIAUA PENINSULA

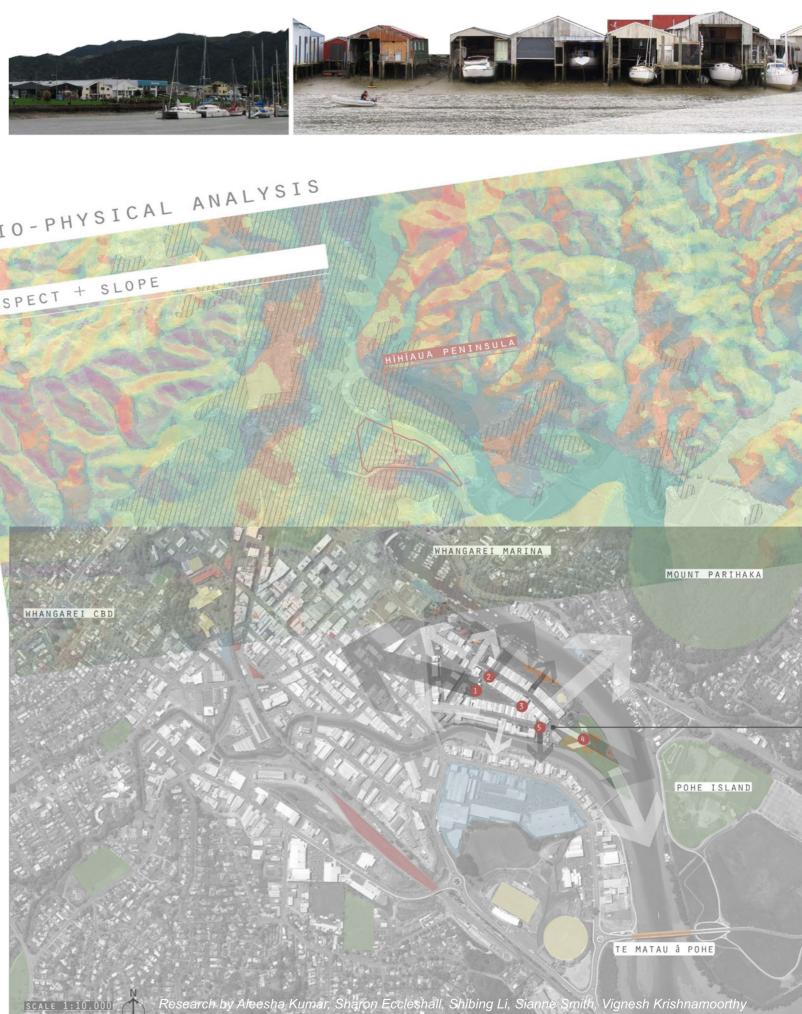
1 Au alton



WAIAROHIA STREAM

The Hinaua Studio

0



2.1 Research

This section shows the design solutions that were developed by the ten groups of architecture and landscape architecture students. The design work that they developed was based on a considered investigation of the site and the community's needs.

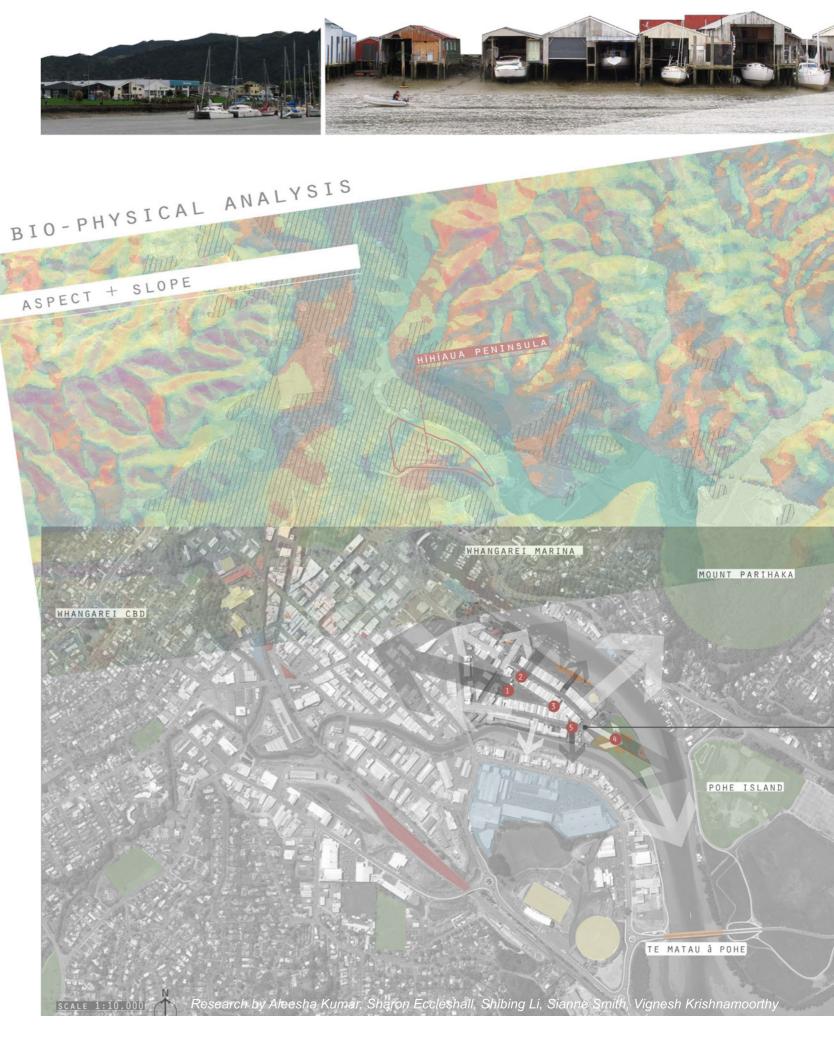
Students started the design process by seeking to understand the regional context of the site. Using GIS mapping (Easa & Chan, 2000) they analysed biophysical and socio-cultural features as well as the development requirements within the local and regional council plans.

The students also identified problems associated with the urban growth of Whangarei through meetings with the community leaders. In conjunction with these meetings, they looked at new attitudes, ideas and techniques for contemporary urban development, such as urban agriculture, community gardens, and improving public amenity through the provision of walkways and cycle ways. The students also clarified

what concepts like 'resilience' (Folke, 2006), might mean as they tried to identify suitable strategies for the given site. Students also investigated issues such as self-sufficiency, green methodologies, and off-the-grid practices.

The following pages show the material collected by each group of students, arranged according to the main topics researched during this stage as per the brief:

- Site, context and history
- Demographics
- Biophysical aspects and ecology
- Socio-cultural aspects
- Māoritanga
- Plans and real estate expectations
- Community brief



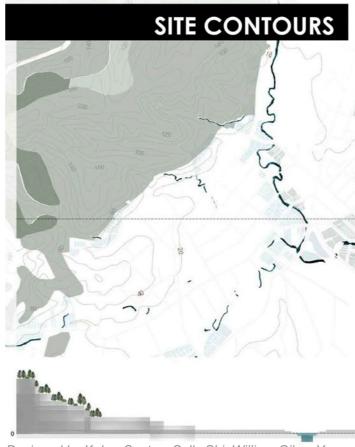
2.1.1 Research Site, context and history

Hīhīaua is a special location: a peninsula situated close to the centre of Whangarei, formed by series of reclamations, and is located at the confluence of two waterways - the Hatea River and the Wairohia Stream. It is evident from the history of the site that the Hīhīaua Peninsula represents an important place for Māori culture and the city of Whangarei more generally.



Photos by Benjamin Meredith, Jingqian Sun, Losa Nimo, Nick Slattery

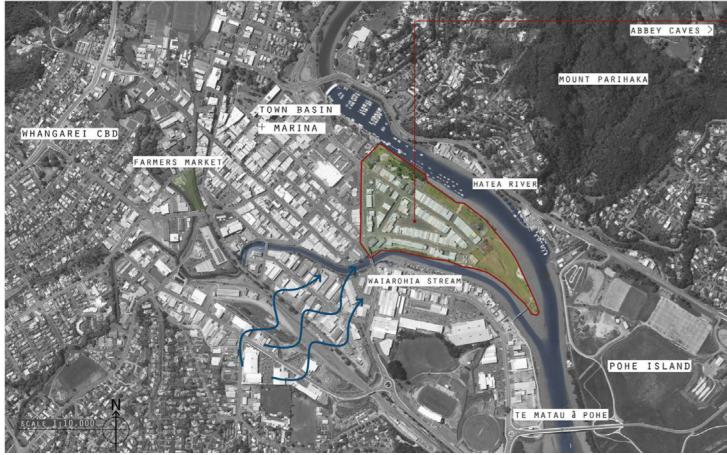




Designed by Knher Santos, Sally Shi, William Giles, Yanan Li

HĪHĪAUA SITE

HĪHĪAUA



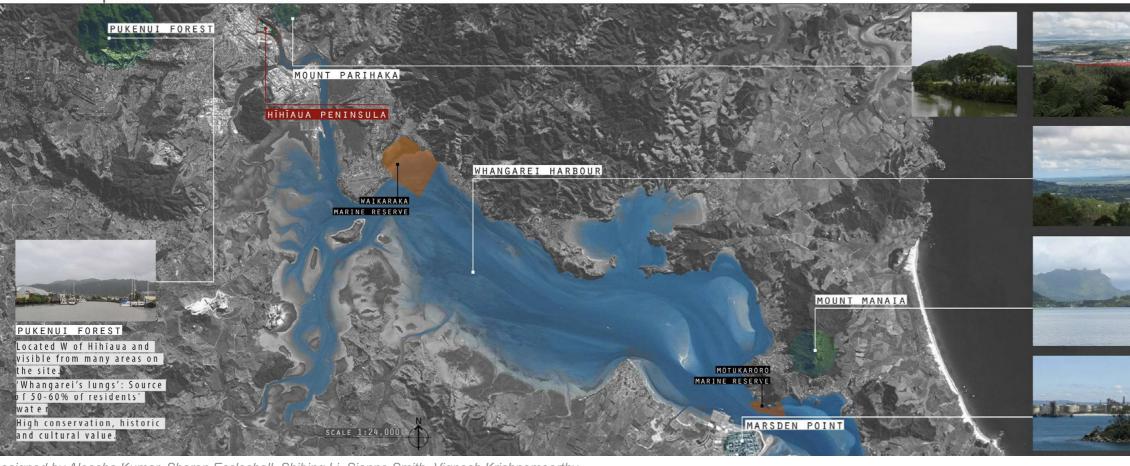
Designed by Aleesha Kumar, Sharon Eccleshall, Shibing Li, Sianne Smith, Vignesh Krishnamoorthy

WIDER CONTEXT

HĪHĪAUA PENINSULA, WHANGAREI [-35.727, 174.327]

- Approximately 16.5 hectares. Enclosed by Reyburn St (W), Hatea River (NE) and Waiarohia Stream (S)
- Temperate, humid climate with an average annual temperature 15.7°C.
- Average rainfall 1400 (coast)-1700mm (inland). Wettest months are J une August (33% of total rainfall expected. D riest months are November to January (17% of total rainfall expected).
- Predominant wind from the SW, but one of the least windy areas of Northland.

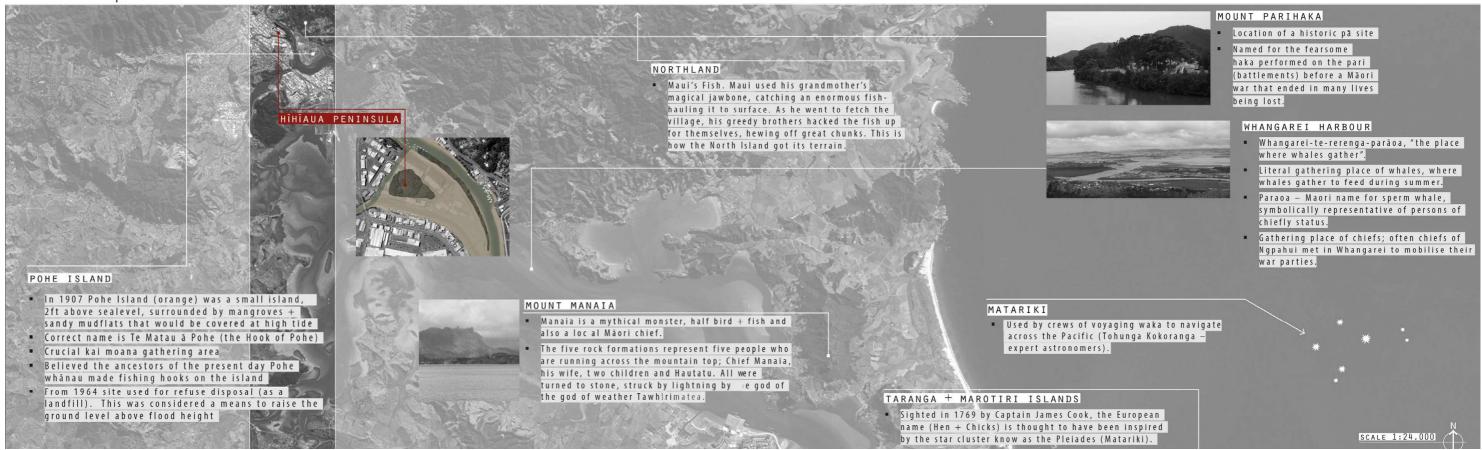




Designed by Aleesha Kumar, Sharon Eccleshall, Shibing Li, Sianne Smith, Vignesh Krishnamoorthy

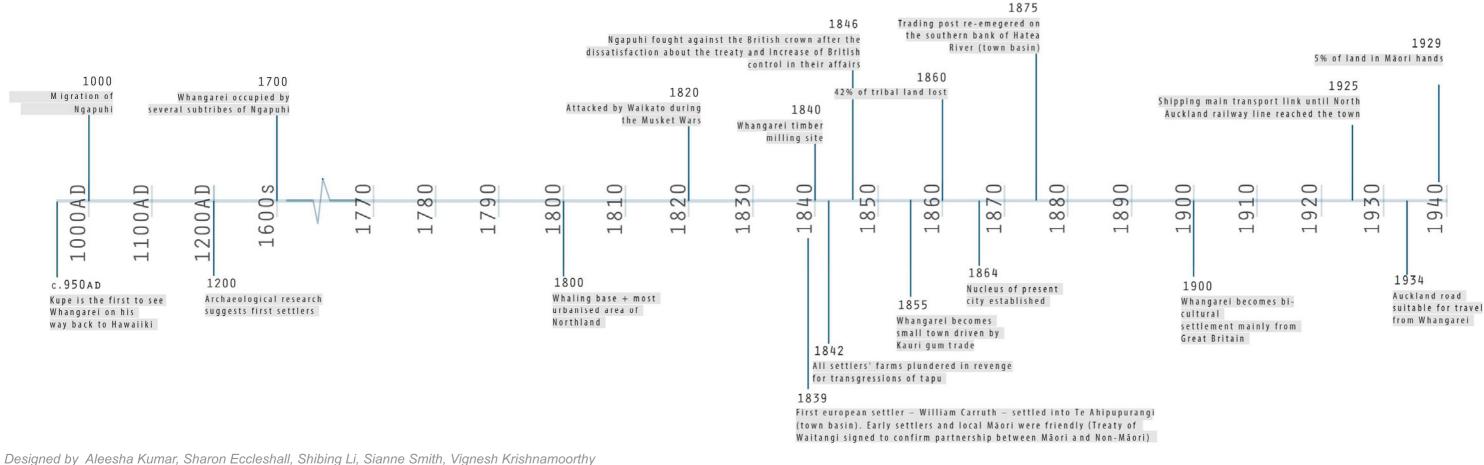
MOUNT PARIHAKA
Located to the NE of Hihiaua. A scenic reserve and volcanic cone, 241m high.
War memorial and lookout point at the top that can
be reached by car or multiple bush trails. Panoramic
views of Whangarei and the site from the summit.
Key viewshaft from Hīhīaua
Long histor y of Måori settlement and war
WHANGAREI HARBOUR
Stretches 23km NW from the end of the
Hatea River to Whangarei Heads.
Houses two marine reserves.
Heavily tidal, with a range of 2m. At
low tide a large portion of the harbour
becomes exposed mud flats and sand bars.
MOUN <u>T MANAIA</u>
Located ~30km N / NE of the site, but not visible from
Hihiaua Peninsula.
 Dominant landmark of Northland, 420m tall with panoramic
views in all directions from the summit.
 Dept. of Conservation reserve, covered in native bush.
 Area home to a regenerating kiwi population thanks to ongoing efforts by Backyard Kiwi.
ongoing eriorts by backyard kiwi.
MARSDEN POINT
Home to NZ's only oil refinery located at the entrance
to Whangarei Harbour, opened 1964.
Location of a significant deep-water cargo port, the closest to most of NZ's international markets.
Identified as a 'growth node' with a potential population of 40,000
population of 10/000

HĪHĪAUA HISTORY OF WHANGAREI AREA



Designed by Aleesha Kumar, Sharon Eccleshall, Shibing Li, Sianne Smith, Vignesh Krishnamoorthy

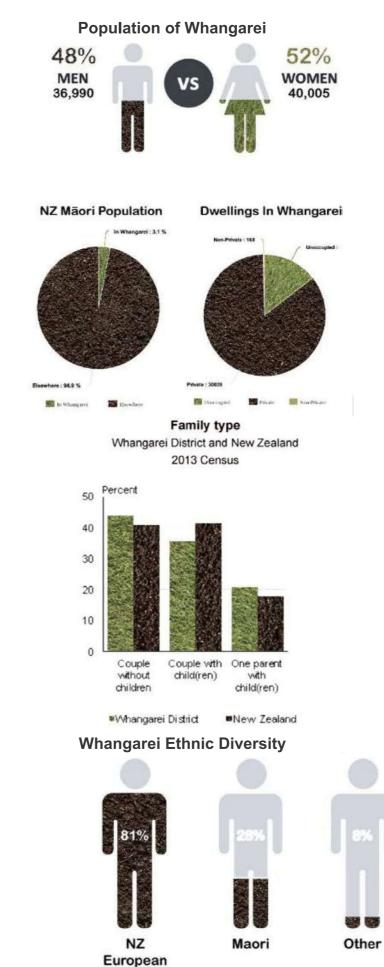
HĪHĪAUA HISTORICAL TIMELINE



2.1.2 Research Demographics

The research presented in this section explores the demographic information (population, education and economic activities, deprivation index, average house prices and average income) for the city of Whangarei, a mediumsized city by New Zealand standards.

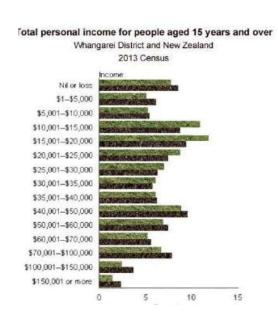
The majority of the population is New Zealand European, although the city has a significant Māori population (the seventh largest in New Zealand). The average house price and income is lower than that of Auckland.



Research by Jill Koh, Sarah Mosley, Wesley Twiss, Yamen Jawish, Yujie Zou

Population Distribution

Urban 57%	淪 淪	俞	俞	含	含	Â	Â	ĥ	ì
Rural	~~	A	Â	'n	Â	渝	ñ	ĥ	1
Coastal	1 A	Â	Â	Â	ñ		ñ	ĥ	Ĩ
Rural Res.	渝	Â	'n	Â	A	Â	Â	斎	i.







POPULATION BREAKDOWN

There are 76,995 people in Whangarei -it's the 9th biggest district in NZ.

18,720 of the population are Māori. It has the 7th biggest Maori population in NZ out of 67 districts.

Only 21.3% of Māori speak te reo. The biggest eth-nicity in Whangarei is European at 80%.

The age demographic is primarily made up with over 45's. In 2013, over 60% of the age demographic fell in this age bracket.

Overall the population <15 years had fallen by 32,478 in the 2013 census.

For the age demographic <15. 29.5% identify as Māori.



Northland's Population Breakdown %

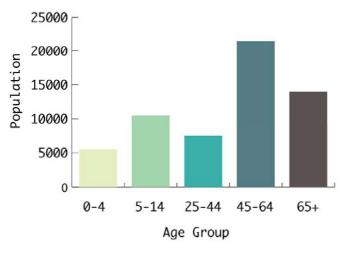




POPULATION DENSITY

The population density of Whangarei is almost double that of the national average, but 2.5% that of Auckland.

Whangarei Population Demographic

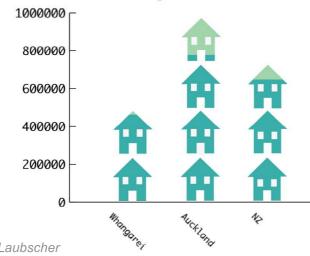




Population 15000

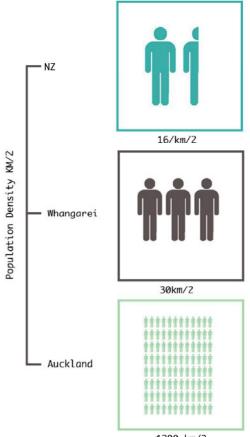
AVERAGE HOUSE PRICES

Whangarei has an average house cost of \$480,000 which is two thirds that of Auckland. It is also less than the average NZ house price by over \$200,000.

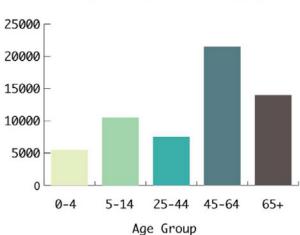


Average House Prices \$





1200 km/2



Whangarei Population Demographic

2.1.3 Research Biophysical aspects and ecology

Students explored the area's natural heritage, and the biophysical aspects of the site, including topography (elevation, slope, aspects); hydrology (catchments, flooding, overland flow paths); geology (soils, pervious and impervious surface ratios); ecology (land, air and water quality); and land cover (soil and vegetation). The Hīhīaua site is an almost flat, low-lying area and, due to the topography of the surrounding high slopes, rainfall accumulates quickly in the local streams. Catchment analysis indicates that the site receives the major part of its water from runoff.

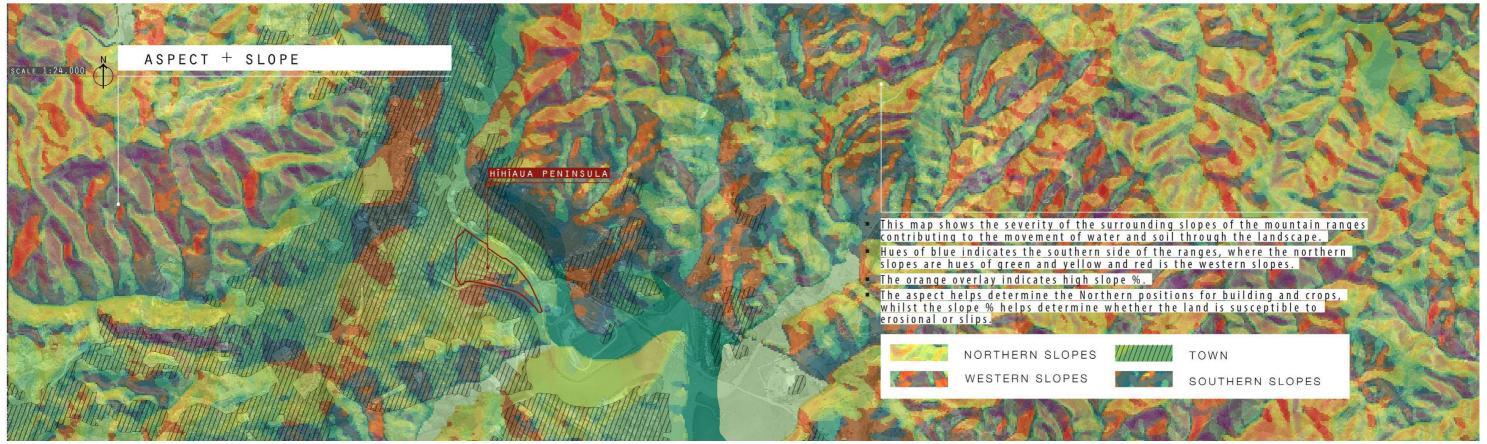
The natural features of the site suggest that the implementation of riparian buffer zones on streams would assist the ecology. Constraints and threats to the site include contaminated land in the site and surroundings, land susceptible to flooding, and the consequences of predicted urban growth, such as increased rates of hard surfaces and elevation of temperatures.

BIO-PHYSICAL MAP ANALYSIS



Designed by Jill Koh, Sarah Mosley, Wesley Twiss, Yamen Jawish, Yujie Zou

HĪHĪAUA BIO-PHYSICAL ANALYSIS



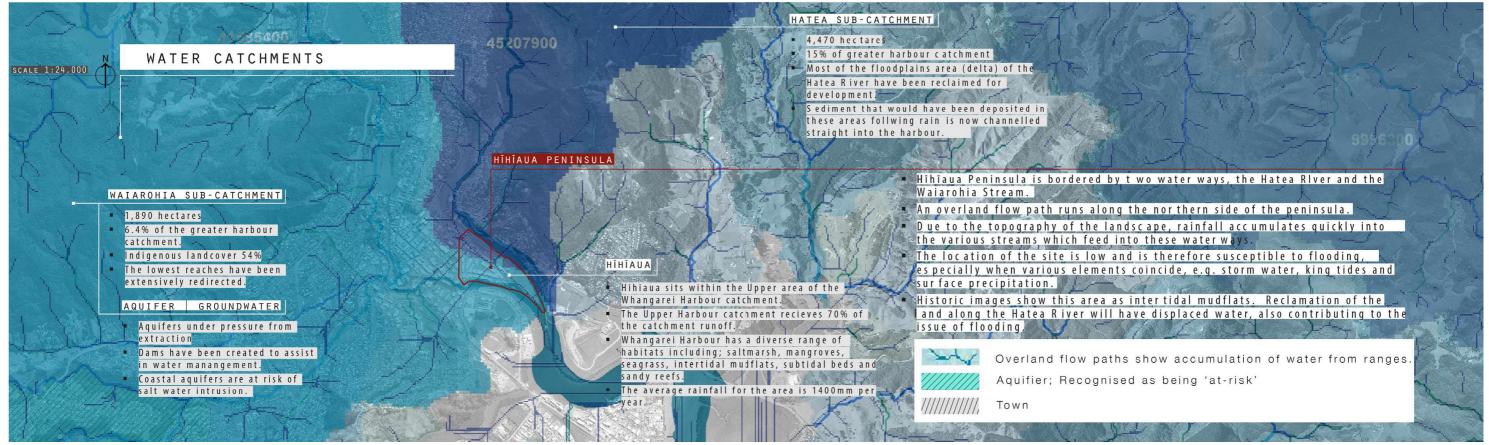
Designed by Aleesha Kumar, Sharon Eccleshall, Shibing Li, Sianne Smith, Vignesh Krishnamoorthy

HĪHĪAUA BIO-PHYSICAL ANALYSIS



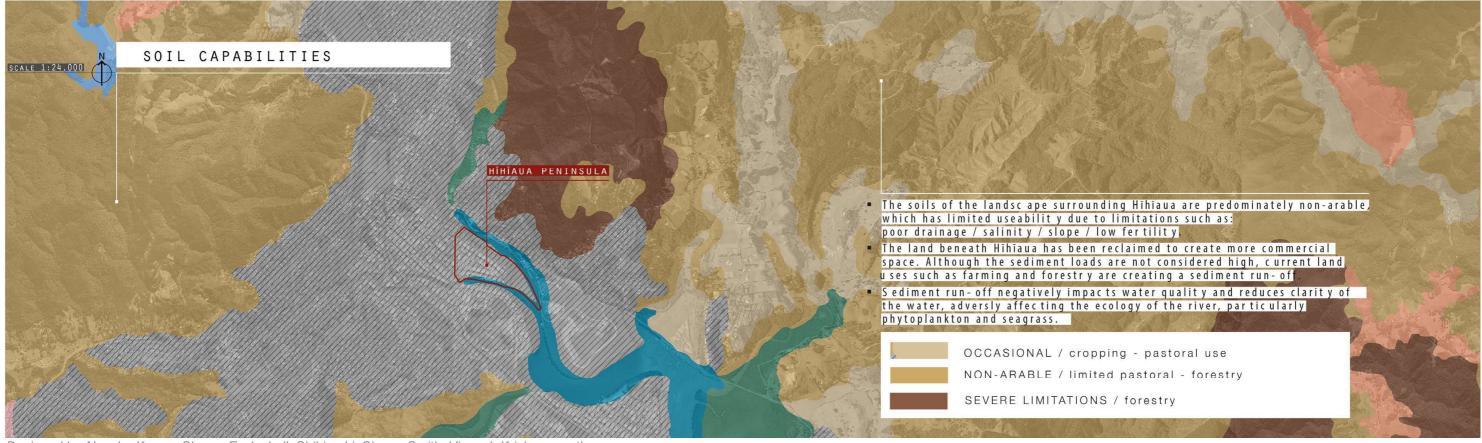
Designed by Aleesha Kumar, Sharon Eccleshall, Shibing Li, Sianne Smith, Vignesh Krishnamoorthy

HĪHĪAUA BIO-PHYSICAL ANALYSIS



Designed by Aleesha Kumar, Sharon Eccleshall, Shibing Li, Sianne Smith, Vignesh Krishnamoorthy

HIHIAUA BIO-PHYSICAL ANALYSIS



Designed by Aleesha Kumar, Sharon Eccleshall, Shibing Li, Sianne Smith, Vignesh Krishnamoorthy

HĪHĪAUA

BIO-PHYSICAL ANALYSIS

PATCH ANALYSIS

- Meurk and Hall suggest a formula which analyses the vegetation cover of landscapes and provides a framework to create landscapes that support biodiversity.
- The formula measures patch size and vegetation type as well as the distances between them, then provides a landscape model pattern which best supports biodiveristy and habitat connectivity.
- Applied to the context of our site we can measure the impor tance for vegetation on Hihiau Peninsula and how the site fits into the landscape pattern.

