Onehunga New Waterfront
Reconnecting Onehunga Suburb to their Foreshore

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Abstract

The waterfront of each city is unique. The waterfront may become a tourist destination, reflect economic growth, or just be a refreshing place to spend alone. However, there are times when the development of the city itself blocks access to the sea, preventing its citizens from enjoying the waterfront.

This research tries to learn how to connect people to the waterfront when access is blocked by toll roads. It considers some elements of urban design theory and the objective conditions of the research site itself. What makes this research more interesting is its connection with current issues relating to Auckland as a city. Looking at the history of Onehunga, the present research tries to answer the challenge with balance and through generating alternative design choices that can both appreciate history and also remain modern.
Acknowledgements

This project would not have been possible without support from God, my family, my friends, and my motivation to help Indonesia become a better place. I would also like to thank my supervisors Cesar Wagner, Julian Reenie and Matthew Bradbury for their guidance, patience and dedication. Also, a special thanks to Mr Joko Widodo, President of Indonesia, for being a big inspiration for me. Thanks also to my partner Keiko Nasu. Thank you.
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Chapter 1
Introduction
Research Question
Introduction

Access to the sea is an essential issue in a coastal city. Auckland is no exception. With two very large harbours, Auckland has the opportunity to access the sea quickly. (“Beaches,” n.d.)

However, there are some elements in development in Auckland that prevent people from accessing the coast. One example is the SH20 expressway blocking people in and near Onehunga from accessing the waterfront. This impediment is in stark contrast to other waterfronts in Auckland, such as Mission Bay and the Wynyard Quarter where people can readily enjoy the waterfront and the facilities provided in the area. For Onehunga, the Auckland Council has tried to provide access to the sea for the community through the construction of Taumanu Reserve as an open public area. However, if you look at the existing conditions in the area, Taumanu Reserve lies alongside Onehunga Port, which is very industrial with only semi-private access for the public to the sea.

Research Question

From some of these issues the two key questions arise:

☐ How did people in Onehunga get access to their waterfront?

☐ How might a new waterfront project integrate existing projects?
Chapter 2
Methodology
Aim of the Thesis
Methodology

Research for design
The research for design included traditional desk-based and empirical field-based research. The field-based research consisted of site visits together with photographs and sketches. In Auckland, the field research covered visits to Onehunga and Mangere suburbs, Taumanu Reserve and the Auckland fish market. The site visits and the material obtained through them were crucial to the development of the project, as they provided essential information and a basic understanding of what is occurring. Aided by the field research, the initial case studies, in combination with site analysis and literature review, provided an understanding of present issues and upcoming issues.

Research by design
The research by design methodology required a systematic use of spatial design methods and techniques to:
- Analyse the site;
- Generate a range of possible solutions;
- Analyse and evaluate the possible solutions and choose the best.

Over time, problematic architecture problems arise and must be faced. Supervisor guidance, ongoing analysis of the project, further research and workshop critiques helped to identify and resolve emerging architectural problems.

Aim of Thesis

The main goal of the present thesis was to provide alternatives in the development of an area, in particular, how suburban communities can access a waterfront that is blocked by a motorway. In addition, this research has included several investigations related to current issues. Thus it can provide advice on effective and ineffective factors in urban development.
Chapter 3
Literature Search
The Importance of Water
Waterfront Design Elements
Literature Search

To answer the key questions in this research, used some theoretical literature. The two main critics are Kevin Lynch and Alex Krieger. Kevin Lynch attempted to create a pedestrian flow from one place to another, specifically from the Onehunga commercial centre to Onehunga waterfront. Alex Krieger’s analysis of the principles of how to provide a good waterfront is also explored in this research. Moreover, because the urban context is also very complex the urban design principles of Carmona and Tiesdell were also explored.

Theory of a City

Meaning and Image of the City

Figure 1: Kevin Lynch Image of The City (Lynch, 1960)

The physical form of a city, which creates a public image, can be classified into five types of elements: paths, edges, districts, nodes, and landmarks (Lynch 1998). The list below outlines the factors Lynch identifies for each element.

Paths
- Channels along which the observer customarily, occasionally, or potentially moves
- Streets, walkways, transit lines, canals railroads
- Predominant elements in their image
- People observe the city while moving along the paths (Lynch, 1960).

Edges
- Linear elements not used or considered as paths by the observer
Boundaries between two phases
Linear breaks in continuity: shores railroads cuts, edges of development walls
Barriers which close one region off from another
Critical organising features, particularly in the role of holding together generalised area

Districts
- Medium to a large section of the city
- Conceived of as having two traditional extent
- ‘Inside of’ which are recognisable as having some common
- Identifying character

Nodes
- Point
- The strategies spots in a city which an observer can enter
- The intensive foci to and from travelling
- Places of a break in transportation
- A crossing or convergence of paths (Lynch 1998).

Connectivity for Pedestrians and Transport

The importance of roads varies according to the level of intimacy of the people with the city. People who know more about the city usually control some of the road structure; these people are more concerned with their specific lines and their mutual relationships. However, those who are unfamiliar with the city tend to learn about the place regarding topography, main areas, common characteristics, and broad direction relationships. Custom paths can be essential features in several ways. Indigenous travel will be one of the strongest influences, so the primary access point is all the main image features. A concentration of use or particular activity along the way can provide an advantage in the mind of the observer. For example, the Wynyard Quarter in Auckland is a waterfront lane linked to shops and cafes.

An excellent urban space will have access for vehicles with convenient and efficient parking. An element that should be no less important in making a prosperous area of a city is street accessibility. A high-quality pedestrian environment will encourage walking and enliven the road. Thorough walkways and facilities to enhance the pedestrian experience are necessary if the road acts as a link liaison rather than a hindrance.

A clear circulation pattern will ensure high-quality pedestrian environments, efficient vehicle access, and access to mass transit.

Street layout - An easy street layout is the same as a legible street layout. The streets are physically connected to each other, having clear views along with them and a single junction.

Pathways - Flat paths at least two metres wide will allow people with dementia, mobility problems and wheelchair users to pass oncoming pedestrians safely. A wide footpath also provides people with a chance to walk a little further away from the motorised traffic travelling along on the road. The footpath should avoid any change in level wherever possible to make it easier for older people and those with
disabilities. For greater inclines, a ramp is necessary for people with wheelchairs, but to make a street accessible for older people both steps and a ramp should be provided.

Legibility and connectivity within the site and surrounding CBD area - Pathways can be read, visually understood as a pattern associated with recognisable symbols, so that a readable city will be one in which the district or landmark or pathway is easily identifiable and easily grouped into an exact pattern (Lynch, 1960). Readability is essential for urban settings, as it will help people find their way and understand how a place works. Lynch noted that in the process of finding one’s way around, people hold a general mental picture of the physical world. A suitable structure can give people the possibility of choice and a starting point for obtaining more information. Clear and integrated physical settings, capable of producing sharp images, play a social role. Pathways can provide raw materials for symbols and collective memories of group communication. The natural environment or the landscape can be essential socially.

