

# EDGE EFFECT

Reconnecting Whangarei's City and River





**Figure 1.1**  
Final Design Solution as viewed from above Laurie Hall Park



# EDGE EFFECT

**Reconnecting Whangarei's City and River**

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A 120 point thesis submitted to  
the Victoria University of Wellington  
in fulfilment of the requirements for the degree of  
Masters of Architecture (Professional)

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School of Architecture  
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**“Edge Effect”** refers to the changes that occur at the boundary of two habitats.

■ Abstract

Whangarei City has a dying Commercial Centre.

This has resulted from population shifts that have occurred over time. Significant issues have driven movement of people toward much larger cities (seeking better economic, cultural and social outcomes) and more spacious urban fringes (seeking improved environmental outcomes).

The Whangarei CBD incorporates both the dying Commercial Centre and a thriving Town Basin which is the centre for Arts and Recreation within the city. The two areas are a juxtaposition.

The investigation reveals reasons why two such contrasting areas exist and defines a design solution that seeks to resolve this and leverages the success of the Town Basin to revive the Commercial Centre. The aim of this thesis is to investigate ways that architecture can be used to invigorate Whangarei’s dying Commercial Centre by creating a place of activity, engagement and

informal learning and by re-establishing the important connection Whangarei has with its river as well as other positives within the city.

Thesis objectives:

- Identify the reasons for the decline of the Commercial Centre and the success of the Town Basin and how a connection can be established between the two.
- Establish a beating heart within the dying Commercial Centre and provide a life source in the form of people movement into the centre from all parts of the city.
- Provide dynamic spaces which encourage informal learning, social interaction, playfulness and creativity that will engage the people of Whangarei including youth and children.
- Use the natural environment as a means of engaging people of all ages by weaving together water, a restored ecology and architecture.



*I dedicate this thesis to my parents  
for their constant love and support throughout my life.*



■ Acknowledgements

Firstly, I would like to thank my supervisor Shenuka de Sylva, for her constant guidance throughout this thesis as well as her insight, questions and support.

Thank you to my family. To my sisters, for their laughs, and the tolerance of me throughout the years I have spent getting to know them again. To my parents for their unfailing interest, care and loving support.

To all my friends I have made within the School of Architecture. You made my time so memorable and enjoyable. Ellie, you are a constant inspiration, and the hardest worker I know. Will miss all the laughs we had, but know their will be many more to come in the future.

Nikki, we started this crazy journey together and have been through a lot. You never cease to put a smile on my face. Skye, you are always there to lend your support. You give without trying, and are always willing to listen when I most need it. And to all my other friends I have made along the way: Angela, Anka, Jared, Kate, Katrina, and Matthew.

Thank you to the Whangarei District Council, in particular the Policy and Monitoring team. Thanks to everyone who has helped me see my research through to the end, your support and encouragement has been much appreciated.



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# Chapter One

## Introduction

1.1

Background



Figure 1.2 Whangarei’s dying commercial centre during a Saturday at lunchtime.



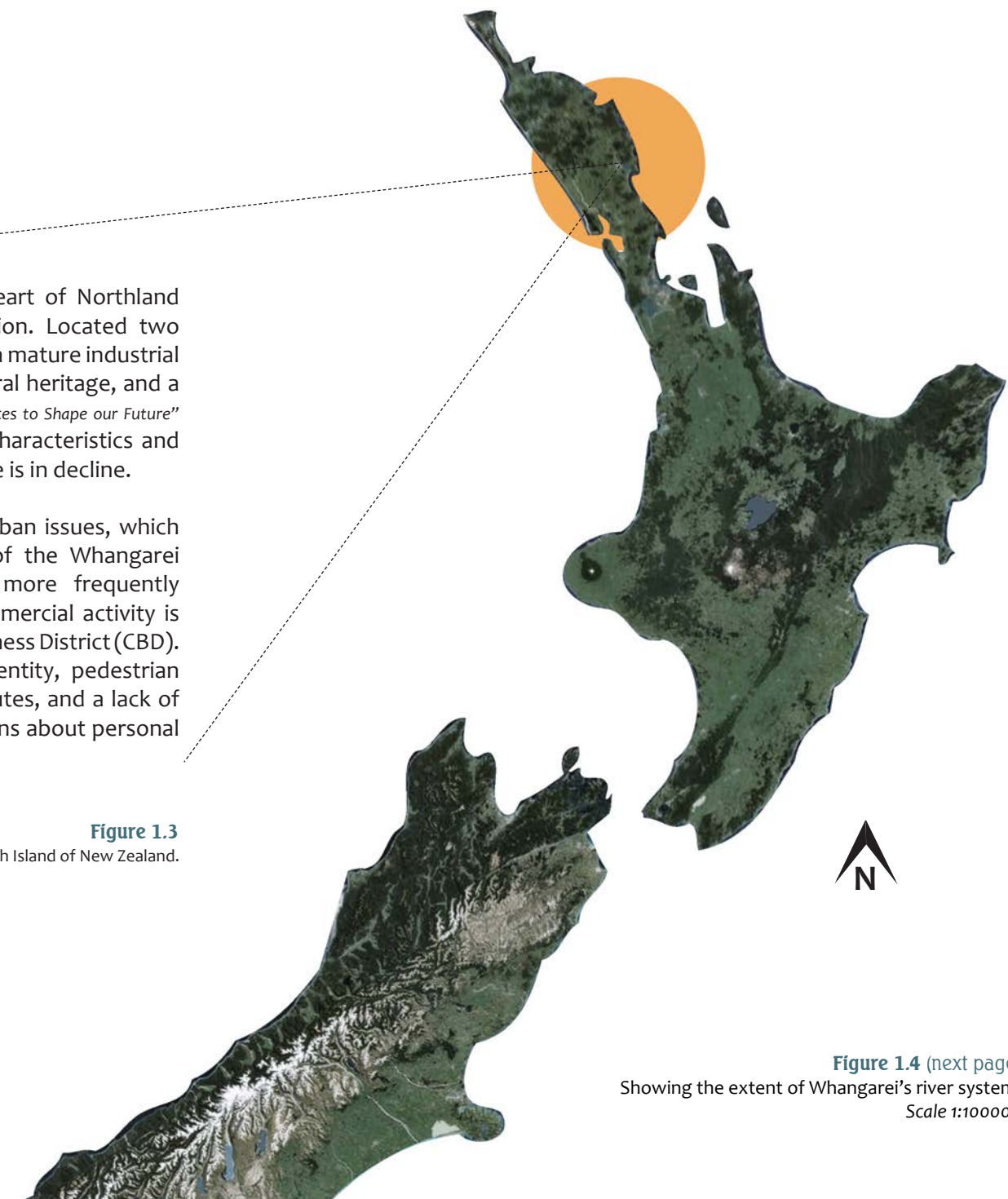


Whangarei city is the commercial heart of Northland and is the only city within the region. Located two hours from Auckland, Whangarei has a mature industrial sector, a rich Maori history and cultural heritage, and a unique natural setting (*"Making Great Places to Shape our Future"* 5). However, despite many positive characteristics and opportunities, Whangarei's city centre is in decline.

The city suffers from many classic urban issues, which are reflected in the current state of the Whangarei Commercial Centre. Buildings are more frequently becoming vacant and sprawling commercial activity is weakening the hub of the Central Business District (CBD). There is a lack of character and identity, pedestrian amenity, safe walking and cycling routes, and a lack of afterhour's activity that led to concerns about personal safety and anti-social behaviour.