SOURCE: Meurk C.D. and Hall, G.M.J., 2006. Options for enhancing forest biodiversity across New Zealand's managed landscapes based on ecosystem modelling and spatial design. New Zealand Journal of Ecology 30(1)



Designed by Aleesha Kumar, Sharon Eccleshall, Shibing Li, Sianne Smith, Vignesh Krishnamoorthy



NATIVE VEGETATION



RIVERS + STREAMS



20M RIPARIAN BUFFER



- Overlaying these elements shows how implementing a 20-metre buffer on streams can assist in connecting these fragmented patches.
- habitats, but also function as filters for surface run-off, helping to keep streams and rivers clean.
- Using the riparian buffer zone of streams for green corridors is also a good use of land which is not suitable for other uses (e.g. cropping or development).
- The Hihiaua Peninsula was historically intertidal mudflats; a natural filter and surge barrier of Whangarei Harbour.

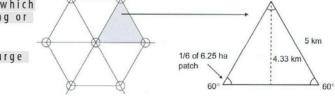
ECOLOGY HĪHĪAUA



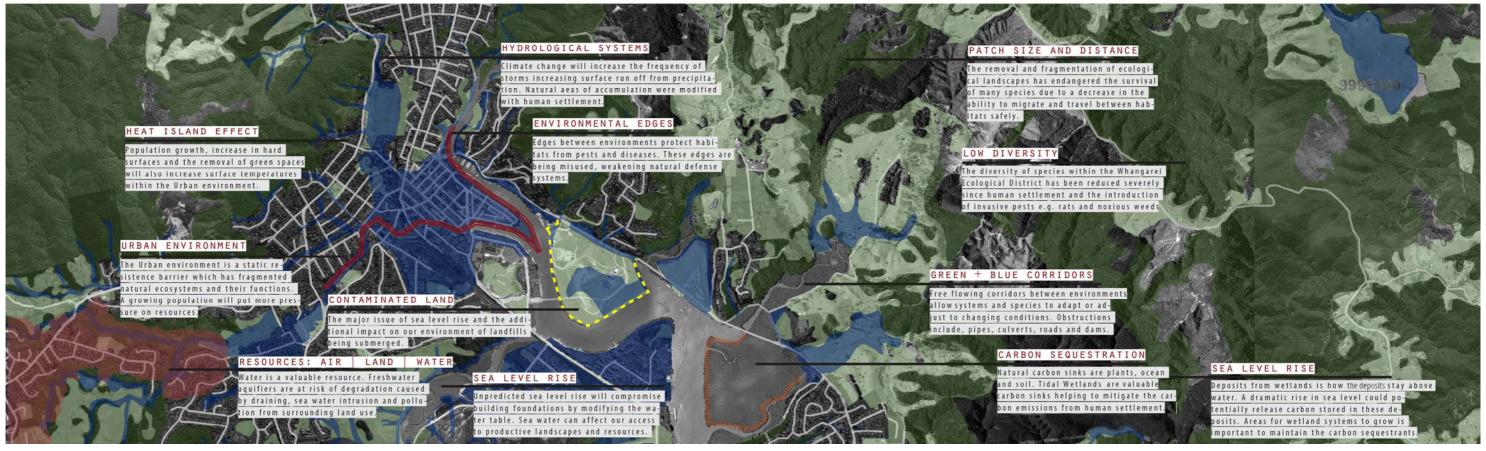
Designed by Aleesha Kumar, Sharon Eccleshall, Shibing Li, Sianne Smith, Vignesh Krishnamoorthy



The vegetation buffers serve not only to facilitate migration of species and

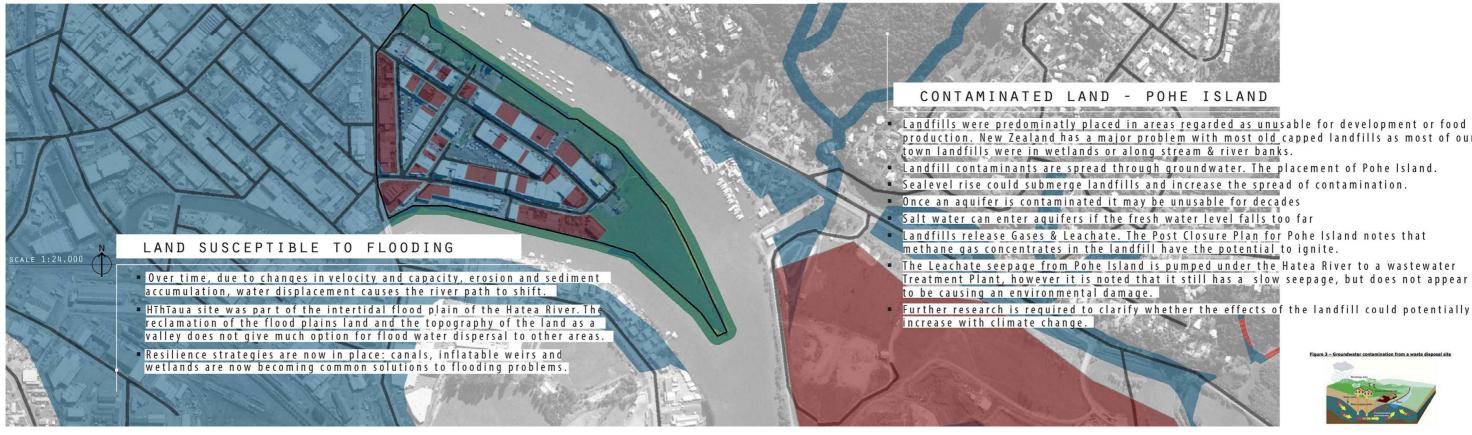


HĪHĪAUA DIFFICULTIES



Designed by Aleesha Kumar, Sharon Eccleshall, Shibing Li, Sianne Smith, Vignesh Krishnamoorthy

DIFFICULTIES: CONTAMINATED LAND HĪHĪAUA



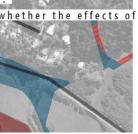
Designed by Aleesha Kumar, Sharon Eccleshall, Shibing Li, Sianne Smith, Vignesh Krishnamoorthy



Landfills were predominatly placed in areas regarded as unusable for development or food production. New Zealand has a major problem with most old capped landfills as most of our

Landfills release Gases & Leachate. The Post Closure Plan for Pohe Island notes that methane gas concentrates in the landfill have the potential to ignite.

The Leachate seepage from Pohe Island is pumped under the Hatea River to a wastewater <u>Treatment Plant, however it is noted that it still has a slow seepage, but does not appear</u>





HĪHĪAUA COASTAL HAZARD



PRESENT



+ 1 M RISE



+ 2 M RISE

Designed by Aleesha Kumar, Sharon Eccleshall, Shibing Li, Sianne Smith, Vignesh Krishnamoorthy

COASTAL QUALITIES

MAP ANALYSIS:

ALUE OF WHANGAREI HARBOUR

The coastal waters of the North Island accommodate the highest diversity of aquatic life of any area in New Zealand, while also containing marine ecosystems of national and regional importance. The North Island contains a number of marine reserves, one located around the oor Knights Islands, one in Whangarei Harbour and one located in the area of Mimiwhangat Northland Regional Council, 2012, p.279).

SOURCE OF CONTAMINANTS

urface run off is a major factor contributing to urban contamination, particularly the stribution of sediments and nutrients. These sources include:

Agriculture and forestry activities

Contaminants from urban wastewater, storm water systems and industrial sites that ectly discharge into waterbodies and the surrounding soil (Northland Regional Council, 12, p.281-282).

STATUS OF CONTAMINANT DISPERSAL

he main source of contaminant entering waterbodies and coastal waters in the North Island from diffusion sources rather than direct source discharge. The diffusion sources of ontaminants originating from urban or forestry runoff are harder to monitor and manage.

COMMENDATIONS FOR STRATEGIES

Certain implications and interventions between the council, landowners and community roups are in place to help reduce the levels of contamination from diffusion sources. These rventions include fencing stock out of waterways and coastal marine areas, restoring lands, stabilisng erosion prone land and by helping farmers develop sufficient farm plan orthland Regional Council, 2012, p.278).

- er issues to consider in mitigating marine quality
- Increased sediment inputs
- Increased inputs of nutrients
- Contaminants such as metal and hydrocarbons

Drainage of saltmarsh and reclamation of the coastal environment.

Researched by Jill Koh, Sarah Mosley, Wesley Twiss, Yamen Jawish, Yujie Zou

Whangarei city is situated on low lying reclamed land subject to the fluctuations of sea level rise and storm surges. Based on the reports issued by The Ministry of the 🖠 Environment, it is suggested to plan for a 0.8m mean sea level rise toward 2090-2099 Beyond that an allowance is to be made for 10mm per year. These maps show the effect of a 1-2m sea level rise on Whangarei Town city, CBD and Hihiaua Peninsula. The effect of climate change is increased significantly with greenhouse gases. Although we can 🕷 not stop rising seas we might at least be able to slow it down. Capturing and recycling stormwater reduces the pressure we are putting on fresh water resources which are under threat if sea levels rise. The below rational method calculation estimates how much water could be intercepted and collected during a 15 minute rainfall 🐰

SOURCE: http://www.pce.parliament.nz/media/1390/preparing-nz-for-rising-seas-web-small.pdf

Rational method of calculating peak flow rate to determine the size of wetland retention pond:

Q = C * I * A

- Q = peak flow (m3/s)
- C = runoff coefficent
- I = average rainfall coefficient (mm/hr)
- A = drainage area (ha)

"The rational method is only applicable to small catchments because of its inability to account for the effects of catchment storage in attenuating the flood hydrograph." NZTA (2009), standardisation of design flows for coastal catchments in NZ) For the calculation we have used light industrial 0.5 - 0.8 for the drainage area.

HTHTAUA RETENTION POND SIZE

C = 0.8 (highly impermeable) $I = 0.15 \,\text{mm}$ per hour A = 16.5 hectares

Q = 1.98 m3/sec [peak flow rate]

Over 15 minutes this equates to 1'782'000 litres

COASTAL QUALITIES MONITORED 2000-2011

SCOPE

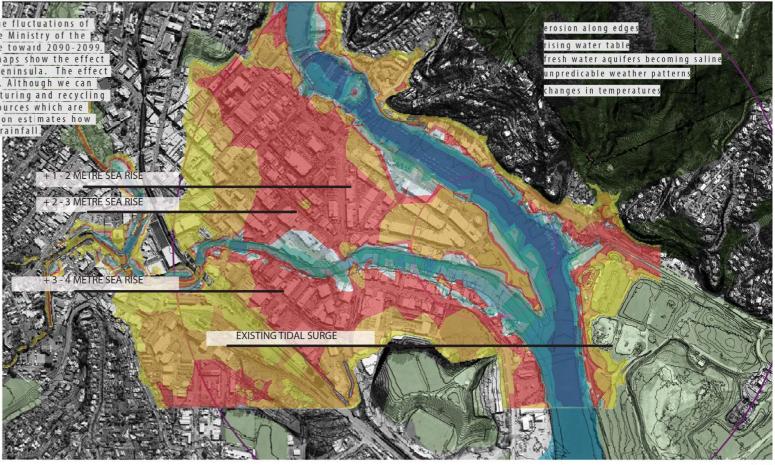
It should be noted that there is limited data available for trend analysis of some parameters including nutrients, because these parameters have only been monitored for three years, so the results presented here need to be treated lorthland Regional Council, with caution (1 2012, p. 261).

iarohia Canal, tida d Otaika Creek.

heavy metals in sediment

"In 2010-2011, all metal concentrations in sediments measured in the Whängärei Harbour were within guideline levels at all sites, except for the concentration of zinc in the Waiarohia Ganal"

iments collected from sites located in tidal creek conments like the Hätea River and the Otaika Creek rally had higher proportions of mud and metal extrations than sites in the main body of the our' (Northland Regional Council, 2012, p. 271).



from Onerahi to the Town Basin, concentrated faecal bacteria

not suitable for swimming & recreation

"The highest concentrations were generally found in samples collected from Onerahi to the Town Basin. The results suggest that water quality in the Whāngārei Harbour downstream of Onerahi is normally of a standard that is suitable for swimming and other rec ational activities. However, betwee and other redreational activities. However, between Onerahi and the Town Basin levels of bacteria were not generally of a standard that is suitable for swimming and recreational activities" (Northland Regional Council, 2012, p. 259).

Riverside Dr. & Onerahi increasing trend in

asing turbidity @ Onerahi

turbidity

"Turbidity is a measure of the degree to which water loses its transparency, due to the presence of suspended narticles

"Turbidity can be influenced by water discharges algae in the water and sediments from erosion and urban runoff. (Northland Regional Council, 2012, p

Caspian tern (Sterna caspia)

FAUNA AND FLORA

New Zealand's environments portray a diverse range of indigenous plants and animal species that can be found throughout the country. The region of Whangarei resides within the Eastern Northland ecological district covering approximately 81,000ha. Over the years a decline in natural forests and habitats has taken place due to the introduction of humans to the area, urban development, and climate change. The Northern part of the district contains the last fragments of the Hikurangi swamp which used to be a dominant natural element for the region. This important environment is home to the threatened black mudfish and is currently the only site that breeds the critically endangered swamp hebe (Hebe aff. Bishopiana) and also houses the largest population of heart-leaved kohuhu. Whangarei Harbour supports over 10,000 water birds including a broad variety of coastal and wading birds such as the New Zealand dotterel, wrybill, banded rail, and Caspian tern. Large numbers of exotic birds such as the bar-tailed godwit and knot utilise the landscape for feeding and roosting. The volcanic broadleaf forests are a distinctive element found within a few regions of the North Island mostly consisting of small remnants or groups of individual trees such as the taraire and puriri which are found on rich volcanic soil. These two species are central to the survival of the kukupa in the North Island The Pukenui Forest dominates the region with a number of 32 plant species which provide crucial habitats for the long-tailed bat and other threatened species while also forming a protective barrier for the upper catchments of Mangere River and Waiarohia Stream. Threatened species across different environments including Whangarei Harbour, wetlands, and surrounding forests (Whangarei Ecological District, n.d).

Since humans settled within the Whangarei region, the ecological district has undergone a dramatic downhill slide with much of its natural forests and ecosystems being destroyed. The loss of these important habitats highly threatens the inhabitants and their chances of survival. A large number of birds, animals, and fish within the ecological district are now in danger of extinction due to human intervention and climate change.

THREATENED BIRD SPECIES:

- Brown kiwi (Apteryx australis mantelli)
- NZ fairy tern (Sternula nereis)
- Kukupa (Hemiphaga novaeseelandiae) Kaka (Nestor meridionalis septentrionalis)
- Dotterel (Charadrius obscurus)
- Wrybill (Anarhynchus frontalis)
- Banded dotterel (Charadrius bicinctus)
- Variable ovstercatcher (Haematopus unicolor)
- White-fronted tern (Sterna striata)
- Reef heron (Egratta sacra)
- Fernbird (Bowdleria punctate vealeae

THREATENED ANIMAL SPECIES:

- Long-tailed bat (Chalinolobus tuberculatus) - Kauri snail (Paryphanta busbyi busbyi)
- Freshwater crab (Halicarcinus lacustris)

THREATENED FISH SPECIES:

- Black mudfish (Neochanna diversus)
- Banded kokopu (Galaxias fasciatus)
- Giant bully (Gobiomorphus gobioides)

2.1.4 Research Socio-cultural aspects and ecology

Students analysed land use (buildings, functions, density), significant and heritage buildings, transportation (road network and transport routes), cultural features and community facilities. Points of connection were developed with the surrounding landscape, including view shafts for the rivers and mountains, and the infrastructure of the site (water, stormwater, wastewater) was examined. Their analysis shows that the Hīhīaua Peninsula, traditionally occupied by low industrial buildings, also has some residential, educational and cultural buildings together with extant view shafts establishing connection with the environs. In terms of transportation, the site is accessible, but located away from the main arterial routes. The area needs stormwater management, an increase in green spaces and the reintroduction of natural vegetation.



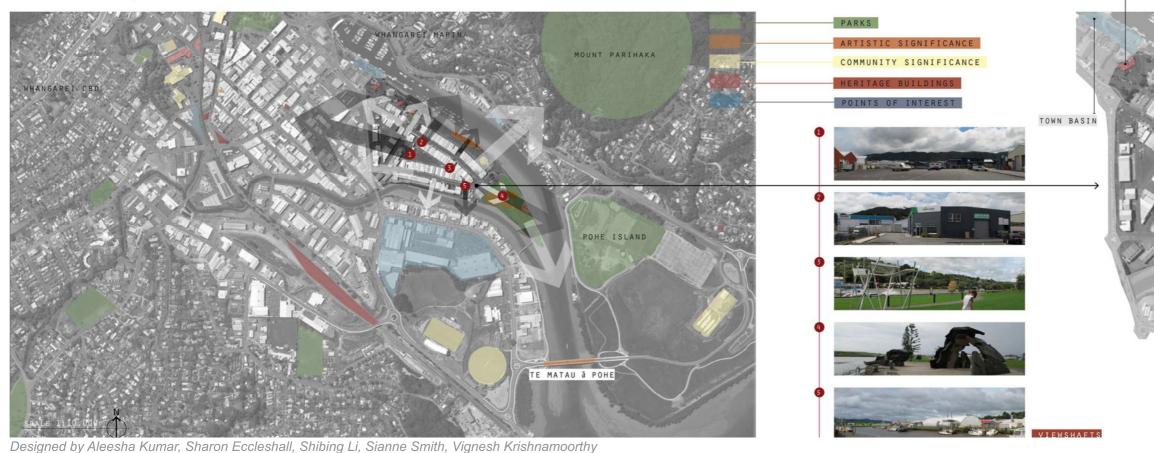
Designed by: Aleesha Kumar, Sharon Eccleshall, Shibing Li, Sianne Smith, Vignesh Krishnamoorthy

HĪHĪAUA CADASTRAL MAP + EXISTING BUILDINGS



Designed by Aleesha Kumar, Sharon Eccleshall, Shibing Li, Sianne Smith, Vignesh Krishnamoorthy

CULTURAL FEATURES + VIEWSHAFTS HĪHĪAUA



Relevant typology from surrounding context: boat sheds at Hatea River.

CLAPHAM'S CLOCK MUSEUM

REYBURN HOUSE HERITAGE SCULPTURE TRAIL REYBURN ART GALLERY BOAT SHEDS RIVERSIDE THEATRE PROPOSED CULTURAL CENTRE WAVE + WAKA SCULPTURE

HĪHĪAUA TRANSPORTATION



Designed by Aleesha Kumar, Sharon Eccleshall, Shibing Li, Sianne Smith, Vignesh Krishnamoorthy

NEED OF STORMWATER OVERFLOW MANAGEMENT

Commercial development is concentrated around the site - at centre of development. The site is at the basin of destinations (workplaces / town centre), with two large waterways on its sides potentially collecting storm water overflows from surrounding residential areas, feeding into the harbour

OPEN SPACES

To calculate the proportion of green/open spaces * impervious surface

OPPORTUNITIES.

To create open space linkages through riparian vegetation of a sufficient width along the rivers and streams to provide physical connections be-tween ecosystems, and enhance biodiversity and recreational opportunities. (under policy 15.3.2)

CONSTRAINTS / SENSITIVITIES - Open spaces are required to be protected from subdivision, use and development inconsistent with their purpose in providing recreational and social opportunities for the public and providing wildlife corridors. (under policy 15.3.4)

 Town Basin is required to be protected from the "inappropriate development of existing sites around the Town Basin that has the potential to generate adverse effects on roading, amenity, landscape quality and sense of place" (under 26.1) The current main uses are for passive recreation and limited tourist, retail and entertainment facilities. These activities complement the diverse range of maritime activities taking place in the Basin, including fishing industry, recreation and commercial yachting, charter operation boat construction, maintenance and repair and other tourist-related marine activity. (43.1)

Business 2 / a wide range of business and light industrial areas on the fringes of the Central Business District - Business 1 / comprises the Central Business District (CBD). The CBD is

the main centre of commercial activity and a principal focus for the wider community within the Whangarei District. The CBD role in developing this principal focus is envisioned to continue. Allowance has been made for the expansion of the existing central area to link with, and include, the Town Basin (Whangarei District Council, 2009).



• There are 6 main bus routes that connect the CBD with the rest of Whangarei. The bus lines start and stop at Rose St. There is currently no bus service in the Precinct. We propose the use of water transportation to enhance the connectivity of the Precinct with central Whanagrei, as well as regaining connection to the use of water itself.

• Arterial roads mainly converge at the south end of CBD. They tend to have higher traffic and are at least 2 lanes wide. State Highway 1 is the main North-South route passing through Whangarei.

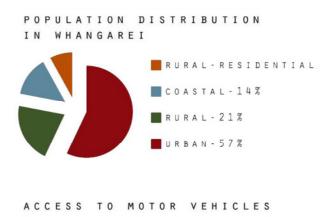
• Hatea Loop is among 3 other existing shared use walkways and cycleways. As Whanagrei moves forward, the Plan Change proposes a greater number of shared use ways with better connectivity. Cycling is not catered to specifically within the Precinct. Our proposal looks to provide a track within the site to endorse cycling and promote shared use of roads. By using kerb-less streets we would like to discourage the use of cars within the Precinct.

• The site according to the district plan is a Business 2 zone, just east of the CBD which is the densest of the business districts (Business 3).



MAP OF INFRASTRUCTURE

Designed by Jill Koh, Sarah Mosley, Wesley Twiss, Yamen Jawish, Yujie Zou







MAP ANALYSIS:

The stormwater network is separate from the sewer network and each system discharges to different points: stormwater to sea, sewer to a treatment plant. Currently stormwater is not treated or screened after it enters the network. What goes down the drain goes to the harbour and out to sea" (Whangarei District Council, 2017, para. 1).

Out of 4,539 stormwater nodes (shown as black nodes on map) counted within the catchments of Whangarei, there are innumerable stormwater outlets expected (the red nodes) along Hatea River and Raumanga Stream potentially releasing untreated runoff into Whangarei Harbour.

Opportunity

To integrate the Precinct development with stormwater inlets and outlets within the catchment of the town centre (ideally), and facilitate stormwater treatment in the Town Basin area

Town Basin (expected) Stormwater Outlet

- Stormwater Node
- Stormwater Inlet
- Stormwater Channel

Significant Pā sites (fortresses) and Papakāinga (villages)

2.1.5 Research Māoritanga

Considering the history of the site and acknowledging Māori sovereignty, Te Aranga Māori Design Principles (Auckland Council, 2016) were studied to guide the process at different scales and at the different stages, including masterplans, and plans for buildings and public spaces. Te Aranga Māori Design Principles were created by the Auckland Council to provide practical guidance to designers. They are a set of outcome-oriented principles grounded in Māori cultural values and were developed to enhance mana whenua presence, visibility and participation in the design of the physical realm. Engagement with these principles equipped students to work closely with tangata whenua in their future careers.

Whakataukī Ma te kōrero ka mōhio Ma te mōhio ka mārama Ma te mārama ka mātau Ma te mātau ka ora ai tātou

Through discussion comes awareness Through awareness comes understanding Through understanding comes wisdom Through wisdom comes wellbeing for all (Auckland Council, 2016). HĪHĪAUA – A canoe landing and fishing village belonging to local tribes Te Uriroroi, Te Parawhau and Ngāti Kahu. This site was situated on the Waiarohia Stream near the junction of Port Road and Õkara Drive. Õkara – A hilltop pā above Hīhīaua

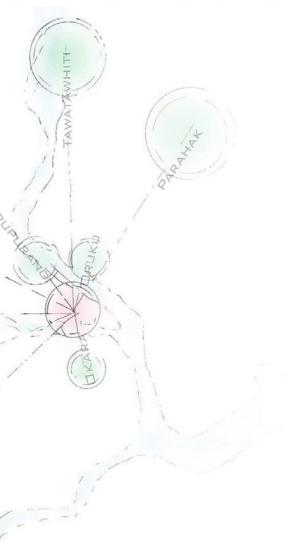
KAUIKA

TAWATAWHITI – The main village located in the Mair Town area and attached to Parihaka Pā. This was also the name given by the chiefs of Whangārei to Capt. Gilbert Mair (Tawa) when he was born here.

TE AHIPŪPŪRANGI – A fishing village and canoe landing once located where the Town Basin is. William Carruth, the first pakeha to settle in Whangārei, lived here.

PĨHOI – A Ngāti Kahu village where St Andrews Presbyterian church now stands. The people here welcomed William Carruth when he arrived in 1839.

Designed by: Sui Guo, Michael Macfarlane, Shiying Tao, Tevita Vea, Yuhao Wu



PARIHAKA – A citadel of pā and papakāinga once located on the ancient volcano remnant standing on the north-eastern skyline above Whangārei city.

 $\bar{O}RUKU$ – The pā which occupied "The Bluff " and guarded the immediate entrance into the Whangārei basin.

PŪKAWAKAWA – The pā site where the Whangārei Hospital now stands. This pā was located at the western end of the city where tracks came from the Wairoa, Kaipara, Hokianga and Kaikohe areas.

TĀREWA – The pā which stood on Anzac hill. Kauika – Pā site on the Western Hills opposite the hospital.

Iwi and Hapu Values

These are the key values and principles that should be embedded into any proposed development. This strategy will enhance cultural value, recognise and preserve Māori culture and identity

These iwi and hapu values have been extracted from Iwi/Hapu Report: Input to Whangarei District Council Growth Strategy: Sustainable Futures 30/50.

A large proportion of the population of Whangarei is Māori and with population estimates at 36% in 2016 there is high value of recognition of tangata whenua in the area who have significant influence in the future development of Whangarei.

TIKANGA	MANAAKITANGA
The correct way	Trust and respect, actively contributing towards
	developing a positive
	relationship
KAITIAKITANGA	KAWANATANGA
Guardianship	
RANGATIRATANGA	KOTAHITANGA
	Unity in purpose and
	vision in moving forward
TAUUTUUTU	TE AO MÃORI
Reciprocal support in	
building a strong	
foundation for the future	
MARAMATANGA	WHAKAPAPA
and the second	Learning from the past,
Understanding and consideration	in order to move into the
consideration	future
line Paul, Pearl Patel	

In the WHANGAREI 20/20 MOMENTUM Strategic development plan they have acknowledged these principles in development opportunities under CULTURE & HERITAGE - Taonga tuku iho. The Te Aranga Design principles should be integrated into the design process so cultural perspective is embedded and integrated.

This approach will aim to protect and preserve Maori culture and sense of place.

M

Create genera Integra elemer

Research by Brian Law, Chantelle Lubbe, Jacqueline Paul, Pearl Patel

Te Aranga Design Principles

MANA

nua and iwi from the ibute to the naking process for the locess

WHAKAPAPA

Using correct ancestral names

TAIAO

store and enhance the urrounding the Hīhīaua

e environment that or mana whenua

auna significant to Mana

MAURI TU

Restore and enhance aquatic ecology through water-sensitive design

Use of materials which are locally sourced and of high cultural value

HI TO

nes that support eds - open planand ational living space

of iwi and hapu and themes into built

TOHU

Recognise and celebrate the views of Manaia and Parihaka

Promote enhancement and sustainable management of waterways

Recognition of tohu through heritage trails and markers

AHI KA

iomes that support cultural needs - open plan and Inter ional living.

ion of iwi and hapu narratives and themes into built

and align with community programmes

ng a sense of place in which iwi are valued within the area

2.1.6 Research Plans and real estate expectations

Research was conducted into proposed development projects for the site and its surroundings, including the cultural centre proposed for the edge of the Hīhīaua Peninsula, and the

Whangarei District Council's Precinct Plan. The site's importance to the city of Whangarei is clear, as is the Council's desire to improve the area and increase its occupation.







COMMUNITY FACILITIES/CATALYST PROJECTS

Proposed Hīhīaua Cultural Centre The Hīhīaua Cultural Centre is proposed on the Hīhīaua Peninsula. The Hīhīaua Cultural Centre is envisaged to include a theatre, conference facility, large display rooms, outdoor courtyards, outdoor stage, waka carving facility and waka store, amongst other facilities. A concept drawing of the Cultural Centre is shown in Figure 55. The Cultural Centre is a unique opportunity to foster cultural de velopment and will complement activities in the Town Basin. It will offer a cultural resource and facility for the Whangarei District and the wider region.

The images show the proposed Hīhīaua Cultural Centre, designed by Mollen Architects. Images: Mollen Architects. Photo and research by Jill Koh, Sarah Mosley, Wesley Twiss, Yamen Jawish, Yujie Zou

'PROPOSED CULTURAL CENTRE', HIHIAUA, WHANGAREI, 2017

HĪHĪAUA PROPOSED PRECINCT PLAN



Researched by Aleesha Kumar, Sharon Eccleshall, Shibing Li, Sianne Smith, Vignesh Krishnamoorthy

PROPOSED PRECINCT PLAN HIHIAUA

OPTION 1:

NO ACTION

- Existing provisions would be kept in their current form, which would avoid preparing a plan change.
- Currently the Town Basin encourages residential development, and the Business 2 environment allows development under respective provisions. However these provisions do not allow for comprehensive high-density residential development, which renders this option ineffective.
- The cons of this option outweigh the pros. While there would be no cost in preparing and administering a plan change, doing nothing does not achieve community and council outcomes signaled in Whangarei's 20/20 plan, nor does it satisfy other stakeholders' expectations for the future development of the Hīhīaua Precinct.

OPTION 2:

REZONE HATEA RIVER SUB-PRECINCT TO MIXED. USE DEVELOPMENT BY WAY OF PLAN CHANGE

- Town Basin environment (Hatea River sub-precinct) is utilised as mixed-use development while the remainder of the Hihiaua Precinct remains under the Business 2 category, with commercial and light industrial activities continuing as usual.
- The Hatea River sub -precinct, which already has a number of residential dwellings, is considered the most attractive location and therefore will attract the greatest development interest.
- The location of the sub-precinct allows easy use of natural and physical resources, which characterise the Hatea River water front.
- It is predicted rezoning the single sub -precinct will enable comprehensive residential development opportunities, however this option does not fully recognise the potential of the entire precinct (Hīhīaua).
- Unlike Option 1, this option aligns with Whangarei's 20/20 plan and somewhat provides development prospects for not only the Hihiaua precinct, but also Whangarei city as a whole.
- Disadvantages of this option include: Potential land use conflict and reverse sensitivity issues with permitted activities, which will lead to inability to integrate and coordinate holistically. Introduction of difference in land use within the Hatea sub -precinct would hinder and limit existing dwellings' development.



OPTION 3:

REZONE THE HIHIAUA PRECINCT TO MIXED-USE BY WAY OF PLAN CHANGE.