**Pedestrian Movement**

To make the city more accessible by foot and have more pedestrian activity, space should be compact to encourage people to walk through the city. Even small gaps in building continuity can significantly inhibit the flow of pedestrians; therefore an urban design technique is needed to fill the gaps in the urban fabric, especially at highly visible locations in the city centre. If significant anchors and activities are too far away or isolated from one another by surface parking or vacant storefronts, pedestrian activity and economic synergy can be reduced (Paumier, 2004).

Good urban design should offer a comfortable, accessible and connected pedestrian path. The concrete structure should help orient first time users, while also serving its common resident components of the central area workforce, shoppers, and users of its specialised services. Its visual character must be compelling and inviting to remain exciting visit after visit.

**Visual Quality**

High-density buildings mostly occupy the city centre, and it is this type of building which is used to encourage a critical mass of people. It is essential that new large-scale buildings or projects in potential locations do not adversely affect the assets in the surrounding CBD area. City assets can include building stocks or activities on the streets. In smaller cities with lower development densities, real investment protection may be better than overly ambitious development projects. High-density construction can create pressure to demolish heritage buildings whose architectural character attaches to the state of the city centre. New construction can stop existing development patterns with historical high-rise buildings mixed with high-rise towers, development of local types and surface parking lots.

**Landmarks**

“Landmarks are another type of point reference, but in this case, the observer does not enter within them, they are external” (Lynch 1998). Landmarks can take many
forms, such as a building, an arcade, a public space, a fountain or a clock. An example is the sky tower in Auckland. For a visitor, landmarks can be a representation or icon of a city and may be a form of memory elements that portray a positive image. Another useful landmark is building with a unique architectural style, historical significance, height or mass from neighbouring development. Examples in Auckland are Britomart Train Station, Auckland Domain and Victoria Park Market. Other landmarks are primarily local, being visible only in particular localities or from specific approaches. Alternatively, a landmark may sit at such a distance that for all practical purposes they symbolise a constant direction, for example, the Aotea Centre.

The waterfront development may become a significant place by installing a unique identity and personality. Cultural facilities help to establish the city centre as a recreation and visitor destination and enhance a city’s self-image and quality of life for residents. This can cover the re-use of a historic building or existing facilities, places for sports venues, studios and galleries, and outdoor entertainment spaces. Many factors will determine the imageability of a city, such as the social meaning of the area, its functions, its history, or even its signature.
Waterfront Design Principles

Nine Principles of Waterfront Development

Alex Krieger (2004) identified nine principles in getting the full benefit of the water’s urban edge and in gaining improvements.

1. Transformation along the edges of the sea can revolutionise urban life and promote economic or cultural change.
2. Aura of a big city and survive along with its banks, a massive accident without destroying the quality of the place ever long.
3. Periodic and fast, a waterfront. Preserve for a city bordering some inherent and irreversible stability.
4. As a precious and often contested realm, urban waterfronts create contradictory, albeit reconcilable desires, 5. The beach forms a natural boundary between land and air.
6. Waterfront rebuilding is a long-term effort with the potential to create long-term value.
7. Underused or old urban areas may become a desirable place to live, not just to visit.
8. Enhance public and expert way to the air.
9. The success and attractiveness of a seafront development is related to the linkages between the ocean and the use of adjacent land, together with the environmental quality of the beach.
Importance of Water

A city waterfront possesses a unique open space opportunity because it is a natural attraction for both local people and visitors. It can become a valuable recreational and visual resource. Waterfronts can be used for private and public development. The economic development potential of the waterfront is always of interest to developers. However, opportunities for public use, people enjoyment and environmental protection need to be provided. Distinctive environments, typically found at waterfronts, provide a significant advantage for a city’s competitiveness in its region or in relation to rival cities.

Paumier (2004) stated that the scale and character of waterfront development must be carefully managed to avoid creation of a wall that blocks access and views, and pedestrian amenities and high quality at the ground level are a must. Private sector cooperation is essential in the creation of waterfront promenades lined with activities and public access easements to the waterfront. Public spaces and open views should punctuate the linear edge of the waterfront development.

‘Attractive and clearly defined pedestrian connections between the waterfront and the city’s retail spine are critically important if the appeal of the waterfront is to extend into the core, and visual and physical access to the water should be preserved along streets that terminate at the water’s edge’ (Paumier 2004).

Waterfront Urban Design Elements

Land Use

‘A variety of uses can serve as standard support for building diverse and lively business and leisure environments. The diversity of uses in the city will create a healthy urban centre. By offering people various reasons to visit and stay in the heart of the city all day and night, cities can attract more people more often and for more extended periods of time. Use of mixed-use should include offices, housing and entertainment, as well as retail and restaurants’ (Paumier, 2004). Every serving usage has their influence that will affect space in many ways.

Open space

‘Open space increases the clarity of urban structures by giving highly visible landmarks, such as open spaces or avenues. It helps determine the critical vehicle and pedestrian corridors, the green space that marks the gateway to the city centre and public parks and the central open plaza that identifies the activity centre’ (Woolley, 2003). This open space forms a shared focus on where land use and improvement can be managed; they are the support that fosters individual development packages and creates an exciting and connected space.

Conclusion

The components of each theory are filtered and made into two tables to facilitate judgment in investigative designs. The first table is the absorption of the image of a city, which consists of paths, edges, districts, nodes, and landmarks.

The second table considers the principles of waterfront development.
Another theory discussed in this chapter (though not in the table) will be a guide to design analysis.

**Review Table**

To facilitate this research and can be measured. Elements of the literary theory are provided in the table below to facilitate the relevance of each to the research design.

**Review with the Theory - Image of the City**

<table>
<thead>
<tr>
<th>Urban Design Dimension</th>
<th>Elements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Path</td>
<td></td>
</tr>
<tr>
<td>Edge</td>
<td></td>
</tr>
<tr>
<td>District</td>
<td></td>
</tr>
<tr>
<td>Node</td>
<td></td>
</tr>
<tr>
<td>Landmark</td>
<td></td>
</tr>
</tbody>
</table>

**Review with the Theory - Nine Principles of Waterfront Development**

<table>
<thead>
<tr>
<th>Urban Design Dimension</th>
<th>Elements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transformation in Urban Live</td>
<td>.</td>
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<tr>
<td>Aura of Big Cities and Survive Along with it Banks</td>
<td></td>
</tr>
<tr>
<td>Periodic and Fast stability</td>
<td></td>
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<tr>
<td>Allowing Human to Discover</td>
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<tr>
<td>Natural Boundary</td>
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<tr>
<td>Long Term Potential</td>
<td></td>
</tr>
<tr>
<td>Old Urban Area Become Desirable to Live</td>
<td></td>
</tr>
<tr>
<td>Enhance Public Access to the Air</td>
<td></td>
</tr>
</tbody>
</table>
Precedence Singapore Promenade

![Singapore Promenade](image)

Figure 2: Singapore Promenade
(‘The Best Waterfront Promenade Tours & Tickets 2018 - Singapore | Viator’, n.d.)