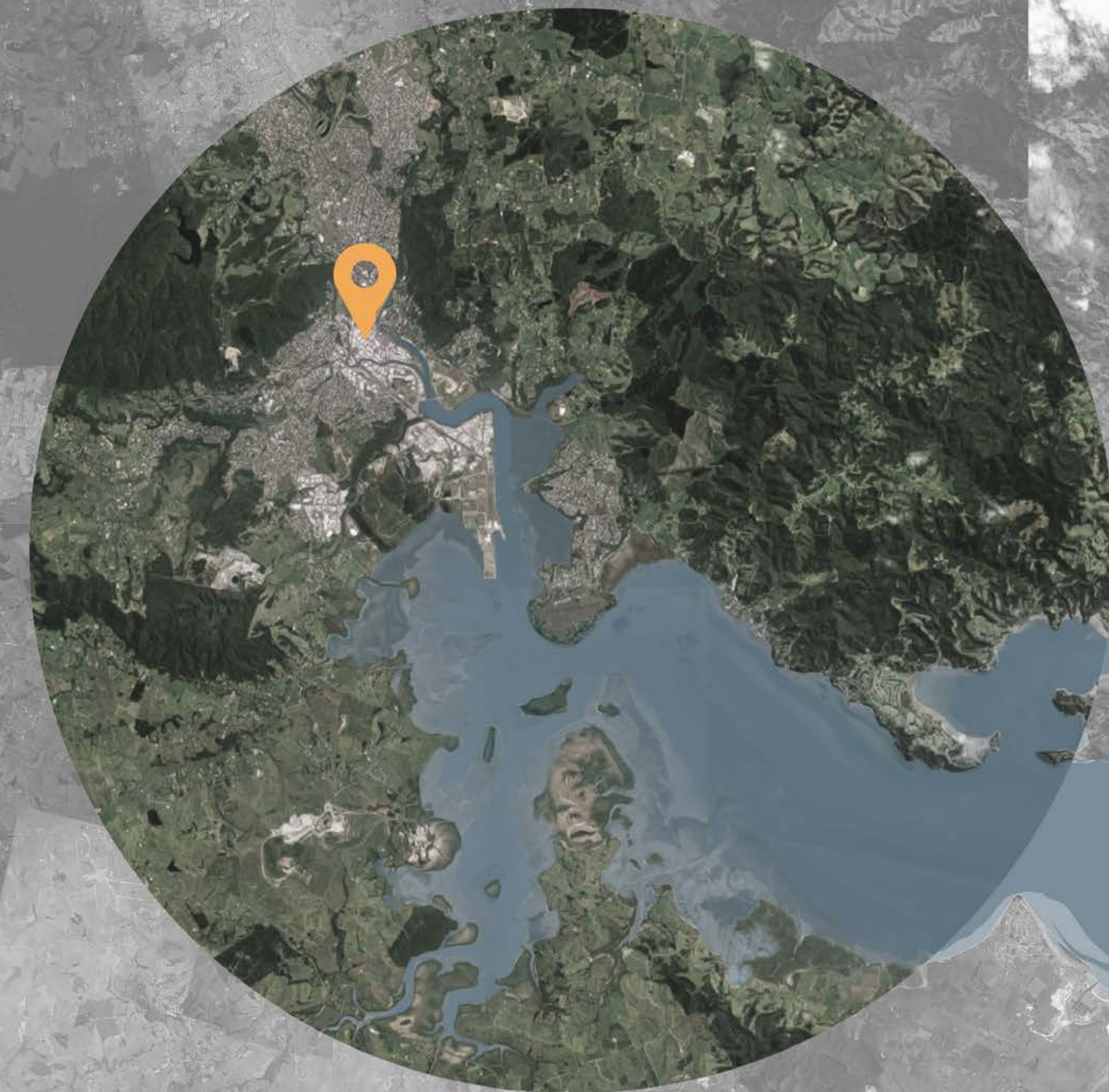
**Figure 1.3**

Whangarei site location within the North Island of New Zealand.



**Figure 1.4** (next page)

Showing the extent of Whangarei's river system.  
Scale 1:100000



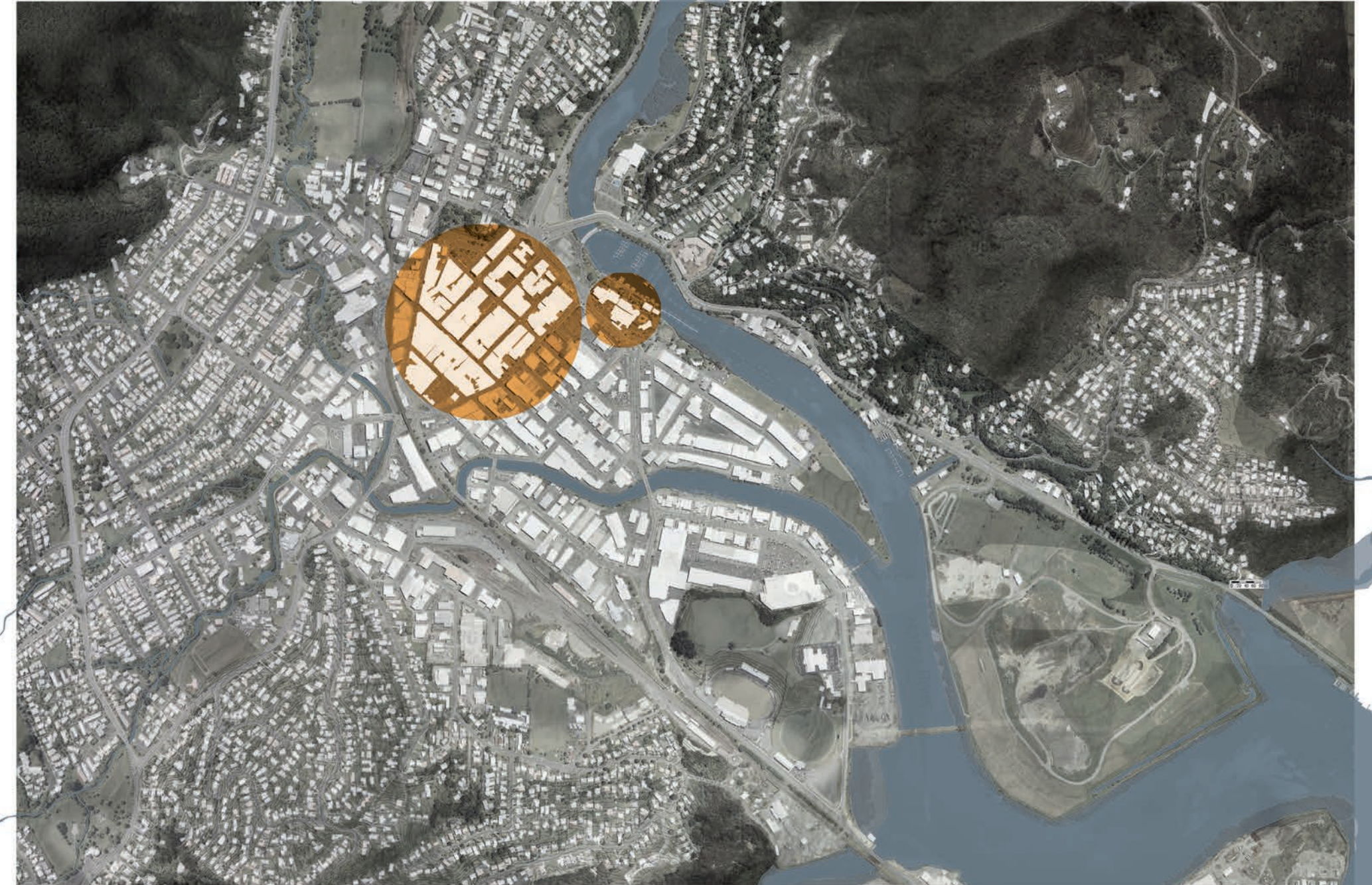


Whangarei CBD is made up of two significant centres. The centre of commercial and retail activity, Cameron Street mall in the Commercial Centre and the Whangarei Town Basin. The Town Basin is the art and cultural hub of Whangarei; it connects the city to its heritage, and is the centre of the city's character (*"Sense of Place"* 34). While the commercial centre is in decline, the Town Basin has been subject to successful development projects over the last 20 years; originally with its redevelopment by council in 1996, and more recently (2014) with the popular walking and cycling track along the river's edge, in the form of the Hatea Loop Walkway.

