The Hīhīaua Studio

Unitec Institute of Technology
Te Whare Wānanga o Wairaka
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HThTaua – “Ahi Kaa (keep the home fires burning). In ancient times beacon fires were lit at HThTaua to guide the people home. HThTaua will be a contemporary location allowing for the sharing of knowledge and experiences. It will exhibit chiefness and will be a place for all people” – Momentum North

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

In 2016, the Momentum North Hīhīaua Community Group asked the Unitec 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 open-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 sea-level 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 māae 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, 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.
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 threshed 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 Reewyn Tipene have been pivotal in getting this next stage energised. Taku whakawhetai ki a koua.

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 Hīhāua Studio started late in 2016 when Momentum North, a group of concerned stakeholders from the Hīhāua 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 Hīhāua.

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 Hīhāua that we saw the extraordinary site, a long skinny peninsula at the confluence of two watercourses, the Hatea River and the Waiaurahi Stream. Dominated by Parihaka to the north and opening to the Whangarei Harbour to the east, Hīhāua 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 Warahi Hetaara revealing to us the proposed Hīhāua 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 Maori 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 Hoonua o Whangarei Terenga Paraoa.

The strong wairua of the site was further confirmed on our subsequent visit to attend a pōwhiri 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 pōwhiri, with representatives from the many indigenous peoples of the Pacific, emphasised to us that Hīhāua 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 Hīhāua 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 Melchior and Xin Xin Wang, Editors.
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:


Without their hard work and dedication this publication would not be possible.
01 Conceptualisation
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 Okara 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 reclaims from the 1920s until the early 1970s. During this time the Northland Harbour Board transformed the site, creating industrial reclaims 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 Punawamana 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 Warhi 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.
1.2 Background

Developing a masterplan for the waterfront on Hihiau 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 (Melchior & 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 Hihiau Peninsula was identified as a site for waterfront development.

In the same year, a comprehensive redevelopment plan for Hihiau was advanced in The Hihiau Precinct Plan (Prentice, 2015). This is a thorough examination of the site, with a number of detailed recommendations for the real estate development of the zone.

The Hihiau 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 Hihiau 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...
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?

The Hīhiaua 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

Hihiaua should be a contemporary location allowing for the sharing of knowledge and experiences; a place that exhibits chieftiness 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:

**LIVE:** Not many people live in the CBD, yet Whangarei is growing rapidly. Development in Hihiaua 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 Hihiaua Cultural Centre, the peninsula could become a cultural and educational hub for Whangarei.

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

**PLAY:** The group wants the Hihiaua Peninsula to be a recreation destination for the citizens of Whangarei.

**VISIT:** Hihiaua has great potential as a tourist attraction.
1.3

Aims and Objectives

Dealing with real and complex issues

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 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, long-span 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

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 non-textual 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 Hitiua 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 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.
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 Luca Melchior; photo 5 by Xinran Wang
Meeting with the community

The Momentum North Hihiaua community group received students and tutors on the Hihiaua 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 Hihiaua Peninsula.
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.
BIO-PHYSICAL MAP ANALYSIS

The Hihiaua Studio was divided into three phases:

1. 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 phase were to:

- Identify problems associated with the development of the area through meetings with community leaders and stakeholders.
- Review the literature and case studies that deal with urban flooding and sea-level rise.
- Clarify the concept of ‘resilience’ and explore new strategies for urban development, such as green infrastructure, soft engineering and green buildings.
- Use GIS (Geographic Information System) to translate the collected site data into interactive maps.
- Identify suitable design concepts and strategies for the given site.

The research involved investigation of:

- Site (location, surrounding precincts and services, census data).
- 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).
- 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
2. 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 Hihiaua 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 Hihiaua Precinct Plan had to be accommodated.

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

3. 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 man-made) 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
- Capability to design complex architectural projects (reference to long-span/complex structures)
02 Studio Outcomes
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

Hihiua 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 Wairoia Stream.

It is evident from the history of the site that the Hihiua Peninsula represents an important place for Māori culture and the city of Whangarei more generally.

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

The Hatea Loop
Enjoy the 4.2km Hatea Loop - a fully accessible walkway incorporating the Whangarei Town Basin Marina precinct, Sculpture and Heritage Trails.

SITE CONTOURS

Designed by Knher Santos, Sally Shi, William Giles, Yanan Li
HIHIUA PENINSULA, WHANGAREI (-35.727, 174.327)

- Approximately 16.5 hectares. Enclosed by Rebyrn St (W), Hatea River (NE) and Wairarapa Stream (S)
- Temperate, humid climate with an average annual temperature 15.3°C
- Average rainfall 1400 (coast)-1700mm (inland). Wettest months are June-August (33% of total rainfall expected). Driest months are November to January (17% of total rainfall expected)
- Predominant wind from the SW, one of the least windy areas of Northland.

HIHIUA WIDER CONTEXT

HIHIUA PENINSULA

- Located to the NE of Hihiua. A scenic reserve and picnic area. 24km by boat

Wairua River

- A rich waterway and intersection point at the top that can be reached by car on multiple bush tracks. Panoramic views of Whangarei and the site from the summit.

Mt. Parihaka

- Sits above the water and can be reached by walking tracks.

Whangarei Harbour

- House two marinas, exclusive to the local area.

Mt. Hokianga

- Sits at the end of the Waipu River and Whangarei Heads.

Marison Point

- Located at the entrance to Whangarei Harbour which is 45km.

The Hihiaua Studio
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 medium-sized 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
There are 76,199 people in Whangarei— it's the 9th biggest district in NZ.

18,779 of the population are Māori. It has the 7th biggest Māori population in NZ out of 67 districts.

Only 21.3% of Māori speak te reo. The biggest ethnicity in Whangarei is European at 68%.

The age demographic is primarily made up with over 45%. 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.

**Average House Prices**

Whangarei has an average house cost of $460,000 which is two thirds that of Auckland. It is also less than the average NZ house price by over $200,000.

Research by Trina Gaston, Rory Gray, Thomas Smith, Torben Laubscher
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 Hīnāua 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.

Designed by Jill Koh, Sarah Mosley, Wesley Twiss, Yamen Jawish, Yujie Zou
**Hīhīaua | BIO-PHYSICAL ANALYSIS**

### Aspect + Slope

- This map shows the severity of the surrounding slopes of the mountain ranges, contributing to the movement of water and soil through the landscape.
- Colors of blue indicate the southern side of the ranges, where the northern slopes are hues of green and yellow and red in the western slopes.
- The orange overlay indicates high slope %.
- The aspect helps determine the northern positions for buildings and crops, whilst the slope % helps determine whether the land is susceptible to erosion or slips.

- **NORTHERN SLOPES**
- **SOUTHERN SLOPES**
- **WESTERN SLOPES**
- **TOWN**

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

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**Hīhīaua | BIO-PHYSICAL ANALYSIS**

### Land Cover

- This map of land cover for the Waitakere district shows the various types of land cover which help create habitat diversity, promoting a high level of biodiversity.
- Grasslands, which include open space and pastures, and the town footprint are the predominant land cover types.
- These land cover types are the leading causes of erosion, sediment movement, and habitat fragmentation, which threaten the biodiversity of the area.
- The Waitakere Growth Strategy states that 25% of land use consents were granted within the North Island brown kiwi habitat (1996-2000).

**Native Vegetation** | **Manuhuvies**
---|---
**Exotic Vegetation** | **River**
**Grasslands** | **Town**

**Designed by Aleesha Kumar, Sharon Eccleshall, Shibing Li, Sianne Smith, Vignesh Krishnamoorthy**
**Hihiawa | Bio-Physical Analysis**

### Water Catchments

- **Hihiawa** is bordered by two waterways, the Hatea River and the Waingaro Stream.
- An overland flow path runs along the northern side of the peninsula.
- Due to the topography of the landscape, rainfall accumulates quickly into the various streams which feed into these waterways.
- The location of the site is low and is therefore susceptible to flooding, especially when various elements coincide, e.g., storm water, king tides, and dry fall precipitation.
- Historic images show this area as intertidal mudflats. Reclamation of the land along the Hatea River will have displaced water, also contributing to the issue of flooding.