This section investigates the Singapore Promenade development and examines the context of development, the development process, some issues in the development, assessment of the development, and lessons captured from the case study.

Background and setting

Singapore Promenade is located in Singapore along the Thames River. The site extends over 86 acres, and now 20% of the site is landscaped open space. The development for Canary Wharf was described as a “harrowing experience” by Lang (2005).

The Promenade is situated mainly on the north bank of the Thames and consists chiefly of the former properties of the Singapore waterfront. Many other wharves and quays are located along the lower Thames, and few are now used for their original purpose. It was an area that enjoyed a unique economic lifestyle based on the growth and prosperity of recent waterfront activities.
At present, the area comprises some offices buildings, a retail centre, hotels, a conference building, and landscaped open space. The Singapore Promenade has been designed to cater to the investment development of Singapore outside its traditional commercial area.

**Conclusion**

Singapore Promenade was one of the most significant urban planning operations in ASEAN during the 1980s and has been a successful development. It was transformed from a trading harbour to a promenade. Commercial building and the first transportation linkage of rail and underground train with the location of waterfront have made Singapore Promenade one of the most popular waterfronts in the world.
Precedence Wynyard Quarter

This section investigates Auckland’s Wynyard Quarter development and examines the context of development, the development process, issues in the development, assessment of the development, and lessons captured from the case study.

Background and setting

Wynyard Quarter is located in Auckland City in the Waitemata Harbour. At present, the area is utilised by Auckland residents for entertainment in its cafes, restaurants and parks. In addition to entertainment, Wynyard Quarter has several offices, residential housing and transportation terminals such as ferries to further areas in Auckland, including Rangitoto Island. Wynyard Quarter is examined under the urban design dimensions identified by Carmona et al. (2003).

Conclusion

Wynyard Quarter was one of the most significant urban planning operations in New Zealand during the 1980s and has been a successful development. It was transformed into a waterfront wharf with commercial building, an expansive landscape and transportation linkages with the city centre. These features have made Wynyard Quarter a popular public waterfront area.
Technical Studies

Reclamation

‘Reclamation and dredging are practices most commonly associated with development in the coastal zone, often in areas with intense pressure for competing land uses. Reclamation can include the construction of levees, channels and canals, the draining and filling of wetlands and other fragile estuarine ways’. (Eriksen, n.d.)

Some countries such as Singapore, Korea, Japan, Hong Kong, The Netherlands and the United Kingdom (UK) rely broadly on land reclamation to meet the needs of expanding populations and the associated demand for more industrial and residential land. Dredging activities are primarily related to maintenance of existing shipping, navigation or entrance channels (maintenance dredging), or capital dredging projects where there is a need for the construction of new or deeper channels. Land reclamation projects are often developed in tandem with capital or maintenance-dredging works, with the dredge spoil used to present fill element for accreted land.

Precedents of Reclamation

Case study: The Persian Gulf Area – Dubai, Bahrain, and Qatar

Figure 4: Palm Jumeirah, Dubai
(“Palm Jumeirah Dubai, Nakheel Property, UAE - e-architect,” n.d.)

One of the most significant reclamation projects in the world was undertaken in Dubai, adding 75 kilometres to Dubai’s shoreline and covering over 600 hectares
The Palm Jumeirah, with its palm tree-shaped island, has become an iconic landmark of Dubai. The construction began in 2001, even though it had been planned since 1993. Land reclamation with such a level of complexity and size as the Palm Jumeirah had never been done before (Michael de Lange, 2014). Therefore, the development of Palm Island required deep expertise and understanding of water engineering. This expertise and knowledge were identified among the Dutch, whose country has a long history with managing the natural forces of the sea. Dutch and Belgian companies were hired to consult in further planning and construction of this project (Bassett, 2005). To add to the uniqueness of the whole project, Palm Jumeirah had to be completed within five years, with two years applied to the reclamation process and the remaining three years for the construction of commercial, residential and recreational real estate (Personal Office, GC Privé, n.d.).

Before reclamation could begin, an 11-kilometre long breakwater had to be built. Breakwaters surround the entire project area, leaving, initially, two small dump sites at the base of the Palm structure (Private Office, GC Privé, n.d.).

Following the actual breakwater construction, the initial design was changed to a design with four disposal sites to increase the entry of fresh seawater and to reduce algal accumulation (Bassett, 2005). The breakwater consists of a mixture of large rocks filled with sand. The purpose of breakwaters is to defend the material reclamation and sedimentation processes from massive tides and coastal erosion, which occur naturally along the coastline (Fakhro, 2013). In total, 94 million cubic metres of sand and 5.5 million cubic metres of stone were needed for the construction of the Palm Jumeirah (Michael de Lange, 2014).

**Summary**

From this reclamation experience, a wealth of information was obtained about how the reclamation technique can produce a land space in the sea.

In relation to the present research, reclamation has been used for the addition of land to connect Taumanu Reserve to the ferry terminal where the crater walk ends.
Pier
Case study: Christchurch, New Zealand – New Brighton Pier

Figure 5: Christchurch Pier
('Pier fishing proving council headache | Stuff.co.nz’, n.d.)

There have been two piers in New Brighton, New Zealand. The first pier, of wooden construction, was opened on 18 January 1894 and was demolished on October 12, 1965. The current concrete pier was opened on November 1, 1997. It is one of Christchurch’s icons. In 1894, the first New Brighton Wharf opened, and over the next 70 years it gave Christchurch residents a recreation destination. The pier had a "penny arcade" full of games and entertainment and even a nightclub, Shoreline, on the beach. This pier completes the role of New Brighton as a favourite beach outing and, over earlier years, as the only place where you could shop on Saturdays.

Summary

A pier is a construction system in the form of buffer columns with floor plates on it. This allows the water to keep flowing under the space above it because only the column under the water surface is closed.

In terms of this research, the pier technique is beneficial to build a ferry terminal surface. Due to the pier, the depth of the water will remain intact for the incoming ships.
Chapter 4
Why Onehunga
Why Onehunga?

The Onehunga waterfront is located within an essential space between Auckland and the growing suburban area of Manukau. It comprises a valuable area of land that needs careful urban design to maximise its potential use. The redevelopment of the Onehunga waterfront presents a significant opportunity to stimulate commercial growth and strengthen Auckland city’s premier role in the nation and its global image.

Figure 6: Onehunga Bay in 1920s (‘Google Earth’, n.d.)
In 1920 people living in Onehunga were able to access Onehunga Bay freely. However, in the year 2012 the SH 20 motorway was built, which disconnected some Onehunga citizens from access to Onehunga Bay. In 2015 there was a reclamation project to build a park and beach for residents to re-access the sea.
History

Te Tō Waka - the canoe portage

Onehunga is an area rich in history, a little over 200 metres from the Tamaki River and Manukau Harbour at Te Tō Waka in Auckland. This was the most critical canoe portage in pre-European times, as the Manukau Harbour gave canoes access to the west coast. Canoes could also sail to Waiuku where, after crossing another portage, they could enter the Waikato River and thereby access the interior of New Zealand. Canoes crossing in the opposite direction can paddle down the Tamaki River to the Waitematā, and then along the coast north toward Whangārei or east towards the Coromandel Peninsula. Another option is to paddle to Riverhead on the Waitematā, then use another portage to access the Kaipara Harbour. From here canoes could travel along the northern Wairoa River to the Hokianga, the Bay of Islands or Whāngārei. The Matawhaourua, or Matahourua, of Kupe, the Aotea, Tainui, Mataatua and Tokomaru are all said to have been hauled across Te Tō Waka. (Taonga, n.d.)
Onehunga City History

Figure 10: The Whare of Te Whero Whero, Chief of Waikato Onehunga (MURDOCH, n.d.)