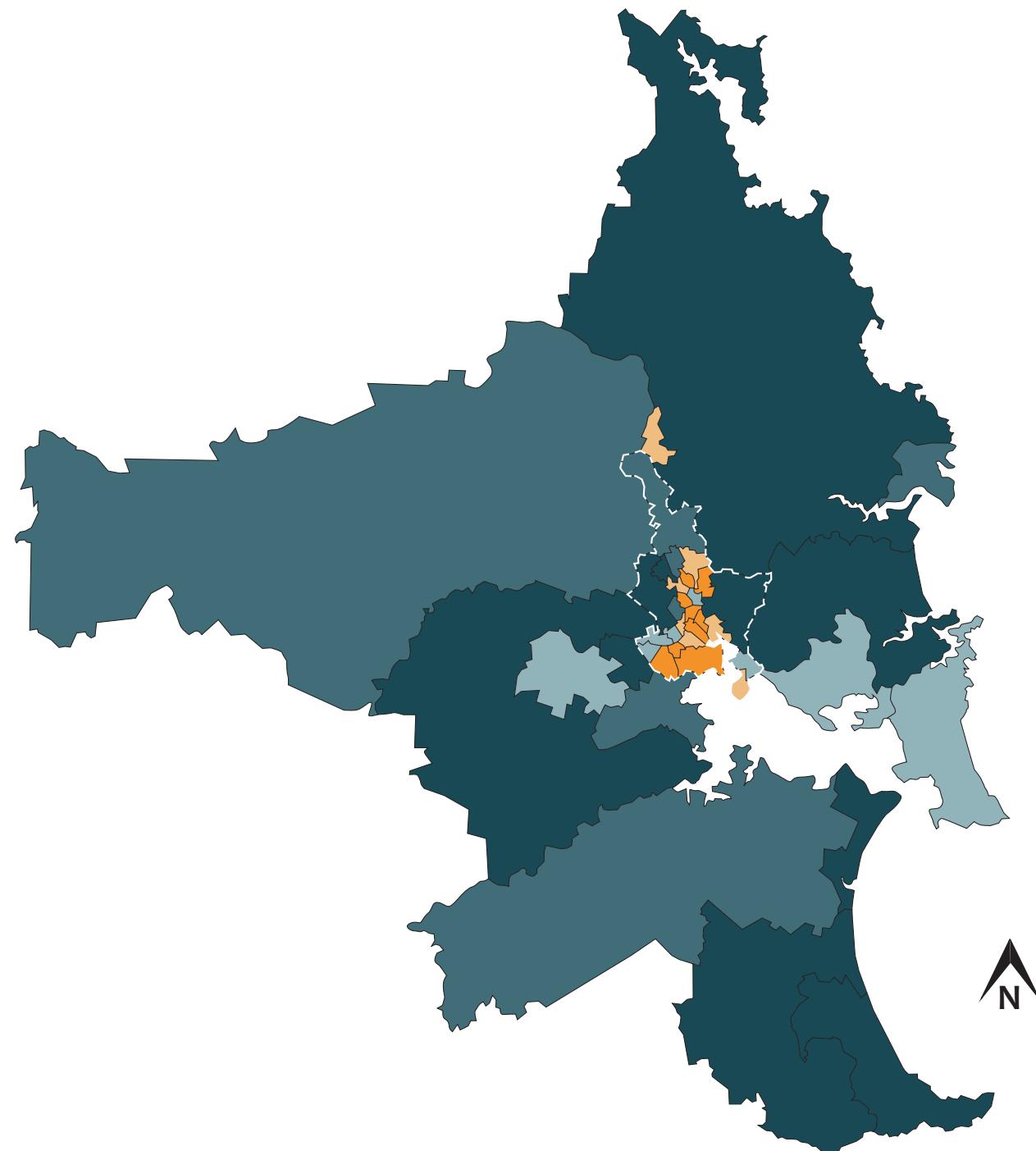
Development in Whangarei is concentrated within the Town Basin due to its positive attributes and popularity amongst locals and visitors. Although they are a short distance apart, the Town Basin is working independently from the Commercial Centre, and the success is not filtering back. However, the acclaim of the Town Basin indicates Whangarei's overall potential as a vibrant centre and visitor's destination. The question therefore is how can this success be drawn back into the city centre to channel the vibrancy that the waterfront brings?



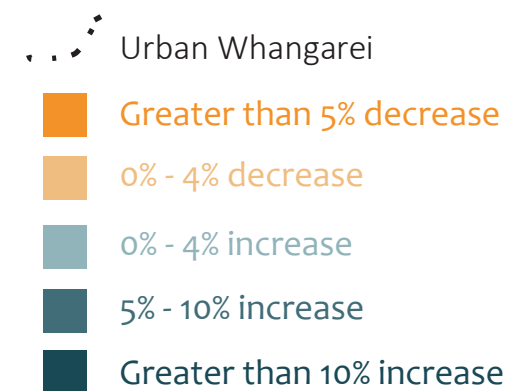
**Figure 1.5** View of the Whangarei Town Basin from the edge of the CBD (Dent Street). This image is demonstrating how disconnected the Commercial Centre is to the Town Basin.