- **Overland flow paths show accumulation of water from ranges.**
- **Aquifer:** Recognised as being ‘at-risk’
- **Town**

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### Soil Capabilities

- The soils of the landscape surrounding Hihiawa are predominantly non-arable, which has limited usability due to limitations such as poor drainage, salinity, slope, and low fertility.
- The land beneath Hihiawa has been reclaimed to create more commercial space. Although the sediment loads are not considered high, current land uses such as farming and forestry are creating a sediment runoff.
- Sediment run-off negatively impacts water quality and reduces clarity of the water, adversely affecting the ecology of the river, particularly plant life and seagrass.

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*Designed by Aleasha Kumar, Sharon Eccleshall, Shiling Li, Siianne Smith, Vignesh Krishnamoorthy*
BIO-PHYSICAL ANALYSIS

PATCH ANALYSIS

- Meek and Hall suggest a formula which analyses the vegetation cover of landscapes and provides a framework to create landscapes that benefit 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 biodiversity and habitat connectivity.
- Applied to the context of our site we can measure the importance for vegetation on Hihiua Peninsula and how the site fits into the landscape pattern.


20m RIPARIAN BUFFER

OVERLAPPING THESE ELEMENTS SHOWS HOW IMPLEMENTING A 20-METRE BUFFER AROUND STREAMS CAN ASSIST IN CONNECTING THOSE FRAGMENTED PATCHES.

- The vegetation buffers serve not only to facilitate migration of species and 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 Hihiua Peninsula was historically characterized by extensive mudflats: a natural filter and barrier of Whangarei Harbour.

ECOLOGY

ECOLOGICAL DIVERSITY

- Provide habitats and feeding grounds for fish, birds, shellfish, mammals and other wildlife, including threatened and/or vulnerable species.
- Invertebrates and migratory birds, such as geese and penguins, regularly visit and find food during their migration.
- Many native birds, including waders and ducks, also live here.
- Mangroves provide important habitat for the diverse fish, birds, and invertebrates that use this area.
- Mangrove forests are important filters that improve water quality by reducing nutrients, sediments, and turbidity.
- Estuarine areas maintain water quality in the same way filtering out sediment and nutrients. Microorganisms break down organic matter and sediments, contributing to estuarine health.

DESIGNED BY: Aleesha Kumar, Sharon Eccleshall, Shilin Li, Siânne Smith, Vignesh Krishnamoorthy.
**Hīhīaua | DIFFICULTIES**

**ENVIRONMENTAL IMPACT**
- Climate change will increase the frequency and severity of tornados, which can damage or destroy dwellings.
- Saltwater intrusion into freshwater aquifers is an ongoing problem.
- Infrastructural damage due to hurricanes and typhoons.

**URBAN ENVIRONMENT**
- The urban environment is a static feature, which has fragmented natural ecosystems and their functions.
- The growth of population without proper planning has led to environmental degradation.

**CONTAMINATED LAND**
- The major source of the flood risk and the floodplain impact on the environment of landfills.
- The contamination of the water can affect the quality of the environment and the ecosystem.

**SEA LEVEL RISE**
- The rise in sea level can reduce the productivity of the environment.
- Corrosion of buildings and infrastructure.

**CARBON SEQUESTRATION**
- The carbon sinks are essential for the maintenance of the environment.
- The increase in the level of carbon dioxide.

**DESIGNATION**
- The designation of wetlands is important to maintain the carbon sequestering capacity.

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**Hīhīaua | DIFFICULTIES: CONTAMINATED LAND**

**LAND SUSCEPTIBLE TO FLOODING**
- Over time, due to changes in velocity and capacity, erosion and sediment accumulation, flooding, sea level rise, and coastal rise.
- Hīhīaua site was part of the intertidal flood plain of the Hatare River. The reclamation of the floodplain and land and the topography of the land as a floodplain is a major problem for flooded water dispersal to other areas.
- Resilience strategies are now in place, and flooding rates and wetlands are now becoming common solutions to flooding problems.

**CONTAMINATED LAND - POHE ISLAND**
- Landfills were predominantly placed in areas regarded as unsuitable for development or flood protection. New Zealand has a major problem with most old capped landfills as most of our town landfills were in wetlands or along stream & river banks.
- Landfills may also be capped through groundwater. The placement of Pohe Island.
- Stagnant water could submerge landfills and increase the spread of contamination.
- Once an aquifer is contaminated, it may be unsuitable for decades.
- Saltwater can enter aquifers if the freshwater level falls too far.
- Landfills release gases & Leachate. The Post Closure Plan for Pohe Island notes that methane gas concentrates in the landfill to a potential to ignite.
- The Leachate seepage from Pohe Island is pumped under the Hatea River into a Wastewater Treatment Plant, however it is noted that it still has a slow seepage, but does not appear to be causing air contamination damage.
- Further research is required to clarify the effects of the landfill on the environment.

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Designed by Aleesha Kumar, Sharon Ecclestone, Shijing Li, Sianne Smith, Vignesh Krishnamoorthy.
**COASTAL HAZARD**

Whangaparaoa city is situated on a low-lying reclaimed 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 that the city is at risk of coastal erosion and flood risk due to climate change. Beyond that, an allowance is to be made for 12 months per year. These effects show the extent of the impact of Whangaparaoa city, and how climate change affects Whangaparaoa city. The effects of climate change are increased significantly with greenhouse gases. Although we can not stay rising, we might at least be able to slow it down. Capturing and storing rainwater reduces the pressure we are putting on fresh water resources which are under threat due to sea level rise. The above rational method calculations are made as much water could be intercepted and collected during a 1.5 minute rainfall.

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

\[ Q = C \times \left( \frac{Q_0 + n \times f \times A}{n + 1} \right) \]

- \( Q \) = peak flow (m³/s)
- \( C \) = runoff coefficient
- \( n \) = 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.*

**HIHIAUA RETENTION POND SIZE**

- \( C = 0.8 \) (highly impermeable)
- \( n = 0.1 \) (average rainfall)
- \( A = 16.5 \) hectares
- \( Q = 1.08 \) m³/s (peak flow rate)

Over 15 minutes this equates to 1792,000 litres

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**COASTAL QUALITIES**

**MAP ANALYSIS:**

**VALUE OF WHANGAPARAOA**

The coastal waters of the north island accommodate the highest diversity of aquatic life of any area in New Zealand, while also containing major ecosystems of coastal and terrestrial origin. The region is a significant number of marine reserves, one located around the Moir Point Basin, is Whale Valley National Park located in the lower Manukau Harbour (Northland Regional Council, 2015, 212).

**SOURCE OF POLLUTANTS:**

Surface runoff is a major factor contributing to urban contamination, particularly the concentration of sediment, nutrients, and other pollutants. These sources include:

- Agriculture and forestry industries
- Urbanization and urban sprawl

**STATUS OF CONTAMINATION:**

The main source of contaminating watersheds and coastal waters in the North Island is from diffuse sources rather than direct source discharge. The diffuse sources of contamination originating from urban and forestry runoff are harder to monitor and control.

**FAUNA AND FLORA**

New Zealand’s environment supports a diverse range of indigenous plants and animal species that can be found throughout the country. The region of Whangaparaoa supports the highest number of terrestrial species, with over 10,000 species occurring in the region. It is home to the threatened black mullet and is currently under threat due to the introduction of non-native plants, which affect the local ecosystem and the environment.