Onehunga is an area 12 kilometres south of Auckland’s city centre. It is known as a timber harbour and port for passengers to the lower North Island and South Island. Until now still serves as the second port in Auckland.

For much of the 20th century it was a robust working-class community, but since the 1990s parts of it have been gentrified ("Onehunga | NZHistory, New Zealand online history," n.d.).
Onehunga Port History

Onehunga has a rich history of Māori and European settlement and trade. The name Onehunga recognises the many courageous and noble people who were lost and buried there. Upon European arrival, Onehunga became one of the country’s first and busiest ports and an area which was essential for the identity of early New Zealand.

The first known European immigrant to the Manukau Harbour was Thomas Mitchell, a timber merchant from Sydney. Here is also what makes Onehunga famous as a centre of the timber trade. (events, 2012)

Since that time, Onehunga’s port has changed to what we see today.

Figure 11: Onehunga Port 1 (‘Onehunga Wharf’s Changing Face’, n.d.)
Figure 12: Onehunga Port History 2 (‘Onehunga Wharf’s Changing Face’, n.d.)

Figure 13: Onehunga Port History 3 (‘Onehunga Wharf’s Changing Face’, n.d.)
Figure 14: Onehunga Port History 6 (‘Onehunga Wharf’s Changing Face’, n.d.)
Today the Port is close to a large and growing industrial area in South Auckland. This proximity has aided the Port in continuing to service a steady flow of coastal traders and the local fishing fleet. A signal station, located on South Head (the southern point of the harbour), is operated by Ports of Auckland to assist vessels entering and departing.

(“Discover Onehunga,” n.d.)

Figure 15: Onehunga Port Nowadays (‘Development planned for Onehunga port’, n.d.)
Gloucester Reserve

Gloucester Park was once an open ocean basin. It has been filled as a rubbish tip and used as a military base and a speedway. This area has been heavily modified by reclamation and highways.
Figure 17: Allotment for Sale around Onehunga Basin, 1862. (Marchant, n.d.)

(“Discover Onehunga,” n.d.)

Figure 18: Gloucester Reserve in the 1960s (‘Site Search - New Zealand Parliament’, n.d.)
This image from the 1960s shows the early work of State Highway 20. Gloucester Park (which is the Hopua Basin) was built in the 1930s and is now divided into two parts by State Highway 20. The Sea Scout ships are seen on the beach at the far left of the image. This volcanic crater that has been given the extraordinary status of natural features. Levelling was used to remove most of the volcano’s ring features, and roads and buildings have been built on some rings as well. (‘Site Search - New Zealand Parliament’, n.d.)
The New Connection

Over time, Auckland council has tried to reconnect Onehunga suburb to the waterfront. One such attempt was building Taumanu Reserve. Taumanu Reserve is a reclaimed beach project where residents can relax, exercise and swim. Ideally it should be on the beach. To reach this beach, Council built a bridge for people crossing from Onehunga Bay Reserve to Taumanu Reserve.

Figure 20: A New Bridge to Reconnect People from Onehunga to their Waterfront (‘Taumanu Reserve - Auckland Design Manual’, n.d.)
In the year 2014 Council finally initiated a project to reconnect Onehunga centre to Onehunga waterfront with the construction of Taumanu Reserve. The Onehunga foreshore officially opened on Saturday, November 14, 2015, with the $30m development providing Aucklanders with their first significant access to the Onehunga seashore since the 1970s (Dearnaley, 2009). The joint Maungakiekie- Tāmaki Local Board / central government project has created 6.8 hectares of parkland between SH20 and the Manukau Harbour, with new beaches, a boat ramp and turning bay, and a pedestrian/cyclist bridge linking the foreshore to Onehunga Bay Reserve (Dearnaley, 2009).

Summary

If viewed from the history, site data and issues of future projects in Onehunga area, it appears that Onehunga experienced reasonably rapid development. However, we can see that development over time broke the connection to the water then connected it again repeatedly.
5

Chapter 5
Connection to the City
Map data Analysis
Introduction

The site location in question is divided into three scales. The large scale shows the relationship between Onehunga Port and Manukau Head; a medium scale shows Onehunga Port in relation to Auckland CBD; and the smaller scale shows Onehunga Port area itself.

1. Large Scale, Onehunga Port and Manukau Head

This view shows how Onehunga Port can be accessed from the sea through the Manukau Heads. Moreover, it shows the different connectivity from Onehunga to other areas around Auckland and New Zealand.

2. Medium Scale, Onehunga Port and Auckland City

The second scale shows how the Onehunga waterfront is located between Auckland CBD and Auckland airport. This location is considered strategic because it is a path that people use to go to the airport. The development potential is remarkable, as it allows Onehunga as the first area seen by tourists from all over the world.

3. Small Scale, Onehunga Port

The following scale focuses on the Onehunga Port area, in particular the contours and sea level chart.
1. Large Scale, Onehunga Port and Manukau Heads

Onehunga itself is 12 kilometres south of Auckland city just north of Manukau. This area can be reached by public transport such as bus and trains that stop at Onehunga train station. However, to reach the location of the study, residents must go by car or on foot, and to walk, pedestrians to the area must cross over a busy road or walk a little further to reach the park with a bridge crossing to the waterfront area.

Figure 22: Onehunga – Manukau Heads
Manukau Inlet as an entry point this area is in the west. In earlier times it provided access to the public crossing to the other New Zealand coast to the east. If we consider the connection with Auckland Airport, Onehunga is a very strategic area because it is close enough and this site will be passed by people who travel from Auckland Airport to Auckland city centre and vice versa.

The research site is also close to a multi-function venue, Mount Smart Stadium, which the New Zealand Warriors rugby club use as their home base. In addition to the rugby field, Mount Smart Stadium is also often used for music concerts; for example, the band Coldplay and solo singer Adele held concerts here.
Site Data
Statutory Relation

Viewing the regulatory map applicable to the site area, Onehunga waterfront is in the area of the Coastal statutory acknowledge area. Both Onehunga waterfront and the Onehunga Port area are included in the category Minor Port Zone. The most important things to note are the historic heritage and the Natural Heritage status, the Outstanding Natural Character, the Volcanic Viewshaft, sustainably managing the coastal environment, natural hazards, and responding to climate change. In this research, the rule in the proposed Auckland Unitary Plan is not spelt out in detail but remains a guide for research.
Heritage

Figure 25: Onehunga – Heritage Data
(‘Auckland Council GeoMaps’, n.d.)