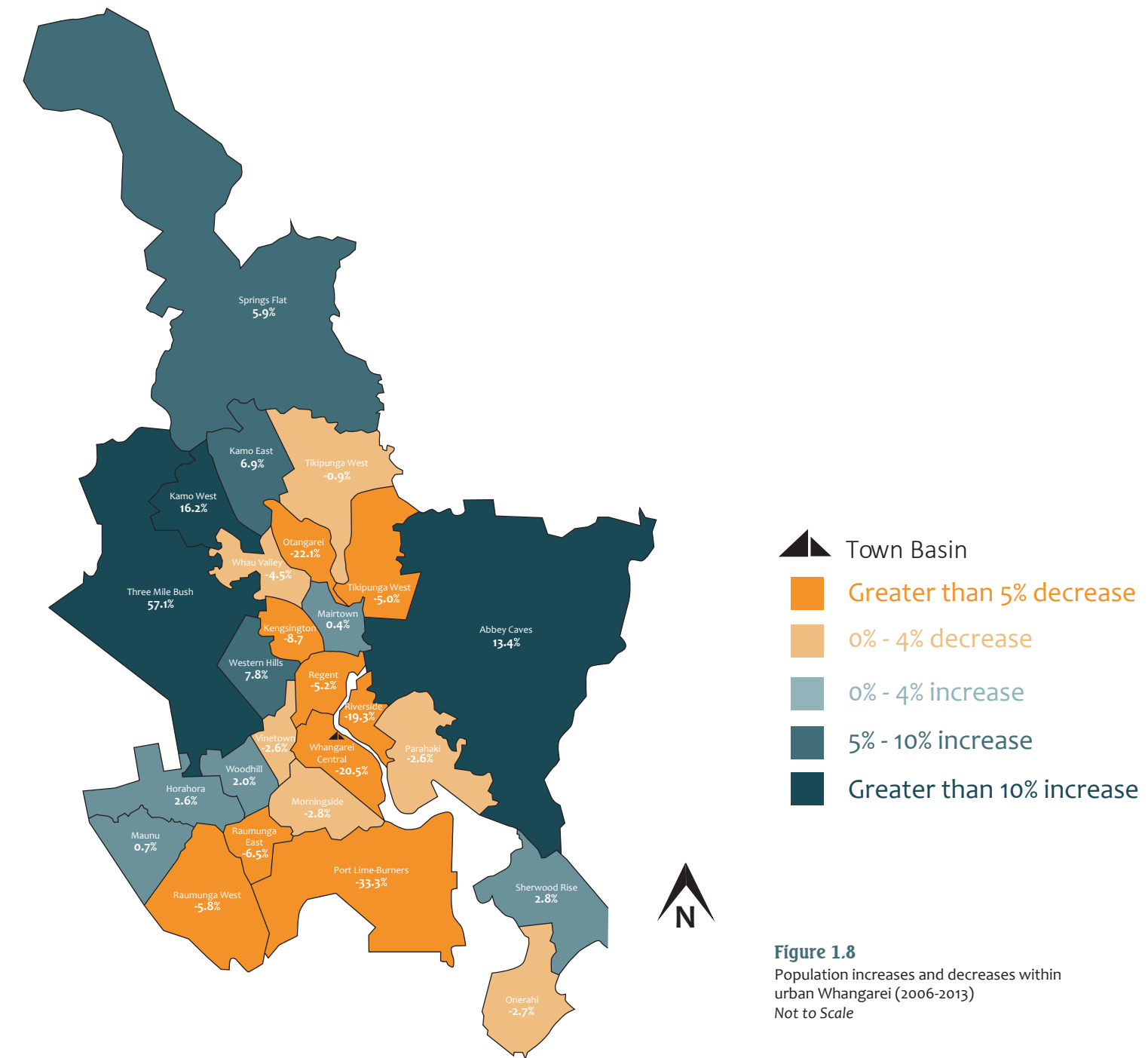




**Figure 1.6** (previous page)  
Map of the Whangarei CBD highlighting the Commercial Centre and the Town Basin.  
Scale 1:12500



**Figure 1.7** (left)  
Population increases and decreases within the Whangarei District (2006-2013)  
Not to Scale



**Figure 1.8**  
Population increases and decreases within urban Whangarei (2006-2013)  
Not to Scale



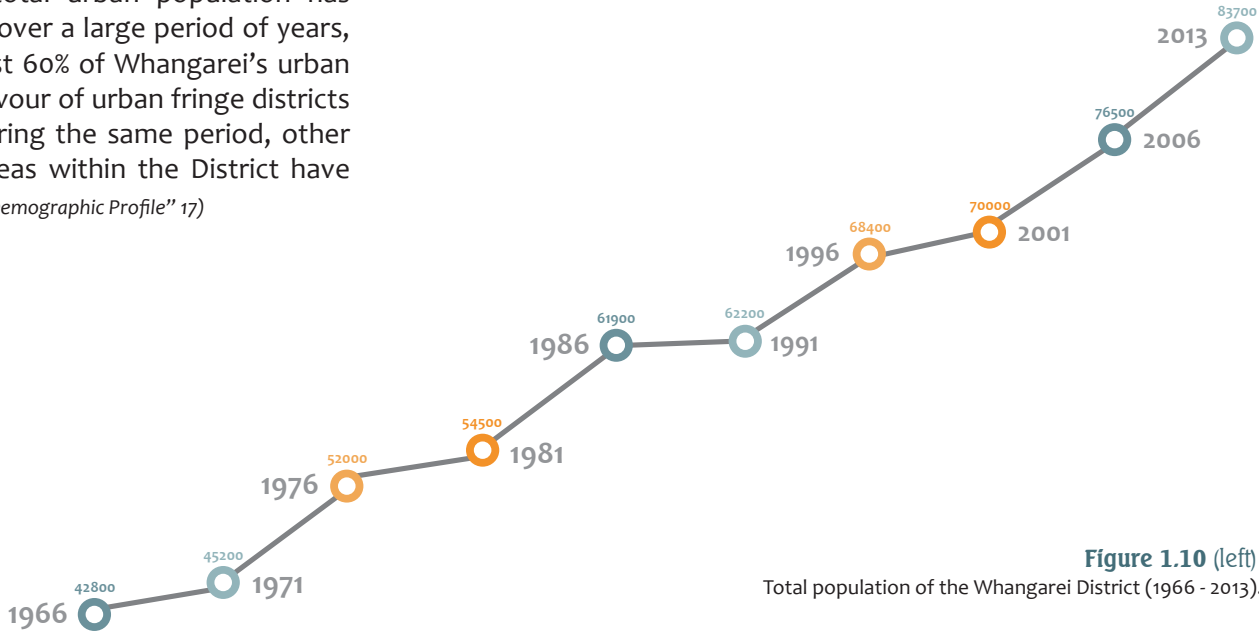
### Population Changes

The decline of Whangarei’s Commercial Centre is becoming an issue to the wider Whangarei District as fewer factors are attracting, or motivating people, to remain within urban Whangarei. These issues are reflected within the changes to Whangarei’s population within the last 10 years. Not only are many of Whangarei’s urban areas in decline, Whangarei also has a rapidly ageing population. The younger working and reproductive population are seeking opportunities elsewhere, particularly young adults and school leavers who are seeking tertiary education and employment within the larger cities.

Although the Whangarei Districts population continues to steadily grow, many of the city’s urban centres have suffered a decline. The total urban population has remained relatively stable over a large period of years, however since 2006 almost 60% of Whangarei’s urban centres lost residents in favour of urban fringe districts (as seen in **figure 1.8**). During the same period, other more coastal and rural areas within the District have increased in population. (“Demographic Profile” 17)



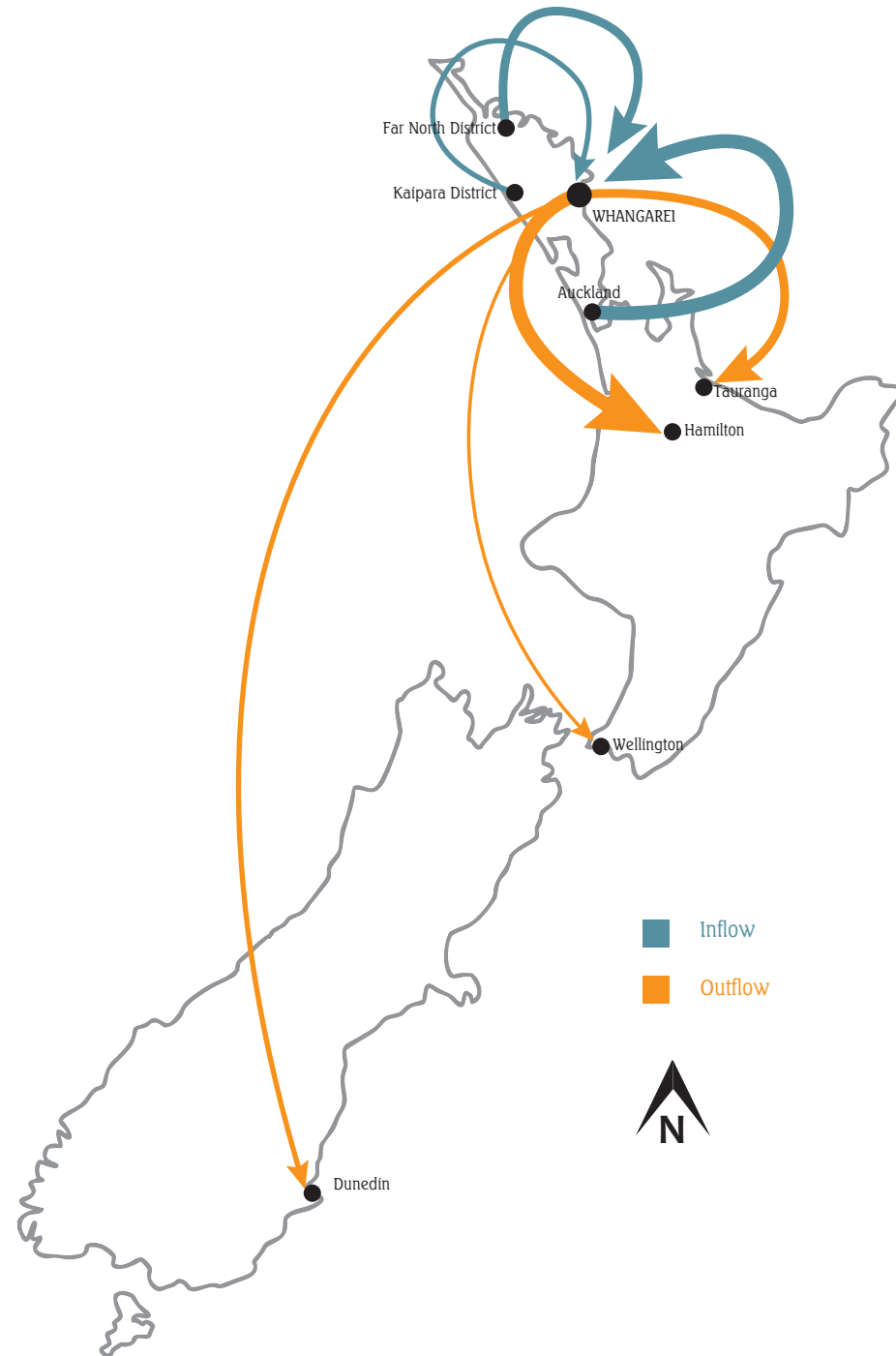
**Figure 1.9 (above)**  
A derelict structure within Otangarei, Whangarei; one of the neighbourhoods facing a large population decline.