- Rezoning the entire Hihiaua Precinct provides the largest yield as it facilitates coordinated development and encourages high quality urban design.
- Benefits of this option include a large 'brownfield' area for urban redevelopment that provides landowners with an opportunity to intensify and develop their land. Also provides high levels of certainty for landowners, sub-dividers and the community about the outcome and vision of the precinct.
- Provisions will ensure population growth can be accommodated with higher densities close to Whanagarei CBD, amenities and employment opportunities.
- Disadvantages of this option include:
- High cost and risks implications associated with advancing a plan change to re-zone land and less flexibility in design and layout of individual properties.
- This option seems the most effective and efficient to achieve the objectives of all stakeholders involved as it essentially provides a 'clean slate' for development.
- This option integrates the idea of creating a 'village' where living, working, playing and learning can all be in close vicinity to each other, which is an important aspect for community group stakeholders (Momentum North) and also adheres to the Whangarei 20/20 plan.
- This option has the least legal restriction and allows opportunities for a flourishing district of Whangarei.

Researched by Aleesha Kumar, Sharon Eccleshall, Shibing Li, Sianne Smith, Vignesh Krishnamoorthy

- The Hīhīaua Precinct has been identified as a potential area of inner-city living and mixed-use development
- The council proposes medium to high-level density via a range of housing typologies: medium rise dwelling apartments, low-rise apartments, terraced housing or town house development.
- Existing commercial activities will remain with the introduction of complementary mixed-use activities to contribute to the vitality of the precinct
- The proposal divides the precinct into four Subprecincts: Hatea River, Waiarohia River, Reyburn Street and Central Hihiaua.

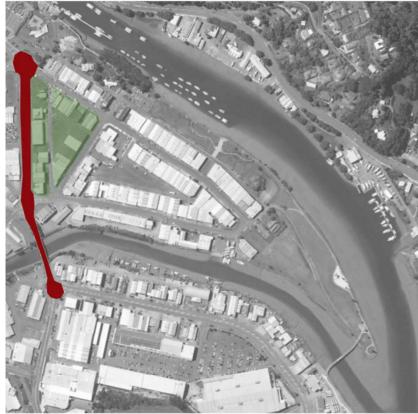








HĪHĪAUA PROPOSED PRECINCT PLAN: REYBURN ST



Reyburn Street Sub-precinct is largely owned by Northland Regional Council. This Sub-precinct has a range of uses as there are cafes, a printing store, wholesaling activities, a gymnasium and sail manufacturing activity.Existing commercial activities are serviced with internal parking spaces. Businesses situated on Reyburn Street, are served by 2 service lanes.

The proposed Plan for the Hīhīaua Precinct shows Reyburn Street to be an arterial road which demands active commercial frontage, therefore it is propsed the row of buildings parallel to Reyburn Street will be medium rise commercial and mixed use buildings.

The image to the right shows an altered and artistic representation what the Reyburn Precinct could look like. As per all Precincts, the main objective will be to use exisitng structures first and foremost. The image shows an adaptation of the Copenhagen flood retallation scheme, where in an event of a flood, the roads and boulevards will flood up and there will be elevated walkways and evacuation spaces for the public. THIS IMAGE WAS TAKEN FROM ONE OF THE INTERSECTIONS OF FINLAYSON STREET.



Research by Aleesha Kumar, Sharon Eccleshall, Shibing Li, Sianne Smith, Vignesh Krishnamoorthy

HĪHĪAUA | PROPOSED PRECINCT PLAN: CENTRAL PRECINCT



Currently the Central Hihiaua Sub-Precinct offeres a range of activities including light retail and industrial.

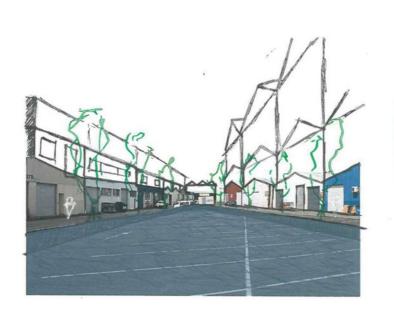
The plan suggests this space over time will transition into a high amenities area. It is shown in the plan that 2-4 storey buildings will occupy the central area of the Hihiaua Precinct.

Maximum of 6 stories are feasible and permitted due to poor soil condition uncompressed soil types. The proposed land will allow a range of dwelling types, attracting a mixed residential demographic. This along with a mixture of building typologies will work well among the diverse population. Commerical usage on ground floor is encouraged as it will create street frontage.

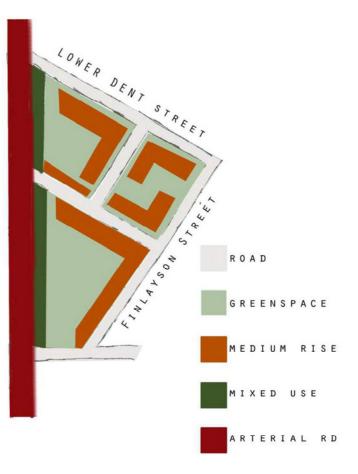
Exisiting streets within the precinct were historically configured for commercial activites prioritising large vehicles. Upon development, street widths can be reduced to creat more space as well as discourage the use of a car.

The image of the left roughly illustrates the idea of retaining existing structures above them. Again, just like Reyburn Street, the image shows the large existing carpark areas being flooded.

THIS IMAGE WAS TAKEN LOOK-ING TOWARD THE COVERGING END OF THE CARPARK (NOSE).



Research by Aleesha Kumar, Sharon Eccleshall, Shibing Li, Sianne Smith, Vignesh Krishnamoorthy





Local Development projects



CENTRAL PRECINCT

- 1 Transit Centre Gateway
- 2 Cameron & James Street Laneway
- 3 Street Canopies
- 4 Tertiary Education
- 5 Laurie Hall Park
- 6 Bank Street Revitalisation

WATERFRONT PRECINCT

- 7 Canopy Bridge 8 - Hatea Loop 9 - Kotuitui Whitinga 10 - Te Matau ā Pohe
- 11 New Marina

13 - Emerald Necklace 14 - Northland Events

Centre

Market

CITY FRINGE PRECINCT

12 - Expanded Growers

POHE ISLAND PRECINCT

15 - Expanded Trail

Network 16 - William Fraser Memorial Park

DEVELOPMENT PROJECTS WITHIN WHANGAREI CONTEXT

The Whangarei District Council has proposed the 20/20 Momentum with projects that are relevant to our development of the Hīhīaua precinct. These projects can often benefit or work in conjunction with our development plan of the Hīhī aua Peninsula and were put into consideration in our development process.

CENTRAL PRECINCT

TRANSIT CENTRE GATEWAY 1

Proposed upgrades to the existing transit centre focus more on local bus networks while relocating intra-regional transport services towards Town Basin and closer to Hihiau Precinct. This provides the Hihiaua peninsula a greater exposure in a regional scale, offereing significant tourism op-

portunities for our development plans

CAMERON & JAMES ST LANEWAY/CANOPIES (2)(3)

NEW MARINA

The redevelopment of Cameron & James Street aims to enhance existing commercial opportunities while its laneways and canopies form pockets of commu-nal space that encourage social interaction.

LAURIE HALL PARK/WAR MEMORIAL 5

Laurie Hall Park and War Memorial provides a change of pace with its free open space within the heavier density of the CBD area. It hosts a range of large community and civic events that enhances social and recreational opportunities in the heart of Whangarei City.

3

HATEA LOOP

10

12

15

WATERFRONT PRECINCT

CANOPY BRIDGE

The canopy bridge marks the western border of Hatea Loop, linking between the banks of Hatea River. The design serves as a windbreak from the prevailing wind and the shelter offers social opportunities such as small scale events

The Te Matau a Pohe bridge serve as the only link between the western and eastern sides of the Hatea River in a 2 km radius, its design stands as the focal point of the south-eastern view shaft from the Hihiaua Peninsula. The bridge diversifies vehicular circulation within the CBD and Hihiaua areas to reduce congestion while complementing the access of Hatea Loop.

CITY FRINGE PRECINCT

EXPANDED GROWERS' GARDEN

The Whangarei Growers' Market provides public space for the local markets and activities by reusing and redeveloping existing buildings such as an old service building to encourage social interaction and expressing a sense of community.

POHE ISLAND PRECINCT

EXPANDED TRAIL NETWORK

Extended multi-use trails are planned throughout Pohe Island reinforcing a physical connection with the Hatea Loop, further enhance ing the circulation of the existing pathway and increasing pedestri-an traffic to and from the Hihiaua precinct.

William Fraser Memorial Park is undergoing multiple development projects such as recreational areas, expanded vegetation sporting facilities, pop-up retail and activity centres which would draw in more focus to this residential part of Whangarei, offering

Researched by Sui Guo, Michael Macfarlane, Shiying Tao, Tevita Vea, Yuhao Wu

TE MATAU A POHE

TESTIARY EDUCATION

4

9

A tertiary education development would introduce an influx of population back into the CBD area of Whanga-rei. In conjunction with the He Puna Marama Trust and other local educational organizations, it can establish greater cultural and educational opportunities.

BANK STREET REVITALISATION

The revitalisation of Bank Street focuses on the improvement of public spaces and exisiting buildings while reinforcing the signifi-

cant aspects of the area's heritage, benefiting local businesses and building owners. This could also attract new businesses, providing employment opportunities within the local community

8

6

KOTUITUI WHITINGA

11

13

The Hatea Loop is a 4.2 km long walkway that encompasses the lower Hatea River. The loop is marked between the Kotuitui Whitinga and Te Matau a Pohe bridges, connecting multiple points of interest and strengthening social and commercial opportunities on both sides of the river. The walkway plays a large role in the accessability and pedestrian circulation of the Hihiaua Peninsula and will have a major impact on the development of the Hihiaua precinct.

> The new marina is a planned project that will meet the increasing demands of marina related activities along Hatea River as flood prevention developments and ecological restorations are gradually incorporated into the area. This project will expand development opportunities within the Hatea Loop, revitalising the commercial and cultural prospects of the area.

The Kotuitui Whitinga is one of the three bridge connectors within the Hatea Loop establishing a link between the West-ern and eastern banks of the Waiarohia Stream. The bridge occupies a portion of the Eastern view shaft and as the only eastern access way of the Hihiaua Peninsula sets itself as a design consideration for the Hihiaua development.

EMERALD NECKLACE

The Emerald Necklace plans on redeveloping the walkways and river banks along Waiarohia Stream with proper flood prevention methods that could serve as a precedent or work n conjunction with the Hiniaua development plan when tack ling similar flooding issues.

NORTHLAND EVENTS CENTRE

The Northland Events Centre provides a range of facilities that host sporting, entertainment and cul-tural events. With the event centre's close proximity to the Hihiaua Peninsula, it offers abundant commercial opportunities to the Hihiaua Precinct

WILLIAM FRASER MEMORIAL PARK

16

more commercial and cultral oppotunities to the Hihiaua precinct

2.1.7 Research Community brief

Based on the community brief developed by the Momentum North group, Hīhīaua should be a place to integrate knowledge and experiences, and should include facilities for a mix of places to work, play, live, learn and visit. Students considered the aims, opportunities, strengths, weakness and threats identified by the community in their research.

Momentum North HIHAUA COMMUNITY 2017



Image from the Momemtum North brief document, created by the Hīhīaua Community G roup, 2017

HĪHĪAUA MOMENTUM NORTH BRIEF

INTERESTED PARTIES IN THE HIHIAUA PRECINCT DEVELOPMENT

Stakeholders | Momentum North group - Current residents - Local businesses - Surrounding district - Council - Maori reps

- Turn Hihiaua Precinct into a nucleus of Māori culture by using its significant cultural history as the driver of our proposal
- Create a rhythmic inter-relationship of "Work, Play, Live, Learn and Visit" in the masterplan for Hīhīaua
- Emphasis on wā kāinga (home base + true home) "arising from a village"
- Integrate the essence of Papatūānuku (Earth mother of which all living things originate from) into the design
- Incorporate traditional Māori motifs of a conceptual nature in design and intent
- Use a "no fences" approach to unite community
- Create developments which are beneficial to the current residents and complementary to their vision
- Merge charter schools, local businesses and residents to generate a community-orientated precinct
- Establish a district that complements Whangarei CBD and thus contributes to the region's economic growth
- Initiate engagement strategies to link Hiniaua Peninsula to Whangarei's points of interest
- Enhance teachings of tikanga Maori traditional arts and sharing of cultural traditions

OPPORTUNITIES:

- As Hihiaua Cultural Centre will feature traditional Maori art + methods, Hihiaua Precinct could also enhance the teaching of tikanga Maori traditional arts and sharing of cultural traditions
- Using the history of Hihiaua Peninsula to establish the area as the "gateway to Whangarei"
- Initiate engagement strategies to provide Hihiaua Precinct links to Whangarei points of Interest

Lack of cultural identity and social diversity in Hiniaua Precinct Absence of waka and historic Maori river racing on Hatea River

Access and connectivity to Hīhīaua Precinct under developed

......

• Looking after the land

Not being constrained by the

Sustainability

roads

- Establish a district that complements Whangarei CBD; thus, contribute to the region's economic growth
- Continue and expand foremost artificial wetlands and introduce reef filtration systems



STRENGTHS

councils own most land)

council to grow the loop)

Multi-use development

Strong cultural element

•Hundertwasser/ He Puna Marama/ Te

Kopu/ Town Basin and many others

Increasing strong Māori presence in

Fast broadband/fibre

Momentum en masse

business and learning

Sports fields Community spirit

Cheaper land cost

Growth in tourism

in mind

Resilient

Research by Aleesha Kumar, Sharon Eccleshall, Shibing Li, Sianne Smith, Vignesh Krishnamoorthy WEAKNESSES • Enrich • Experience History Existing tenants/lease Area to be developed with the future • Hīhīaua will be a contemporary location Gathering place for the chiefs Building Act allowing for the sharing of knowledge and Negative perception of Whangarei experiences. It will exhibit chiefliness and (need to change people's mindset) Proximity to water/CBD/beaches will be a place for all people. Bringing back the old Willing landowner (WDC & NRC Suitable location required to relocate existing businesses Hatea Loop (commitment from ■Current appearance is poor- Dirty water Silted river Difficult access to water due to above CLIENTS Poor geotechnical conditions

OPPORTUN

 Create better appearance Government focus for Nort opment

 More immigrants, more A relocating to the region Hundertwasser Te Kopu - Pacific Indigeno Knowledge Centre of Distin Hihiaua Cultural Centre Other attractions of varyin ing/planned in the near vicir Riverside Drive – land avai Attractive region to live Redevelopment whilst pre hancing our ecosystems and

 Dilapidated/inadequate infrastructure.

 Undeveloped sprawl of foremost artificial wetlands/ filtration systems Quality of water still substandard, but progressively improving to its previous state Ecological corridors and biodiversity not up to full potential

PROBLEMS:



Misconceptions of Whangarei being disreputable hindering economic growth

Council intervention into the site might provide hedonistic solutions that do not benefit the interested parties

Provide ecological corridors to expand the biodiversity of the area and increase interspecies inhabitants in the region.

ITIES	THREATS
	•Lessees/Lessors
hland devel-	 Lack of buy-in from all sectors Climate change
cklanders	■Negative publicity ■Rising sea level
is & Local	 Potential push back from current resi- dents
tion	•Competing interests
g scale exist- nity	
lable	
serving/en-	
environment	
1000	

2.2 Designs

The masterplans for the Hīhīaua Peninsula: The community spaces; and the Pacific Indigenous and Local Knowledge Centre of Distinction and its public spaces

The design phases of the Hīhīaua Studio were carried out in two stages. The first was the design of a masterplan for the Hīhīaua Peninsula, based on the previous research into urban typologies, climate change, flooding, sustainability and resilience strategies, and the application of Te Aranga Māori Design Principles. The urban masterplans also considered the aspirations of the Momentum North Hīhīaua community: WORK / PLAY / LIVE / LEARN / VISIT.

In the second stage, students designed a new Pacific Indigenous and Local

Knowledge Centre of Distinction building and associated public space. These designs involved exploration of indigenous cultural priorities, green infrastructure and the ultimate development of complex structures.

The following are summaries of the ten scenarios developed during this phase. Each project showed a different approach to the design of the masterplan for the Pacific Indigenous and Local Knowledge Centre and the associated public space.



2.2.1 Scenario 1

Scenario 1 explores some of the key principles developed by the students in the masterplan phase: the re-use of existing buildings and a clear strategy to embrace the expected flooding due to sea-level rise. The students propose that the major part of the existing buildings in Hīhīaua would be preserved, with some localised architectural interventions, within the existing buildings, to adapt to future flooding. The new buildings use the shape of the existing industrial construction as a reference for the design work. View shafts are created to enhance the connection from the site to the surrounding hills and rivers. The site is organised around a central spine at two levels, and an elevated path running through the centre of the site helps visitors to navigate the area. A green stormwater infrastructure, the use of green roofs, wetlands and vegetated retention ponds help to reduce the effects of excessive runoff.

In the second design phase, the students developed the masterplan to make a strong connection with the proposed Pacific Indigenous and Local Knowledge Centre, folding the surroundings into a central public space, whilst retaining and emphasising the central 'street' at two levels. The students designed three options for the Pacific Indigenous and Local Knowledge Centre, following the same RE-USE OF BUILDINGS EMBRACE THE FLOOD TACTICAL URBANISM

core concept. The design of the public space followed an in-depth investigation of how a public space could be both a piece of green stormwater infrastructure and have civic qualities. The landscape design work followed two of Te Aranga principles; Taiao, restoring the natural environment through the use of indigenous vegetation and Mauri Tu, protecting the environmental health of the site by cleaning contaminated stormwater. The landscape design makes use of different levels as a subtle and effective means to distinguish different spaces, as well as using the existing building's walls.

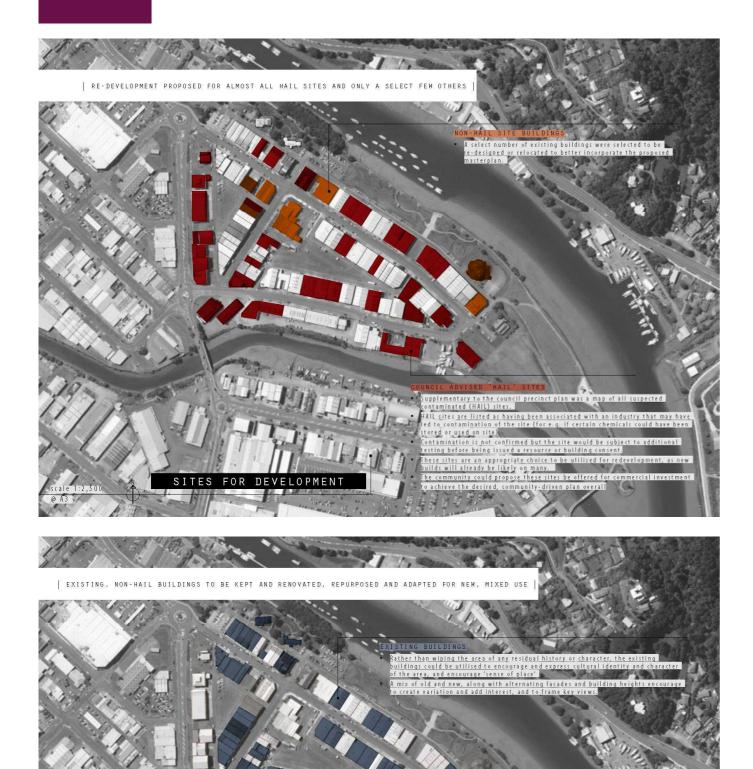
"It's great how the Pacific Indigenous and Local Knowledge Centre and the Cultural Centre face one another and the landscape [is] in between" – Tui Shortland, Momentum North.

"This project probably best met our original brief. It was clever in so many aspects. Firstly it used a space that meant few would be disenfranchised by the new build. It had a central theme linked by the walkway but still managed to keep all options open. It meant that existing buildings or areas could be modified/replaced over time without compromising others, while still staying true to the spirit. 'Power to the people' involved community groups in the build." – Peter Ogle, Momentum North. <image>

The masterplan for Momentum North Hīhīaua Community Group suggests that a tactical urbanism with incremental, bottom-up design was the best way to embrace climate change, sea-level rise and economic development. Features include: utilising existing buildings, recycling materials, increasing permeability and providing an elevated path as the central spine connecting the lower peninsula to the Whangarei CBD.

Designed by Sharon Eccleshall, Vignesh Krishnamoorthy, Aleesha Kumar, Shibing Li, Sianne Smith





SITES FOR ADAPTIVE REUSE

the cultural cen



RELEVANT TYPOLOGY FROM SURROUNDING CONTEXT: BOAT SHEDS AT HATEA RIVER



| RELEVANT LIGHT INDUSTRIAL TYPOLOGY: SET BACKS FOR PRIVATE / PUBLIC SEPARATION |



EXISTING BUILDINGS



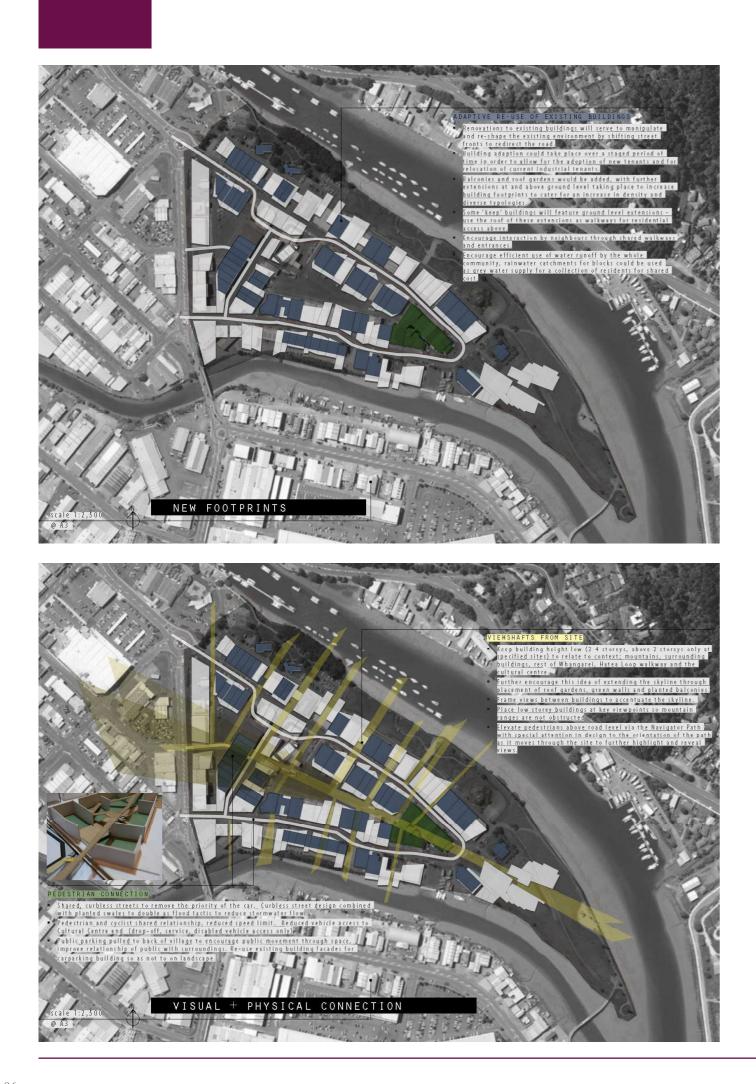
TALLER DEVELOPMENTS POSSIBLE WHERE VIEWSHAFTS ARE NOT INTERRUPTED TO PROVIDE INTEREST TO BUILT ENVIRONMENT + FRAME VIEWS



ADAPTIVE RE-USE



| EXISTING RESIDENTIAL TYPOLOGY AT REYBURN HOUSE LANE: APARTMENTS ABOVE OFFICES + COMMERCIAL |





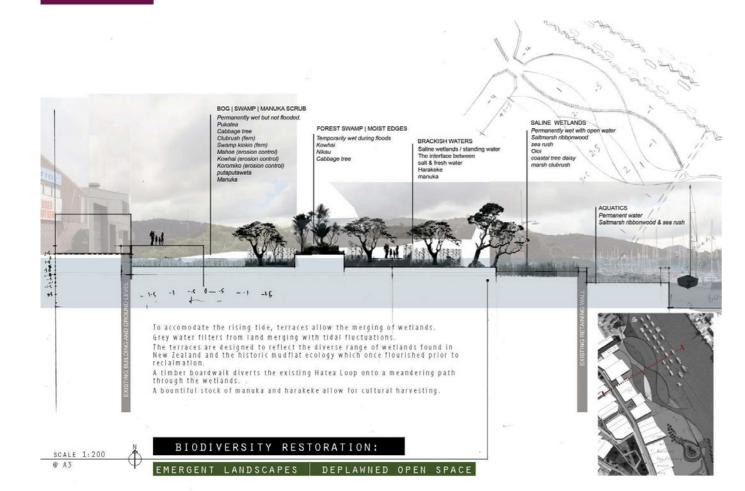
TACTICAL URBANISM TO ENHANCE PUBLIC SPACE, PARTICULARLY STREET ART, MURALS/COLOURFUL INSERTS, CARVING, AND COMMUNITY PLANTING |

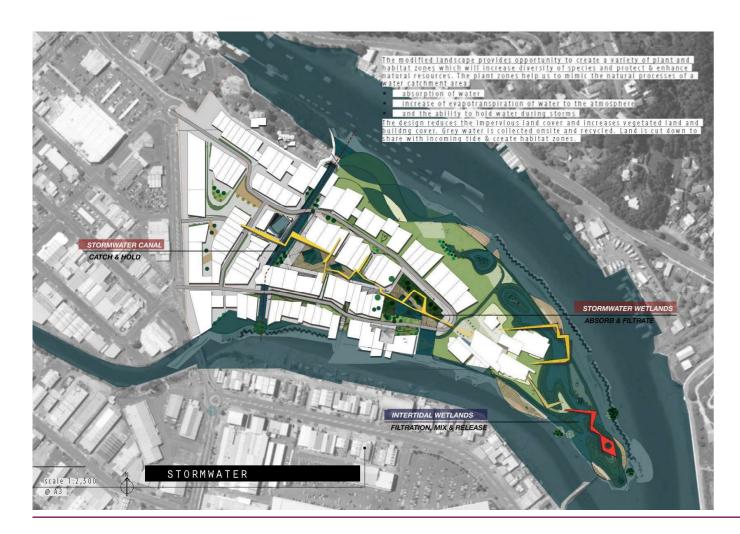
TACTICAL URBANISM



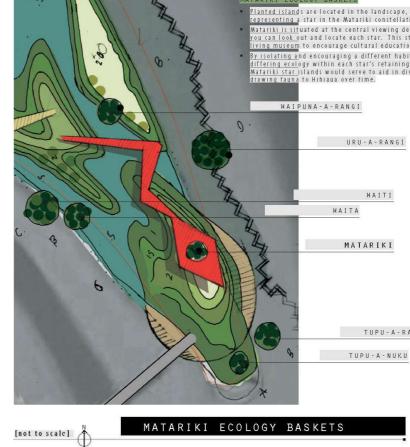












WAITI

MATARIKI

TUPU-A-RANGI





The meeting space and the Pacific Indigenous & Local Knowledge Centre of Distintion



INCREASE PERMEABLE SPACE | CREATE PLACE REUSE EXISTING BUILDINGS |

THE LANDSCAPE DESIGN CREATES A CONTRAST TO THE EXISTING LIGHT INDUSTRIAL AREA. IT CREATES A JOURNEY BETWEEN THE HIHIAUA CULTURAL CENTRE (LANDING OF THE WAKA) AND THE PACIFIC INDIGENOUS AND LOCAL KNOWLEDGE CENTRE OF DISTINCTION (PLACE OF GATHERING).

THE LANDSCAPE HAS VARIOUS FUNCTIONS TO ACCOMMODATE THE SURROUNDING BUSINESSES AND RESIDENTS. THE SITE IS SET UP TO ASSIST IN RESOURCE MANAGEMENT WITH WATER AS ONE OF THE MAIN DRIVERS.

THE INCREASE OF PERMEABLE SURFACE ALLOWS THE SITE TO CATCH/HOLD & FILTER RAINWATER AND THE WETLANDS CREATES RETENTION OF EXCESS WATER TO ALLEVIATE THE STORMWATER NETWORK.