Figure 26: Aotea Sea Scout
(“24. Te Hopua a Rangi/Gloucester Park | Auckland Volcanoes,” n.d.)
Natural Character

The Onehunga waterfront includes an area of mangroves and inanga S=spawning sites, even though it is not included in the Regional Park area in Auckland.
Volcanic Cones and Viewshaft

Auckland is a city with 52 volcanic mountains. The Auckland Unitary Plan sets out regulations in relation to volcanic cones and viewshafts, as follows:

“The purpose of the Volcanic viewshafts and Height Sensitive Areas Overlay is to appropriately protect significant views of Auckland’s volcanic cones through the use of viewshafts and height sensitive areas. The volcanic viewshafts and height sensitive areas are identified on the planning maps. This overlay contributes to Auckland’s unique identity by protecting the natural and cultural heritage values of significant volcanic cones.” (“Auckland Unitary Plan Operative in Part - HTML PDF,” n.d.)

If we see from the map, the location of the research is quite close to some viewshaft lines, relevant when object architecture passes the line. One example of the implication is the building height limit of 9 metres (“Auckland Unitary Plan Operative in Part - HTML PDF,” n.d.).
Figure 30: Onehunga – Sea Chart – Manukau Heads
(‘Auckland Council GeoMaps’, n.d.)
2. Medium Scale, Onehunga Port and Auckland CBD

Onehunga Port

Figure 31: Onehunga – Onehunga Port

Figure 32: Onehunga – Contour – Onehunga Port 2
('Auckland Council GeoMaps', n.d.)
Figure 33: Onehunga – Sea Chart – Onehunga Bay
('Auckland Council GeoMaps', n.d.)
3. Small Scale, Onehunga Port

Contour and Sea Chart Level

The land contour line in the area relevant to the research can be quite gentle. The highest point is located at four metres and extends over the surface of Onehunga Port, SH 20 and Gloucester Reserve. For sea charts, some of Manukau’s waters between Onehunga Port and Taumanu Reserve are quite shallow, only around 70cm to 1.7m, while south of Onehunga Port the water depth for fishing boats is about 70cm to 7.1m. This is seen from a visit to the site and from the presence of fishing boats and even a cement ship in Onehunga Port.

Analysis and Comment
The location of the Aotea Sea Scouts as a heritage building provides challenges as well as potential. One challenge is how to explore the potential of a heritage building around the site. The existence of natural character is also relevant, where access to the sea can mean a space for people to enjoy the natural elements at the seaside. The interesting thing in this research is the existence of viewshaft line, where the line is imaginary. It has the nature to limit but also gives potential. There are potential
connections to two mountains, Maungakiekie and Mangere mountain can be felt directly at the site point.

Figure 35: Onehunga – Sea Chart – Onehunga Port
Chapter 6
Design Investigation
**Introduction**

To answer the questions in this study, five investigative designs were conducted to test the possibilities that may arise. Those investigative designs are progressive, all involving issues.

**Design Investigation 1 - The Connector**

![Design Diagram Problem 1](image)

Figure 36: Design Diagram Problem 1

This investigation tries to answer the primary challenge in connecting two existing projects in the Onehunga foreshore, Taumanu Reserve and Onehunga Port. Combined reclamation and dock techniques were used in this investigation, adjusting the site conditions at the site.
The result is an elongated pier from Taumanu Reserve to Onehunga Port in order to concentrate a space for activity in the middle. Restaurants and cafés can set up a catalyst for residents to come and enjoy the waterfront.

**Review with the Theory - Image of the City**

<table>
<thead>
<tr>
<th>Urban Design Dimension</th>
<th>Elements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Path</td>
<td>Path from Taumanu Reserve to Onehunga Port</td>
</tr>
<tr>
<td>Edge</td>
<td>Onehunga Bay become a public space</td>
</tr>
<tr>
<td>District</td>
<td>Onehunga</td>
</tr>
<tr>
<td>Node</td>
<td>Restaurant and café. Wynyard Quarter style</td>
</tr>
<tr>
<td>Landmark</td>
<td>Restaurant and café Building</td>
</tr>
</tbody>
</table>
### Review with the Theory - Nine Principles of Waterfront Development

<table>
<thead>
<tr>
<th>Urban Design Dimension</th>
<th>Elements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transformation in Urban Live</td>
<td>A new leisure area in south Auckland.</td>
</tr>
<tr>
<td>Aura of Big Cities and Survive Along with it Banks</td>
<td>With Wynyard Quarter as a reference, creating a connection between two waterfront points, also giving an option for people to go out in weekend</td>
</tr>
<tr>
<td>Periodic and Fast stability</td>
<td>There is a chance to develop</td>
</tr>
<tr>
<td>Allowing Human to Discover</td>
<td>A new public space</td>
</tr>
<tr>
<td>Natural Boundary</td>
<td>Most of the projects are human-made</td>
</tr>
<tr>
<td>Long Term Potential</td>
<td>Onehunga Port is being proposed to be developed</td>
</tr>
<tr>
<td>Old Urban Area Become Desirable to Live</td>
<td>No urban area changed</td>
</tr>
<tr>
<td>Enhance Public Access to the Air</td>
<td>An open new public space</td>
</tr>
<tr>
<td>Linkages between Ocean - seafront</td>
<td>A marina is proposed, so people can berth their boats to arrive directly at the restaurants</td>
</tr>
</tbody>
</table>

### Summary

From this investigation, there is potential to connect Taumanu Reserve to Onehunga Port. However, it cannot connect Onehunga Bay to the commercial centre optimally.
Design Investigation 2 - The Bridge

Figure 38: Design Diagram Problem 2

The second investigation sought to find ways to connect Onehunga commercial centre to the waterfront. The conditions are quite challenging, with the existence of toll roads, existing buildings and cables.
Design Explanation

Taumanu Reserve and Onehunga Port are connected with a pedestrian access way. The condition of the tread is partially overgrown with mangroves and some natural wealth. The pedestrian location is placed along Orpheus drive. Moreover, there is a little distance so that supporting pillar does not damage the mangrove trees. This design is inspired from the dock and does not use reclamation, as seen in the first investigation. Reclamation in New Zealand is quite controversial.