**THREATENED BIRD SPECIES:**

- Brown Kiwi
- Karearea (New Zealand parakeet)
- Kaka
- Tui
- Fantail

**THREATENED ANIMAL SPECIES:**

- Long-nosed bat (Chalinolobusunderscore)
- Black-billed gull (Larus dominicus)
- Great bowerbird (Chlamydera nuchalis)

**THREATENED PLANT SPECIES:**

- Coastal daisy (Banksia serrulata)
- Shoreline daisy (Banksia serrulata)
- Forrest’s daisy (Banksia serrulata)
- Black mullet (Chlamidae crispus)

**RESEARCHED BY:**

Jill Koh, Sarah Moesley, Wesley Twiss, Yamen Jawah, Yujie Zou

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**Designed by Alesha Kumar, Sharon Eccleshall, Sibing Li, Sianne Smith, Vignesh Krishnamoorthy**
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 Hihiaua 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, Shijing Li, Sianne Smith, Vignesh Krishnamoorthy
Cadastral Map + Existing Buildings

- Low building height important to connect and relate to context.
- Relevant typology from surrounding context: boat sheds at Hātea River.
- Current light industrial typology: setbacks for private/public divide.
- Existing residential typology at Reuben House Lane: apartments/townhouses over private/public divide.

Cultural Features + Viewshafts

- Hātea House
- Hātea Art Gallery
- Boat Sheds
- Reuben House

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

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

- Arterial roads mainly converge at the south end of CBD. They tend to have higher traffic and are of least 5 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 Whangarei moves forward, the Plan Change proposes a greater number of shared use walkways with better connectivity. Cycling is not catered 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 zero-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 5).

Mode of Transport

- Drive - 60%
- Walk/Cycle - 5%
- Public Transport - 0.6%

Population Distribution in Whangarei

- Rural - 10%
- Coastal - 10%
- Rural - 21%
- Urban - 57%

Access to Motor Vehicles

- No Access - 7%
- 3+ Vehicles - 12%
- 2 Vehicles - 35%
- 1 Vehicle - 36%

Map of Infrastructure

The stormwater network is separate from the sewer network and each system discharges to different stormwater outlets to sea, sewer to treatment plant. Currently, stormwater is not treated or cleansed after it enters the network. What goes down the drain goes to the harbour and out to sea (Whangarei District Council, 2010, p. 1).

Out of 4,028 stormwater nodes (shown as black dots on map counts within the Centres of Whangarei), there are innumerable stormwater outlets expected the red node along Hatea River and Kuungs stream potentially releasing untreated runoff into Whangarei Harbour.

Opportunity

To integrate the Precinct development with stormwater network while still maintaining a water-sensitive design (Grady, and local stormwater treatment in the Town Basin area.)
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 kāore ka mōhio
Ma te mōhio ka mārama
Ma te mārama ka mātau
Ma te mātau ka ora ai tūtau

Through discussion comes awareness
Through awareness comes understanding
Through understanding comes wisdom
Through wisdom comes wellbeing for all (Auckland Council, 2016).

Significant Pā sites (fortresses) and Papakāinga (villages)

**Hīhāua** - A canoe landing and fishing village belonging to local tribes Te Uitero, Te Parawhau and Ngāti Kahu. This site was situated on the Waiau Stream near the junction of Port Road and Okara Drive, Okara. A hilltop pā above Hīhāua

**Tawatawhiti** - The main village located in the Mair Town area and attached to Puraha Pā. This was also the name given by the chiefs of Whangarei to Capt. Gilbert Mair (Tawa) when he was born here.

**Te Ahipōpōrangia** - A fishing village and canoe landing once located where the Town Basin is. William Carruth, the first paheka to settle in Whangarei, lived here.

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

**Parihaka** - The citadel of pā and papakāinga once located on the ancient volcano remnant standing on the north-eastern skyline above Whangarei city.

**Oruha** - The pā which occupied "The Bluff" and guarded the immediate entrance into the Whangarei basin.

**Pīkawakawa** - The pā site where the Whangarei Hospital now stands. This pā was located at the western end of the city where tracks came from the Wairoa, Kaipara, Hokianga and Kaikōhe areas.

**Tārewa** - The pā which stood on Anzac hill. Kauka - Pā site on the Western Hills opposite the hospital.

*Designed by: Sui Guo, Michael Macfarlane, Shiling Tao, Tevita Vea, Yuhao Wu*
Iwi and Hapu Values

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

TIKANGA
The correct way

MANAAKITANGA
Trust and respect actively contributing towards developing a positive relationship

KAITIAKITANGA
Guardianship

KAWANATANGA
Recognise the need for law

RANGATIRATANGA
The right to self-govern

KOTAHITANGA
Unity in purpose and vision in moving forward

TAUUTUUTU
Reciprocal support in building a strong foundation for the future

TE AO MĀORI
The world around us is intrinsically interlinked and must be considered in its entirety

MARAMATANGA
Understanding and consideration

WHAKAPAPA
Learning from the past, in order to move into the future

Te Aranga Design Principles

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 Māori culture and sense of place.

Mana
Mana whenua and iwi from the area contribute to the decision making process for the design process.

Whakapapa
Using correct ancestral names

Signage and wayfinding

Taiao
Protect, restore and enhance the connective surrounding the Whāia Pukura.1

Sustainable environment that provides for mana whenua harvesting

Flora and Fauna significant to Mana Whenua

Mauri Tu
Restore and enhance aquatic ecology through water-sensitive design

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

Mahi Toi
Create homes that support cultural needs - open plan and inter generational living space

Integration of iwi and hapu narratives and themes into built elements

Reconciliation of tohu through heritage trails and markers

Ahi Ka
Create homes that support cultural needs - open plan and inter generational living

Integration of iwi and hapu narratives and themes into built elements

Engage and align with community programmes

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

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

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.
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 Hihiaua 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.
HIHIUA | PROPOSED PRECINCT PLAN

**OPTION 1:**

- **NO ACTION**
  - Existing provisions would be kept in their current form, which would avoid preparing a plan change.
  - Current zoning law encourages residential development, and the Business 2 zone allows development under specific provisions. However, these provisions do not allow for comprehensive high-density residential development, which renders this option ineffective.
  - The costs 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 Whanganui’s 2020 plan, nor does it satisfy other stakeholders’ expectations for the future development of the Hihiua Precinct.

**OPTION 2:**

- **REZONE HATEA RIVER SUB-PRECINCT TO MIXED-USE**
  - Urban Basin Environment: Hatea River sub-precinct is utilized as mixed-use development while the remainder of the Hihiua 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 waterfront.
  - 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 (Hihiua).
  - Unlike Option 1, this option aligns with Whanganui’s 2020 plan and somewhat provides development prospects for not only the Hihiua Precinct, but also Whanganui city as a whole.
  - Disadvantages of this option include:
    - Potential land use conflict and reverse sensitivities issues with permitted activities, which will lead to liability to integrate and coordinate holistically. Induction of difference in land use within the Hatea sub-precinct would hinder and limit existing dwellings’ development.

**OPTION 3:**

- **REZONE THE HIHIUA PRECINCT TO MIXED-USE BY WAY OF PLAN CHANGE**
  - Rezoning the entire Hihiua 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-dividing, and the community about the outcome and vision of the precinct.
  - Potentials will ensure population growth can be accommodated with higher densities close to Whanganui CBD, amenities and employment opportunities.
  - Disadvantages of this option include:
    - High cost and risks implications associated with advancing a plan change to re-zoneland 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 Whanganui 2020 plan.
  - This option has the least legal restriction and allows opportunities for a flourishing district of Whanganui.