SCALE 1:2500

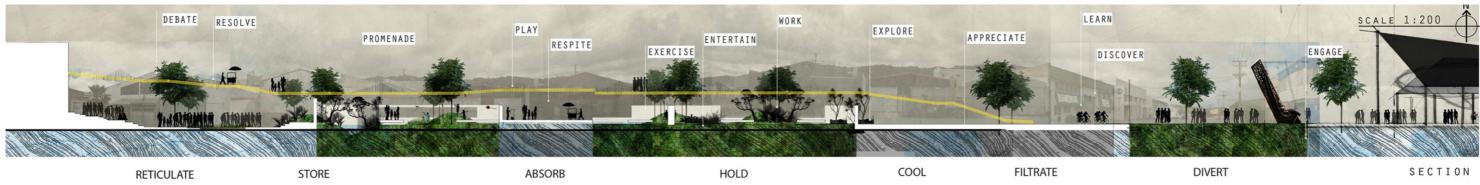


ENHANCE RESTORE NURTURE



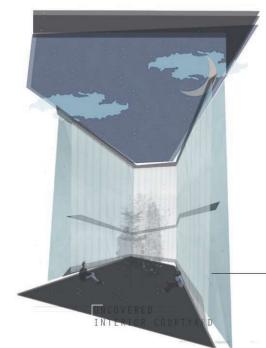






Planting detail section B





TOWARDS MT PARIHAKA

UNDURATING

RAL CENTR

VISUAL + PHYSICAL AXIS TO

DESIGN DETAILS

MANA . WHALE TAIL CARVING ON FRONT BOARD - RESPRESENTIVE OF HIHIAUA CARVED COLUMNS FROM CARVING SCHOOL

RECYCLED MATERIALS

SENSORY DESIGN

ENVIRONMENTAL DESIGN

VISUAL TRANSPARENCY AND MOVEMENT THROUGH UNDULATING LANDSCAPE CREATES A MEANINGFUL PATHWAY CHANGE IN LANDSCAPE LEVELS ALLOW IN SENSE OF SPACE + EMOTION

CRITICAL VIEWSHAFTS REMAIN AND AND A PROXIMITY / AXIS TOWARDS SITES OF CULTURAL KNOMLEDGE IS KEPT

BUILDING ENTRANCE

SIGNIFICANT BUILDINGS EXTERIOR COLUMNS

ROOF SPAN FACES EAST. INCOPORATING THE LANDSCAPE, SIGNIFYING THE WATER AND TOWARDS MAWAIKI

COLUMNS

URBAN DESIGN

HIGHLINE

● VIEWSHAFTS

A X I S

HOLISTIC DESIGN BUILDING HOLDS RONGOA CLINIC EXTERIOR CORRIDORS ALLOW CONNECTION TO THE OUTSIDE

TACTILE + LOCALLY SOURCED MATERIALS SHUTTERING - MADE BY LOCAL WEAVERS

CONCRETE AGGREGATE - FROM DEMOLITION WASTE CORRUGATED IRON - WASTE FROM BUILDING SITE

COLUMNS - EXPERIENCE OF SPACE SHUTTERING - TRANSITIONAL

POST DISASTER RECOVERY ZONE - EMERGENCY ROUTES SECURED

IMNS COLUMNS USED FOR SENSORY DESIGN, TRANSITIONAL BOUNDARY GREEN COLUMNS - TO INTRODUCE BIODIVERSITY CARVED COLUMNS - REPRESENTING THE MANA OF THE SITE CLIMATE COLUMNS - TO ASSIST WITH ENVIRONMENTAL DESIGN

STRUCTURAL COLUMNS - SUPPORT OF 12M EXTERIOR ROOF SPAN

WATER COLLECTION AND EVAPORATIVE COOLING FROM REFLECTIVE POOLS

NARROW PLANS AND GLAZED ROOFING ON CIRCULATION SPACES - LIGHT WELL PHOTOVOLTAIC PANELS ON ROOF / CLIMATE COLUMNS

INTERIOR UNCOVERED COUNTYARD - INTERSTING SPACE REFLECTIVE POOLS - PROXIMITY TO WATER

EXPOSED CONCRETE BLOCKS FOR THERMAL MASS DEEP OVERHANGS ON EASTERN FACADE

PUBLIC ENTRY AND EXHIBITION SPACE

Option 3 - Designed by Vignesh Krishnamoorthy











ENTERING VIA THE WAKA BRIDGE, LEVEL ONE



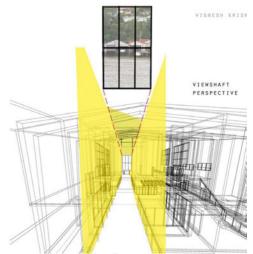


VING + CHARTER SCHOOL

OUTDOOR GATHERING / TEACHING SPACES

STEP DOWN INTO AMPHITHEATRE





2.2.2 Scenario 2

WATER-SENSITIVE LANDSCAPE PUBLIC SPACE AS A MEETING SPACE

The Scenario 2 masterplan reflects a strong interest in water-sensitive landscapes by the students. A flooding analysis and research into wetland design informed important design components of the masterplan. The northern edge of the site is designed as a soft green area, enhancing the connections with the river and helping to purify the runoff from the site. The southern edge of the site contains a major part of the construction. Between these two spaces is located the residential area that is integrated with the new landscape. The creation of a stream within the site is an attempt to restore an original watercourse before the extensive land reclamation.

In the second design phase, the design of a new Pacific Indigenous and Local Knowledge Centre, the concept of a village integrates the landscape and architecture. The Pacific Indigenous and Local Knowledge Centre is designed as a group of buildings at a modest scale, able to be constructed in phases. The landscape and building complex explore a sophisticated response to the brief, offering a number of different kinds of spaces for the users.

"The design of multiple buildings for the Pacific Indigenous and Local Knowledge Centre gives the impression that the centre is a complex itself. The round space for 'meeting in the streets in the village' encourages integration" – Tui Shortland, Momentum North.

Designed by Yamen Jawish, Jill Koh, Sarah Mosley, Wesley Twiss, Yuije Zou



Our goal for the Hīhīaua Precinct is to enrich and revitalise the area, reshaping it into a beacon of knowledge and sustainability, an area that offers the community a place to live, play, work, learn and visit. Our design interventions are able to adapt towards the predicted sea-level rise and climate change within the region.

SITE ANALYSIS: HTHTAUA

KEY ISSUES



Sea-level rise



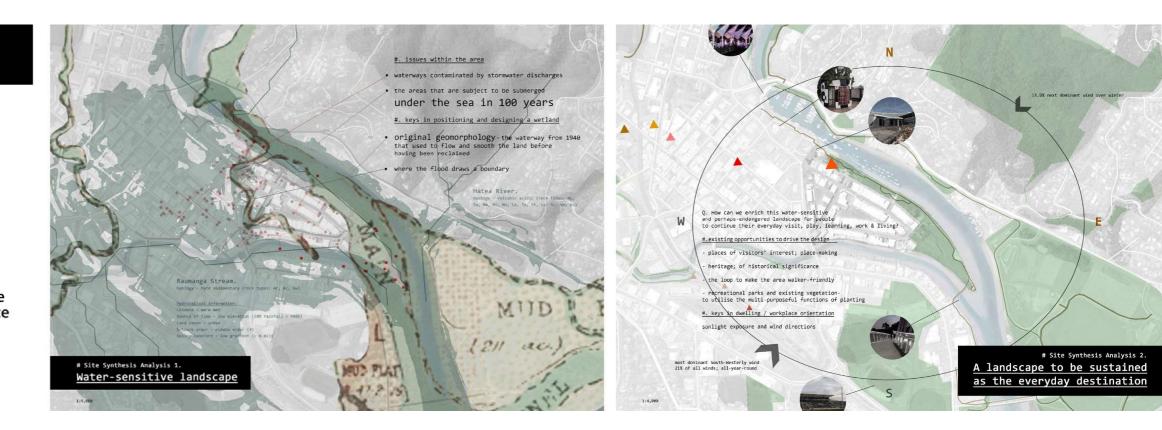
Contaminated estuary

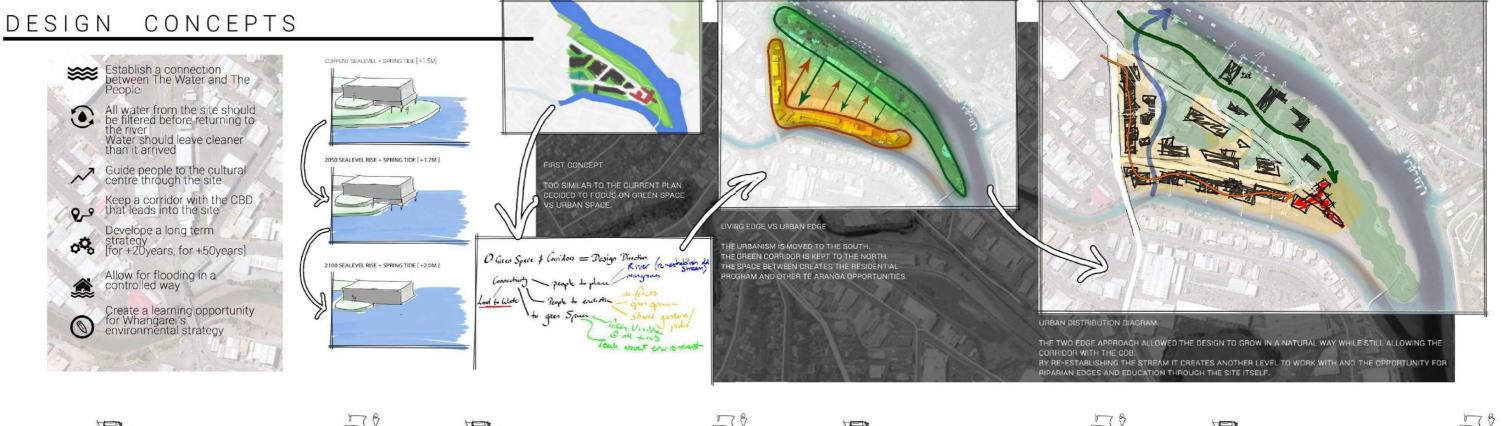


Land in increasing demand for use as daily destinations, i.e. workplace and waterfront lifestyle dwelling

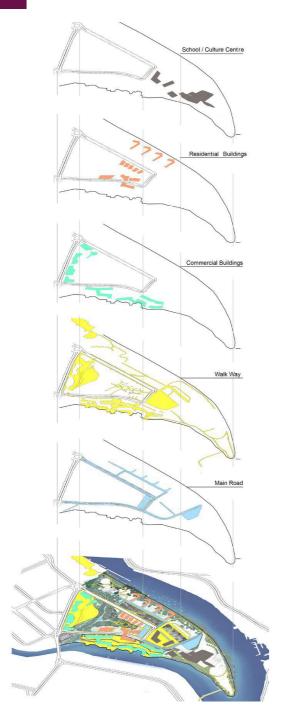


Lack of ecological connection













Wetland design rationales

The design rationale behind the implementation of a wetland in our design aims around an ecological revitalisation of the area. The introduction of the wetland serves multiple functions that benefit the environment and liveability for the community within the area.

Wildlife Habitats.

Firstly the proposed wetland provides an ecological buffer within a busy urban environment. The plants located within the wetland slow down the flow of water allowing particles to settle while also reducing sedimentation. The plants also provide shelter and habitats for native birds and aquatic species enhancing the local ecology (Department of Conservation, n.d). The wetland promotes the Māori concept of Taiao (the protection and restoration of the natural environment) where this offers us an opportunity to revitalise the local biodiversity and allows the community to harvest specific planting species (Auckland Council, n.d).

Water Quality.

The wetland enhances the water and air quality of the area, thus, reducing the effects of the surrounding human environment. Strategically selected plants within the wetland act as filters which are able to decontaminate the soil and cleanse surface runoff from contaminants that originate from the surrounding urban environment (Department of Conservation, n.d). The implementation of the wetland revitalises the previous waterway that cut through the area, therefore, restoring a natural component that strengthens the ecology of the area. These aspects promote the Māori concept of Mauri Tu (enhancing the quality of air and water while also enhancing the community's well being) (Auckland Council, n.d).

Education & Recreation.

Implementing a wetland in the city of Whangarei offers recreational opportunities and activities for the community to enjoy. Wetlands accommodate a wide diversity of bird and aquatic species, thus, allowing opportunities such as fishing, bird watching, whitebaiting and hunting to occur. Wetlands also provide a means for students and community members to learn and study the implications and systems of wetlands and how they operate and control contaminants in a dense urban environment (Department of Conservation, n.d).

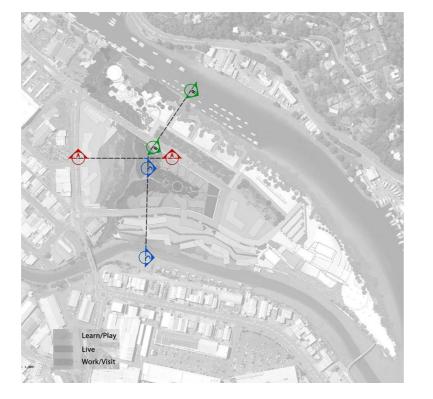
Cultural Significance.

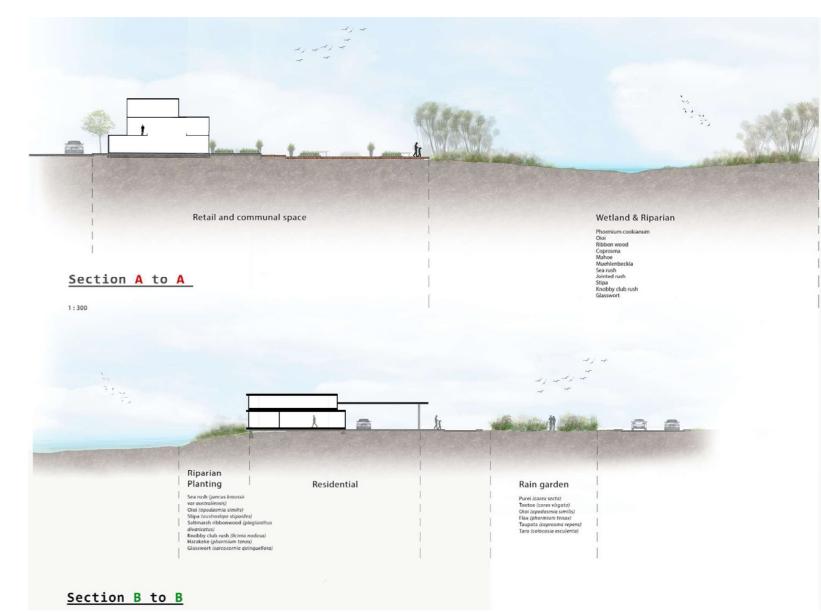
Wetlands, the treasure coves of early Māori, provided a significant means of sustainable cultivation of the land. Phormium tenax, commonly known as harakeke or flax, is a vital component to Maori culture and traditions. The plant was cultivated and used as a form of weaving clothing, mats, kits and ropes. A number of other plants also found in wetlands were used for thatching a means of creating a building roof using dried vegetation (Webster, n.d) and bedding materials (Department of Conservation, n.d). The fauna which lived in the wetland such as eels, fish and birds were a reliable source of food for Māori while also utilising bird feathers to create garments and cloaks. Wetlands also functioned as a means for early Māori to navigate the area using their waka (canoe), therefore, signifying the cultural importance of waterbodies (Department of Conservation,n.d).

Wetlands for flood control

Wetlands are mediums that reduce the impacts of flooding, as they are able to contain large volumes of rainfall and gradually release water into the surrounding area. Downstream flows and groundwater levels are also controlled during durations of low rainfall and are able to accommodate excess water due to sea level rise. Wetlands are also able to increase the stability of riverbanks and shorelines (Department of Conservation, n.d).







PROJECTED LANDSCAPE IN FUTURE



THE HĪHĪAUA VILLAGE - PACIFIC C<mark>ENTRE</mark>

THE VILLAGE

The village concept enables the community to interact within the communal spaces of the design. The plan allows for gathering at three points of the design: the entrance, the central amphitheatre, and the river terrace.



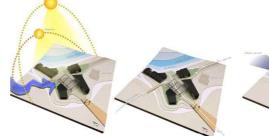


LANDSCAPE INITIATIVE

Sea-level rise will greatly impact the Hīhīaua site, so a tactile terracing, in conjuction with riparian plantings, and replanting of native plants, aims to educate the community on these environmental issues.









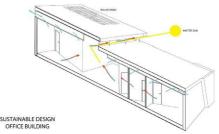


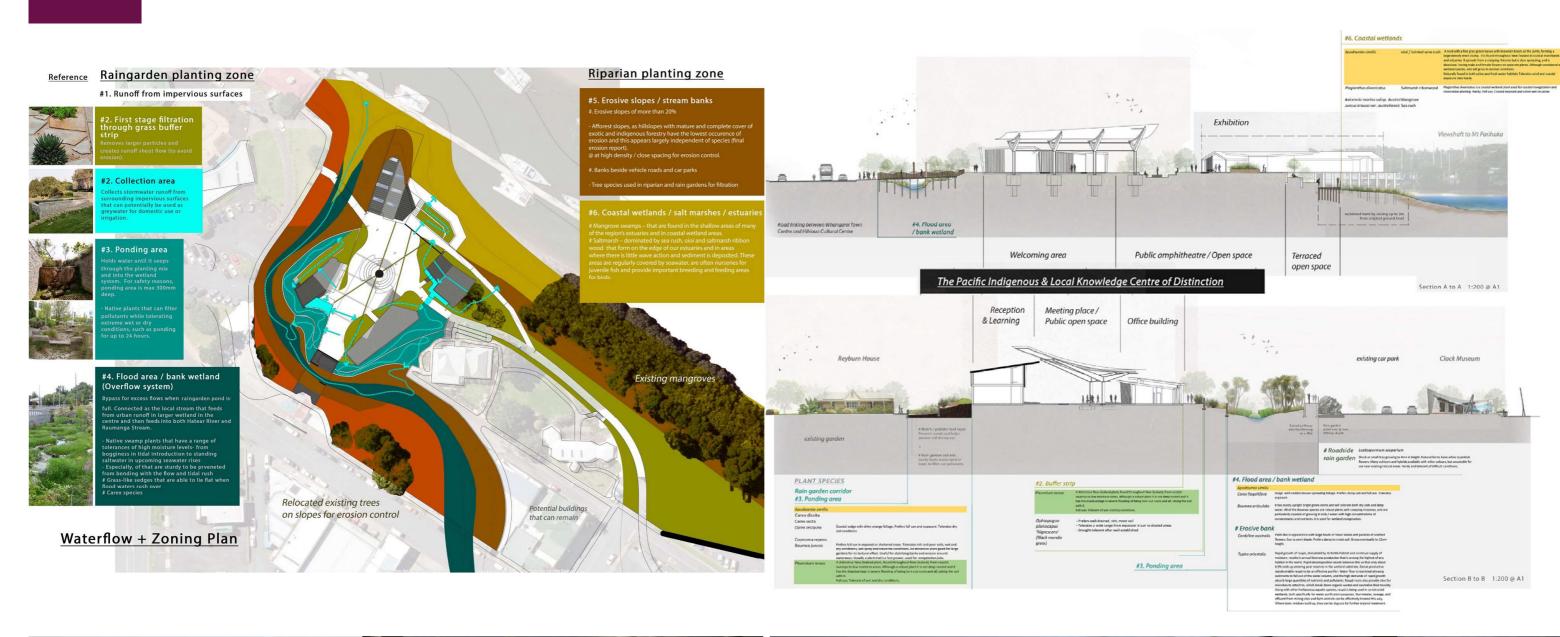














2.2.3 Scenario 3

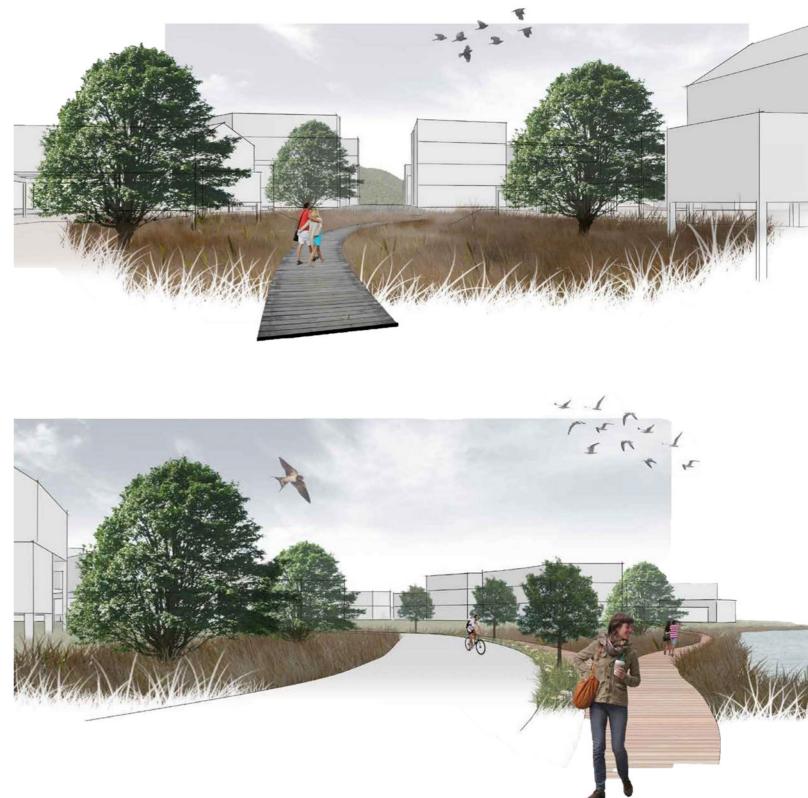
The Scenario 3 masterplan demonstrates a close connection between flooding and flooding remediation research, and the design work. The landscape design explores a wide range of environmental strategies including remediation wetland, a new beach and drainage swales, all integrated within the masterplan. The proposed street system is designed to integrate a view shaft from the Whangarei CBD to the Hīhīaua Cultural Centre. A curving cultural spine along the northern side of the site helps to integrate the Whangarei CBD, the community hub, with the proposed Pacific Indigenous and Local Knowledge Centre.

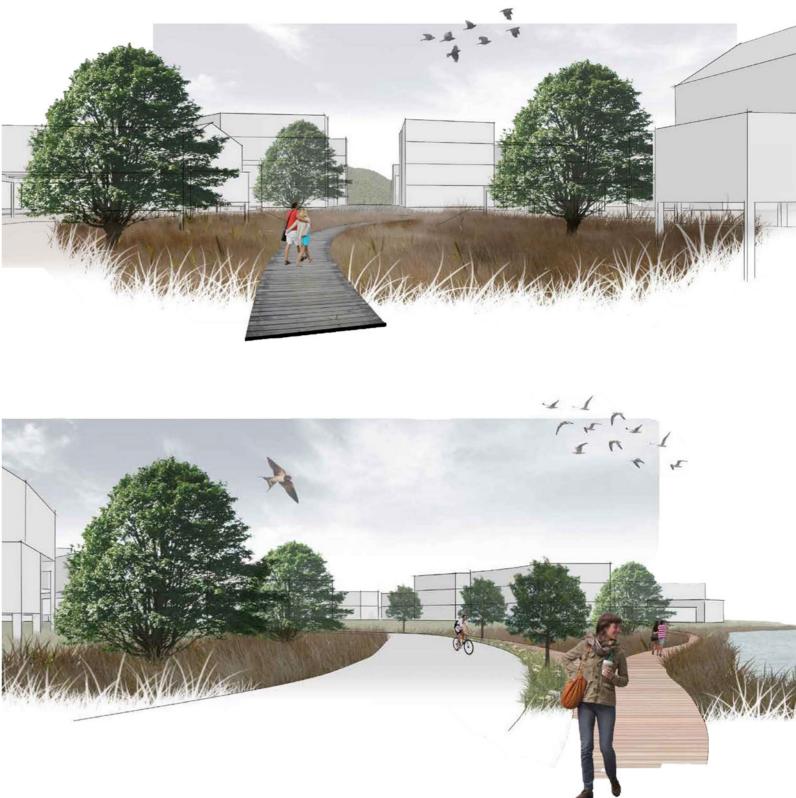
The design of the Pacific Indigenous and Local Knowledge Centre was guided by three concepts: the orientation of the building to the new beach/river, the use of a tower to connect the building to the larger landscape and a green, walkable roof

FLOODING REMEDIATION **GREEN INFRASTRUCTURE RESIDENTIAL ISLANDS ELEVATION OF LAND AND STREETS**

to connect visitors from the city to the landscape. The landscape design makes a strong connection to the wider landscape and to the cultural spine.

"Somebody used the word 'civic' to describe the Pacific Indigenous and Local Knowledge Centre and I thought that was accurate. The rear view suggested a mountain reflecting the landscape above it as you approached from the city. I liked the way the building grew as you traversed around it. From the city side, you were pulled in by interest in the tower/beacon and interesting pathways and landscaping, then tempted to ascend the roof or just move around to the grandeur of the front view. Good internal spaces and the use of structural glazing for lighting were features. The beach protected by the 'open arms' of the buttresses welcomed and the view of the building from the river was stunning." - Peter Ogle, Momentum North.





By using green infrastructure, the Hīhīaua Precinct can take a resilient approach to wet-weather impacts. Since it is of a smaller scale, it can be used as a water management system, mimicking nature by absorbing water. This technique will alleviate the pressures of stormwater surge on the existing stormwater system.

Designed by Trina Gaston, Rory Gray, Torben Laubscher, Thomas Smith



IMPLEMENTATION STRATEGY

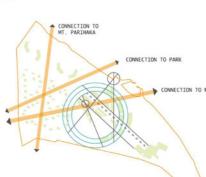
Due to the size of the project we propose to break down the build-ing process of the master plan in five main stages. 1. Demolish existing warehouse buildings located in the tertiary/ academy location and construct these buildings.

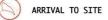
Complete the remaining commu-nity hub buildings and beach - this creates the draw card to the site generating a vibrant and social en-vironment.

3. Construct retention pond to manage and purify surface water run-off from community hub.

Construct wetland and apart-ment housing. By this stage live, learn, work and play have become initiated.

Finish surrounding landscaping along river edges to repair and re-store the land.





Dent street will be transformed into a single lane street, 3.5m wide to cater for bus access. It will include a cycle lane and ctransformaking at specific locastreet parking at specific loca-tions. Vehicle access and parking is made available to the Cultural Centre via the shared path.

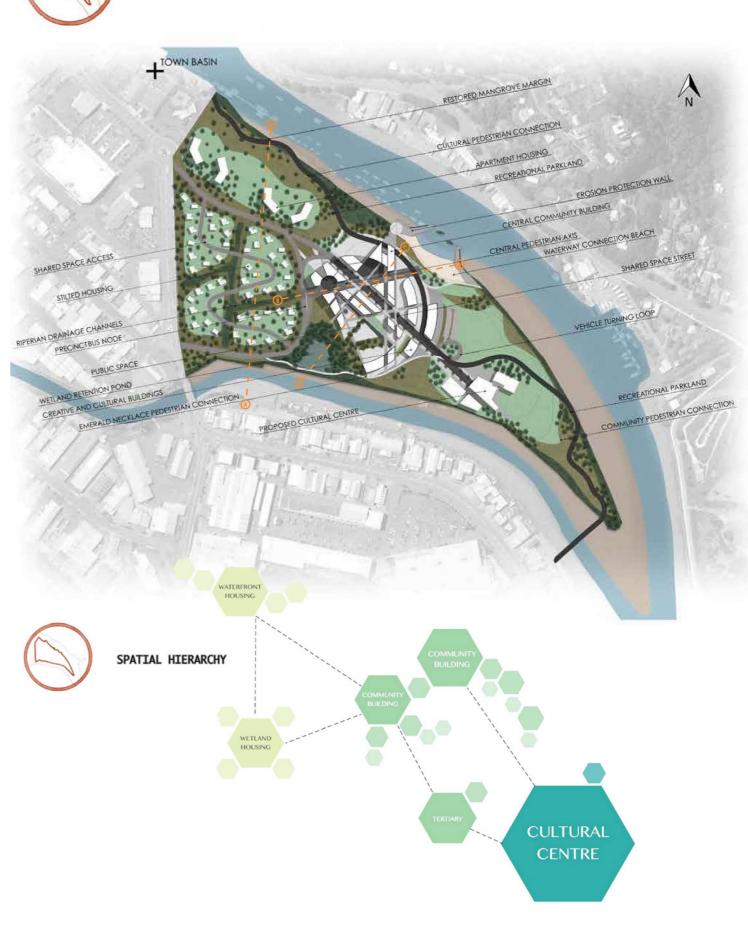
A bus terminal situated in the centre of the residential and community zones will allow for an alternative mode of transport, further promoting a car-friendly

The Hatea loop will be refined to include access to a new proposed community building, man-made beach and Cultural Centre.

COMMUNITY HUB TYPOLOGY



SITE PLAN



SPATIAL ARRANGEMENT

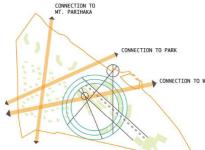
The architecture has been spatially arranged around four key drivers.

Arrival to the Cultural Centre. and pla Three rings: Work, learn and play.
 Orientation of Community buildings.

The arrival to the Cultural Centre has been kept open and extended di-rectly out into a shared path. This is to give the Cultural Centre a sense of prominence.

View shafts to Mt. Parihaka, park space and the man-made beach have been left open, enabling a sense of direction direction

The centre of the community hub es-tablishes the three rings, which in turn dictate building footprints. Furthermore, two datum points de-rived from meeting places outside the two community buildings divide up the spaces into unique urban en-vironments.





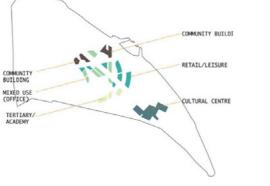
Community and leisure buildings complement the cultural spine and beach front.

- Community Office/Mixed use

- Leisure - Tertiary/Academy

Tertiary buildings will accommodate future growth of Northtec and ex-isting academy. It is intended that these different functions will integrate well and be a draw card for the site.

VEGETATION AND WATER MANAGEMENT



RESIDENTIAL ZONE TYPOLOGY

Within the residential zone there are 2 main typologies:

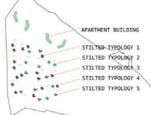
Apartments Stilted houses

Stilted houses are situated on four raised islands with wetlands in be-tween to retain and treat water. From our prior research we conclud-ed that elevation on fill is the most effective way to combat sea level rise and flooding.

The stilted housing is intended to be affordable housing with the ability to choose housing types from a prefabricated catalogue. By elevating the houses we have al-lowed the community to utilise the ground space and create a village-style atmosphere with no fences.

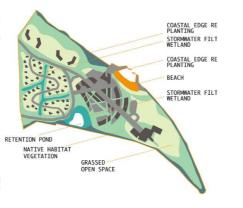
The Mt. Parihaka view shaft draws the connection between affordable housing and apartments a through a wetland walkway.