In addition to the pedestrian access way linking the two objects, a bridge is proposed to add value to the architecture in this project. Its function is also to connect people from Onehunga centre to the Onehunga waterfront. The bridge passes far enough and recognises the needs of wheelchair users. The choice of a ramp instead of steps becomes an option. However, this affects the space needed to install the ramp. Some buildings must be relocated. The relocation of buildings is a challenge in this investigation. This investigation has been a bit more successful in answering how the technique connects people to the waterfront.
### Review with the Theory – Image of the City

<table>
<thead>
<tr>
<th>Urban Design Dimension</th>
<th>Elements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Path</td>
<td>A Bridge from Gloucester Reserve to the Onehunga waterfront&lt;br&gt;An extension from both sides, Taumanu Reserve and Onehunga Port</td>
</tr>
<tr>
<td>Edge</td>
<td>Onehunga Bay</td>
</tr>
<tr>
<td>District</td>
<td>Onehunga</td>
</tr>
<tr>
<td>Node</td>
<td>The Bridge</td>
</tr>
<tr>
<td>Landmark</td>
<td>The Bridge</td>
</tr>
</tbody>
</table>

### Review with the Theory - Nine Principles of Waterfront Development

<table>
<thead>
<tr>
<th>Urban Design Dimension</th>
<th>Elements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transformation in Urban Live</td>
<td>People from Onehunga suburb can have easier access to their waterfront</td>
</tr>
<tr>
<td>Aura of Big Cities and Survive Along with it Banks</td>
<td>Not much of aura, because most of this investigation is focussed on circulation</td>
</tr>
<tr>
<td>Periodic and Fast stability</td>
<td>An extension from Onehunga Port and Taumanu Reserve can open development opportunity in the future</td>
</tr>
<tr>
<td>Allowing People to Discover</td>
<td>People can discover the waterfront, and have access Taumanu Reserve and Onehunga Port</td>
</tr>
<tr>
<td>Natural Boundary</td>
<td>Only the extension from Taumanu Reserve is using natural materials</td>
</tr>
<tr>
<td>Long-Term Potential</td>
<td>Yes, An extension from Onehunga Port and Taumanu Reserve can open development opportunity in the future</td>
</tr>
<tr>
<td>Old Urban Area Becomes Desirable to Live</td>
<td>No urban area changed</td>
</tr>
<tr>
<td>Enhance Public Access to the Air</td>
<td>Yes, from the extension from Onehunga Port and Taumanu Reserve can open development opportunities in the future</td>
</tr>
<tr>
<td>Linkages between Ocean - seafront</td>
<td>From Taumanu Reserve people can enjoy the water and do water activities, while shipping can still be operating at Onehunga Port</td>
</tr>
</tbody>
</table>

**Summary**

This investigation tries to correct the weaknesses in the first investigative design. The construction of a bridge strengthens connectivity from the waterfront to the commercial centre. However, the biggest problem at the time of the investigation was that the bridge to cross needed new land and required shifting existing buildings.
Design Investigation 3 - The Port

A third investigation tries to connect Onehunga residents with the Onehunga waterfront by moving the Auckland Port to Onehunga Port. Investigations stem from the premise that the Auckland Port will be relocated.

Figure 40: Auckland Port News Article
('Auckland Port move tipped to cost $4b -$5.5b - NZ Herald', n.d.)
The third investigation is premised on Auckland shifting its port elsewhere. One of the options is to renovate Onehunga Port. As the depth of the water there is quite shallow, that would require dredging to the bottom of the sea at Onehunga. The dredging results then filled into empty slots where an iron board retains water, Or more familiar with the Cofferdam technique.

Design begins with studying the anthropometry dock. Auckland Port comprises 13 piers with different lengths and functions.

The next step is to try to integrate the size requirements of the docks in Auckland Port to Onehunga Port. From several experiments found a shape like a finger. The fingers become an open space to receive the ships that come. So just like the different finger length in humans, the docks have varying lengths to allocate different functions.
Figure 42: Pier 1

Figure 43: Pier 2
This investigation sought feedback on the proposed designs. One type of feedback was the Landscape Visual Assessment (LVA) factor in which one of the points is how the public views the new port. Other factors that slightly hamper this investigation are the amount of material that must be dredged and additional materials to condense the surface of the harbour.

**Review with the Theory**

*Image of the City*

<table>
<thead>
<tr>
<th>Urban Design Dimension</th>
<th>Elements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Path</td>
<td>Extention from Onehunga Port. No Connection to the City</td>
</tr>
<tr>
<td>Edge</td>
<td>Onehunga Bay become a port</td>
</tr>
<tr>
<td>District</td>
<td>Onehunga</td>
</tr>
<tr>
<td>Node</td>
<td>Onehunga Port</td>
</tr>
<tr>
<td>Landmark</td>
<td>Onehunga Port</td>
</tr>
</tbody>
</table>
Review with the Theory - Nine Principles of Waterfront Development

<table>
<thead>
<tr>
<th>Urban Design Dimension</th>
<th>Elements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transformation in Urban Live</td>
<td>Improvement in city economy</td>
</tr>
<tr>
<td>Aura of Big Cities and Survive Along with it Banks</td>
<td>There is some issue, with the industrial function, water quality, view assessment, etc</td>
</tr>
<tr>
<td>Periodic and Fast stability</td>
<td>Slow development in the future Limited by space availability</td>
</tr>
<tr>
<td>Allowing Human to Discover</td>
<td>Only for shipping and cargo.</td>
</tr>
<tr>
<td>Natural Boundary</td>
<td>Most of it is human made</td>
</tr>
<tr>
<td>Long Term Potential</td>
<td>Maybe</td>
</tr>
<tr>
<td>Old Urban Area Become Desirable to Live</td>
<td>There is a possibility that the resident occupancy changes</td>
</tr>
<tr>
<td>Enhance Public Access to the Air</td>
<td>Restricted</td>
</tr>
<tr>
<td>Linkages between Ocean - seafront</td>
<td>Linkage become restricted to port activities</td>
</tr>
</tbody>
</table>

Summary

The third investigation attempted to connect the commercial centre with Onehunga Bay in another way, developing Onehunga Port to become larger. The idea of the inquiry stems from the suggestion to move the Auckland Port to another area. Potentiall, one of the options is Onehunga.

The technique used is a pier. However, there are modifications on the edge of the dock. There is little reclamation to plant crops. This modification would be to disguise the look of a very industrial port to look more natural. However, the adjustment is not enough to conceal the atmosphere of the port that may seem dirty, especially for residents who live nearby.
Design Investigation 4 - Fish Market

The fourth investigation built on the third investigation in the event of a presentation workshop that explored how it relates to the people around who will see the new architectural object. Also, the project was based on an article about Auckland's need for a fish market.

Figure 45: Auckland Fisherman’s Wharf News Article
(‘Auckland needs an international “fisherman’s wharf”, expert says | Stuff.co.nz’, n.d.)
The design of a fish market and a fisherman's wharf begins with the taking of previous investigative plans that are considered excellent and able to support answering the present research questions.

Figure 46: Design Investigation 4 – Site Plan

The path continues to connect Taumanu Reserve and Onehunga Port and see the condition of the seabed. The existence of the function then laid the fish market following the presence of Onehunga Port. Moreover, then the surface extends to the west. This extension gives an advantage in building the dock, so there is no need to dig the seabed for further deep water levelling.

The L shape is inspired by the sun's orientation so that the warm sunlight can be captured by the building shape. The hollow (bent) shape then adjusts to the prevailing moving wind direction coming from the south-west.
A second-period study looks at the historical elements of the Onehunga area, where Onehunga is a region rich in history and culture. It is inspired from the Gloucester Reserve. The connecting path forms a circle shape. From these lines is then established a space that can be optimised for a building to serve as a fish market on the pier.