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Research by Aleisha Kumar, Sharon Eccleshall, Shijing Li, Siannie Smith, Vignesh Krishnamoorthy

The Hihiua Studio
**Hīhīaua | PROPOSED PRECINCT PLAN: REYBURN ST**

Reynour 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, wholesale activities, a gymnasium and small manufacturing activity. Existing commercial activities are saturated with internal parking spaces. Businesses situated on Reynour Street are served by 2 service lanes.

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

The image to the right shows an altered and artistic representation of what the Reynour Precinct could look like. As per all Precincts, the main objective will be to use existing structures first and foremost.

The image is an adaptation of the Cepennagen road reorganisation 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.

**Hīhīaua | PROPOSED PRECINCT PLAN: CENTRAL PRECINCT**

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

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

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

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

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

Research by Aleasha Kumar, Sharon Eccleshall, Shihing Li, Sianne Smith, Vignesh Krishnamoorthy
Local Development projects

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 Hihiaua precinct. These projects can often benefit or work in conjunction with our development plan for the Hihiaua Peninsula and were put into consideration in our development process.

**CENTRAL PRECINCT**

**TRANSPORT CENTRE GATEWAY**
Prepared upgrade to the existing transit centre from minor on local bus network while repositioning existing transport services towards Tawharanui and Ruawhata bus stops.

**CAMERON & JAMES ST LANDSCAPING**
The repurposing of Cameron & James Street aim to enhance walking commercial opportunities while its pathways and canopies form pockets of communal spaces that encourage social interaction.

**TESTED EDUCATION**
A tertiary education development would introduce an influx of population back into the CBD area of Whangarei. In conjunction with the former Moots House Trust and other local educational organisations, it can establish greater cultural and educational opportunities.

**LAURIE HALL PARKWAY MEMORIAL**
Laurie Hall Park and the Memorial provides a place of peace with its two open areas within the larger density of the CBD area. It hosts a series of events and civic events that enhances social and recreational opportunities at the heart of Whangarei City.

**BANK STREET REVITALISATION**
The revitalisation of Bank Street focuses on the improvement of public squares and existing buildings while removing the significant 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.

**WATERFRONT PRECINCT**

**CANOPY BRIDGE**
The canopy bridge marks the western border of Hihiaua Loop, crossing the width of the Hihiaua Loop. The bridge serves as a route for the pedestrian and the cyclist and offers social opportunities such as small scale events.

**HAPA LOOP**
The Hapa Loop is a 4 km long walkway that encompasses the lower Hihiaua Loop to the Hapa Loop, connecting multiple points of interest and significant social and commercial opportunities on both sides of the Loop. The walkway plays a huge role in the accessibility and pedestrian circulation of the Hihiaua Peninsula and will have a major impact on the development of the Hihiaua precinct.

**TE MATAU A POHE**
The Te Matau a Pohe bridge serves as the only link between the western and eastern sections of the Hihiaua Loop (circa 4 km radius). Its design takes advantage of the visual and aesthetic properties of the bridge, offering a view of the lake and the surrounding landscapes.

**NEW MARINA**
The new marina is a planned project that will meet the increasing demand for waterfront activities and services along the Lake's East Coast. The project will also provide a unique opportunity for leisure and recreational activities.

**WATERFRONT FRINGE PRECINCT**

**EXPANDED GROWERS' MARKET**
The Whangarei Growers' Market provides public space for the local markets and can be utilised for local events, such as outdoor markets, to encourage social interaction and enhance the market experience.

**EMERALD NECKLACE**
The Emerald Necklace, aimed at enhancing the walkway and cycling network along Whangarei's waterfront with new nature and leisure amenities, will provide opportunities for residents and visitors to enjoy the area's natural beauty.

**POHE ISLAND PRECINCT**

**EXPANDED TRAIL NETWORK**
Extended multi-use trails are planned throughout the Pohe Island, reinforcing the physical connection between the Hapa Loop, further enhancing the amenity of the Pohe Island, and increasing potential for walking and cycling activities.

**WILLIAM FRASER MEMORIAL PARK**
William Fraser Memorial Park is an area of historic significance that has potential for development. It provides an opportunity to enhance the recreational and cultural facilities in the Hihiaua Peninsula.
2.1.7
Research
Community brief

Based on the community brief developed by the Momentum North group, Hihiua 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, weaknesses and threats identified by the community in their research.
HIHIAUA | MOMENTUM NORTH BRIEF

STRENGTHS
- Area to be developed with the future in mind
- Resilient
- Proximity to waka/GDI/levee
- Hilling Environmental (HOK, & MBC council own most land)
- Waita Loop (commitment from council to grow the loop)
- Cheaper land cost
- Multi-use development
- Growth in tourism
- Strong cultural element
- Fast broadband/ fibre
- Sports fields
- Community spirit
- Hukatretaerei Re Puna Marana/ Te Kura/ Te Whare Kura and many others
- Momentum en masse
- Increasing strong Māori presence in business and framing

WEAKNESSES
- Existing tenants/lease
- Building Act
- Negative perception of Whangarei (need to change people’s mindset)
- Suitable location required to relocate existing businesses
- Current appearance is poor
- Dirty water
- Glad river
- Difficult access to water due to above
- Poor geotechnical conditions
- Inadequate/insufficient infrastructure
- Enrich
- Experience
- History
- Hihiaua will be a contemporary location allowing for the sharing of knowledge and experiences. It will exhibit cheerfulness and will be a place for all people.

OPPORTUNITIES
- Ancestors
- Vision from 1860
- Inspiration from the stories
- Gathering place for the chiefs
- History of the area
- Understanding the customs
- Bringing back the old
- Create better appearance
- Government focus for Northland development
- More immigrants, more Fakatupapa resonating to the region
- Massey House
- Te Ako Pacific Indigenous & Local Knowledge Center of Distinction
- Hihiaua Cultural Centre
- Other attractions of having scale-existing plazas in the near vicinity
- Bioblue Otepe – land available
- Attractive region to live
- Bioblue Otepe with preserving/ enhancing transport systems and environment

THREATS
- Reserves/leases
- Lack of buy-in from all sectors
- Economic changes
- Negative publicity
- Rising sea level
- Potential pull back from current residents
- Competing interests

PROBLEMS
- Lack of cultural identity and social diversity in Hihiaua Precinct
- Absence of waka and historic Māori river racing on Hata-Te-River
- Misconceptions of Whangarei being undesirable hindering economic growth
- Access and connectivity to Hihiaua Precinct under developed
- Poor connection into the site might provide hindrances that solutions do not benefit the interested parties
- Undertaken/sponsored by Foremost environmental/landscape architects
- Quality of water still unsatisfactory, but progressively improving to its previous state
- Ecological corridors and biodiversity not up to full potential
- Provide ecological corridors to expand the biodiversity of the area and increase interspecies inhabitants in the region

AIMS
- Take Mihiaua 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 Hihiaua
- Emphasise on wākaitiwha (home base) – true home” arising from a village
- Integrate the existence 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 forces” approach to unite community
- Create developments which are beneficial to the current residents and complimentary to their vision
- Merge charter schools, local businesses and residents to generate a community-oriented precinct
- Establish a district that complements Whangarei CBD and thus contributes to the region’s economic growth
- Initiate engagement strategies to link Mihiaua Peninsula to Whangarei’s points of interest
- Enhance teachings of tikanga Māori traditional arts and sharing of cultural traditions

OPPORTUNITIES:
- An Hihiaua Cultural Centre will feature traditional Māori art + methods. Hihiaua Precinct could also enhance the teaching of tikanga Māori traditional arts and sharing of cultural traditions
- Using the history of Hihiaua Peninsula to establish the idea as the “gateway to Whangarei”
- Initiate engagement strategies to link Hihiaua Precinct links to Whangarei’s points of interest
- Establish a district that complements Whangarei CBD, thus contributing to the region’s economic growth
- Continue and expand forested artificial wetlands and introduce reef filtration systems

CLIENTS
- Big meeting place
- Gallery
- Gallery
- Theatre
- Carving
- Activities
- Looking after the land
- Sustainability

Research by Aleisha Kumar, Sharon Eccleshall, Shibong Li, Siarina Sime, Vignesh Krishnamurthy

Sweat analysis undertaken by the Infrastructure and Investment and presented in the Momentum North brief.