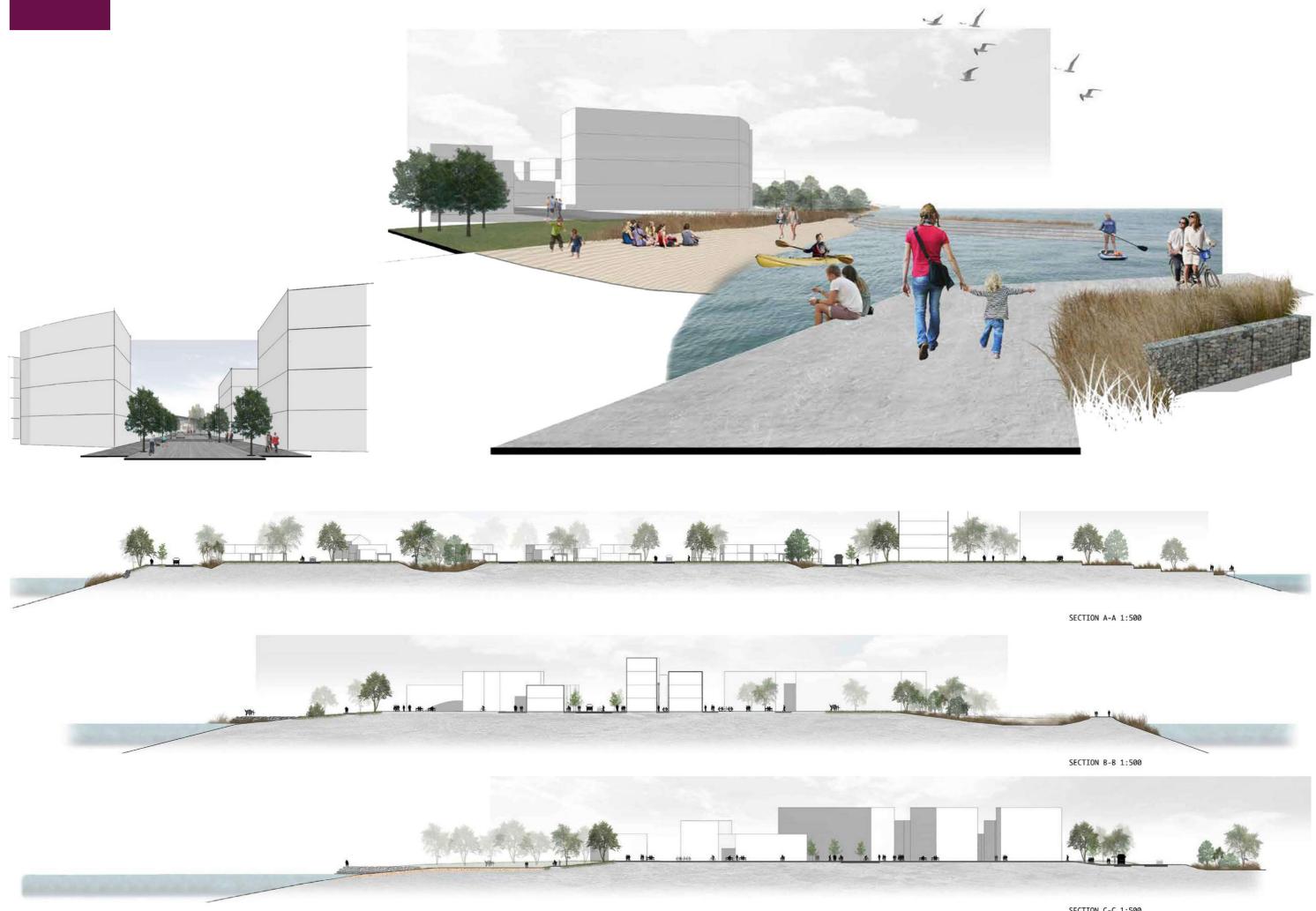
The apartments have been set back from the water's edge to allow for a natural feeling setting.



The vegetation on site had been en-gaged to return natural processes of ecologies on site, mitigating problems of flooding, current health of the waterways and cultural con-nection to the landscape. The reduction of impervious sur-The reduction of impervious sur-faces is a key driver in creating a resilient landscape. Rather than preventing the flooding the site would be allowed to flood but re-stricted to open space such as wet-lands and native vegetation areas. Stormwater wetland areas are centred on returning water to the ecosystem clean, absorbing the toxins and substances.

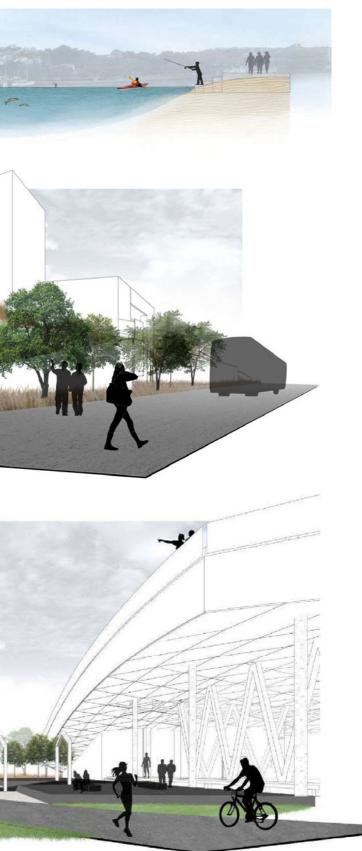
The coastal margin will create a unique opportunity for fostering and restoring estuarine ecologies, which aid in cleaning up the waterways.





SECTION C-C 1:500







2.2.4 Scenario 4

NAVIGATION PATH PAPATŪĀNUKU TOWER LANDMARK FLOODING REMEDIATION

The Scenario 4 masterplan centres around a navigation path to enhance the connection from the Whangarei CBD to the Hīhīaua Cultural Centre. The urban entry to the path is marked with a tower representing Ranginui and Papatūānuku. This becomes both a landmark to locate the entry within the greater Whangarei region, and an acknowledgment of Māoritanga. The gigantic landmark, in effect an entry pou, helps create an identity for the site.

The proposed Pacific Indigenous and Local Knowledge Centre is designed to integrate into the landscape by allowing people to walk on the roof. The building connects to the surrounding landscape at different scales. Some parts of the building are designed to be underwater, as a learning opportunity for the public to experience tidal movement and the effect of sea-level rise. The landscape design combines stormwater remediation with public space.

"Appealing features were the wayfinding tower and thoroughfare, the way the Pacific Indigenous and Local Knowledge Centre reflected the Wave and Waka statue, views to Parihaka and the indoor/outdoor aspect. The building also had great use of space with the first level (mostly underground) auditorium for 150, the shared spaces of level two and the library/learning space on the top level." – Peter Ogle, Momentum North.



Designed by William Giles, Yanan Li, Knher Santos, Sally Shi

MASTERPLAN PRINCIPLES

Live Work Play

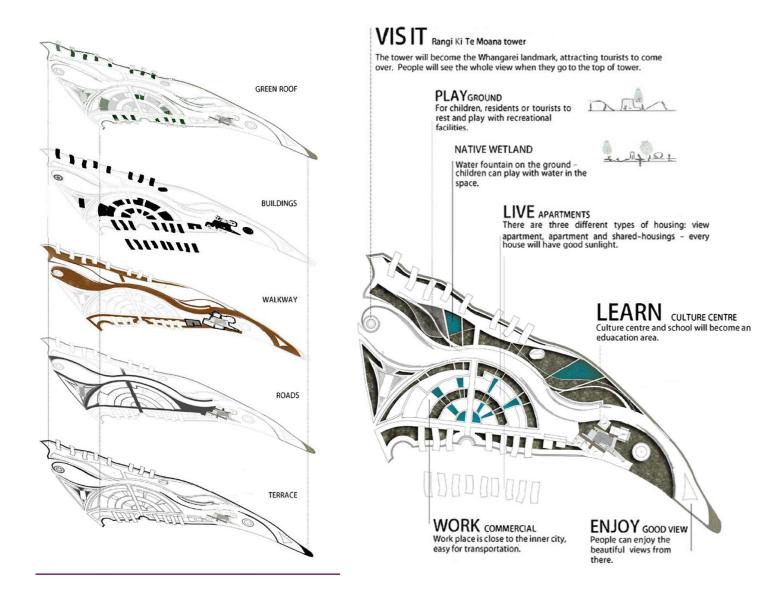
This masterplan enables key Live Work and Play attributes. Having a variety of mixed-use buildings scattered on the edges makes for a lively and interactive space, the residential mixed-use blocks allow for an open view on living. Shared facilities will accommodate 350 apartments 150 of which are along the water's edge. These facilities will vary in size to suit the needs of all shapes and sizes of families and individuals. Having these buildings on the water's edge will create a playful atmosphere where commercial and retail space can flow onto the streets and interact with the people of the town in a playful way. One carpark facility will be located on the corner of the site encouraging people to venture through Hiħīaua by other means and enjoy the culture and the atmosphere first hand. Green space flourishes the length of the site with lots of small pocket parks. These pocket parks have a special environmental use as well.

Culture

The masterplan originates from a variety of cultural narratives that have been incorporated into the design as a part of working with the Te Aranga Principles guidelines. We decided that a landmark building for the site would be an adequate feature. It would give a wayfinding landmark to the city. This landmark tower Rangi Ki Te Moana, uses Te Aranga Principles in its design. As you move through the tower you appreciate the levels of creation and in the sky element you can overlook the breathtaking views of Whangerei. The curves of the raised walkway mirror the local river as it weaves through the land. The paths that cross the site relate to traditional weaving patterns. The path symbolises the journey of a waka through the site to the land taking you all the way to Rangi Ki Te Mogana. Culture can breather through this site with view shafts created between buildings so the people of Hihiaua can have a strong visual connection to their mountains. Culture will live and breather through all elements of this design.

Kaitiakitanga

Kalinakitanga Everyone should be guardians of this land that we step upon. We've made a conscious decision to incorporate Kaitakitanga principles into our design so that all people of the land can be a guardian. One of the ways we plan to do this is is with a hydrology scheme. Water is an essential component for the people of Whangarei. Our goal with our project is to revitalise the contaminated water from flowing into the Hatea River and the Raumaunga Stream. In our project, we have collaborated as Architects and Landscape Architects to create a new Hihiaua Peninsula that is capable of sustaining and enhancing itself. Our first plan was to create buffers between buildings filtering the water flowing through the new developments – this will be achieved by grading the landscape allowing the water to flow down the site with ease. Retention ponds are also precisely designed to allow the people to both interact and witness the water in Hihiaua. For further enhancement of the site our group has also created wetlands towards both the North and the Southern side of the peninsula. This allows filtration of the site our group has also created wetlands towards both the North and the Southern side of the peninsula. This allows filtration of the water before flowing into the large body of water mimicking the design that towards the residential development of Hihraua but with less impervious surfaces. With these alterations of the site we are confident that Hihiaua's hydrology will be revitalised for future generations. Ponds in-between the mixed-use sector will also act as rain gardens where the residents will take responsibility for planting their own raingarden. It is the people who reside on this land's responsibility to care and maintain the land and show guardianship towards it.





RANGI KI TE MOANA

EARTH TO SKY

Diagram showing the children of Ranginui and Papatūānuku Ranginui = Papatūānuku

Tümatauenga Täwhirimätea Täne-mahuta Tangaroa Rongomätäne Haumietiketike People, war Wind, weather Porests, birds Sea, fish Cultivated food Uncultivated food

The tower also reates to the narrative of Maui the navigator. The tower at night will light up as the stars of matariki do and can be used as a wayfinding and navigational tool as our ancestors used the stars to navigate.



SKY RANGINUI

CHILDREN

PAPATUANUKU EARTH



The tower Rangi Ki Te Moana uses Te Aranga principles in its design. It is the Māori story of creation and shows the connection between Ranginui the sky and Papatūānuku the earth and the darkness between them which allowed creation of their children. You'll see the tower broken up into the three sections the earth, the sky and the creation. This tower will be so unique as nowhere else in the world would you get to climb a tower through the elements of creation and then look out over the children of Ranginul and Papatūānuku first hand.

MANGOPARE WALKWAY

The central walkway will act as a guide for people to navigate from the existing CBD and town centre to the Hihīaua Peninsula. The walkway design originates from the Mangopare (hammerhead) curve which is commonly seen in Māori design. This curve represents natural abundance, strength and determination. These ideas behind this curve are values that we hope to have a strong presence in the Hihīaua precinct. This walkway will take you through all the different elements of this masterplan in an exciting raised elevation. This elevation of the walkway will leave you in constant view of the peninsula as well as the two wayfinding points at each end of the site. The walkway will showcase the whole precinct and environment surrounding it. It is the key driver in the layout of the buildings that surround this design element.





A raised walkway flows through the site, acting as a navigational path to a variety of precincts along the way, such as the new cultural centre, mixed-use buildings and cultural landmark sculptures. The green spaces that line the paths allow for a pervious surface for water to absorb. A percentage of buildings have green roofs, acting as a pervious surface. Every building uses kaitiakitanga as a



The south buildings mirror the north of the site and allow for the buildings' occupants to have a greater connection with their mountains and river. On the side, there are two retention ponds that can hold a vast amount of water in flood, which is then cleansed and replenished using natural sedimentation before going back to the



principle – it puts back into the earth what it takes from it. The tower Rangi Ki Te Moana uses Te Aranga principles in its design. It is the Māori story of creation, and you get to climb the tower through the elements of creation and then look out over the children of Ranginui and Papatūānuku firsthand.

river. Yet again, we are using kaitiakitanga as a principle for putting back what we take from the earth. These buildings on the edge will accommodate residential and mixed-use that can thrive on the water's edge. The buildings will be able to spill out onto the streets on both sides, creating a lively environment in Hīhīaua.



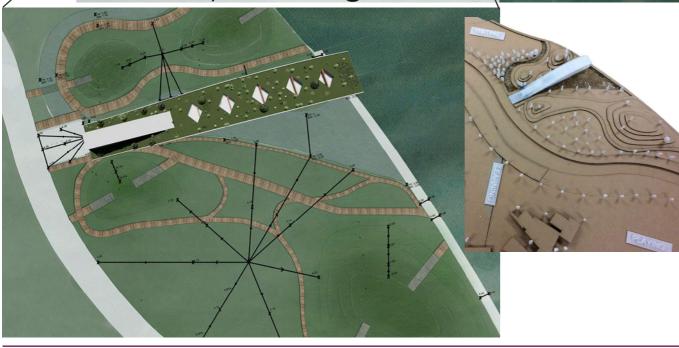


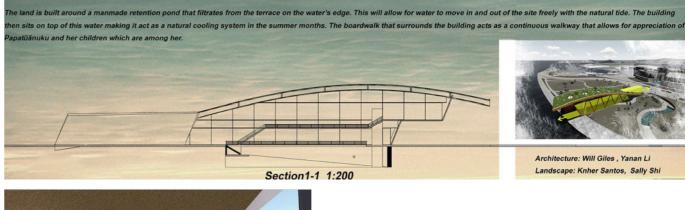
Masterplan 1:2000

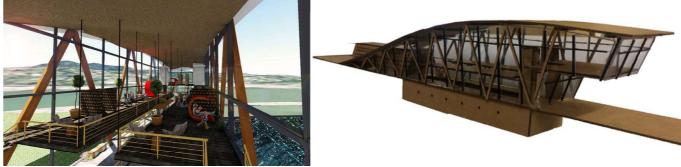


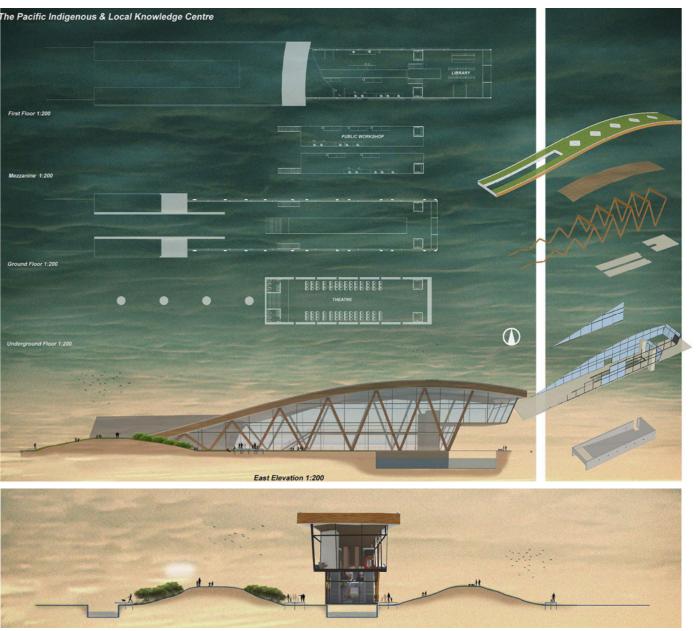
allows for a strong link between developments to the water's edge. It is a link for local people and tourists to use this link and explore this natural building to obtain indigenous knowledge. This building acts of significant importance as you enter a dramatic long entrance that lets you reflect upon cultural narratives as well as ancestral respect. Meeting spaces are dispersed in a wide variety of areas such as the library and mixed-use creative and research space. The most important meeting space can hold a function of 150 people. This space can be used for conferences, performance and discus sion amongst the Pacifica community and the public.

Overall this project acts as a benchmark for Pacifica architecture showing respect to the land and respect for the culture that comes to a place. A place to meet, learn, reflect on a variety of Pacific cultures.









2.2.5 Scenario 5

The Scenario 5 masterplan explores the margins of the site, using wetlands and native vegetation to help in the mitigation of flooding. The northern edge of the site is designed as a public park, with the buildings located back from the edge. The masterplan encourages a reduction in the use of cars by creating a large pedestrianfriendly zone around the proposed Hīhīaua Cultural Centre. The river's original course through the site is restored and used for stormwater remediation.

The design of the proposed Pacific Indigenous and Local Knowledge Centre deliberately evokes connections with Pacific culture while making connections to the river and the surrounding views. Two options for the building design were developed. The first option draws on themes from the legend of Maui, by incorporating a canoe shape using a pattern of fish scales. The second option connects to

RIPARIAN EDGES BOARDWALK REDUCTION OF CAR USE GREEN NETWORK

Te Aranga Design Principles through the architecture. The landscape design uses the Samoan malae (an open outdoor meeting place) as an inspiration for the gathering place at the Pacific Centre.

"The use of a celestial viewing compass, Te Kāpehu Whetū in the Pacific Indigenous and Local Knowledge Centre was a successful gesture to integrate the building with the cosmos." – Tui Shortland, Momentum North.

"One of my favourite landscape designs. The forest, medicinal plantings, water filtration and the terraces working as flood defence, but also as a natural draw to the river. Reflecting all the cultures of Micronesia, Melanesia and Polynesia in a marae-style layout, and incorporating the elements of Maui, ika and waka within the framing, worked for me." – Peter Ogle, Momentum North.



Designed by Doyle Eccleshall, Aynnezele Lomboy, Madhuvanthi Padmanabhan, Rui Su, Dexell Atia

PROBLEMS - SOLUTIONS



Hydrology and catchments

Problems:

Displayed is flow accumulation clipped to the surrounding catchments. These areas backlog with water and currently encounter erosion and habitat loss.

Solutions:

Ensuring riparian margins on all water courses are established to prevent erosion and sediment development further down stream, and surface runoff must be filtered through these riparian margins. This will increase the habitats in the awa demonstrating kaitiakitanga.



Highly-sloped areas, land cover, rivers

Problems:

Displayed on this map are the existing vegetation and highly sloped areas - these areas are where landslides would occur most.

Solutions:

Using New Zealand native planting to stablise steep areas, especially those of which back on to streams or waterways will prevent landslides from contaminating the streams or waterways.



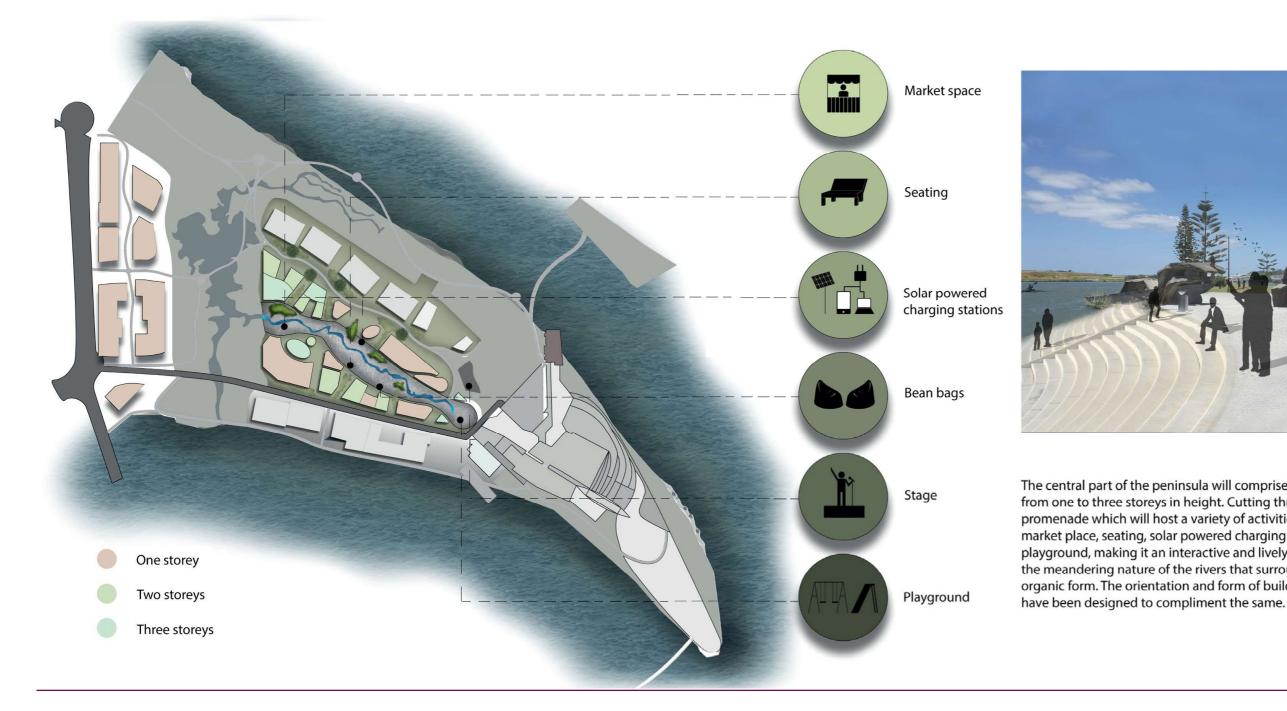
View shafts

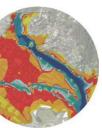
Problems

This map identifies to local natural environment. Hīhīaua is lucky to have such close proximity to Mount Parihaka, Pukenui Forest and both Hatea River and Ruamanga Stream. Current layout of Hīhīaua does not idenitify with these well.

Solutions

Enchancing the visual connection to the surrounding landscape elements through viewing platforms, layout of surrounding buildings to enhance the view shafts to Mount Parihaka. Pukenui Forest, Hatea River and Ruamanga Stream.





The next 100 Years

This map displays what climate change will look like on the existing layout of Hīhīaua including the events of:

- 100 year storm-water event

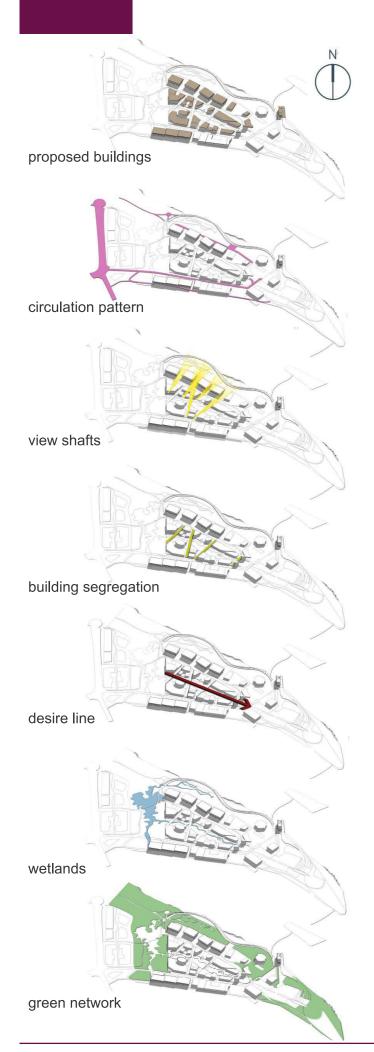
- 50 year estimation of climate changes sea rise - High / king tide movement

- Storm-water surges from ranges / Kokotu dam at maximum capacity

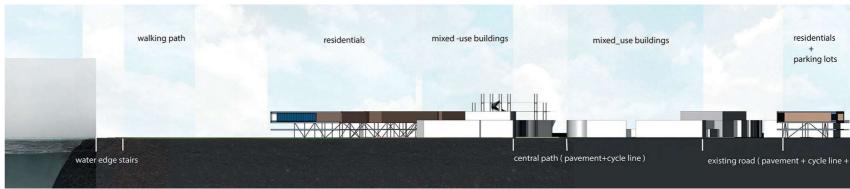
Designing flood resistant strategies: the implementation of vegetation susceptible to floods and filtration, encouraging environmentally friendly development controls, eg, planning for no cars on Hīhīaua peninsula, encouraging walk / cycle ways and recycling of buildings and consumables.



The central part of the peninsula will comprise of mixed-use buildings that range from one to three storeys in height. Cutting throught these buildings is a central promenade which will host a variety of activities and leisure areas that can include a market place, seating, solar powered charging stations, bean bags, a stage and a playground, making it an interactive and lively space. The promenade responds to the meandering nature of the rivers that surround the peninsula, and hence has an organic form. The orientation and form of buildings that encompass the promenade









Learning Centre proposed to **offer learning** facilities that highlight the importance of **climate change**.

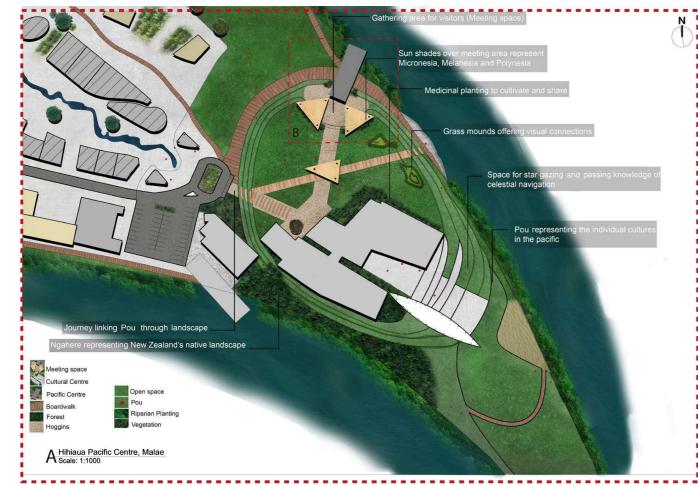
Connections to wider landscape.

Stairs act as a barrier for erosion while creating an ement for public use.

Scale: 1:1500

residentials + parking lots

Pacific Indigenous & Local Knowledge Centre of Distinction





2 Gathering & Meeting Place Scale: 1:200



Option 2 - Designed by Rui Su



Te Aranga Principles

Mauri Tu - water theatre / grey water system / rainwater collection/ solar panel system

- Taiao water theatre connect with water / hakari connect with view, moutains/ food sharing place connect with land
- Tohu patterns on building representing different Pacific culture (connect with posts around the site)/ traditional spacial layout/ hakari celebrate feast, living / structure as key elements

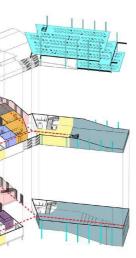
Pacific carving patterns



ngatu (Tonga) taga (Fiji)

Cook Islands)

Spear heads (Samoa)





2.2.6 Scenario 6

ACCESS TO WATER WATER QUALITY

The Scenario 6 masterplan uses five key concepts to drive the overall design: access to water, shared space, cultural enhancement, the effects of climate change and improving the water quality. The landscape strategy was driven by the flooding analysis and remediation strategy, placing a stormwater detention lake at the centre of the masterplan.

The design of the proposed Pacific Indigenous and Local Knowledge Centre responds to the surrounding landscape by framing important views and creating a central axis that leads people to the river. The public space is organised in three zones that guide visitors to the Pacific Centre and to the water. The cultural brief was explored by using the matariki constellation as a pattern for the building column layout.

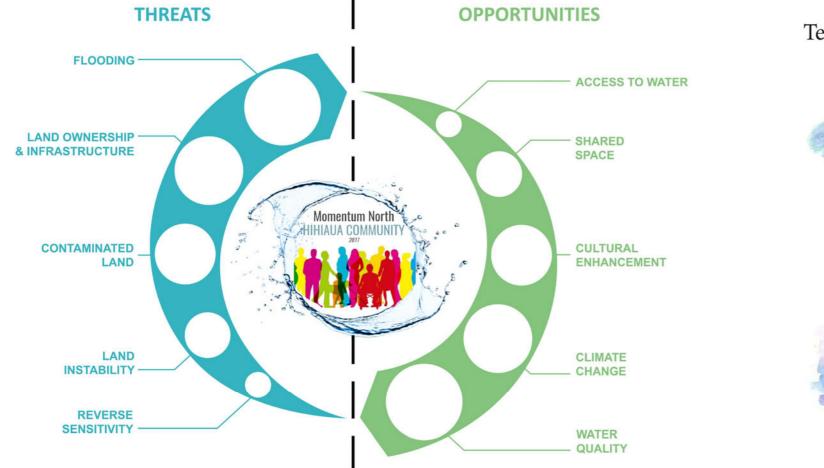
"The Pacific Indigenous and Local Knowledge Centre creates access to water and herenga waka. The meeting space for all to share was an idea we are already wanting to do." – Tui Shortland, Momentum North.

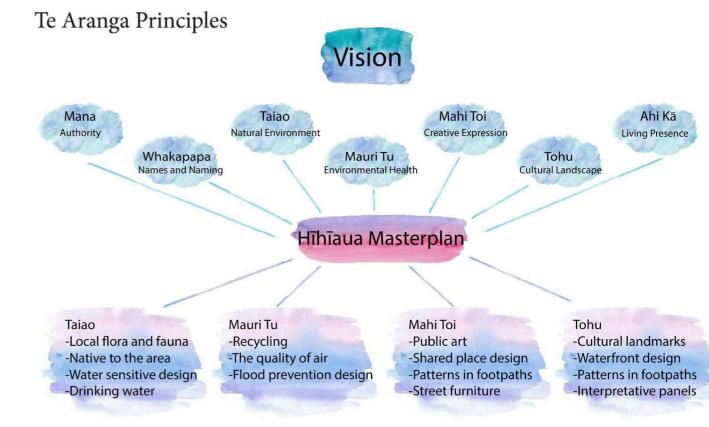
"[I] particularly liked the roof structure of the Pacific Indigenous and Local Knowledge Centre of Distinction and the way it used light in the matariki pattern. For me it also had that symbolism of waka sails. The landscape leading to the common multifunctioned meeting space appealed." – Peter Ogle, Momentum North.