To enrich the value of fish market building architecture, the shape of the roof is inspired by way of the ship’s screen, inspired in turn by Auckland’s name as the “City of sails”.
Refer to design investigation three regarding building view impact. The south side of this building is lined with artificial timber to recall the traditional canoe forms of the Māori community previously in the area.

**Review with the Theory – Image of the City**

<table>
<thead>
<tr>
<th>Urban Design Dimension</th>
<th>Elements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Path</td>
<td>A boardwalk from Taumanu Reserve to Onehunga Port</td>
</tr>
<tr>
<td>Edge</td>
<td>The path and a fisherman’s wharf</td>
</tr>
<tr>
<td>District</td>
<td>Onehunga</td>
</tr>
<tr>
<td>Node</td>
<td>Onehunga Fish Market</td>
</tr>
<tr>
<td>Landmark</td>
<td>Onehunga Fish Market</td>
</tr>
</tbody>
</table>

**Review with the Theory - Nine Principles of Waterfront Development**
<table>
<thead>
<tr>
<th>Urban Design Dimension</th>
<th>Elements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transformation in Urban Live</td>
<td>People have a new destination to buy fish</td>
</tr>
<tr>
<td>Aura of Big Cities and Survive Along with it Banks</td>
<td>Because the function is still related and comes from an issue, this investigation has a big potential</td>
</tr>
<tr>
<td>Periodic and Fast Stability</td>
<td>Fast stability</td>
</tr>
<tr>
<td>Allowing Human to Discover</td>
<td>Yes</td>
</tr>
<tr>
<td>Natural Boundary</td>
<td>No</td>
</tr>
<tr>
<td>Long Term Potential</td>
<td>Yes. Attached with the Onehunga Port, create this project to have a potential in the future</td>
</tr>
<tr>
<td>Old Urban Area Become Desirable to Live</td>
<td>No urban area changed</td>
</tr>
<tr>
<td>Enhance Public Access to the Air</td>
<td>Yes</td>
</tr>
<tr>
<td>Linkages between Ocean - seafront</td>
<td>A wharf extension becomes a great connection between fishers (water) and customers (land)</td>
</tr>
</tbody>
</table>

**Summary**

The fish market is a suitable catalyst for people coming to the waterfront. It also stems from an issue where Auckland CBD requires a fish market close to the water. Moreover, by chance, there has been a fish market in the Wynyard Quarter but not yet on the Manukau Harbour. The concept of the fish market is also supported because Onehunga Port itself has plans to be developed by the Auckland Council.
Design Investigation 5

The fifth investigation was inspired by the space between Taumanu Reserve and Onehunga Port in addition to the need for a ramp. The area was also developed to support the community to come to the sea. From various possibilities, this investigation looks at the community's feedback about the existence of Taumanu Reserve. Moreover, there are suggestions to make a space for exercise.

Figure 50: Design Investigation 5 – Site Plan

An investigation then proceeded to look at one example of a wharf reclamation, namely Singapore Promenade, where is a football field on the water. There are two interesting things here - the presence of the soccer field, and that it is located over the water. When we look further, the football field turns out to have other functions that are not limited to football. For example, the soccer field can be used for an art show.

Looking at favourite sports in New Zealand, especially in Auckland, rugby sports are the favourite. Once a programme has been determined, then it is established on the site with the elements that exist. The field takes advantage of the space next to the ramp to the crossing bridge and sees its potential as an exercise room. So, conceptualised a kind of stand for residents sitting biased. And can also be used to run.

This extensive space derived from the tribune that functions as a seawall. The water in the middle of the seawall is pumped out, and the surface is enhanced by field standard, real soil and grass.
### Review with the Theory – Image of the City

<table>
<thead>
<tr>
<th>Urban Design Dimension</th>
<th>Elements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Path</td>
<td>A bridge from Gloucester Reserve and a boardwalk from Taumanu Reserve to Onehunga Port</td>
</tr>
<tr>
<td>Edge</td>
<td>Onehunga Bay becomes a leisure and relaxation area, and sports area</td>
</tr>
<tr>
<td>District</td>
<td>Onehunga</td>
</tr>
<tr>
<td>Node</td>
<td>Rugby field</td>
</tr>
<tr>
<td>Landmark</td>
<td>Rugby field</td>
</tr>
</tbody>
</table>

### Review with the Theory - Nine Principles of Waterfront Development

<table>
<thead>
<tr>
<th>Urban Design Dimension</th>
<th>Elements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transformation in Urban Live</td>
<td>People from Onehunga suburb can have easier access to their waterfront</td>
</tr>
<tr>
<td></td>
<td>People have a new destination to buy fish</td>
</tr>
<tr>
<td>Aura of Big Cities and Survive Along with it</td>
<td>Because of the function is still related and comes from an issue, this investigation has a big potential</td>
</tr>
<tr>
<td>Banks</td>
<td></td>
</tr>
<tr>
<td>Periodic and Fast stability</td>
<td>Slow development in the future; limited by activity category</td>
</tr>
<tr>
<td>Allowing Human to Discover</td>
<td>Yes, with the presence of a new sports space</td>
</tr>
<tr>
<td>Natural Boundary</td>
<td></td>
</tr>
<tr>
<td>Long Term Potential</td>
<td>Yes. Attached with the Onehunga Port, this project can have a potential in the future</td>
</tr>
<tr>
<td>Old Urban Area Become Desirable to Live</td>
<td>Yes, with their waterfront quality is increased</td>
</tr>
<tr>
<td>Enhance Public Access to the Air</td>
<td>Yes.</td>
</tr>
<tr>
<td>Linkages between Ocean - seafront</td>
<td>A wharf extension becomes a great connection between fishers (water) and customers (land)</td>
</tr>
</tbody>
</table>
Summary

Finally, connectivity problems are resolved through a connection between projects in Onehunga Bay as well as links to the city. However, in this investigation, the catalytic function is a rugby field, which is a radical proposal and not optimal in connecting people to Onehunga waterfront.
Chapter 7
Final Design
Final Design

After trying five design investigations, some good elements have emerged while there are some elements that need development, and some are not suitable in this research.

The final design is considered the best design because:
1. It connects Onehunga suburb and the waterfront;
2. The design shape reflects local history;
3. It supports elements that not only connect Onehunga to the waterfront on a local scale but also lift Onehunga connectivity to a larger scale.

Figure 51: Final Site Plan

Final Design

The last design was inspired by the history of Onehunga, which was once a crater but is now flat land due to landfill, including a park called Gloucester Reserve.
This uniqueness is attempted to be re-established so that people in Onehunga can be reminded that there is a volcanic crater in Onehunga. Moreover, they can feel the experience of walking on it as if walking on a crater.

The final design can be briefly categorised into three-part connections:
1. A connection from Onehunga suburb to the waterfront;
2. A connection from the waterfront to other existing waterfront projects;
3. A connection from Onehunga to greater Auckland.

**Crater Walk Entrance**

There is an entrance from Onehunga Mall, the main commercial street. The entrance is not just a visitor's access to the Onehunga Bay, but also as a marker for the traveller coming from the Onehunga train station.