**Figure 1.10 (left)**  
Total population of the Whangarei District (1966 - 2013).



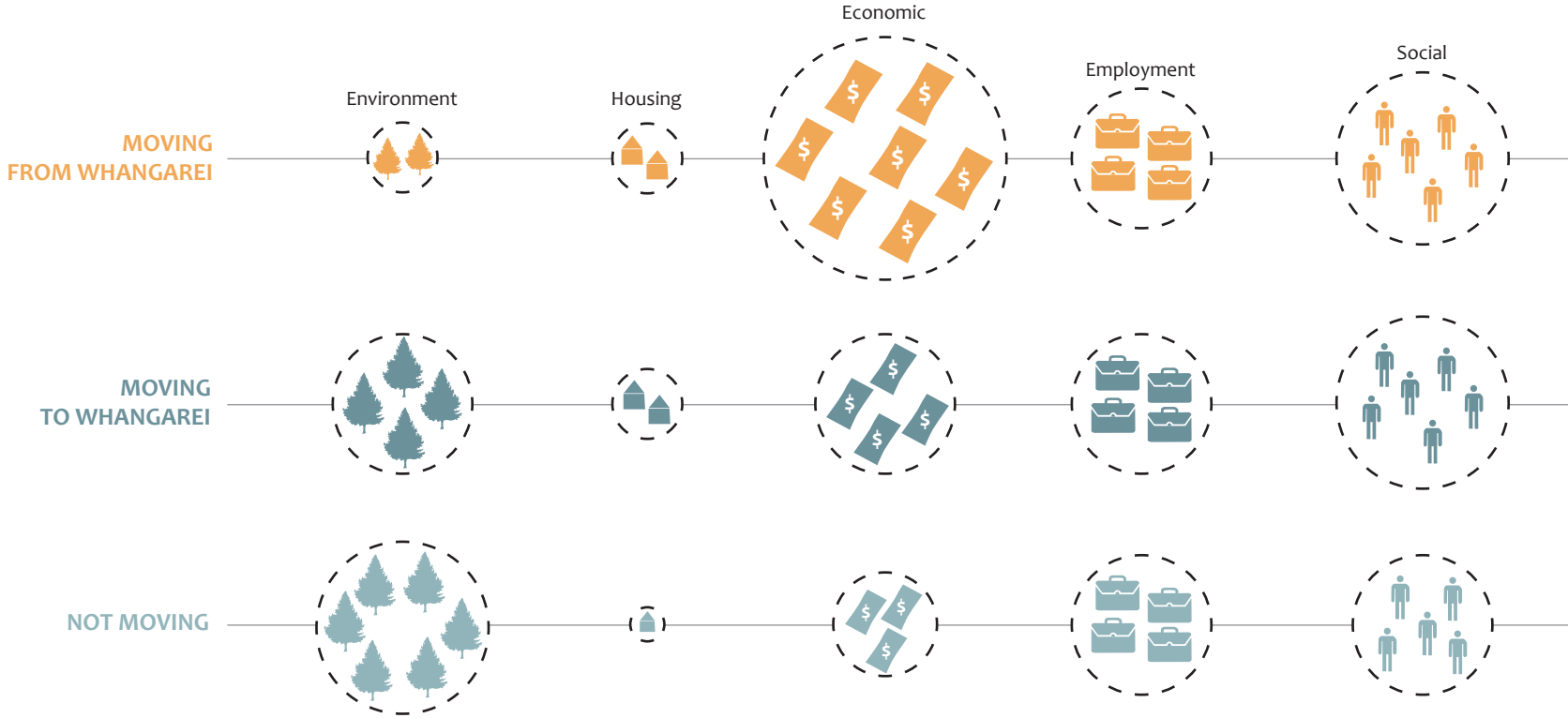
**Figure 1.11** Wharewa Bay just off the coast of Ngunguru sandspit located 30km out of Whangarei central. This image shows the beauty of Whangarei’s coastal areas.



Statistics New Zealand performed a Survey of Dynamics and Motivations for Migration in New Zealand. This information makes it clearer what incentives are causing Whangarei residents to leave urban Whangarei, as well as why coastal and rural areas are growing in population. The reasons were grouped into five categories: social, employment, economic, housing and environment. This survey found that economic, social, and employment factors were the main influence when it came to leaving the Whangarei District. It also indicated that social and environmental aspects were the main reasons to move to or remain within Whangarei. (“Demographic Profile” 38)

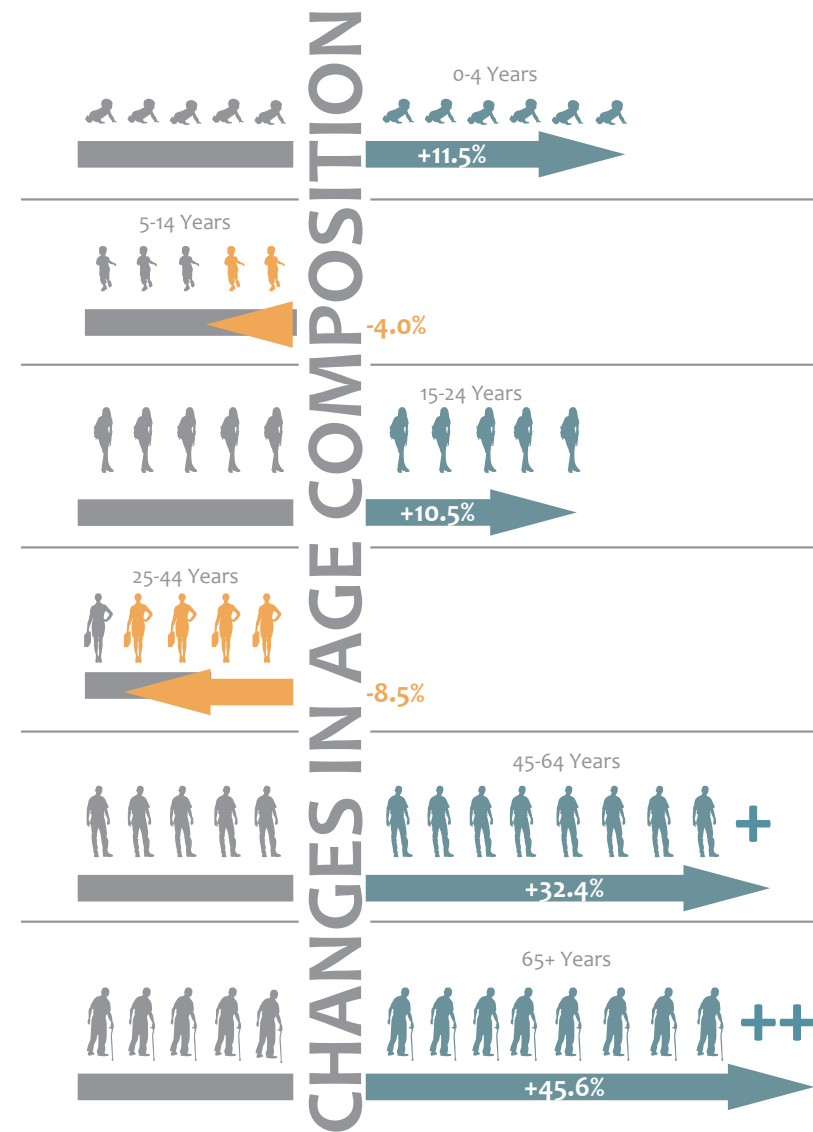
The residents within Whangarei’s urban areas are traditionally families, therefore the population loss can be attributed to the loss of working families to other parts of New Zealand, as well as young adults seeking study or employment opportunities elsewhere. The increase within coastal and rural areas of Whangarei can be attributed to the environment, and families seeking quieter lifestyles along the coast or within lifestyle blocks, but it is also reflective of an increase to the number of retirees migrating to Northland coastal areas (“Demographic Profile” 28) . It is clear that while older retired residents are attracted to Northland, the loss of population within the working and reproductive age group is creating significant implications on Whangarei’s age structure, and will cause issues now and into the future (“Demographic Profile” 21) .