Research and reorganised by: Benjamin Meredith, Jingqian Sun, Lorna Nimo, Nick Slattery
2.2 Designs

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

The design phases of the Hīhīaia Studio were carried out in two stages. The first was the design of a masterplan for the Hīhīaia 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 Hīhīaia 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 Hihiaua 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 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; Taiaroa, 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.

The masterplan for Momentum North Hihiaua 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, Shijing Li, Sianne Smith
TACTICAL URBANISM TO ENHANCE PUBLIC SPACE, PARTICULARLY STREET ART, MURALS/COLOURFUL INSERTS, CARVING, AND COMMUNITY PLANTING


Biodiversity Restoration:
Emergent Landscapes | Deplanted Open Space

The remedial landscape provides opportunities to create a variety of wetland and habitat corridors. The design incorporates the ‘snail’ model which will allow wildlife to travel from one area to another.

- Stormwater channels:
- Stormwater detention:
- Intertidal wetlands:
- Forested edges:
- Seawater pathways:

Environmental Solutions:
Emergent Landscapes | NeNapu Whirimako

The remedial landscape provides opportunities to create a variety of wetland and habitat corridors. The design incorporates the ‘snail’ model which will allow wildlife to travel from one area to another.

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- Stormwater detention:
- Intertidal wetlands:
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- Stormwater channels:
- Stormwater detention:
- Intertidal wetlands:
- Forested edges:
- Seawater pathways:
The meeting space and the Pacific Indigenous & Local Knowledge Centre of Distinction

**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 indigenous cultural centre (landing of the ferry) and the symbolic handstand (traditional meeting places). The landscape has various functions to accommodate the surrounding businesses and residential. The site is set up to harvest the monsoonal monsoon with water as one of the main drivers.

The increase of permeable surface allows the site to catch excels & filter the water and the wetlands creates retention of excess water to alleviate the stormwater network.
Option 1 - Designed by Aleesha Kumar

DESIGN DETAILS

HALL

Whole hall encapsulated by plant banks - representative of native
native canopy columns for natural school

HOLISTIC DESIGN

Building holds Roman Clinic

RECEPTION ALONG CONNECTION TO THE OUTDOOR

POST DISASTER RECOVERY ZONE - SENSEABLE MATERIALS

TACTILE & LOCALLY SOURCED MATERIALS

RUSTIC - RAIN BY NATURAL WEAVING

RECYCLED MATERIALS

CONCRETE AGGREGATE - FROM RECYCLED WASTE

CORRUGATED IRON - WASTE FROM BUILDING SITE

COLUMNS

COLUMNS USED FOR SENSORY DESIGN, TRANSITIONAL BOUNDARY

BEHAVIOR MODEL TO ENHANCE DESIRED ATMOSPHERE

COLUMNS PLUS SENSORY MODE TO ENHANCE THE SITE

CLIMATE COLUMNS TO ASSIST WITH ENVIRONMENTAL DESIGN

STRUCTURAL COLUMNS - SUPPORT OF 12M EXTERIOR ROOF SPAN

SENSORY DESIGN

COLUMNS - EXPERIENCE OF SPACE

RUSTIC - TRANSITIONAL

RUSTIC POLES - EXQUISITE SPACE

REFLECTIVE POLES - PROXIMITY TO WATER

ENVIRONMENTAL DESIGN

WATER COLLECTION AND REGENERATIVE COLUMNS FROM REFLECTIVE ROOFS

EXPOSED CONCRETE BLOCKS FOR FORMAL AXES

ROOF OVERHANG IN EASTERN PAVILION

NARROW PLANS AND PLANTED ROOFING ON CORRUGATED SPACES - LIGHT WEL

PHOTOVOLTAIC PANELS ON ROOF - CLIMATE COLUMN

Option 2 - Designed by Sianne Smith

ENTRANCE VIA THE WALK BRIDGE, LEVEL GROUND

PUBLIC ENTRY AND EXHIBITION SPACE

OUTDOOR GATHERING / TEACHING SPACES

STEP DOWN INTO AMPHITHEATRE

Option 3 - Designed by Vignesh Krishnamoorthy
2.2.2 Scenario 2

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 reclamations.

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" – Tul Shortland, Momentum North.

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

DESIGN CONCEPTS

- Establish a connection between The Water and The Precinct
  - All water from the site should be filtered before returning to the sea
  - Water should be cleaner than it arrived
  - Guide people to the cultural centre through mangrove
  - Keep a border with the CBD that leads into the site
- Develop a long-term strategy
  - For >20 years for 400 years
- Allow for flooding in a controlled way
- Create a learning opportunity for Whangarei's environmental strategy

ASSESSMENT:

- Site Synthesis Analysis
- Water-sensitive landscape

A landscape to be sustained as the everyday destination

THE HIPPE STUDIO
MASTERPLAN DESIGN

* Sizes, forms and layouts of buildings and plants are indicative only, and are subject to change in detailed design phases.

HIHTAUA PRECINCT DESIGN
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 livability 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, creating a river component that strengthens the ecology of the area. These aspects promote the Māori concept of Mauī 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, white-water 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 houses of early Māori, provided a significant means of sustainable cultivation of the land. Pohutukawa, commonly known as harakeke or flax, is a vital component to Māori culture and traditions. The plant was cultivated and used as a form of weaving clothing, mats, hats 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 (canoes), therefore, signifying the cultural importance of waterbodies (Department of Conservation, n.d.).
THE HĪHĪAUA VILLAGE - PACIFIC CENTRE

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 conjunction 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 Hihiau 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 beachriver, the use of a tower to connect the building to the larger landscape and a green, walkable roof 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.

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

ARIVAL TO SITE

SITE PLAN

SPATIAL ARRANGEMENT

COMMUNITY HUB TYPOLOGY

RESIDENTIAL ZONE TYPOLOGY

VEGETATION AND WATER MANAGEMENT

Spatial hierarchy

The site is a key driver in creating a resilient landscape. Rather than preventing the flooding, the site needs to be able to accommodate it, while also preserving the cultural and ecological values of these lands and native vegetation areas.

Stormwater wetland areas are also being retained to provide a buffer for the adjacent areas, absorbing the water and nutrients.

The coastal areas will create a unique opportunity for flooding and supporting adaptive vegetation areas, which is crucial in adapting to the changing climate.
THE PACIFIC INDIGENOUS & LOCAL KNOWLEDGE CENTRE OF DISTINCTION

Key:
- Meadow
- Rain Garden
- Green Roof
- Soft Start Water Plaza
- Native Native Plant
- Stage/Stage

MEETING PLACE
ENTRANCE WAY
WALK ON ROOF
SHARED PATH
BEACON
CULTURAL SPINE
2.2.4 Scenario 4

The Scenario 4 masterplan centres around a navigation path to enhance the connection from the Whangarei CBD to the Hīhaua 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 Māori tanga. 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 Weka statue, views to Panihaka 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
The masterplan enables key Live Work and Play attributes. Having a variety of mixed-use buildings scattered along 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 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 pavements of the town in a playful way. One concourse facility will be located on the corner of the site encouraging people to venture through Hihiau by other means and enjoy the culture and the atmosphere first hand. Green space fortifies 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 part of working with the Te Aranga Principles guidelines. We decided that a landmark building for the site would be an absolute feature. It would give a wayfinding landmark to the city. This landmark tower named Te Maana, 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 Whangarei. 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 paths symbolises the journey of a wafer through the site to the land taking you all the way to Kongo Iti Maana. Culture can breathe through this site with view shafts created between buildings so the people of Hihiau can have a strong visual connection to their mountains. Culture will live and breathe through all elements of this design.