![Figure 52: Entrance to the Crater Walk](image)

![Figure 53: Crater Walk view from Gloucester Reserve](image)
Ferry Terminal

The ferry terminal is on the west side of the crater walk. The ferry terminal is inspired from the same port of Onehunga harbour which was previously the largest port and the primary transport for passengers travelling to the lower North Island and the South Island.

Figure 54: Ferry Building – Water-level view
Figure 55: Ferry Building – Bird-level view
Vertical steps at Onehunga Port

The other side of the crater walk stops right at Onehunga Port. Its location becomes very strategic to seeing the Onehunga area. In addition, Onehunga Port is planned to expand into large open spaces.

Figure 56: Vertical steps – View from on the bridge
Bus Hub

The crater walk must pass over the SH 20 motorway, so it requires a massive structure to sustain it. However, having the location next to the motorway provides an opportunity to increase connectivity from Onehunga to other areas via a network bus.
Figure 58: Bus hub – East

Figure 59: Bus hub - East
## Review with the Theory – Image of the City

<table>
<thead>
<tr>
<th>Urban Design Dimension</th>
<th>Elements</th>
</tr>
</thead>
</table>
| Path                   | A bridge from Gloucester Reserve to Onehunga waterfront and Onehunga Port (crater walk)  
                        | A boardwalk between Taumanu Reserve and Onehunga Port |
| Edge                   | Onehunga Bay, become a centre for leisure, relaxation and transportation |
| District               | Onehunga |
| Node                   | The crater walk and the entrance Ferry terminal  
                        | Steps at Onehunga Port |
| Landmark               | The crater walk and the Entrance Ferry terminal  
                        | Steps at Onehunga Port |

## Review with the Theory - Nine Principles of Waterfront Development

<table>
<thead>
<tr>
<th>Urban Design Dimension</th>
<th>Elements</th>
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</thead>
</table>
| Transformation in Urban Live | People from Onehunga suburb can have an easier access to their waterfront  
<pre><code>                    | People have a new destination to buy fish |
</code></pre>
<p>| Aura of Big Cities and Survive Along with it Banks | Strong aura. Moreover history is in relation with most of the design |
| Periodic and Fast stability | Slow development in the future, limited by activity category |
| Allowing Human to Discover | Yes. And not just to their waterfront, but also to other places |
| Natural Boundary | Yes. Mostly natural material forms an extension from Taumanu Reserve |</p>
<table>
<thead>
<tr>
<th>Long Term Potential</th>
<th>Yes. Attached with the Onehunga Port, creating this project to have a potential in the future</th>
</tr>
</thead>
<tbody>
<tr>
<td>Old Urban Area Become Desirable to Live</td>
<td>Yes, with their waterfront quality increased</td>
</tr>
<tr>
<td>Enhance Public Access to the Air</td>
<td>Yes.</td>
</tr>
<tr>
<td>Linkages between Ocean - seafront</td>
<td>A wharf extension becomes a great connection between fishers (water) and customers (land), with a ferry terminal to provide access to other places in Auckland</td>
</tr>
</tbody>
</table>
How this research answer the question

After going through various investigations and taking the best components from those investigations, the bridge evolved into a curved bridge inspired from the Onehunga crater and converted in such a way as to be a form of architecture. Among the bridges, in place of the bus hub, to facilitate the connectivity of the community from various regions to and from Onehunga. At one end of the crater bridge is Onehunga Port, while the other side will drop right at the ferry terminal. This ferry terminal gives people the opportunity to reach other areas on the west side of Auckland and possibly further afield.

The final design can be briefly categorised into a three-part solution:
1. A connection from Onehunga suburb to the waterfront;
2. A connection from the waterfront to other existing waterfront projects;
3. A connection from Onehunga to greater Auckland.

1. A connection from Onehunga Suburb to Waterfront

![City to Waterfront – Section – 1](image)

From the Onehunga commercial centre to the waterfront, residents can now use the bridge that splits Gloucester Reserve. The bridge has with two ends, one at Onehunga Port and another on a new reclaimed field with benefits as a ferry terminal.

2. A Connection from Waterfront to Other Existing Waterfront Projects

So to link other projects in Onehunga foreshore, a boardwalk is created specifically for pedestrian access, so pedestrians no longer needs to have a car; in contrast, the earlier pedestrian path is a path that must be shared with the vehicle.

![Waterfront to Waterfront – Section – 1](image)
Next, to the boardwalk, coastal reclamation is planned again. The reclamation of this beach connects the existing reclamation of Taumanu Reserve, and the reclamation also provides space for the community to enjoy the water. To support the area for dinghys, a seawall is needed to create calm water conditions. The function from the seawall is not just to calm the ocean, but can also be a space for citizens to be closer to the sea.

The inter-waterfront areas are connected by a new reclaimed beach, together with a boardwalk for residents to enjoy the seaside. This new reclaimed beach also becomes an extension of Taumanu Reserve, so people can enjoy the water by paddling or entering it.

3. A connection from Onehunga to Greater Auckland

![Figure 62: Waterfront to Greater Auckland – Section – 2](image)

Indirectly, the functions in this study connect Onehunga waterfront to a larger scale development. For example, the bus hub function will indirectly connect Onehunga waterfront with the bus network in Auckland. Its location adjacent to the train station also connects this project with the train network in Auckland. Another exciting thing is the ferry terminal. Onehunga Port was used as a place for local people to cross from Manukau inlet to Waitemata. As such, it inspired the design in this study. The ferry terminal can connect Onehunga waterfront to other areas in Auckland, and possibly further afield.
Final Design Perspective

Figure 63: Bird Eye View Perspective
Bibliography


Declaration

Name of candidate: RAUAN CHANDRA DRIEF

This Thesis/Dissertation/Research Project entitled: ONEHUNGA NEW WATERFRONT: RECONNECTING ONEHUNGA TO THEIR FORESHORE
is submitted in partial fulfillment for the requirements for the Unitec degree of MASTERS OF ARCHITECTURE

Principal Supervisor: MATTHEW BROADURY

Associate Supervisor/s: 

CANDIDATE’S DECLARATION

I confirm that:
• This Thesis/Dissertation/Research Project represents my own work;
• The contribution of supervisors and others to this work was consistent with the Unitec Regulations and Policies.
• Research for this work has been conducted in accordance with the Unitec Research Ethics Committee Policy and Procedures, and has fulfilled any requirements set for this project by the Unitec Research Ethics Committee.

Research Ethics Committee Approval Number: ........................................................................

Candidate Signature: .......................................................... Date: 3rd AUGUST 2018

Student number: 14696000
Full name of author: RAWAN CHANDRA BRIEF

ORCID number (Optional): .................................................................

Full title of thesis/dissertation/research project ('the work'):
ONEHUNGA NEW WATERFRONT: RECONNECTING ONEHUNGA TO THEIR FORESHORE

Practice Pathway: ..............................................................................

Degree: MASTER OF ARCHITECTURE

Year of presentation: 2018

Principal Supervisor: MATTHEW BROOKURY

Associate Supervisor: .................................................................

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