**Figure 1.12**  
Top national migration gains and loses within Whangarei (2008-2013). While its clear that many are leaving for career and educational opportunities within Hamilton, Dunedin and Wellington.



**Figure 1.13**  
Reasons for moving to and from as well as remaining within Whangarei (2005-2007). The largest deterrent for the Whangarei District is economic well-being.

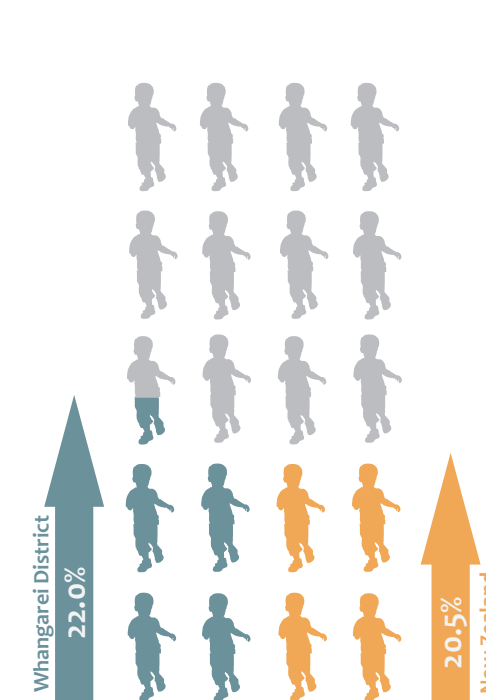




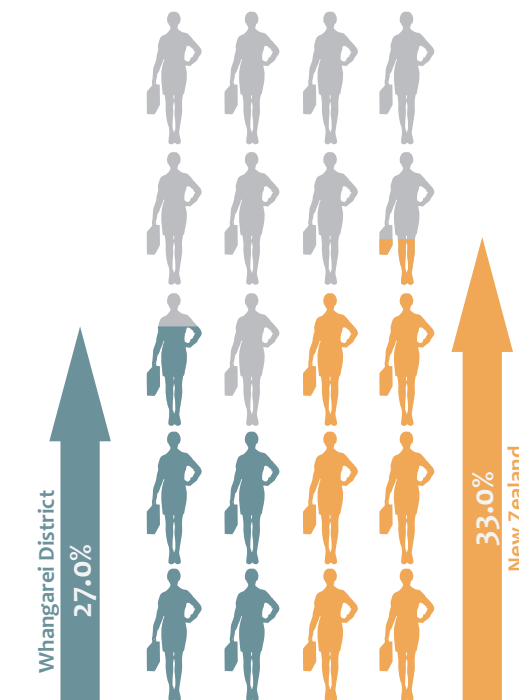
The age structure of Whangarei differs significantly from New Zealand as a whole. In 2013, it was found that the District had a higher proportion of both younger (child) and older people than the rest of the country. Most significantly the number of people over 65 years of age has increased by 48% since 2001 (9,800 in 2001 to 14,500 in 2013). A significantly larger increase in comparison to 36% within New Zealand (*“Demographic Profile” 5*).

While the Whangarei District has a larger proportion of younger and older residents, there are fewer people within the working and reproductive age group. Those aged 15 to 45 years make up 33.3% of the population, compared to 39.7% within New Zealand. Those aged within 20-45 years have decreased by 8.5% in the Whangarei District compared to just 1.9% within New Zealand (*“Demographic Profile” 5*). If the structure of Whangarei’s population continues along this path it is most likely to go into decline in the future. This will cause serious effects on the Districts overall development and maintaining economic prosperity. In order to maintain a growth in population it is important to either attract or retain those within the working/reproductive age (20-45 years). (*“Demographic Profile” 5*)

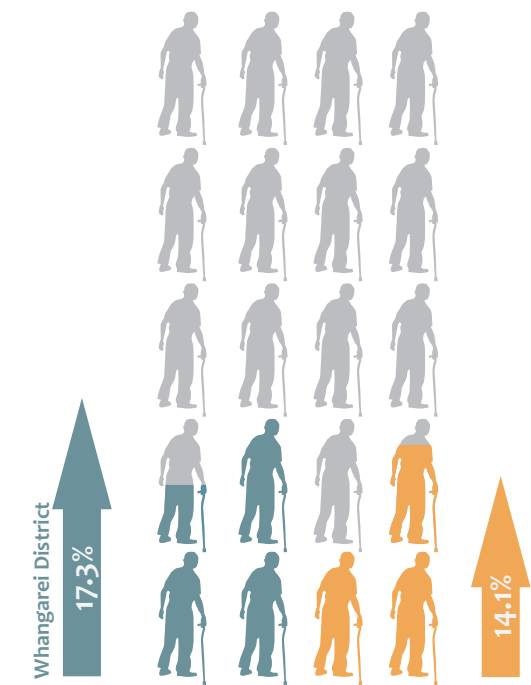
**Figure 1.14**  
Changes to the age composition of Whangarei (2006 - 2013).



**Figure 1.15 (above)**  
Age comparison of the number of people aged under 15 within Whangarei and New Zealand (2013). Although the population has decreased in the working/reproductive age group, interestingly there is a larger number of children within the Whangarei District.



**Figure 1.16 (above)**  
Age comparison of the number of people aged 20-45 years within Whangarei and New Zealand (2013). There is a large 6% difference in population.



**Figure 1.17 (above)**  
Age comparison of the number of people aged 65+ within Whangarei and New Zealand (2013). There has been a significant increase in this age group within Whangarei over the last 15 years.





**Figure 1.18**  
Social deprivation is a major problem within many urban centres in New Zealand. Whangarei is no exception as most of its urban neighbourhoods are considered to be suffering social deficiency.

**Socio-Economic Profile**

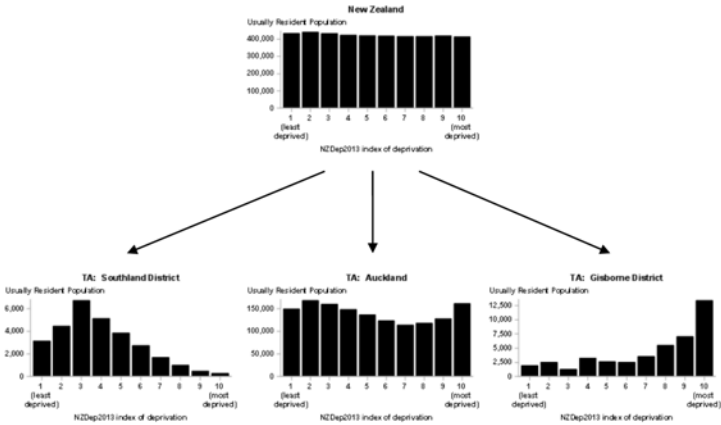
Based on the survey conducted by Statistics NZ, the main factors contributing to people leaving the Whangarei District are economic and social well being as well as employment. These factors are all interrelated - social aspects, such as health and deprivation, are determined by income, which is affected by employment opportunities, which in turn results from educational attainment (“Growth Strategy” 78).