Kai takitanga
Everyone should be guardians of this land that we step upon. We’ve made a conscious decision to incorporate Kaikatianga 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 with a hydrology scheme. Water is a essential component for the people of Whangarei. Our goal with our project is to revitalize the contaminated water from flowing into the Hikurangi River and the Hokianga Harbour. In our project we have collaborated with Architects and Landscape Architects to create a new Hihiau 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. We 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 Hihiau. For further enhancement at this site our group has also created wetlands towards both the north and the southern side of the peninsula. The above filtration of the water before flowing into the large body of water mimicking the design that towards the residential development of Hihiau but with less invasive surfaces. With these alterations of the site we are confident that Hihiau’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 rain gardens. It is the people who reside on this land’s responsibility to care and maintain the land and show guardianship towards it.

VISIT
Rangiu Iti Te Maana tower
The tower will become the Whangarei landmark, attracting tourists to come over. People will see the whole view when they go to the top of tower.

PLAYGROUND
For children, residents or tourists to rest and play with recreational facilities.

NATIVE WETLAND
Water fountain on the ground - children can play with water in the space.

LIVE APARTMENTS
There are three different types of housing: view apartment, apartment and shared-housings - every house will have pool facilities.

LEARN
CULTURE CENTRE
Cultures centre and school will become an education area.

WORK COMMERCIAL
Work place is close to the city, easy for transportation.

ENJOY GOOD VIEW
People can enjoy the beautiful views from there.
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 kātakātanga as a 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 Papatawhānui first-hand.

The central walkway will act as a guide for people to navigate through the walkway, and it is functional as a map of the site, including the various buildings. The walkway is designed to be fully accessible for people with disabilities. 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 site, 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 river. Yet again, we are using kātakātanga 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 Hihiaua.

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 Papatawhānui first-hand.

The central walkway will act as a guide for people to navigate through the walkway, and it is functional as a map of the site, including the various buildings. 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 site, 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 river. Yet again, we are using kātakātanga 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 Hihiaua.
The Pacific Indigenous & Local Knowledge Centre

This proposal of the Pacifica Pacifica centre incorporates a strong relationship from the land through to architecture. To this end, the pedagogical architecture is focused on local cultural knowledge and respect for the environment. The location of the building at the point where the land meets the sea allows it to be an extension of the natural landscape and culture. The building is designed to follow the contours of the site, integrating with the existing environment.

The architectural form of the site allows for a strong link between development and the water’s edge. It is a link for local people and tourists to use this link and explore the natural building to obtain indigenous knowledge. This building acts as a significant step in the wider cultural narrative as well as an extension of the existing culture. The building provides a variety of areas such as the library and research space. The most important meeting spaces can hold a function of 100 people. The spaces can be used for conferences, performance and discussions amongst the Pacifica community and the public.

Overall, this project acts as a benchmark for Pacifica architecture, allowing 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 culture.

Section 1: 1:50

East Elevation 1:500

East Elevation 1:200

Masterplan 1:2000

Architecture: Architectural Studio, Thomas Bessen
Landscape: Landscape Architecture, Sally Shi

The Hihiu Studio
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 pedestrian-friendly zone around the proposed Hihiaua 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 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, Madhuvianthi Padmanabhan, Rui Su, Dexell Atia
Hydrology and catchments

Problems:
Displayed is flow accumulation slanted to the surrounding catchments. These areas backing with water and can 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 area 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 stabilise 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, Hihiaua is lucky to have such close proximity to Mount Pihanga, Pukenui Forest and both Heke River and Ruamanga Stream. Current layout of Hihiaua does not identify with these well.

Solutions:
Enhancing the visual connection to the surrounding landscape elements through viewing platforms, layout of surrounding buildings to enhance the view shafts to Mount Pihanga, Pukenui Forest, Heke River and Ruamanga Stream.

The next 100 Years

This map displays what climate change will look like on the existing layout of Hihiaua 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 / Kaitoke 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 Hihiaua 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 through 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 have been designed to compliment the same.
Pacific Indigenous & Local Knowledge Centre of Distinction

Option 1 - Designed by Madhuvanthi Padmanabhan

Option 2 - Designed by Rui Su

Te Aranga Principles

Mauai - water theatre / grey water system / rainwater collection / solar panel system

Takao - water theatre connect with water / hukarai connect with view, mountains / food sharing place connect with land

Tohu - patterns on building representing different Pacific culture (connect with posts around the site) / traditional spatial layout / hukarai celebrate front, living / structure as key elements.

Pacific carving patterns

- birds (Papua New Guinea) ngatu (Tonga) taka (Fiji)
- ocean (Cook Islands) Spear heads (Samoa)
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 multi-functioned meeting space appealed." – Peter Ogle, Momentum North.

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

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.
Cross section

The cross section provides a section view through the site and identifies the level change, and the large integration of water throughout the site. The man-made river is a dominant landscape feature throughout the site and provides the people with a strong integration with this aspect within their day-to-day lives. Adjacent to this waterway are a series of paths and platforms that create an almost a multidimensional feel to the area. Large paved areas provide interaction zones and additionally a sense of openness when the area, also possible expansion for cycle for locals as places to enjoy a meal and take in the aesthetic beauty of the area.

The architecture of the buildings complements the landscape configuration and provides a connection between the landscape and the built structures. Aspects such as green roofs, and openings in the buildings allow for people to integrate with the buildings not only internally but externally too.

External access to local river systems are catered also with a raised timber waterfront on the southern end of the site with a series of cascading staircases allowing a place to sit and take in the view shafts of the surrounding topography. Additionally on the northern edge of the site it provides a riparian buffer zone allowing increased bank stability and habitat for local flora and fauna.
2.2.7 Scenario 7

The masterplan of Scenario 7 is based on the full Māori name of Whangarei. The first name is Te Whanga-o-Reiā or Te Whanga-o-Reipae. This name refers to two sisters, Reiā and Reipae, who flew from the Waikato on the back of a bird. Reipae fell in the Kaipara area, and married Tāhuhi-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 Warhi Hetara. In this story the harbour is named Whangarei-te-renga-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
MASTERPLAN
HIHIAUA PRECINCT

Preserving and enhancing the site's assets, while incorporating Whangarei's rich culture and history into the landscape of the site.

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

Site Plan 1:500

Cultural Centre

PLANTING PLAN

Interior render showing auditorium and main forum areas

(C) rights East interior view of exterior of lecture room, (Right) interior view of main forum area. Entry to accessible multi-use building.

Creative render showing main entrance and visitor to main entrance.

The Hinhuwa Studio
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 Hihiaua Cultural Centre. A series of small landscape interventions is located in different parts of the site to enhance the wairua of the Hihiaua 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 area. Traditional Māori architecture is referenced to signal entry and procession.

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

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.
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.
Hihiua Precinct Masterplan

- Te Rerenga Paroa Park
- Amphitheatre - Open Space • Events
- Te Pou Whenua

- Te Kapehu Whetu Hihiua
- Te Wapu Hihiua
- Te Maara Kai

Terraced Housing

Market Space
Pacific Indigenous & Local Knowledge Centre of Distinction

- Te Kāpiti o Whetū
  Compass marker embedded into the pavement as a navigation tool
- Ngahauora - Cultural Awareness
  Urban forest used as an educational and cultural resource through the identification of plants. These are also used to support the cultural practices in the cultural centre and The Pacific Indigenous & Local Knowledge Centre of Distinction. These practices include Whakarewarewa Ranges and Rauponga.
- Te Waharoa
- Te Pou Whetū
- Gathering space for the cultural centre
  External meeting space / Amphitheatre
- Pacifica Salts - Outdoor meeting and eating space
- Eating and korero space - spill over from the meeting rooms internally
- Atea
- Waikato Precinct
- Terracing
- Festivals and performance
- Celestial viewing
- Civic space - for markets and outdoor creative spaces

landscape - meeting place
2.2.9
Scenario 9

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 Hihiaua 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 Hihiaua 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 idea.