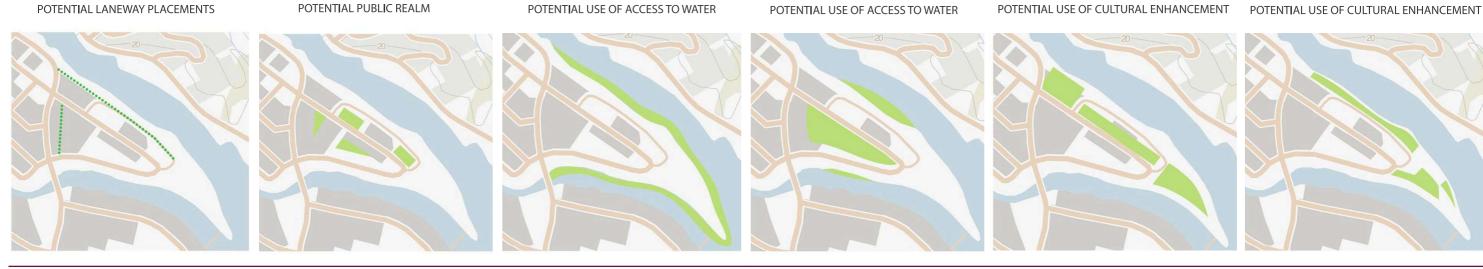


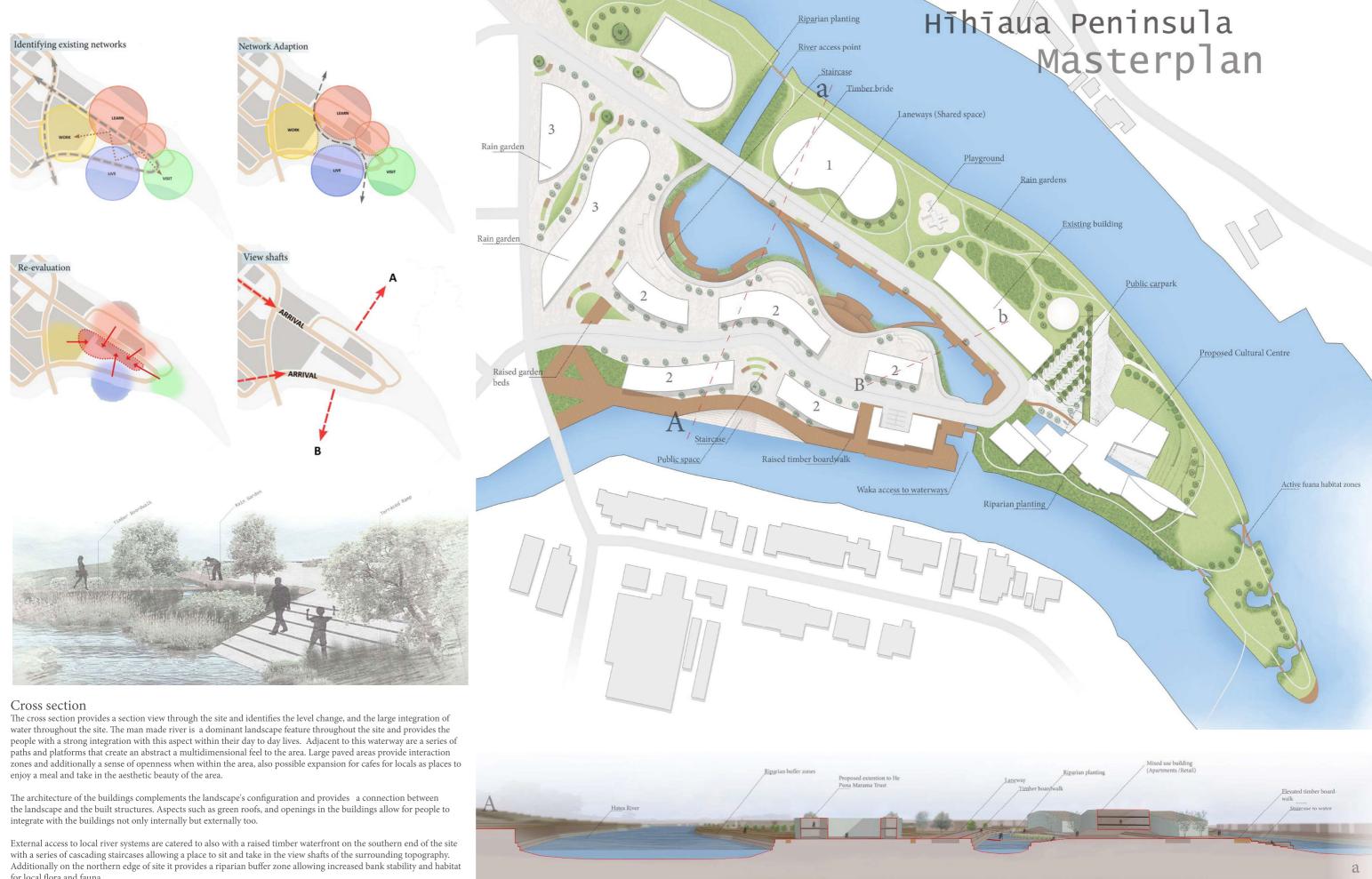
Habitat recovery trail - The purpose of the habitat trail is to increase habitat for local fauna and flora throughout the Whangarei district and allow water onto the site in highly susceptible flooding areas. A series of boardwalks intersects with these zones and information pillars will be placed to provide details to visitors about the plants in the area, providing a functional learning experience while embracing the beauty of the site.

Designed by Michael Macfarlane, Selwyn Guo, Phoebe Tao, Tevita Vea, Yuhao Wu









for local flora and fauna.

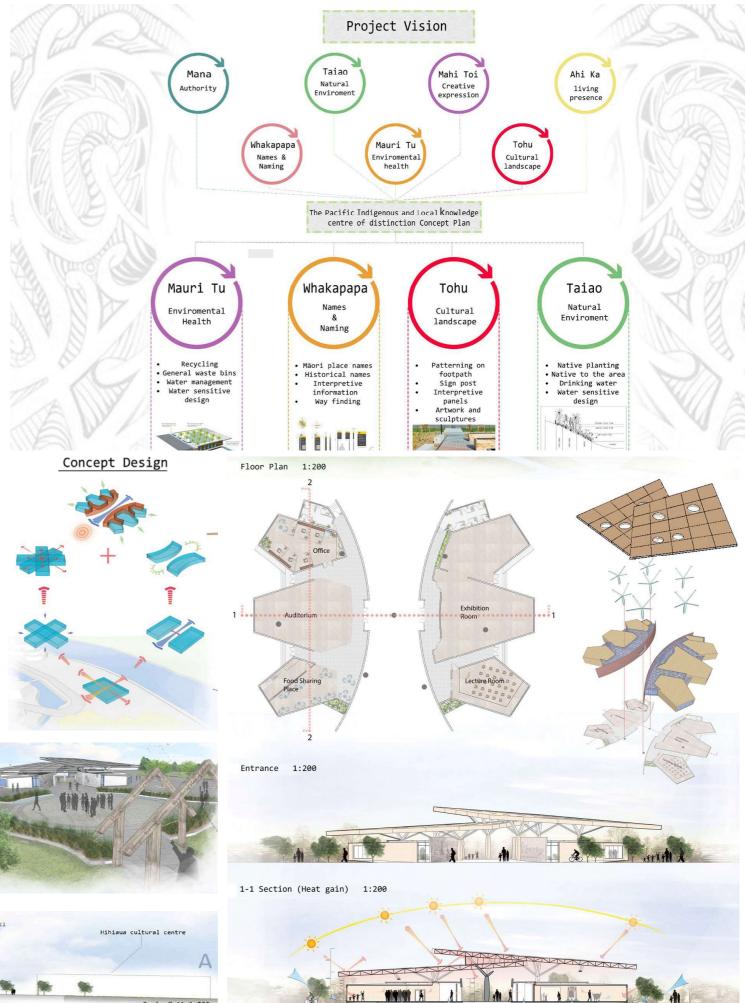


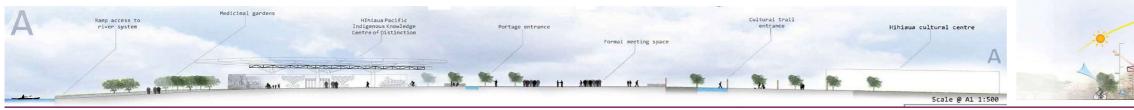


THE PACIFIC INDIGENOUS AND LOCAL KNOWLEDGE CENTRE OF DISTINCTION



6 Lunch space catering to cafe 9 Ramp access to river system





12 Entrance for Indigenous Centre

3 Cultural gateway into site

2.2.7 Scenario 7

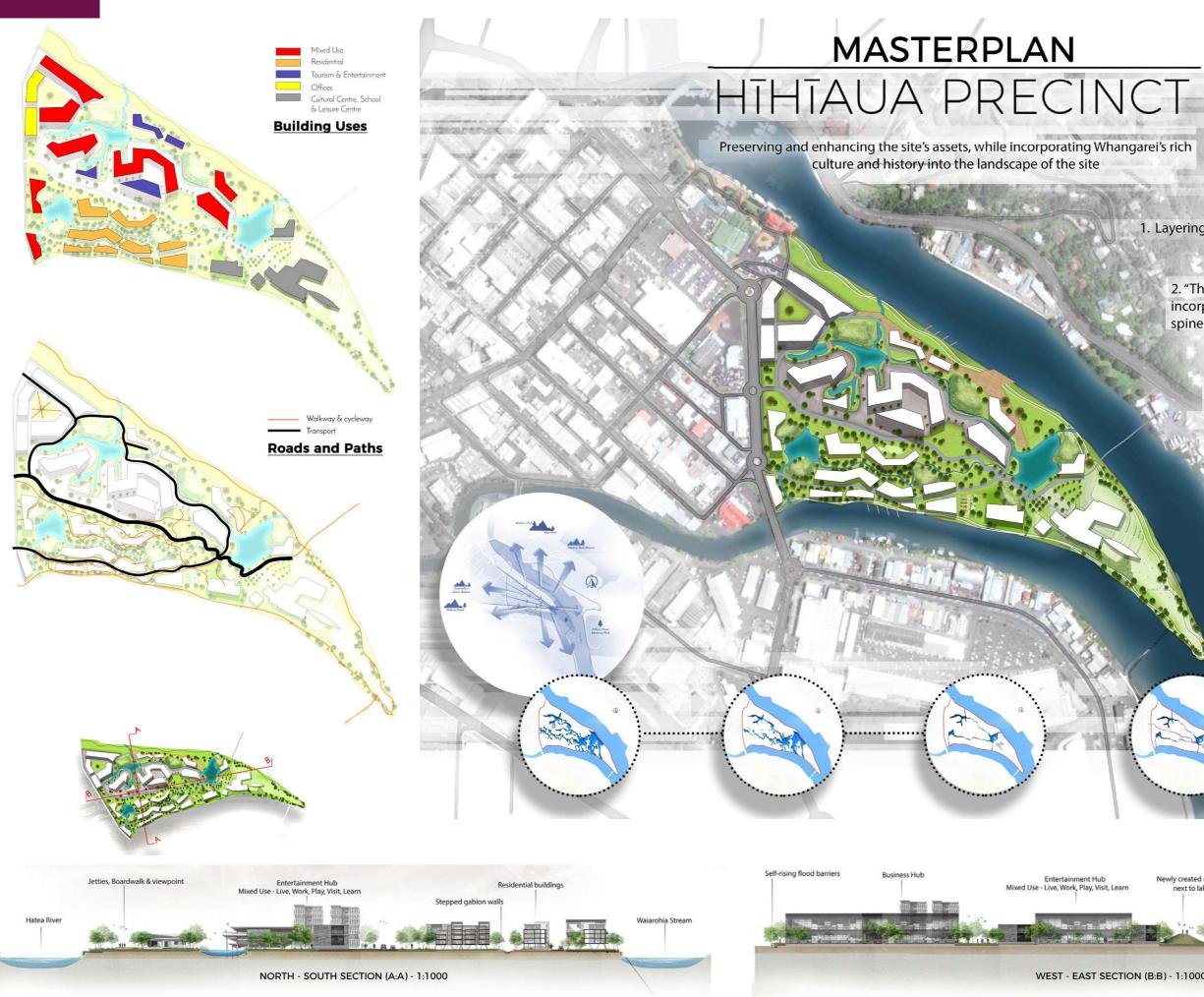
STORY OF THE TWO SISTERS MOUNTAINS AND HILLS CLUSTERS OF BUILDINGS





The masterplan of Scenario 7 is based on the full Māori name of Whangarei. The first name is Te Whanga-o-Reitū or Te Whanga-o-Reipae. This name refers to two sisters, Reitū and Reipae, who flew from the Waikato on the back of a bird. Reipae fell in the Kaipara area, and married Tāhuhu-pōtiki there. The masterplan inscribes the map of the journey onto the site. This pattern is overlaid with a landscape representation of the seven mountains of Whangarei, and a series of small lakes related to the flooding analysis. The design of the proposed Pacific Indigenous and Local Knowledge Centre is based on another story related by Te Warihi Hetaraka. In this story the harbour is named Whangareite-rerenga-parāoa, the gathering place of whales. The students used a whale skeleton as the organising construction for the building. Traditional Pacific and Māori structures were also used to inform the design. The developed landscape design integrates the building into the central pathways system, guiding people through the building at different levels.

Designed by Yi Luo, Kelsey Metcalfe, Samuel Pillay, Glenn Ridley



1. Layering Whangarei's flood map to form the lakes and rivers.

2. "The Journey of the Two Sisters" mapped and incorporated into the site, creating the main spine and axis of the site.

> 3. Connection to the land – Whangarei's seven mountains are represented on the site by 3-4m high mounds, created with the dug-up earth from the newly created lakes and streams. These mounds provide vantage points for views out to the rivers and mountains.

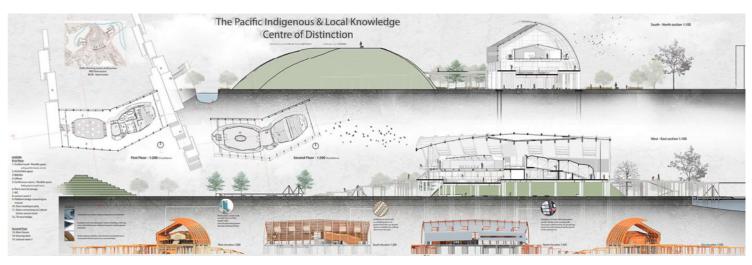
> > 4. Cultural Centre as a focal point. View shafts from the west to the Cultural Centre are preserved.

Pacific Indigenous & Local Knowledge Centre of Distinction

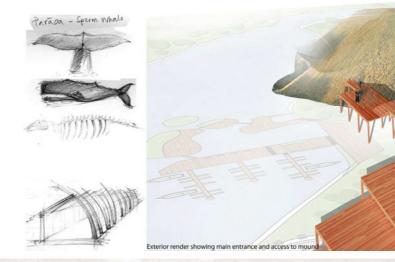


PLANTING PLAN



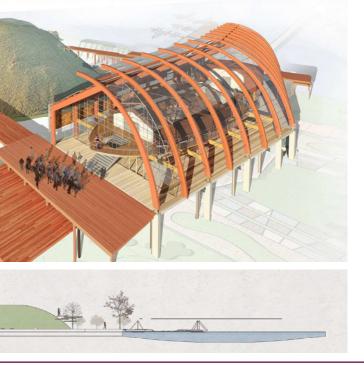








ew of main forum area. Ability to a (Right) I



2.2.8 Scenario 8

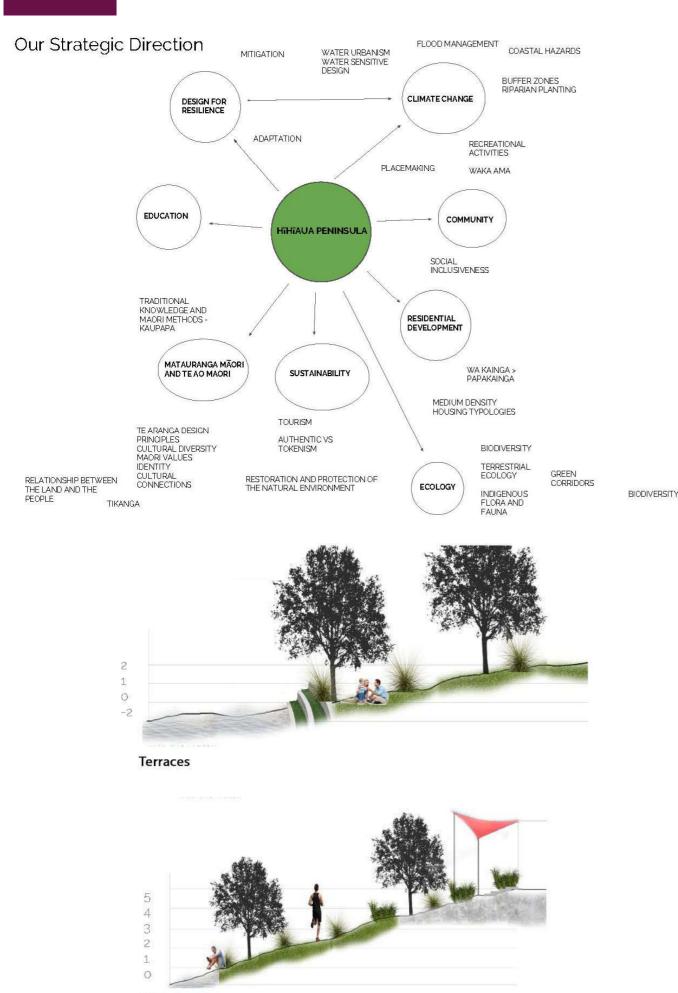
MĀORI CULTURE TOPOGRAPHICAL MODIFICATION RIPARIAN REMEDIATION

The masterplan for Scenario 8 addresses the threat of future flooding by elevating the whole site on a series of terraces, creating an 'island'. The sequence of levels is designed to create a transition to the water, a green fringe. The functional requirements of the masterplan are organised around a central path, where visitors flow from the Whangarei CBD to the proposed Hīhīaua Cultural Centre. A series of small landscape interventions is located in different parts of the site to enhance the wairua of the Hīhīaua Peninsula. The design of the Pacific Indigenous and Local Knowledge Centre responds to the new topography by following the terraces and opening up to the river. The shape and the structure proposed for the new building have antecedents in Pacific and Māori design. The public space is created using sequences of spaces derived from a study of the atea. Traditional Māori architecture is referenced to signal entry and procession.



This concept is driven by ecological, infrastructure and cultural resilience. It incorporates community aspirations and cultural values. It contributes to the aligned framework developed from the Momentum North group. It aims to provide an authentic cultural experience as you transition through the site.

Designed by Chantelle Lubbe, Pearl Patel, Jacqueline Paul, Brian Law



Waterfront



Infrastructure Resilience

Sea Level Rise

All buildings or structures in the coastal environment should be located so as to avoid the effects of a forecast 50 centimetre rise in global sea level this century. Explanations and Reasons: A rise in global sea level of about 50 centimetres by the year 2100 is forecast by the Intergovernmental Panel on Climate Change (1996). This will exacerbate both erosion and flooding from the sea providing a cumulative threat to buildings or structures situated within close proximity to the sea. The policy adopts a precautionary approach to this hazard by ensuring that sea level rise is considered for all development in close proximity to the sea.

Sea level A base value sea level rise of 0.5 m relative to the 1980–1999 average should be used out to 2100 for planning purposes. An assessment of the potential consequences from a range of possible higher sea level rises should be made in undertaking assessments. At the very least, all assessments should consider the consequences of a mean sea level rise.

Flood Flow Paths

Ensure that subdivision, use and development does not obstruct the flood flow paths of rivers and the efficient functioning of natural drainage systems. Explanation and Reasons: Activities located in the flood paths of rivers and streams have the potential to interfere with the flow of floodwater. This may increase the adverse effects of the flooding upon human health and safety, property and infrastructure.

ECOLOGICAL RESILIENCE

How can we design for resilience through ecological, infrastructure and cultural systems?





Terraced Housing



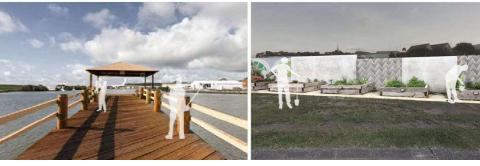
Market Space

Te Rerenga Paraoa Park











Amphitheatre – Open Space + Events

Te Pou Whenua

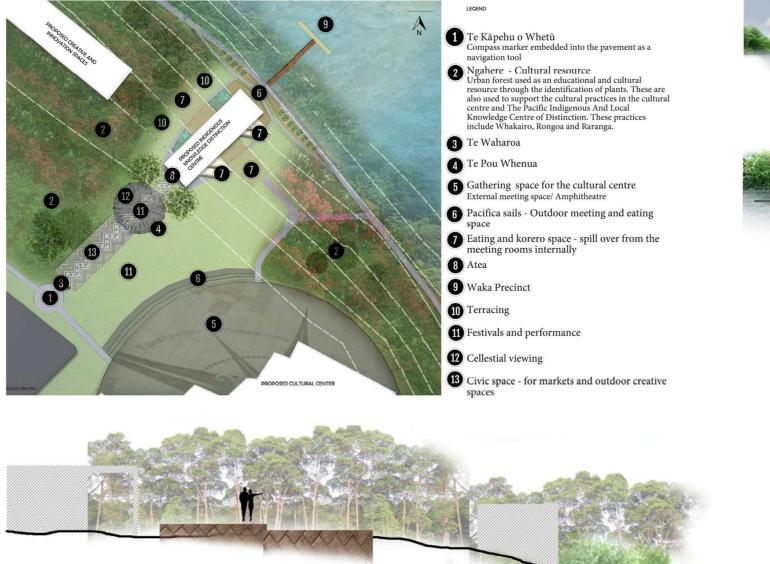


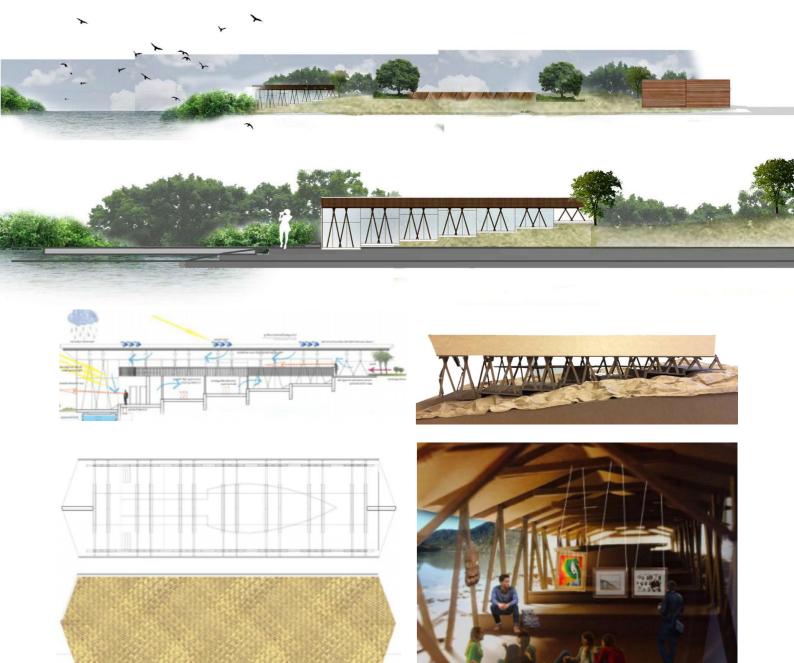


Te Wapu Hihiaua Hihiaua Wharf

Te Maara Kai Community Gardens

Pacific Indigenous & Local Knowledge Centre of Distinction







landscape - meeting place



Te Waharoa - Pou - Manuhiri Space - Raranga

Scheme One Artist Impressions: Waka Landing - Heritage Signage - Viewing Platform

Scheme One Artist Impressions: Open Courtyard for Raranga - Rongoa Planting -Maara Kai

2.2.9 Scenario 9

COMMUNITY, CONNECTION, ACCESS TO ALL **RESTORING THE RIVER**

The masterplan for Scenario 9 is designed as a green public park with central megastructure spine. This building forms the link from the Whangarei CBD to the Hīhīaua Cultural Centre. At the heart of the landscape is the community hub, located between the central spine building and the water. The original shape of the river before reclamation is restored, and to protect against flooding two strategies are adopted: elevating the terrain and using a series of dykes.

The Pacific Indigenous and Local Knowledge Centre is located at the eastern end of the megastructure at the junction between that building and the proposed Hīhīaua Cultural Centre. The

design of the Pacific Centre building acknowledges the importance of the location with an open porch, a roro, accessing the shared space between the two buildings. The landscape design inscribes the old stream back into the site, running between the two buildings; a bridge over the stream becomes the meeting place, the ātea.

"The Pacific Indigenous and Local Knowledge Centre of Distinction is a beautiful-looking building mimicking the mountain and recycling existing materials. Enviro-friendly. The axis, light and spaces worked well for a large number of people and for diverse groups." – Peter Ogle, Momentum North.

Designed by Logan Autagavaia, Georgina Dean, Yaqing Guo, Shanker Kumaracheliyan, Kenneth Shum







Master Plan 1:1500

AHI KĂ : PRESENCE ACKNOWLEDGES THE POST TREATY OF WAITANGI SETTLEMENT ENVIRONMENT WHERE IWI LIVING PRESENCES CAN INCLUDE CUSTOMARY, CULTURAL AND COMMERCIAL DIMENSIONS

3.1.1

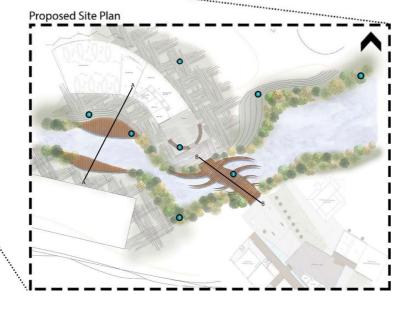
Hīhīaua Pacific Indigenous & Local Knowledge Centre of Distinction

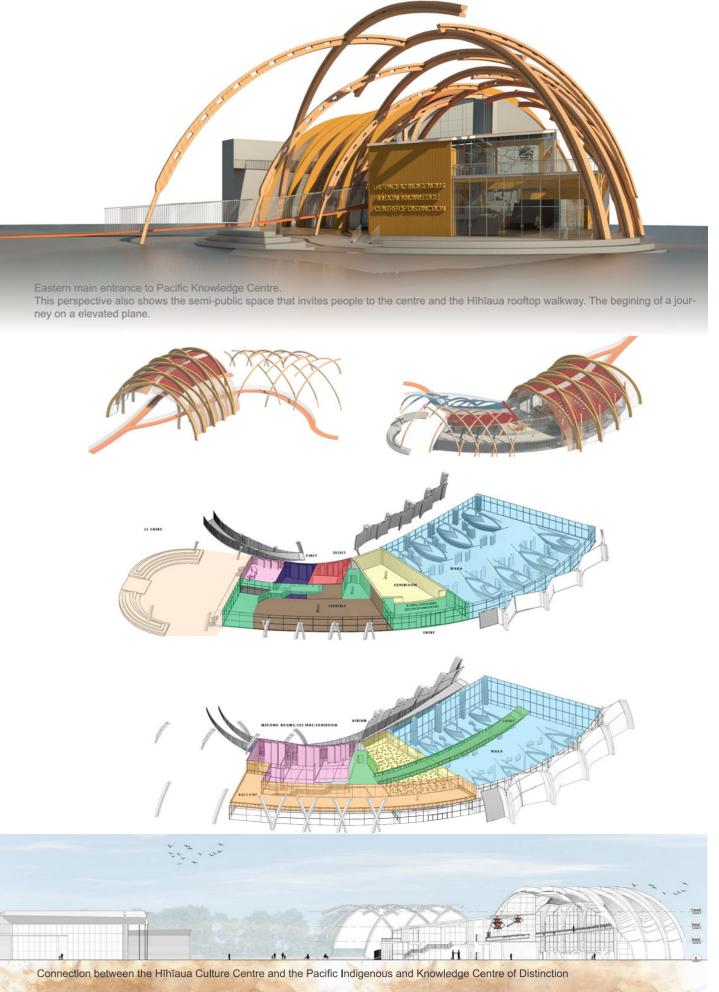
Proposed Master Plan



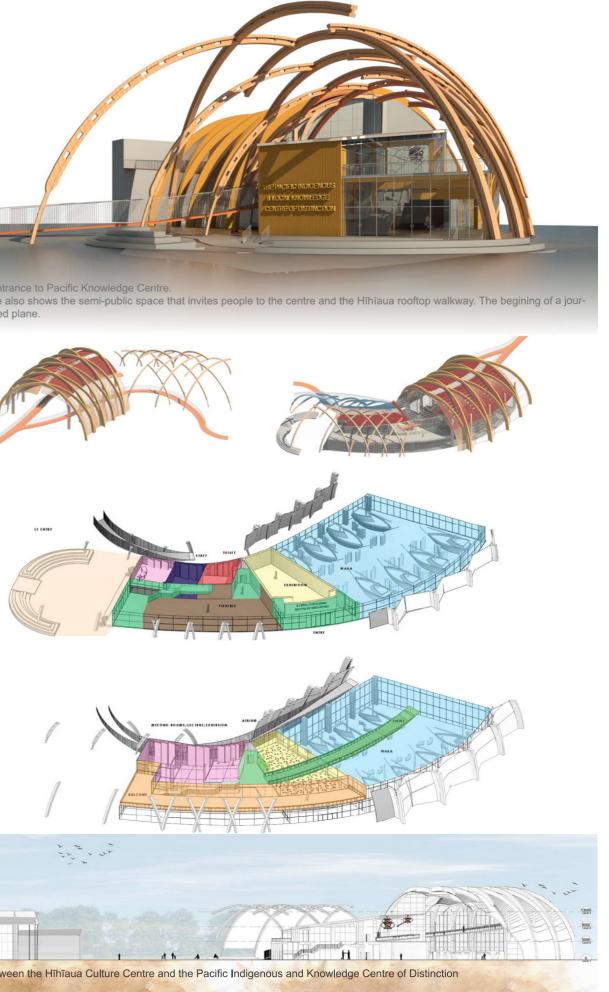
- Boardwalk, viewing platforms and wooden seating collected from local sources using New Zealand beech, eucalyptus and macrocarpa.
- Paving made from a mixture of recycled material such as ashphalt and concrete from the demolition of site.
- Riparian planting throughout the edges and in the man made pond.
- Terraces create seating and multiple view shafts throughout the site.