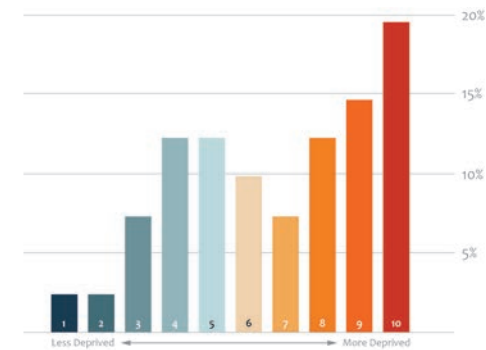
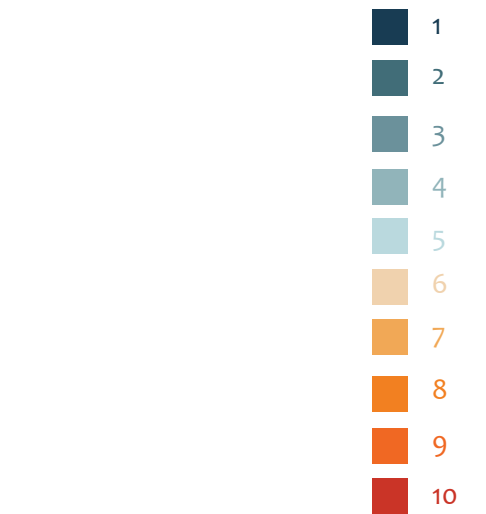
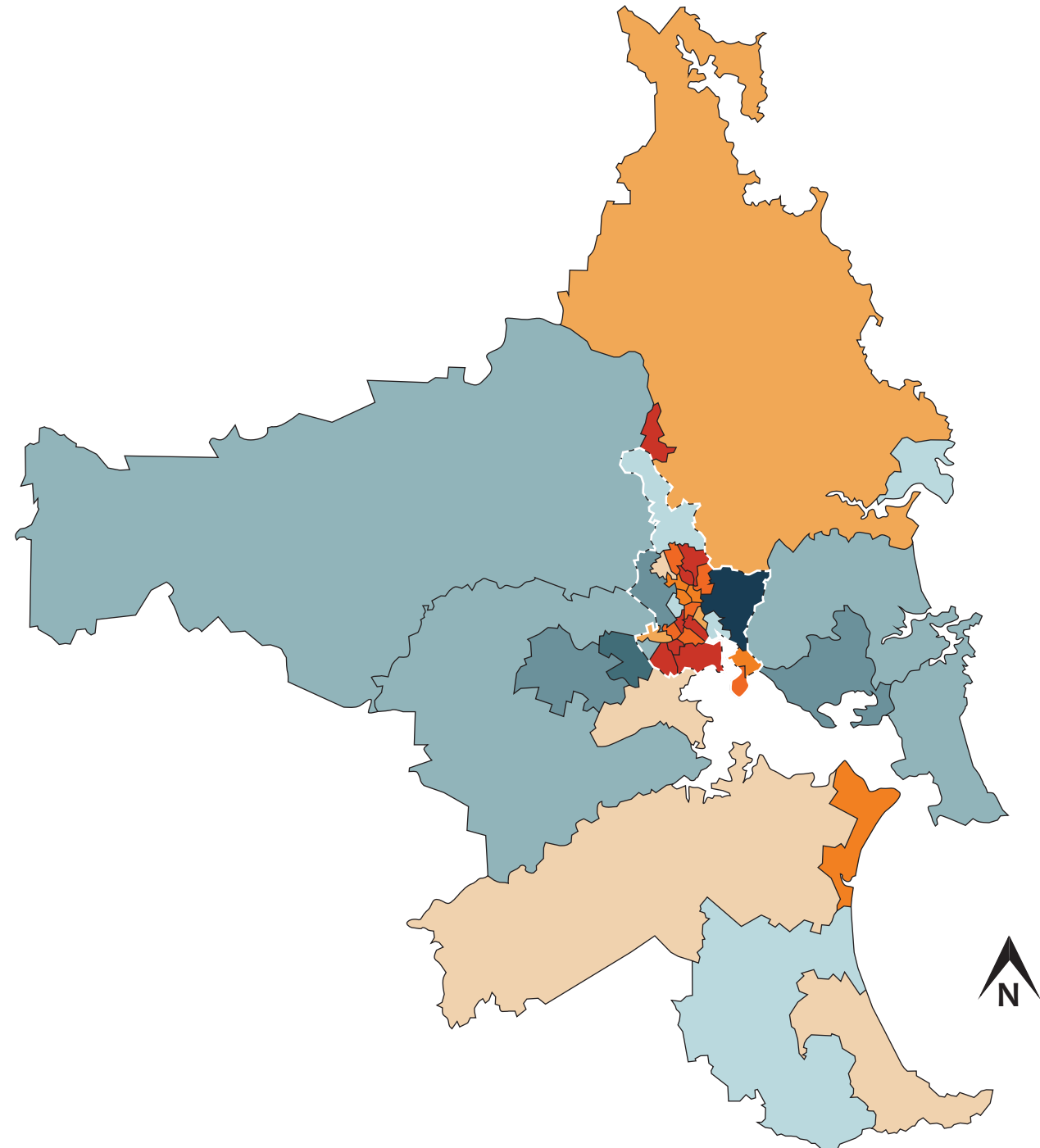
Social deficiency is assessed in New Zealand with the Index of Deprivation. The Index combines different variable from the 2013 census data to create a scale from 1 (least deprived) to 10 (most deprived). This determines which areas within New Zealand are prone to social disadvantages (“Socio Economic Profile” 91). In 2013, two-thirds of the Whangarei District was considered more deprived. This was most prevalent within urban areas and includes suburbs within and around Whangarei’s city centre, which are also currently declining in population.

**Figure 1.19** (above right)  
Table showing the variables which are combined to create the social deprivation scale.

VARIABLE	DESCRIPTION OF VARIABLE
Communication	People aged under 65 with no access to the internet at home
Income	People aged 18-64 receiving a means tested benefit
Income	People living in equivalised households with income below an income threshold
Employment	People aged 18-64 unemployed
Qualifications	People aged 18-64 without any qualifications
Owned home	People not living in own home
Support	People aged under 65 living in a single parent family
Living Space	People living in equivalised households below a bedroom occupancy threshold
Transport	People with no access to a car