“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
Hīhīaia 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.

Planting made from a mixture of recycled material such as asphalt and concrete from the demolition of sites.

Siparian planting throughout the edges and in the man made pond.

Terraces create seating and multiple view shafts throughout the site.

Proposed Site Plan

Eastern main entrance to Pacific Knowledge Centre. This perspective also shows the semi-public space that invites people to the centre and the Hīhīaia rooftops walkway. The beginning of a journey on an elevated plane.

Connection between the Hīhīaia Culture Centre and the Pacific Indigenous and Knowledge Centre of Distinction
2.2.10

Scenario 10

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 Hihela 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 Hihela Cultural Centre. The landscape design uses Te Aranga Principles to guide the design of the public space, the shared sites for both the built and the landscaped areas.

“I love how the spatial arrangement of the Pacific Indigenous and Local Knowledge Centre is orientated 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.

Designed by Losa Nimo, Benjamin Meredith, Nick Slattery, Jingqian Sun
The community wants to have more employment in the area.

The group wants Hthiaua to be a recreational destination not just for the citizens of Whangarei but for those who visit the area.

With the proposed Hthiaua Cultural Centre, the peninsula will become a cultural and educational hub for Whangarei.

Hthiaua has the potential to be a tourist destination.

Development in Hthiaua is a great opportunity for people to live in the centre of Whangarei.

“WOVEN TOGETHER TO BECOME STRONG”

“WHITI WHIRI NGIA MAI A TATAU KIA KAHA RAWA”

ECONOMIC PERFORMANCE
- Educational facilities
- Economic development and tourism
- Regional facilities
- Marine and fishing

LIVEABLE COMMUNITY
- High urban density
- Residential intensification
- Community facilities
- High quality urban design and architecture
- Safe and inviting spaces
- Recreation & wellbeing

LIVING IN HTHIAUA
- Education facilities
- Economic development and tourism
- Regional facilities
- Marine and fishing

PUBLIC FOCUS
- Range of spaces, active, sports & informal
- Range of open spaces
- Open space management
- Water quality
- Green streets
- Pedestrian and cycling pathways

CULTURE & HERITAGE
- Protect heritage buildings
- Work with mana whenua
- Protect historic sites
- Preserve essential narratives of settlement & culture

WELL CONNECTED
- Connectivity: surrounding green space
- Integrated public transport
- Second harbour crossing
- Robust rail and road network

ENVIRONMENT
- Dust to amenities, parks & trails
- Stormwater management
- Maintain water quality
- Maintain water quality
- Protect surrounding green network & landscape features

GREEN SPACE
- Protect wetland areas
- Protect biodiversity
- Protect green and open spaces
- Protect natural assets
- Protect green areas

PROBLEMS

1. FLUDING
   This is considered the highest risk jurisdiction in Whangarei. The area was originally part of the flood plain for both of the catchment areas. It is now lying and highly impervious and also, there is poor drainage in the area.

2. LAND INSTABILITY
   The area is a moderate land stability risk and areas along the catchment areas. It is not an absolute constraint but it is a concern for existing and future development in the tiki Hthiaua project.

3. GEOTECHNICAL INSTABILITY
   The Hthiaua project has a geotechnical challenge under rock strata, and seismic conditions. The site has soft compressible soils, groundwater issues, liquefaction and land spread which is a major issue.

4. POTENTIAL CONTAMINATED LAND
   There are inherent constraints when redeveloping land that is contaminated. New Zealand has a history of land contamination starting from the past use.

5. RADIOSENSITIVITY ISSUES
   This will occur where sensitive activities such as residential uses or introduced into the environment where there are existing activities. Radioactive activities will needed to be managed carefully. Stringent controls for noise, odour, parking, traffic movements and hours of operation.

6. LOSS OF IDENTITY
   Major issue is the loss of the Māori and Pacific traditions, culture, traditions and the language. Desires for recognition, maintenance, development and advancement of the culture.
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 a historical recount of the impact of global warming and how the precinct has encouraged the architecture to be resisted 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 minimal impact on the land.

Access and Connection
The new Hihiaua road provides a connection from Toll Stadium to the north banks of the Hakea River, then onto State Highway 1.
Central access to the Precinct allows connection to the Cultural Centre and School. The school provides learning opportunities and is an easily connected location to the landscape.

Reinforcement of coastline stability, especially on the northern bank of the Hihiaua precinct, is key for reducing the amount of sedimentation.

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 Hakea river.
Walking tracks lead to the Reyburn historical house, learning environments and self discovery opportunities.

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 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.
**Restore and Reflect**

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

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**Learn and Discover**

The island is for the youth and the future generations. It is an island where you learn from the land and resources that the new conditions will provide, with a series of forested spaces and undetermined pathways. This is supported and connected to a learning centre where information is syntheisized and developed for human benefit both physically and spiritually.

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**Organic and landscaped features on the site promote an interaction between human and natural relationships.**

**A meeting place for local and recreational activities means interaction with discovery of the site through boardwalks and paved surfaces.**

**Central gathering space for large groups to gather on top of a landscaped berm that provides effective drainage run-off to the interior areas.**

**Foot bridge with a sandstone wall connects that leads into the Pacific Centre.**

**Visitors to the Pacific Centre access the buildings by foot or by the southern paved surface area. The greening levels see the Pacific Centre placed on an island where Rocking 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.**

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**The Pacific Indigenous and Local Knowledge Centre**

**Site Plan**
Discussion

03

Hatare River

Reclamation - volcanic: mudstone (rare - types: W4, W5, W6, W7, W8, W9, etc.)

Land use: urban

Hydrological Information

Geology - hard sedimentary (rock types: Ar, Ac, Ge)

Source of flow: low elevation (50% rainfall, 50% stream)

Rainfall order - middle order

Climate: warm wet

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

Keys in positioning and designing a wetland

Waterways contaminated by stormwater discharges

Original geomorphic - the waterway from 1940 that used to flow and smooth the land before having been reclaimed

Where the flood draws a boundary
Discussion

Main topics studied in the designs

The Hīhiāua 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 Whangarei 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 Hihiaua Peninsula, and created a ‘future 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 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 sub-catchments 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 green-space 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 FL) on piles for future flood proofing.
- Existing buildings to be reoriented 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.

Example of the Mitigate the Flood strategy:

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

VEGETATION AND WATER MANAGEMENT

The reduction of impervious surfaces is a key driver in creating a resilient landscapes, rather than preventing the flooding the site would be allowed to flood but restricted to open space such as wetlands 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.

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:**

- **DRAIN FLOODING**
  - High Level Flood Surge
  - Medium Level Flood Surge
  - Low Level Flood Surge

- **REDIRECTIAL**
  - 1-Story Detached Dwelling
  - 1-Story Attached Dwelling
  - Low-Mid Rise Residential/Commercial/Mixed
  - High-Rise Residential/Commercial/Mixed

- **ELEVATION ON FIELDS**
  - Site permeability uses tools as a means to mitigate the effects of flooding.

- **SIDEWALL**
  - Site permeability may require additional flood protection measures to be effective.

- **BUILDINGS**
  - The primary function of a building is to respond and resist action in order to create a safe site.