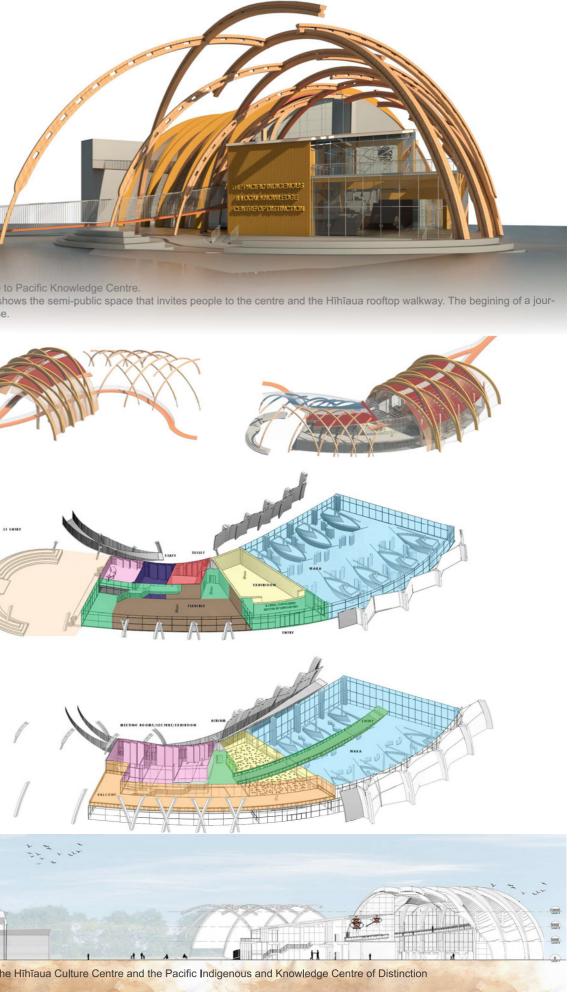


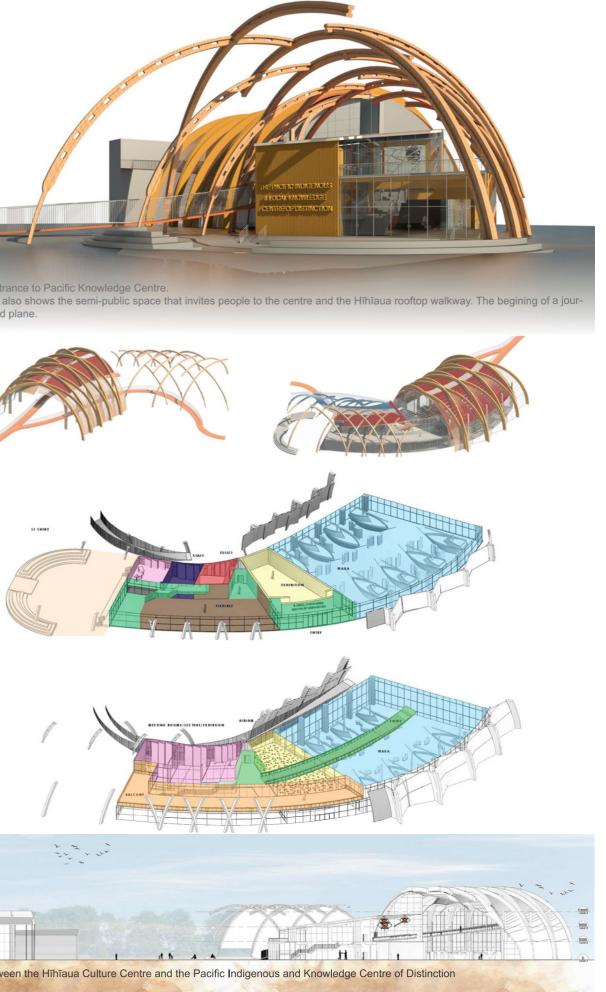






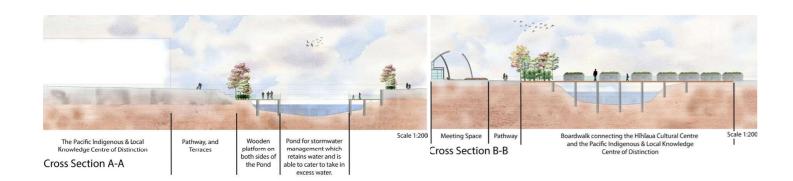








ROOF WATER TREATMENT CERT-SUSTAINABLE WOOD EARTH MATERIALS SOLAR PANEL GREEN ZONES AUTOMATED ROOF SYSTEMS ATRIUM PASSIVE SYSTEMS - VENT



2.2.10 Scenario 10

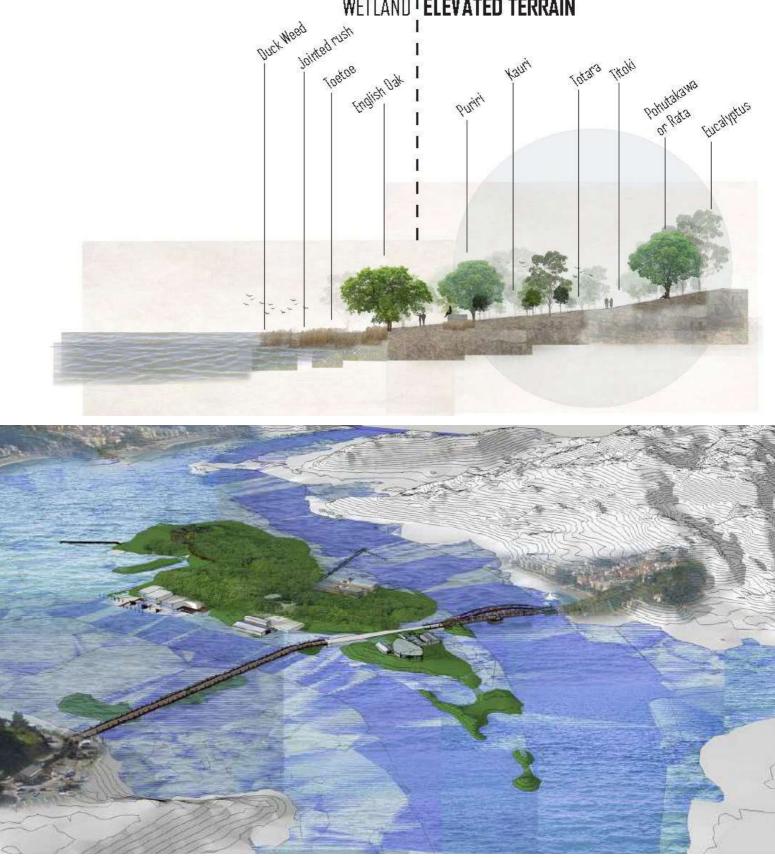
ISLAND OF LEARNING RESTORE, ENHANCE, REFLECT THE ECOLOGY

The central design decision behind the masterplan for Scenario 10 is a response to climate change through the design of the landscape. A GIS analysis of the site informed the design group of the implication of sea-level rise for the site. The Hīhīaua Peninsula becomes a learning island in the middle of what would become the Whangarei lagoon. Human presence is limited to the island, while the natural and educational character of the site is enhanced.

An exploration of the traditional Samoan village is a key strategy driving the design of new buildings and landscape for the Pacific Indigenous and Local Knowledge Centre. The building has a strong connection to the landscape and to the Hīhīaua Cultural Centre. The landscape design uses Te Aranga Principles to guide the design of the public space, the shared ātea for both the built and the landscaped areas.

"I love how the spatial arrangement of the Pacific Indigenous and Local Knowledge Centre is oriented to the Samoan village." - Tui Shortland, Momentum North.

"I liked the concept of 'body, spirit, creativity and mind' and the layout and Pacific atlas theme worked well for me. I will be castigated, but I did feel slightly uncomfortable with the high degree of sensitivity to climate change in this one. I am an optimist who thinks humankind can and will do better than we currently are and in time to make a difference of some magnitude. I also believe that there will be technologies developed to mitigate some of the worst effects of what will obviously be an unstoppable amount of global warming. Let's hope I am justified." – Peter Ogle, Momentum North.

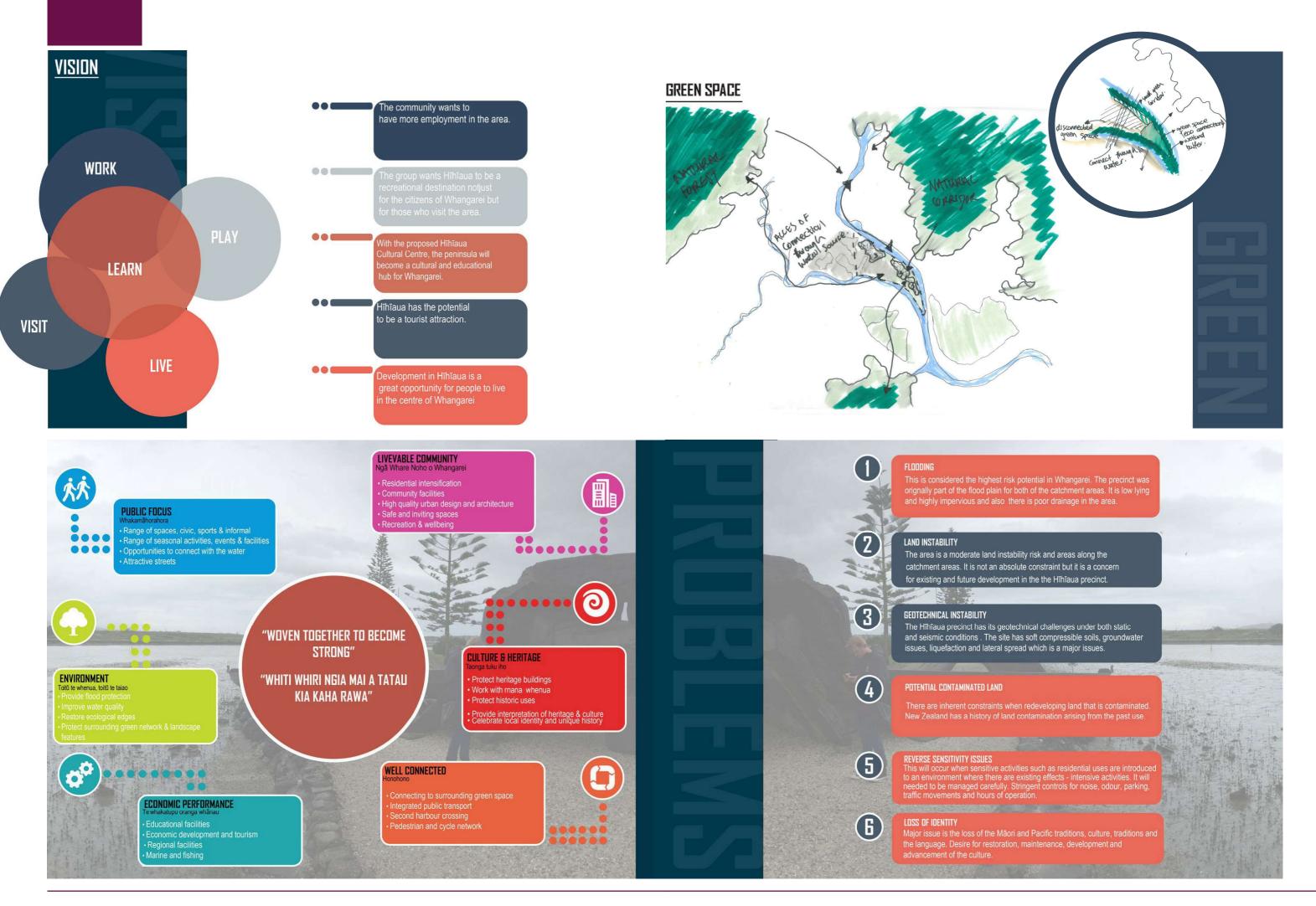


Set 300 years into Global Warming, the Hīhīaua Precinct takes into account a 3m sea-level rise. The unpredictability of climate change, water warming, storm intensity and food source conditions provides a chance to encourage resilient design for the mana whenua of Whangarei.

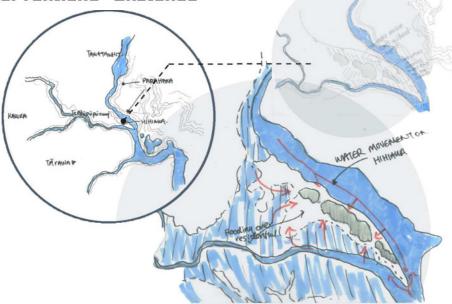
The island has become a learning and restoration design which limits the human footprint and enhances the natural and organic typologies of the site.

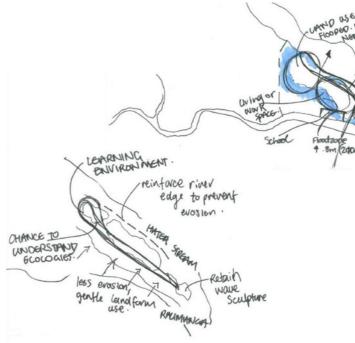
Designed by Losa Nimo, Benjamin Meredith, Nick Slattery, Jinggian Sun

WETLAND ' ELEVATED TERRAIN



Design Interventions- Sketches





Reinforcement of coastline stability, especially on the northern bank of the Hihiaua precinct, is key

or reducing the amount of sedmintation.

Ihiaua Road

Work and Play

A large jetty allows boats and ferries to take visitors to the island and discover what the precinct has to offer. Resturants and eating establishments allow a small income for the island and reflection on the surrounding landscapes to the northern area. The tides can be seen lapping up on the shores of the northern banks of the Hatea river.

Walking tracks lead to the Reyburn historical house, learning enviromnments and self discovery opportunities.

Precinct.

The proposed reserve has become a linear connection to the Wave and Waka sculptures, a footbridge over the Raumanga River and an access point for those that are using boats.

Hihiaua learning centre and western

context.

The Hihiaua precinct creates the opportunity to learn about the land and the benefits it seeks. Education buildings which emerge out of the hill side and provide a visual cue to enter and embrace what the precinct has to offer . Moreover, the centre is the connection point between understanding ecology and the part that humans can play to RESTORE, ENHANCE and REFLECT. Walking trails provide historical recount of the impact of global warming and ho the precinct has encouraged the architecture to be restored Oyster within building materials or pathway features. Lastly the sea level rise allows the precinct to become a food source including a variety of shellfish or fishing locations.

Access is through one jetty and walking trails for miminal impact on the land.

Access and Connection

Steel arch

alkwa

The new Hihiaua road provides a conncetion from Toll Stadium to the north banks of the Hatea River, then onto State Highway 1.

Central access to the Precienct allows connection to the Cultural Centre and School. The school provides learning opportunites and is an easily connnected location to the landscape.

PROPOSED SITE

CULPTURE

Cultural-Visitors Hub

Set 300 Years into global warming - with the understanding of sea level rise the projected masterplan of Hihiaua precinct takes into account a three meters sea level rise with new land developments and restrictions. It protects the value of this centralised meeting place for Whangarei and afar. The island becomes a restoration and enhancement project for learning and cultural purposes. It becomes a meeting place for combating climate change through ecology and limiting of human impact with ways.

The Cultural Centre and school allow local users of the land to learn off the land and discover is rich history. Access routes are through Hihiaua



Restore and Reflect

Old steel bars and framing from warehouses create a linear connection perspective, and an aesthetic attraction.



The Pacific Indigenous and Local Knowledge Centre





Organic and hardscape features of the site provide an intersection between human and natural relationships. This aims to enhance and restore vegetation growth which is also a part of interaction and discovery of the landscape.

baker in

A meeting place for boats and recreational activities means intersection with discovery of the site through boardwalks and paved surfaces.

ocean.

Visitors to the Pacific Centre access the building by boat or by the southern paved surface access. The grading levels see the Pacific Centre placed on an island where flooding is able to occur, enhancing the relationship with the rising sea levels. A small bridge connects to the main meeting space to the south west.



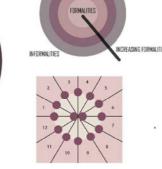
gather on top of a compacted base that provides effective drainage run off to the inlets/

Foot bridge with a sand textured concrete that leads into the Pacific Centre.

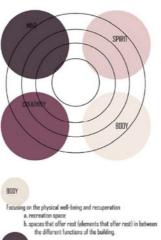


SPATIAL ARRANGEMENT OF A SAMDAN VILLAGE





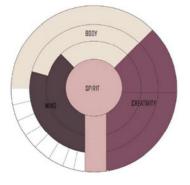
SPATIAL ORGANISATION



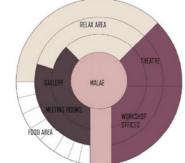


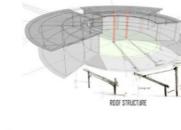
A private space, a place of screenity and silence for the reader and the intellect a, reading spaces: b, private realms c, a place of discussion and presentation A ritual, a place of worship, a, large communal spaces for a congregational service b, retreat a place for team building

PROGRAMME



Traditionally the location of Samoan artefacts or valuebles of domestic life were located at the centremost column of the faletele. The central space of the faletele is a public space with an openness and a sense of transparency that is reflected through its void. Attached to the central pou is the talitali, from which the valuables are suspended. Suspending the most treasured possessions from here was seen as safe and secure as it was the most open part of the vilage. It was also an act of publicness, of opening your house to the community, and thus strengthening the relationship between you and those outside of your domestic household.













#.

- having been reclaimed
- where the flood draws a boundary

03 Discussion

Raumanga Stream. Geology - hard sedimentary (rock types: Ar, Ac, Gw)

Source of flow - low elevation (50% rainfall < 400m)

Image showing research by Jason Zou, Jill Koh, Sarah Mosley, Yamen Jawish, Wesley Twiss

waterways contaminated by stormwater discharges

the areas that are subject to be submerged under the sea in 100 years

#. keys in positioning and designing a wetland

original geomorphic - the waterway from 1940 that used to flow and smooth the land before

(rock types: Ng, t, La, Sc, Vo, Vu)

03 Discussion

Main topics studied in the designs

The Hīhīaua Studio aimed to engage students with the real problems that are often associated with waterfront projects: the implications of climate change on the environment and translating community aspirations into design solutions. The design work done in the studio project demonstrated innovative urban design solutions, and explored the collaborative nature of work between architects and landscape architects in the future development of cities through two filters:

Environment:

The studio engaged with critical questions about the development of the contemporary waterfront in the age of climate change. This resulted in a series of strategies related to the understanding that nature can be used as a green infrastructure. Sustainable and resilient solutions were explored in the development of the masterplans, the Pacific Centre and the associated public spaces.

Urbanism:

A number of urban strategies were tested for the design of buildings and public spaces. These strategies included the reuse of existing buildings, and different kinds of connection with the water. Tactical urbanism (Lydon, 2015) was found by a number of teams to be a useful strategy to help reduce costs and enhance community engagement.

The following topics present the main findings in the course considering these two issues.



3.1 Environment 3.1.1. Sea-level Rise

Addressing climate change and dealing with sea-level rise



An important issue that students discovered during the design phase was the implication of climate change and especially the rising sea level, coastal hazards and urban flooding. Because the site is in the lower part of the Whangerei CBD hydrological catchment, flood protection is needed against both sea-level rise and the stormwater runoff that is generated from the catchment. The interdisciplinary teams of architecture and landscape students explored three different technologies and strategies to deal with these problems.

Embracing the flood

By adopting a resilient strategy that accepted flooding in some parts of the site the 'problem' could be accommodated. A cut and fill technique was used in some design projects, raising the proposed building site above the anticipated future sea level and excavating other parts of the site

to accommodate the future flooding. Through a close analysis of the effects of sea-level rise for the site and the development of a careful grading plan, the flood zones can add value to the urban landscape while ameliorating the problem. These zones can also provide ecological and recreational benefits.

A good example of how this strategy was developed is Scenario 10 (Losa Nimo, Nick Slattery, Jingqian Sun, Benjamin Meredith) The design work from this team accepted the prediction of sea-level rise for the Hīhīaua Peninsula, and created a 'culture island' to respond to this challenge. In this plan, all buildings were sited in the middle of a new lagoon, creating a Noah's Ark-like solution that commemorates the watery nature of the city.

Mitigating the flood

Different strategies and techniques were adopted to mitigate the effects of future site flooding. Techniques included the use of vegetation, the development of a green infrastructure and water management.

The planting of native trees and shrubs was proposed to filter and mitigate the effects of contaminated stormwater. Other techniques used included green roofs, rain gardens, swales, wetlands and retention ponds. Through the combination of these devices, a stormwater treatment train was formed to mitigate the contamination of runoff.

Protecting against the flood

In order to create mechanisms of flood protection, soft and hard solutions were used in the designs. These techniques

Community spaces that function to deal with flooding Designed by Aleesha Kumar, Sharon Eccleshall, Shibing Li, Sianne Smith, Vignesh Krishnamoorthy

included elevating the terrain, creating barriers to the sea and increasing the amount of pervious surface. Conventional construction details included concrete banks and tidal barriers along the coastal edge.

Protecting the site from pluvial flooding was facilitated by the use of GIS analysis. The mapping helped to identify overland flow paths and subcatchments within the site. Through buffering the flow-path system to either side, a green-space network was created. This design strategy aimed to create more space to help filter contaminated stormwater before it entered the stream system. The greenspace network also helped to increase the ratio of pervious to impervious surfaces, allowing for more absorption of site runoff thus lessening the potential for flooding.

Example of the Embrace the Flood strategy:

Scenario 1 adopted a resilient approach, embracing the flood. Their design developed elevated pathways and natural parks that deal with the variation of the tides.

- New builds must have a raised floor (+1m above current GL) on piles for future flood proofing.
- Existing buildings to be renovated for mixed use, with lower floors as retail or commercial space and residential on upper floors as further flood protection in the case of an extreme event.
- Renovations must allow an extra 1m in ceiling height for ground floor to enable future raising of FL for flood proofing.
- Raised, permeable timber walkways connect pedestrians around the site, to encourage a business-as-usual mentality in the event of flooding.





a bsorption of water

increase of evaporation of water to the atmosphere and the ability to hold water during storms

The design reduces the impervious land cover and increases vegetated land and building cover. Grey water is collected onsite and recycled. Land is cut down to share with incoming tide & create habitat zones.

Designed by Aleesha Kumar, Sharon Eccleshall, Shibing Li, Sianne Smith, Vignesh Krishnamoorthy

Example of the Mitigate the Flood strategy:

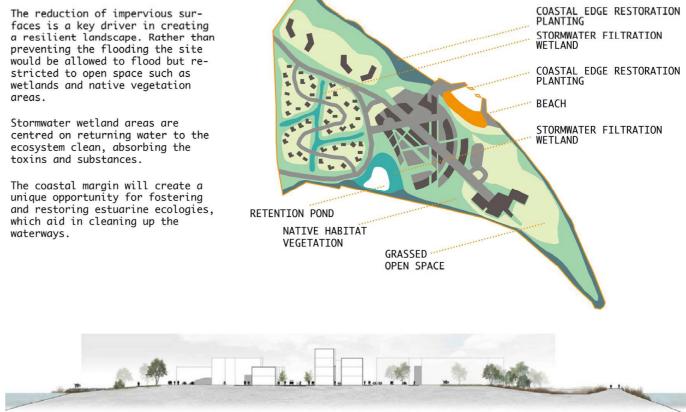
Scenario 3 used native vegetation to filter and mitigate the flooding effects.



VEGETATION AND WATER MANAGEMENT



VEGETATION



Designed by Trina Gaston, Rory Gray, Thomas Smith, Torben Laubscher

Example of techniques that can be used, on buildings and site, to protect and to mitigate flood effects.

Building Strategies: DRY FLOOD-PROOFING WET FLOOD-PROOFING The aim is to inhibit the infiltration of water by designing a waterproof building exterior. High Level Flood Surge 00000 00000 Protects buildings from structural damage due to High Level Flood Surge flooding, but not the buildings interior. Water can pass through the flood proofed zone. This prevents the structure and foundation from collapsing in a 00000 Medium Level Flood Surge This can be achieved by using impermeable membranes, aquarium glass, or additional layers of concrete or ma-sonry. 00000 Medium Level Flood Surge 00000 1-2 Storey Detached Dwelling flooding event. 1-2 Story Detached Dwelling 00000 When utilizing dry flood-proofing, a building must also be designed to resist water loads and buoyancy forces. 1-2 Storey Detached Dwelling 00000 Wet flood-proofed spaces have limited uses because the contents may be destroyed during a flood. It is typically used as a crawl space and minor storage 1-2 Story Attached Dwelling 00000 Low-Mid Rise Residential, Commercial/Mixed Dry flood-proofing is not recommended for areas sus ceptible to prolonged floods. Sealing systems will begin to leak from prolonged exposure. (Burden & Barth, 2013) 00000 Wet flood-proofing is generally less expensive than dry flood-proofing. It also does not rely on advanced g Low-Mid Rise Residential, High-Rise Residential/Com-00000 planning or preparation. (Burden & Barth, 2013) 00000 mercial Mixed High-Rise Residential/Com-Industrial 00000 00000 mercial Mixed Industrial 00000 SEA WALL ELEVATION ON PILES Site protection uses tools as a means to mitigate the effects of flooding. This strategy allows for water to flow beneath the structure of the building. 00000 High Level Flood Surge 00000 High Level Flood Surge Medium Level Flood Surge 00000 00000 Medium Level Flood Surge It can generate usable spaces for parking and stor-age. However, it can often been to seen as a discon-nection between building and street. Flood walls are one type of site protection and can be permanent structures, or deployed on notice. 1-2 Storey Detached Dwelling 00000 structure in place. 00000 Mostly applicable for larger sites with multiple buildings where there is ample open space avail-1-2 Storey Detached Dwelling Pile application requires special machinery that can be expensive and require site access. 1-2 Storey Attached Dwelling 1-2 Storey Attached Dwelling 00000 Best used on unstable sites with soils that could possibly settle. Pile reach depths that contain sta-ble soil strength. (Burden & Barth, 2013) It has the potential to be a cost effective strategy when used correctly. (Burden & Barth, 2013) Low-Mid Rise Residential/ 0000 gained mainstre & Barth, 2013) Commercial Mixed Low-Mid Rise Residential/ 00000 High-Rise Residential/Com 00000 cial Mixed High-Rise Residential/Com-mercial/Mixed 00000 Industrial 00000 Industrial 00000 Site Strategies: 9 9 ELEVATION OF LAND AND STREETS BULKHEADS Elevating land and streets reduces risk from fre-quent inundation and surge events by elevating land to above expected flood levels. Given that it The primary function of a bulkhead is to retain land and resist erosion in order to create a stable site. Alternatively it can be used for boat access. tally more sensitive. is initially costly and potentially disruptive. it is a strategy that works best on large development sites or at a neighborhood scale, where both lots and streets can be raised in a coordinated manner. Gradual sea level rise may require additional bulk-head maintenance in the future. Rising sea levels will likely not have a significant impact on bulk-heads until the point where sea levels are high Once constructed, however, raised land requires enough to create a recurrent flooding problem in virtually no unusual ongoing capital or mainte-nance costs. Flood insurance can become more widely which case bulkhead collapse may occur High Level Flood Surge 00000 High Level Flood Surge 00000 available to affected areas, and at reduced rates. Bulkheads are most suitable for sites with exist-00000 Medium Level Flood Surge Medium Level Flood Surge 00000 ing hardened shoreline structures. On unreinforced It can be combined with shoreline armoring to pro-Sites, they may lead to loss of inter-tidal habitat.⁴ It may also accelerate erosion of adjacent unrein-forced sites. (Burden & Barth, 2013) 00000 Sea Rise tect from erosion and wave forces. Sea Rise 00000 00000 Erosion It offers an opportunity to improve subsurface utilities and infrastructure.(Burden & Barth, 2013) 00000 Erosion 9 LEVEES WATERFRONT PARKS Levees are most commonly used along riverbanks to direct the flow of the river and protect communities from flooding. Concrete flood walls can be erected on Waterfront open spaces provide an opportunity to integrate flood protection measures into public spaces. Designers can weave coastal resiliency measures into the fabric of parks by identifying which portions of parks can accommodate flooding and which elements top of levees to increase the height for surge pro-The slopes on either side of levees require an exshould be elevated out of the flood zone. tensive amount of land and their overall height can block views and access to the water. High Level Flood Surge 00000 Park buffers can be incorporated into the redesign of existing waterfront open spaces or to new open space design at underused waterfront areas. High Level Flood Surge 00000 Medium Level Flood Surge 00000 Medium Level Flood Surge 00000 Rather than conceiving of levees as stand-alone neutron of infrastructure, there is growing interest in multi-functional design to integrate levees with other urban uses, such as waterfront parks, trans-Sea Rise 00000 This strategy allows for the integration of gravi-ty-based storm-water management systems, limiting the amount of runoff into the waterways and into the combined sewer system. (Burden & Barth, 2013) Sea Rise 00000 00000 Erosion 00000 Erosion portation networks. (Burden & Barth, 2013)

Researched and organised by Trina Gaston, Rory Gray, Thomas Smith, Torben Laubscher. Source: Burden & Barth (2013)

ELEVATION ON FILL

Elevating a site can mitigate against short term flooding and long term sea-level rising.

This can be done by elevating directly under the building, but also can be done for the entire site or development itself.

Larger sites may require large amounts of fill and possibly require retaining walls which could fluctu ate costs.

Elevating more than three feet is not recommended. This could possibly lead to drainage implications and affect neighbouring sites. (Burden & Barth, 2013)

EVENT	 High Level Flood Surge Medium Level Flood Surge 	
APPLICABILITY	1-2 Storey Detached Dwelling 1-2 Storey Attached Dwelling Low-Mid Rise Residential/ Commercial Mixed High-Rise Residential/Com- mercial/Mixed	••••• ••••• •••••
	Industrial	0000
	High Level Flood Surge Medium	

AMPHIBIOUS STRUCTURE

Amphibious structures is a relatively new field of design. They are structures positioned on dry land, yet designed with a buoyant foundation allowing them to float during floading. The structures are anchored with piles to keep the

EVEN

The design flood elevation is flexible, allowing the structure to be resilient to a wider range of water levels.

This strategy is largely conceptual and has not mainstream or regulatory acceptance. (Burden

	And a second at	
-	High Level Flood Surge Medium	•••••
-	Level Flood Surge	00000
	1-2 Storey Detached Dwelling	•••••
	1-2 Storey Attached Dwelling	••••00
	Low-Mid Rise Residential/ Commercial Mixed	••000
	High-Rise Residential/Com- mercial Mixed	•••••
-	Industrial	•••••



Revetments are as an alternative to bulkheads, as they tend to be relatively low cost and environmen-

An array of materials can be used to construct re-vetments, including quarry stone, fieldstone, cast concrete slabs, sand or concrete filled bags, rock filled gabion baskets, concrete armor units, and con-crete blocks.

Revetments are used as a way to make the waterfront more accessible. They can be designed to incorporate large stones that allow people to get close to the water's edge. They can also accommodate some shoreline vegetation as well. (Burden & Barth, 2013)

High Level Flood Surge	00000
Medium Level Flood Surge	00000
Sea Rise	00000
Frosion	00000

LIVING SHORELINES

9

9

REVETMENTS

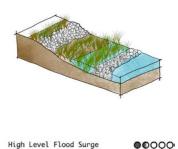
Living shorelines are an alternative to bulkheads or revetments. They provide a stable shoreline resis-tant to erosion while also providing for inter tidal habitat and coastal vegetation. Living shorelines may also help improve water qual

ity by filtering nutrients and other pollutants through wetlands.

A defining feature is the fact that living shore lines incorporate ecological function in addition to shoreline stabilisation.

For example, a living shoreline can include the cre-ation of a man-made inter-tidal zone with wetland vegetation or integrate oyster or mussel habitat into a vertical bulkhead.

As the designs of living shorelines vary, so does their ability to address coastal hazards. (Burden & Barth, 2013)



00000 Medium Level Flood Surge 00000 00000

Sea Rise

Erosion



3.1 Environment 3.1.2. Green Infrastructure

Nature functioning as infrastructure

As cities become larger, their problems become more complex. Urban design must adopt a more sustainable, resilient and adaptable approach.

The Hīhīaua Studio programme asked students to explore experimental solutions, adding different perspectives, and especially using the landscape as an important component in this process. In this way a strong focus on ecological issues was engendered. Some design projects explored the possibilities of nature functioning as an infrastructure and urban design as an interface with an ecosystem.

Green infrastructure (Czechowski, 2014) techniques were included in some of the design work. Among the techniques employed were green roofs, green alleys, permeable pavements,

street trees, rain gardens, wetlands, retention ponds and vegetated swales.

Green roots were used in two of the design projects: Scenario 1 (Sharon Eccleshall, Vignesh Krishnamoorthy, Aleesha Kumar, Shibing Li, Sianne Smith) and Scenario 4 (William Giles, Yanan Li, Knher Santos, Jingcai Shi). Green roofs were used for some of the buildings to improve stormwater management by retaining and delaying runoff. This technique also helps to mitigate the urban heat-island effect, by creating cooler surfaces for the building envelope and helping thermal efficiency.

Retention ponds were used in some of the design proposals both to help enlarge the storage capacity of the site after a rainstorm and to enhance the quality of the public space by making a connection between people and water.

In Scenario 2 (Yamen Jawish, Jill Koh, Sarah Mosley, Wesley Twiss, Yujie Zou) the students designed a retention pond as an element of the landscape, using native vegetation as a natural stormwater filter.

In Scenario 1 (Sharon Eccleshall, Vignesh Krishnamoorthy, Aleesha Kumar, Shibing Li, Sianne Smith) the students designed the low-lying public spaces as water squares, temporary flood storage spaces that can be utilised after a heavy storm.

Wetlands can be used to treat stormwater and mitigate the effects of runoff. This strategy was explored in a number of different design scenarios. Wetlands were placed in low areas of the site, with semi-aquatic plants adapted to being permanently or seasonally saturated.

Sianne Smith, Vignesh Krishnamoorthy

Rain gardens help in absorbing runoff from impervious urban areas. The stormwater is purified as it soaks through layers of nearby vegetation and soil media.

Swales were used in some of the design proposals to help reduce stormwater runoff. The swales increase rainwater infiltration, decrease the velocity of the runoff, and purify the runoff as it passes through the vegetation. Some of the design scenarios included swales with native plants, in combination with wetlands and vegetated retention ponds.

The following pages show one example of the combined application of green infrastructure strategies, presented in Scenario 2 (Yamen Jawish, Jill Koh, Sarah Mosley, Wesley Twiss, Yujie Zou).

Example of applying green infrastructure

Scenario 2 adopted several strategies of green infrastructure, including raingardens, wetlands, vegetated swales and retention ponds.



Reference Raingarden planting zone

#1. Runoff from impervious surfaces

#2. First stage filtration through grass buffer strip

#2. Collection area

Collects stormwater runoff from rrounding impervious surfaces that can potentially be used as greywater for domestic use or igation.

#3. Ponding area through the planting mix and into the wetland system. For safety reasons,

extreme wet or dry conditions, such as ponding

Waterflow + Zoning Plan

#4. Flood area / bank wetland (Overflow system)

from urban runoff in larger wetland in the centre and then feeds into both Hatear River and Raumanga Stream.

- Native swamp plants that have a range of tolerances of high moisture levels- from bogginess in tidal introduction to standing saltwater in upcoming seawater rises - Especially, of that are sturdy to be prveneted from bending with the flow and tidal rush # Grass-like sedges that are able to lie flat when flood waters rush over # Carex species

4 **Reyburn House** # Mulch / pebble/ rock layer pond area @ max 300mm depth also functioning as a dike Prevents weeds and helps prevent soil drying out. existing garden # Roadside Leptospermum scoparium # Rain garden soil mix Sandy loam, loamy sand or loam, to filter out pollutant #4. Flood area / bank wetland **PLANT SPECIES** #2. Buffer strip Anodasmia similis Rain garden corridor A distinctive New Zealand plant, found throughout New Zealand, from coastal swamps to low montane areas. Although a robust plant it is not deep rooted and it has the disadvantage in severe flooding of being torn out roots and all, taking the soil Phormium tenax Sedge with reddish-brown spreading foliage. Prefers damp soil and full sun. Tolerates Carex flagellifera #3. Ponding area exposure Baumea articulata It has sturdy upright bright green stems and will tolerate both dry soils and deep with it. Apodasmia simili Full sun; Tolerant of wet and dry co water. All of the Baumea species are robust plants with creeping rhizomes, and are particularly capable of growing in soils / water with high concentrations of Carex dissita contaminants and nutrients. It is used for wetland revegetation. Ophiopogon - Prefers well-drained, rich, moist soil Carex secta Coastal sedge with shiny orange foliage. Prefers full sun and exposure. Tolerates dry planiscapus - Tolerates a wide range from exposure in sun to shaded areas - Drought-tolerant after well-established Carex testacea # Erosive bank soil conditions 'Nigrescens' Cordyline australis Palm-like in appearance with large heads of linear leaves and panicles of scented (Black mondo Coprosma repens flowers. Sun to semi-shade. Prefers damp to moist soil. Grows eventually to 12m+ grass) height. Prefers full sun in exposed or sheltered areas. Tolerates rich and poor soils, wet and Baumea juncea dry conditions, salt spray and estuarine conditions. An attractive plant good for large gardens for its textural effect. Useful for stabilizing banks and erosion around Rapid growth of raupō, stimulated by its fertile habitat and continual supply of moisture, results in annual biomass production that is among the highest of any Typha orientalis waterways. Usually a plant that's a fast grower, used for revegetation in bots. A distinctive New Zealand plant, found throughout New Zealand, from coastal swamps to low montane areas. Although a robust plant it is not deep rooted and it has the disadvantage in severe flooding of being torn out roots and all, taking the soil habitat in the world. Rapid decomposition nearly balances this so that only about 6.5% ends up entering peat reserves in the wetland substrate. Dense productive stands enable raupö to be an effective purifier. Water flow is restricted allowing Phormium tenax #3. Ponding area sediments to fall out of the water column, and the high demands of rapid growth absorb large quantities of nutrients and pollutants. Raupō roots also provide sites for microbes to attach to, which break down organic wastes and neutralise their toxicity. with it. Full sun; Tolerant of wet and dry conditions. Along with other herbaceous aquatic species, raupõ is being used in constructed wetlands, built specifically for water purification purposes. Stormwater, sewage, and effluent from mining sites and farm animals can be effectively treated this way. Designed by Jason Zou, Jill Koh, Sarah Mosley, Yamen Jawish, Wesley Twiss Where toxic residues build up, they can be dug out for further dryland treatment



Section B to B 1:200 @ A1



Waterfront buildings and public space connected with the water. Designed by William Giles, Yanan Li, Knher Santos, Sally Shi

3.2 Urbanism

Strategies to investigate the relationship of buildings with open space

Urban design is the study of cities, focused on the spatial relations between buildings and open spaces. Masterplanning is the technique used to give form to an urban design strategy, through the definition of the building form (massing and height), street design and the location of public spaces.

In the masterplan phase, a number of different urban design solutions were proposed. The design work considered different activity zones for the site, proposing major public spaces to encourage cultural and recreational use of the site while respecting the community's brief for spaces to work, live, play and visit. Urban theory, including tactical urbanism, strategies and techniques were explored.

Land-use planning

To determine the land-use function, most groups undertook a regional and site analysis. The western boundary

of Hīhīaua borders the Whangarei city centre, which offers a vibrant urban environment and an entry point to the peninsula. The northern side of Hīhīaua is defined by the Hatea River, an area with a relatively open character, with a cycleway extending from the CBD to the eastern point. The south bank along the Waiarohia Stream is relatively densely built out. Most groups considered the characteristics of the existing built environment a low-scale industrial landscape and reflected this in their initial land-use layout.

An example of how students used this land-use analysis in their masterplanning phase was in the design concept of Scenario 2 (Yamen Jawish, Jill Koh, Sarah Mosley, Wesley Twiss, Yujie Zou). The students emphasised the difference between the southern urban edge and northern green edge, particularly enhancing this dialectic.

Transportation

To increase the diversity of activities and improve land value, some groups explored different transportation options. Strategies included reducing car use, encouraging public transport and building up cross-river connections. In Scenario 4 (William Giles, Yanan Li, Knher Santos, Jingcai Shi) the students designed a functional street grid with a curved pathway/road as the key transport corridor. Using a tower as a landmark in a new urban space, the pathway/ road leads visitors on a journey to the commercial zone and the Pacific Centre, finishing at the Hīhīaua Cultural Centre.

In Scenario 3 (Trina Gaston, Rory Gray, Torben Laubscher, Thomas Smith) the students also redesigned the existing street system to integrate a series of raised residential 'islands', as well as a view shaft from the CBD to the Hīhīaua Cultural Centre.

In Scenario 5 (Doyle Eccleshall, Aynnezele Lomboy, Madhuvanthi Padmanabhan, Rui Su, Dexell Aita) and Scenario 9 (Logan Autagavaia, Georgina Dean, Yaqing Guo, Shanker Kumaracheliyan, Kenneth Shum) the students proposed new bridges to enhance connections between the peninsula and the wider urban context of Whangarei.

Water

To make the site more enjoyable for visitors, some groups proposed the creation of water bodies within the site and the design of buildings that specifically engaged with water as the motivation of the design. In Scenario 6 (Sui Guo, Michael Macfarlane, Shiying Tao, Tevita Vea, Yuhao Wu) and Scenario 7 (Yi Luo, Kelsey Metcalfe, Samuel Pillay, Glenn Ridley) the students created small lakes within the Hīhīaua site to increase the landscape value and help to remediate stormwater. In Scenario 2 (Yamen Jawish, Jill Koh, Sarah Mosley, Wesley Twiss, Yujie Zou) and Scenario 4 (William Giles, Yanan Li, Knher Santos, Jingcai Shi) the students

designed underwater buildings as an opportunity for the public to experience tidal movement and the effects of sealevel rise.

Tactical urbanism

Tactical urbanism (Lydon, 2015) was a strategy proposed by some groups as an alternative, to create low-cost interventions, incremental bottom-up solutions, and to enhance community engagement. The concept of tactical urbanism is frequently used to describe an urban alternative that creates smallscale and short-term interventions to inspire long-term change and promote citizens' involvement. The theory has been used in different urban projects around the world to achieve diverse aims, including economic revitalisation, improvement of pedestrian safety, and as a mechanism to create opportunities to enhance the connection of citizens to the public realm. Some of the possibile ways that tactical urbanism could be manifest at Hīhīaua are found in Scenario 1 (Sharon Eccleshall, Vignesh Krishnamoorthy, Aleesha Kumar, Shibing Li, Sianne Smith).

Parks

Some of the design scenarios limited the position and size of the building programme, thus enlarging the area occupied by open public space. This strategy was followed in the designs of Scenario 7 (Yi Luo, Kelsey Metcalfe, Samuel Pillay, Glenn Ridley) and Scenario 9 (Logan Autagavaia, Georgina Dean, Yaging Guo, Shanker Kumaracheliyan, Kenneth Shum).

Building

As well as proposals for an extensive new building programme, the adaptive reuse of the existing buildings was adopted in the design work of Scenario

1 (Sharon Eccleshall, Vignesh Krishnamoorthy, Aleesha Kumar, Shibing Li, Sianne Smith), the students respecting the shape of existing industrial buildings on the site and using these characteristics to drive the development of a new masterplan.

Example of adaptive re-use of buildings

Scenario 1 adopted this strategy to preserve part of the present industrial character of the site.

ADAPTIVE RE-USE

- Adaptive re-use: "reusing an old site or building for a purpose other than which it was built or designed for".
- Salvaging materials from existing structures which are to be removed and reinventing them for new structures and features.
- Re-using existing buildings on site where possible will have the following benefits:
- Reduce waste material that would be generated from demolishing all buildings on site
- Cheaper cost for developers
- Keeping building heights low or similar to current will keep existing viewshafts and ensure new development suits context
- Keep identity and character of the area
- Enable progressive, staged development of the area where new builds can occur over time

Adaptive REUR economic (Heduces energy consumption) protects Authenticity + Identify (all we can hope for 2) provides fromework fembodied memory spatial layening?



Designed by Aleesha Kumar, Sharon Eccleshall, Shibing Li, Sianne Smith, Vignesh Krishnamoorthy

LOW BUILDING HEIGHT CONNECTS AND RELATES TO CONTEXT





PRIVATE / PUBLIC SEPARATION |



ADAPTIVE RE-USE



TALLER DEVELOPMENTS POSSIBLE WHERE VIEWSHAFTS ARE NOT INTERRUPTED TO PROVIDE INTEREST TO BUILT ENVIRONMENT + FRAME VIEWS



EXISTING RESIDENTIAL TYPOLOGY AT REYBURN HOUSE LANE APARTMENTS ABOVE OFFICES + COMMERCIAL

Examples of Tactical Urbanism

Developed in Scenario 1 to be used as a strategy to drive the masterplan and some community buildings

TACTICAL URBANISM

- Low-cost, temporary interventions that improve local neighbourhoodS
- Delivery of 'lighter, guicker, cheaper' physical interventions.
- Physical, often short term, place-based interventions that strategically align with the wider vision for the city, such as safe, liveable streets and pedestrian friendly public spaces.

TACTICAL URBANISM HAS FIVE CHARACTERISTICS:

- A deliberate, phased approach to instigating change.
- An offering of local ideas for local planning challenges.
- Short-term commitment and realistic expectations.
- Lowrisks, with possibly a high reward.
- The development of social capital between citizens, and the building of organisational capacity between public/private institutions, nonprofit/ NGOs, and their constituents.

SOURCE: Auckland design manual. (2017). Retrieved from http://www.aucklanddesignmanual.co.nz/design-thinking/activate AKL/activationguidance/guidance/Tactical_Urbanism

Tactical Urbanism Inspire deepen un dentanding encourage community widen public engagement Short-term low cost interventors to catalyse long term change

tactile urbanism allows designs to never freeze in time, and provide continued inspiration

- Implementing tactical urbanism at Hīhīaua would allow the community to form of place and connection to Hīhīaua.
- Small, guick, low-cost interventions and methods of delivery could be used to or permanent solutions depending on success and suitability.
- We propose using colour, murals, carving and sculptural installations, planting, use of buildings and materials where possible.
- Tactical urbanism can also give power to the community to achieve long-term, greater goals, e.g. through crowdsourcing, public/private partnerships and indication of what the community actually wants.
- Tactical urbanism is an approach that gives power over shaping the surrounding be created and achieved by the community.



Designed by Aleesha Kumar, Sharon Eccleshall, Shibing Li, Sianne Smith, Vignesh Krishnamoorthy

Hibiana Approach - Playful + education

their own environment as they would like to see it while also encouraging a sense

transform the area quickly. Temporary, trial interventions could lead to long-term

flexible/adaptable architecture (such as pop-up, temporary structures), and re-

small-scale, temporary interventions to test viability of proposals and gauge an

environment to the community. There are no limits or set parameters to what can



Collaboration through design

The Hīhīaua Studio explored the ways in which an informed masterplanning process could help in the development of design solutions for Hīhīaua Peninsula. By following the community's aspirations and seeking a collaborative approach between academia and mana whenua, the students proposed a wide range of innovative urban design solutions.

Rather than providing a conventional urban design proposal, the Hīhīaua Studio sought to contribute to a wider discussion in Whangarei by bringing different design alternatives that would inform the consequences of the transformation of the Hīhīaua Peninsula. The research that the students developed demonstrated that they had gained the ability to cooperate with other disciplines and deal with difficult design situations; for example, how to work with the consequences of climate change by developing a landscape programme that allows for a rise in sea level and the flooding that may occur due to increase in storm events.

While a broad goal of this project was to help the Hīhīaua community develop a richer design solution than the conventional urban waterfront masterplan, the students were also carrying out critical research into important questions that will affect the way we will all live in cities. This can be seen if the results of the studio are compared with its initial aims, and by considering the three stages of the research by design process (Roggema, 2016).

The aims of the studio were:

One: To build an understanding of some of the larger-scale urban/environmental, economic, social and cultural issues that affect the production of architecture and landscape work.

Two: To acknowledge the Māori occupation and history of the site, via Te Aranga Māori Design Principles.

Three: To engage with critical questions about the development of the contemporary waterfront in the age of climate change.

When the students started to investigate Hīhīaua, they developed not just a simple site analysis but began to advance a deeper understanding of the larger location. The students started to understand the site at a range of scales, from the single plot up to the regional level. There were two strong directions: hydrological and cultural. With a greater understanding of the site as a series of nested elements at different scales, an understanding of the deeper hydrological conditions of the site was developed. Understanding the site as part of a basin within the Whangarei Harbour catchment gave insight into the environmental conditions that press upon the site: the contaminated stormwater from the rapidly urbanising hinterland and the pressure of the rising sea level as a result of climate change.

Four: To develop the ability to understand and consider a site design at a range of scales, from the regional overview to the construction details. To be able to develop a confident and coherent design logic through the design work at a range of scales. Five: To explore the disciplinary boundary of architecture and landscape practice and to seek connective possibilities between them while considering new trends in infrastructure and engineering. Research by design The three stages of the research-by-design process are pre-design, design, and post-design. In the first stage of the researchby-design process, the focus is on 'what is there', the developing of an

The mana whenua, and in particular understanding of the site (Roggema, Te Warihi Hetaraka, were able to help 2016).



the students gain an understanding of the deep cultural linkages of the site to the greater landscape, in particular the Whangarei Harbour, Whangarei-tererenga-parāoa. Through an invocation of the larger landscape, Te Warihi was able to give the students an insight into the cultural linkages of the site to the genealogies that link Whangarei to the Waikato and Ahipara, and the yearly migration of the whales along the east coast. Wider and wider, the landscape opened up to the students, from the harbour to Mount Manaia to the islands, Taranga, Muriwhenua and Wareware, Whatupuke and Mauitaha. A number of innovative solutions were developed from this analysis including propositions to deal with climate change, from allowing flooding to occur in specific areas to the raising of the whole terrain of the Hīhīaua Peninsula, and to manifest the indigenous culture through a range of design interventions.

These three broad findings from the pre-design phase started the process of addressing the first three of the studio aims.

Through a deep understanding of the site, the design work in Scenario 10 (Losa Nimo, Nick Slattery, Jingqian Sun, Benjamin Meredith), responded to the third aim: *To engage with critical questions about the development of the contemporary waterfront in the age of climate change.*

The mapping analysis in Scenario 10 indicated that climate change will trigger massive sea-level rise, causing the city of Whangarei to disappear under water, and leaving the Hīhīaua Peninsula as the only remnant area of the old city. They proposed the creation of the Hīhīaua Peninsula as a repository of cultural and botanical knowledge, becoming a cultural island in the centre of the new Whangarei Harbour.

The first design investigation in Scenario 8 (Chantelle Lubbe, Pearl Patel, Jacqueline Paul) responded directly to Te Warihi Hetaraka's challenge and addressed the second aim: *To acknowledge the Māori* occupation and history of the site, via Te Aranga Principles.

This design elevated the site as a set of stepped terraces. The topographic alteration reoriented the site away from its role as an appendage to the city towards a discrete entity. The proposed Hīhīaua Cultural Centre now became the crown and focus of the site. The terraces led from the new centre to the confluence of the Waiarohia Stream and the Hatea River, and on to Whangareite-rerenga-parāoa. In this way the mahi toi, the stories of the larger landscape, the harbour and Mount Manaia become acknowledged by the new development.

When the initial design/research work was presented to the Hīhīaua community, the explorative nature of the work and the different ways in which the students had investigated the possibilities of the site were a revelation to the community. The Momentum North group repeatedly expressed their admiration for the depth of work and commitment that the students showed. They admired the students' ability in trying to grasp both the underlying issues of the Hīhīaua community and the exploration of possibilities that the community had not conceived of. This was a confirmation of what Roggema (2016) called the 'what could be' stage.

After the masterplan stage students explored what the making of a new kind of space of encounter could look like in the proposed designs of the Pacific Indigenous and Local Knowledge Centre of Distinction. This design work enabled the students to consolidate their research into the 'what will be there' phase (Roggema, 2016). It was here that students were challenged to think carefully about the material and spatial consequences of their design thinking. How big is the project? What are the different components of the design work made of? And more technical questions like: How will the roof stand up? How will water be cleansed through wetlands?

The Scenario 2 project (Sarah Mosley, Wesley Twiss, Yamen Jawish, Jill Koh,



Yujie Zou) was initially interested in how a constellation of functions could coalesce around a 'village-like' form. This proposition became a modest, eminently buildable development that connected seamlessly with the existing riverside landscape. The architecture, an informal grouping of pavilions, was integrated into a subtly modified terrain of a hard social landscape and a softer stormwater-remediation landscape.

This project demonstrated a response to the challenge of the fourth aim of the studio. To develop the ability to understand and consider a site design at a range of scales, from the regional overview to the construction detail. To be able to develop a confident and coherent design logic through design work at a range of scales.

The last aim of the studio project was: To explore the disciplinary boundary of architecture and landscape practice and to seek connective possibilities between them while considering new trends in infrastructure/engineering.

Collaboration between architecture and landscape architecture disciplines was a critical part of the Hīhīaua Studio project. The second collaborative aspect explored in the studio was working with the community. In practice architects, landscape architects, Village proposition for the Pacific Indigenous and Local Knowledge Centre of Distinction, Scenario 2, designed by Sarah Mosley, Wesley Twiss, Yamen Jawish, Jill Koh, and Yujie Zou.

engineers, planners and other design professionals are working together every day to get projects built. However, collaboration outside of disciplinary boundaries seldom occurs in tertiary institutions with a professional educational programme. With the formation of the new Construction, Infrastructure and Engineering network at Unitec, the possibility of forming a collaborative relationship between the different disciplines has become much easier, reflecting life in the professional world that graduates will soon enter.

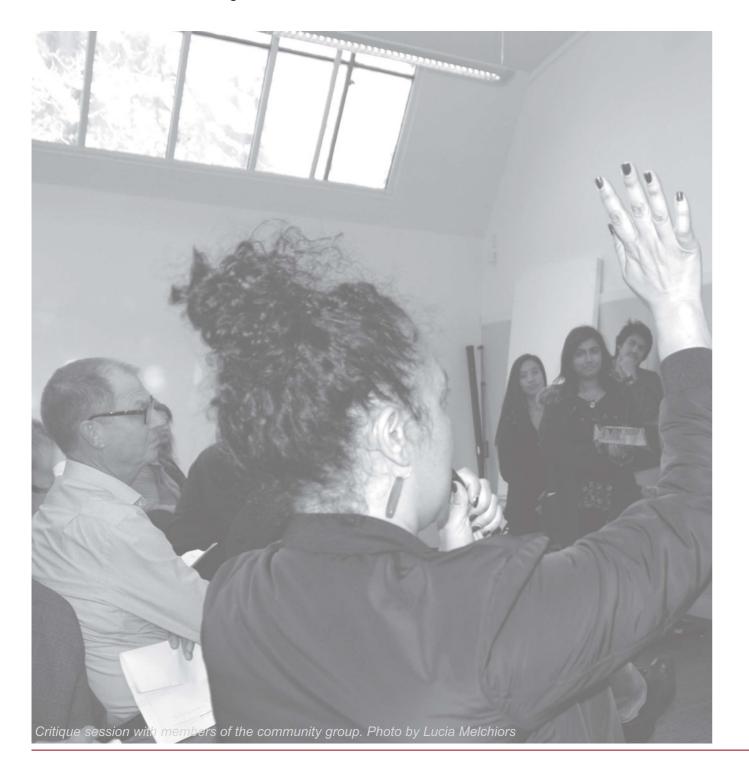
Learning how to understand a community's desires and translating these into design work is a day-today task for all design professionals. Introducing the student to this process can be challenging but the rewards of community consultation were critical. The possibility of learning occurring via conversation, collaboration and constructive conflict contributed to the understanding that knowledge is socially constructed, as pointed out by Hirt and Luescher (2007). Considering the complexity of the design, a longer exercise could have helped students to go deeper into their design solutions and discussions with the community.

Many students felt the relation with the community was one of the most

challenging parts of the project, but also quite rewarding. Wesley Twiss, an architecture student from Scenario 2, commented: "I think a lot of us struggled with [community consultation] at first, but by the end we really enjoyed talking to the community and seeing how they reacted to what we came up with" (Unitec, 2017). This process made students reflect on how to translate a community's aspirations in design solutions. The student pointed to the work with Tui Shortland: she hadn't been convinced by their initial concept, but through discussion with her and

answering her concerns they proposed an alternative solution for the problem. "So that was a steep learning curve, to have someone telling you what they want, but not quite knowing what they need, but who are looking to you to push them in different directions" (Unitec, 2017).

The students learnt the necessity of engaging with a community, as expressed by Sharon Eccleshall, from Scenario 1, when she says: "You need to be able to empathise with a diverse range of people with related concerns. It



meant learning how to listen and extract the information you need to form a viable idea" (Unitec, 2017). This can be a challenge but was also an important learning experience, as Sharon said: "Once you realised these people were genuinely interested in your ideas, it's quite rewarding. [...] Working on a project like this illuminated some of the challenges we'll be faced with when we enter the workforce" (Unitec, 2017).

Reflecting on the Hīhīaua project, we can see that from the beginning the project was deeply embedded in its location, geographically, culturally and physically. The many different design propositions demonstrated richness in their explorations of the different and the unexpected. The conclusion of the project showed students had not only developed new ideas, but that these ideas had a direct benefit for all citizens of not just Hīhīaua but of Whangarei.

By working in a non-familiar area and with a range of scales, students were provoked to go beyond their experiences, as suggested by Barbosa et al. (2014). The complexity of the design was one of the issues addressed by students when they articulated their impressions about the studio. Sharon Eccleshall, a fourth year Bachelor of Landscape Architecture student, commented: "We were working with a culturally significant, low lying, reclaimed piece of land between two rivers which is subject to flooding, the future impacts of climate change and sea-level rise" (Unitec, 2017). The process made students reflect on the interrelation of physical, cultural and social aspects in their designs: "It was definitely a challenge, to find design solutions that would be resilient, achievable, affordable, aesthetic, functional and more importantly would suit the community," said Sharon (Unitec, 2017).

The future

Reflection is the last stage in Roggema's research-by-design schema.

As the studio team, we felt that the students enjoyed working with the community the most. In reflecting on this project, with a view to planning a future project, more engagement with the community's ideas and feedback when writing the brief would have been useful in planning the project. More involvement with the community in the early parts of the design process would also have been useful. Digital platforms, such as websites and blogs, could have been a good conduit for students to post early design work and to get early feedback. This could have contributed to a more open and inclusive discussion process and also provided community feedback on students' design work, helping them refine their strategies. The studio outcomes could also have been more focused in asking students to develop publicity materials that could be used by the community. It would have been useful to organise a formal exhibition at the end of the studio for the community. Students could then have been involved in the process of the preparation of a design presentation and a publication.

This book can be seen as a blueprint document that helps not only the community involved in the project but could also help other communities to understand the design process and how they might develop a similar project, engaging with academia and the community.

This publication is one of the ways in which the project can be beneficial for Whangarei. Issues that can often be elided in typical waterfront projects, especially environmental matters concerning stormwater discharge and sea-level rise were not only canvassed by students, but a range of active and participatory solutions were proffered.

The deep cultural history of the site was similarly brought forward in the range of design work. We hope that this book can be used by the community as an almanac of possibilities, beyond the conventional waterfront design nostrums.

The team

The joint studio was initiated and run by four Unitec lecturers: Matthew Bradbury, Lucia Camargos Melchiors, Xinxin Wang and Dr Hugh Byrd. Matthew is an Associate Professor and a landscape architect whose research work is concerned with developing a new model of urban design that combines landscape analysis and city planning. Lucia is an architect and urbanist from Brazil with extensive experience as a practitioner and as a lecturer. She has a post graduation degree in Cultural Heritage at Urban Centres, a master's

degree in Urban Planning and is, at the moment, a PhD Candidate in Regional Planning. Landscape Architect Xinxin Wang has two decades' experience of urban design and planning practice in China, which gives her great insight into the integration of landscape and urban development. Dr Hugh is a Professor of Architecture and a registered architect from the UK. His research and design work have a strong focus on the environmental performance of buildings and cities.

Both the teaching team and the

students have diverse backgrounds and cultures. This diversity provided multidisciplinary perspectives and valuable insights into the studio teaching and learning processes.

The joint studio had 44 students, including 22 Landscape Architecture undergraduates and 22 Architecture postgraduates. They came from different countries, including China, India and Samoa. Different life experiences and knowledge backgrounds provided a wide range of approaches to urban and environmental



issues. For many students, this was the first time that they had worked together with students from an allied discipline. Through group discussion and debate, sometimes even arguments, students overcame various conflicts and inspired one another. The challenge of working on a real project, with the necessity to present and respond to clients and critics, also improved the students' teamwork skills and communication abilities. The design outcomes show that students gained the ability to cooperate with other disciplines and deal with difficult design situations.

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