- **REVERBERANTS**
  - Reverberants are an alternative to backslates, as they tend to be relatively low cost and environmentally sensitive.

- **LEVELS**
  - Levels are most commonly used along riverbanks to protect buildings from floodwaters.

- **MOORFRONT PARKS**
  - NortRive open spaces provide an opportunity to integrate flood protection measures into public spaces.

**Site Strategies:**

- **ELEVATION OF LAND AND STREETS**
  - Elevating land and streets reduce risk from flooding and introduce new uses.

- **LEVELS**
  - Levels are most commonly used along riverbanks to protect buildings from floodwaters.

- **MOORFRONT PARKS**
  - NortRive open spaces provide an opportunity to integrate flood protection measures into public spaces.

It is important to note that these strategies are not mutually exclusive and can be combined to create a comprehensive flood protection plan.

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 Hihiau 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 roofs 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, Krher 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.

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 adapted several strategies of green infrastructure, including raingardens, wetlands, vegetated swales and retention ponds.

**PLANT SPECIES**

*Rain garden corridor #3: Ponding area*

<table>
<thead>
<tr>
<th>Plant Name</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carex disticha</td>
<td>Evergreen sedge, narrow leaves, dense clumps, grows in wet soil</td>
</tr>
<tr>
<td>Carex capillaries</td>
<td>Evergreen sedge, narrow leaves, dense clumps, grows in wet soil</td>
</tr>
<tr>
<td>Carex acutiformis</td>
<td>Evergreen sedge, narrow leaves, dense clumps, grows in wet soil</td>
</tr>
<tr>
<td>Carex olsensis</td>
<td>Evergreen sedge, narrow leaves, dense clumps, grows in wet soil</td>
</tr>
</tbody>
</table>

**Waterflow + Zoning Plan**

1. **Runoff from impervious surfaces**
   - Use permeable pavers and reduce runoff by using permeable materials for driveways and patios.
2. **First stage filtration through grass buffer strip**
   - Use grass buffer strips to filter and slow runoff before it reaches the retention pond.
3. **Ponding area**
   - Retain water until it seeps through the planting mix and into the soakaway area, reducing surface run-off.
   - Native plants that can filter pollutants while tolerating extreme and dry conditions, such as ponding for up to 24 hours.
4. **Flood area / bank wetland (Overflow system)**
   - A mangrove swamp that is flooded during high tides or heavy rain. The overflow system directs excess water to the wetland, which is managed for pasture and aesthetic purposes.
5. **Roadside rain garden**
   - A rain garden along the roadside to manage stormwater runoff.
6. **Coastal wetlands / salt marshes / estuaries**
   - Mangrove swamps - that are found in the shallow areas of many of the largest estuaries and coastal wetlands areas.
   - Salt marsh, dominated by sea oats and saltmarsh reed grass. These areas are valuable habitat for many species, provide important breeding and feeding areas for birds.

**Reference**

- Riparian planting zone
  - Erosion control measures and soft structures reduce both crusting and sheet erosion.
- Coastal wetlands / salt marshes / estuaries
  - Mangrove swamps - that are found in the shallow areas of many of the largest estuaries and coastal wetlands areas.
  - Salt marsh, dominated by sea oats and saltmarsh reed grass. These areas are valuable habitat for many species, provide important breeding and feeding areas for birds.

**Design by Jason Zou, Jill Koh, Sarah Mosley, Yemen Jawish, Wesley Twiss**

**Existing car park**

**Clock Museum**

**Reynolds House**

**existing garden**

**Section B to B 1:200 @ A1**
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 Hihiaua borders the Whangarei city centre, which offers a vibrant urban environment and an entry point to the peninsula. The northern side of Hihiaua is defined by the Hataea River, an area with a relatively open character, with a cycleway extending from the CBD to the eastern point. The south bank along the Waiaroha 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 Hihiaua 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 Hihiaua Cultural Centre.

In Scenario 5 (Doyle Eccleshall, Aynezele Lombooy, Madhuvanthi Padmanabhan, Rui Su, Dexel Alta) and Scenario 9 (Logan Autagaiva, Georgina Dean, Yaqing Guo, Shanker Kumarchechlyan, 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, Shiyieng Tao, Tevita Vea, Yuhao Wu) and Scenario 7 (Yi Luo, Kelsey Meticatle, Samuel Pillay, Glenn Ridley) the students created small lakes within the Hihiaua 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 sea-level 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 small-scale 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 possible ways that tactical urbanism could be manifest at Hihiaua are found in Scenario 1 (Sharon Eccleshall, Vignesh Krishnanmoorthy, Aleesha Kumar, Shibling Li, Siannie 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 Meticatle, Samuel Pillay, Glenn Ridley) and Scenario 9 (Logan Autagaiva, Georgina Dean, Yaqing Guo, Shanker Kumarchechlyan, 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 Krishnanmoorthy, Aleesha Kumar, Shibling Li, Siannie 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 views 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 Reuse — economic (reduces energy consumption) projects authenticity and identity (all we can hope for) provides framework embodied memory spatial layering.

*Designed by Aleesha Kumar, Sharon Eccleshall, Shbing Li, Sianne Smith, Vignesh Krishnamoorthy*
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, quicker, 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
- Low risks, with possibly a high reward
- The development of social capital between citizens, and the building of organisational capacity between public/private institutions, non-profit NGOs, and their constituents.

**Hihiauva Approach - Playful + education**

- Implementing tactical urbanism at Hihiauva would allow the community to form their own environment as they would like to see it while also encouraging a sense of place and connection to Hihiauva.
- Small, quick, low-cost interventions and methods of delivery could be used to transform the area quickly. Temporary, trial interventions could lead to long-term or permanent solutions depending on success and suitability.
- We propose using colour, murals, carving and sculptural installations, planting, flexible/adaptable architecture (such as pop-ups, temporary structures), and re-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 small-scale, temporary interventions to test viability of proposals and gauge an indication of what the community actually wants.
- Tactical urbanism is an approach that gives power over shaping the surrounding environment to the community. There are no limits or set parameters to what can be created and achieved by the community.

Tactical Urbanism allows designs to never freeze in time, and provide continued inspiration.

**Murals**

**Pop-up Canopies**

**Planters**

**Temporary gardens**

*Designed by Aleesha Kumar, Sharon Eccleshall, Shiling Li, Sianne Smith, Vignesh Krishnamoorthy*
04 Conclusions
Collaboration through design

The Hihiaua Studio explored the ways in which an informed masterplanning process could help in the development of design solutions for Hihiaua 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 Hihiaua 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 Hihiaua 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 Hihiaua 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.

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 research-by-design process, the focus is on ‘what is there’, the developing of an understanding of the site (Roggema, 2016).

When the students started to investigate Hihiaua, 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.

The mana whenua, and in particular Te Warihi Hetaraka, were able to help
the students gain an understanding of the deep cultural linkages of the site to the greater landscape, in particular the Whangarei Harbour, Whangarei-te-terenga-parāoa. Through an invocation of the larger landscape, Te Warhi 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, Taranaki, Muriwhenua and Wareware, Whakapapa and Mauitahi. 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 Hihiaua 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, Jingjian 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 Hihiaua Peninsula as the only remnant area of the old city. They proposed the creation of the Hihiaua 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 Warhi 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 Hihiaua Cultural Centre now became the crown and focus of the site. The terraces led from the new centre to the confluence of the Wairau Stream and the Hatea River, and on to Whangarei-te-terenga-parāoa. In this way the māhi, 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 Hihiaua 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 Hihiaua 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 Hihiaua Studio project. The second collaborative aspect explored in the studio was working with the community. In practice architects, landscape architects, 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-to-day 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 Hihiaua 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 Hihiaua 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 Roggera'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 publicly 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 Melchior, Xin Xin 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 Xin Xin 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.
References