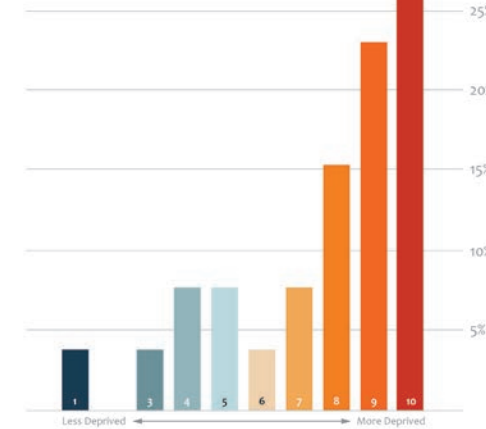
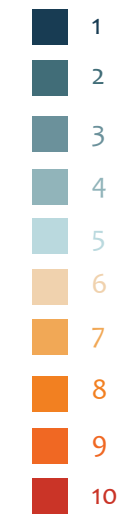
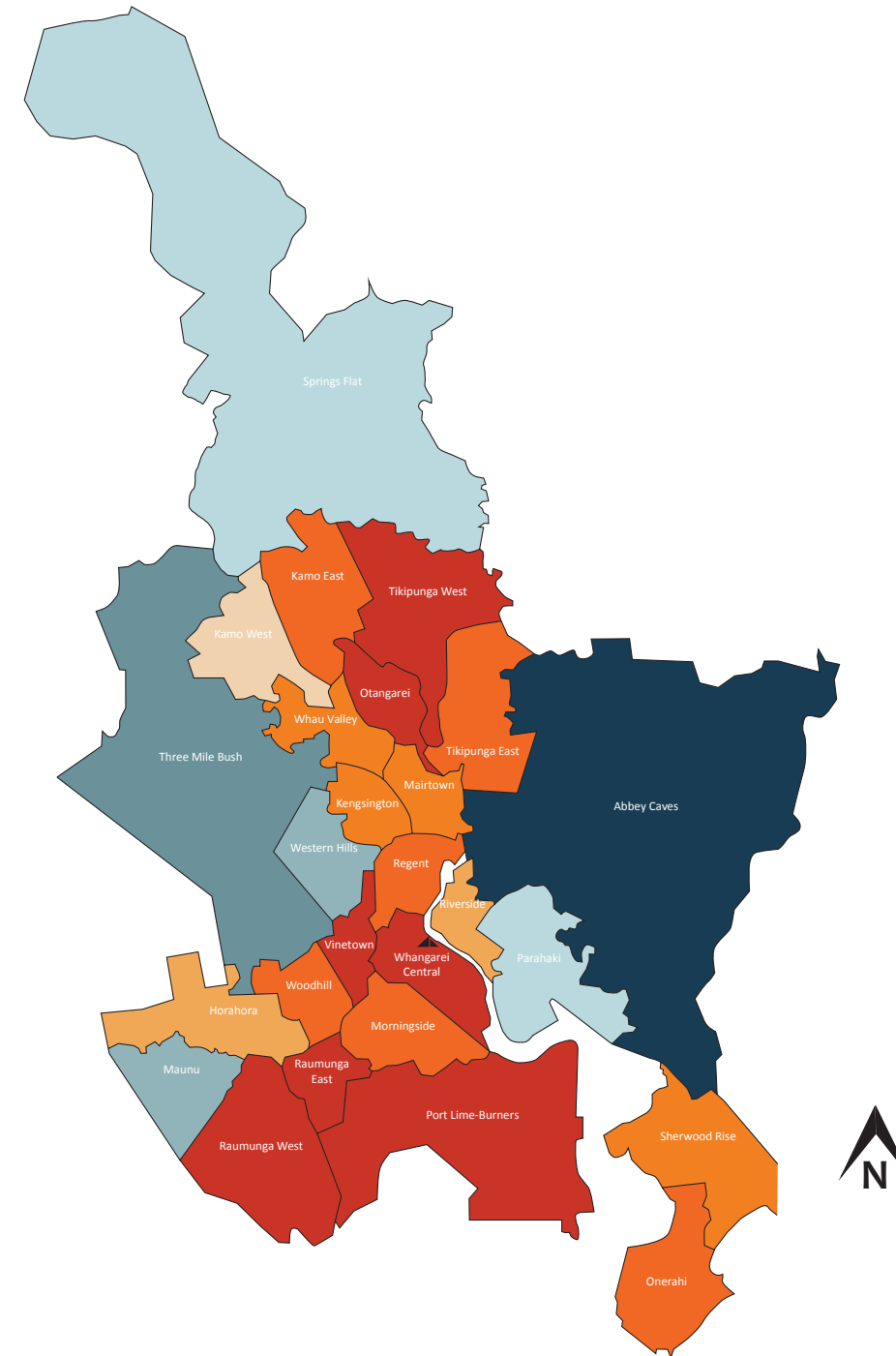
**Figure 1.20** (below right)  
Graphs from NZDep2013’s research report on the Index of Deprivation. Showing the deprivation within New Zealand, Southland District, Auckland, and Gisborne.





Deprived Areas within Whangarei District 2013

**Figure 1.21**  
Social deprivation within the Whangarei District (2013). This map shows that deprivation is highest within the urban areas, while coastal and rural environments are considered less deprived.



Deprived Areas within Urban Whangarei 2013

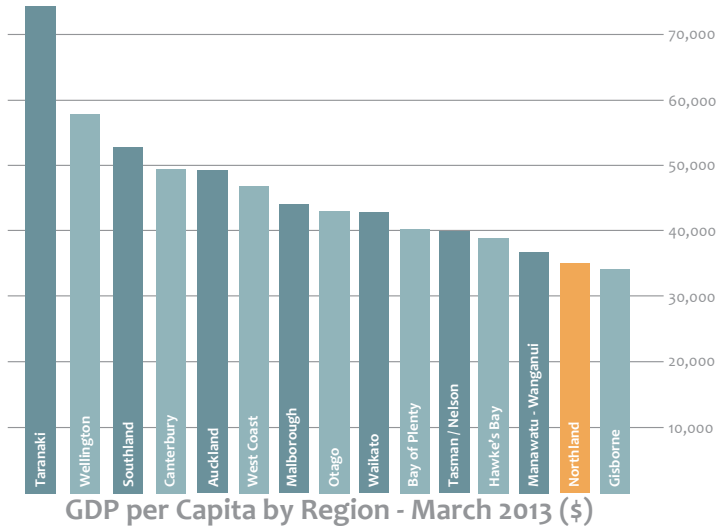
**Figure 1.22**  
Social Deprivation within urban Whangarei (2013). Social deprivation is highest within the areas which are also face large quantities of population loss.



The most prominent factor, which governs social-wellbeing, is secure employment. Unemployed individuals contend with many disadvantages including poor physical and mental health, disengagement, and increased crime (“Growth Strategy” 78). A city’s Gross Domestic Product (GDP) is used to determine a region or country’s wealth/value but can also define the standard of living of a place (Investopedia). When looking at GDP per capita, the Northland Region has the second lowest figure in the Country (“Socio Economic Profile” 14).

Within Whangarei, unemployment is a prominent issue. Northland has the highest rate of unemployment in New Zealand (“Growth Strategy” 78). This has been consistently high throughout the years. On average 9.1% of Northland has been unemployed for the last 28 years, while in New Zealand it has only been an average of 6.3% (“Socio Economic Profile” 42).

With an ageing population in Whangarei district, it is understood that more people are remaining in the workforce for longer; this in turn limits job opportunities for young people (“Socio Economic Profile” 32).

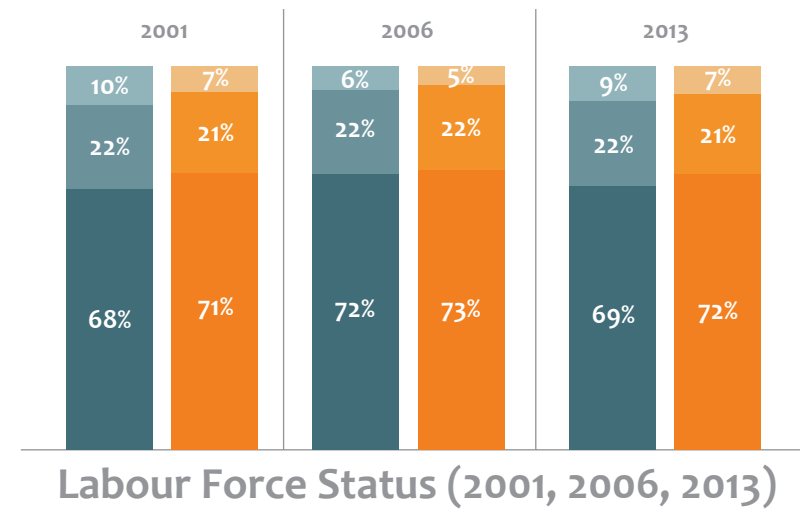


**Figure 1.23**  
GDP per Capita (2013) for each New Zealand region. Shows that Northland is the second lowest in New Zealand.

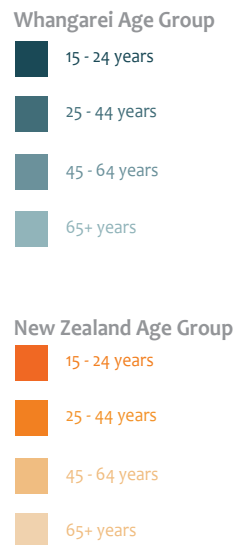
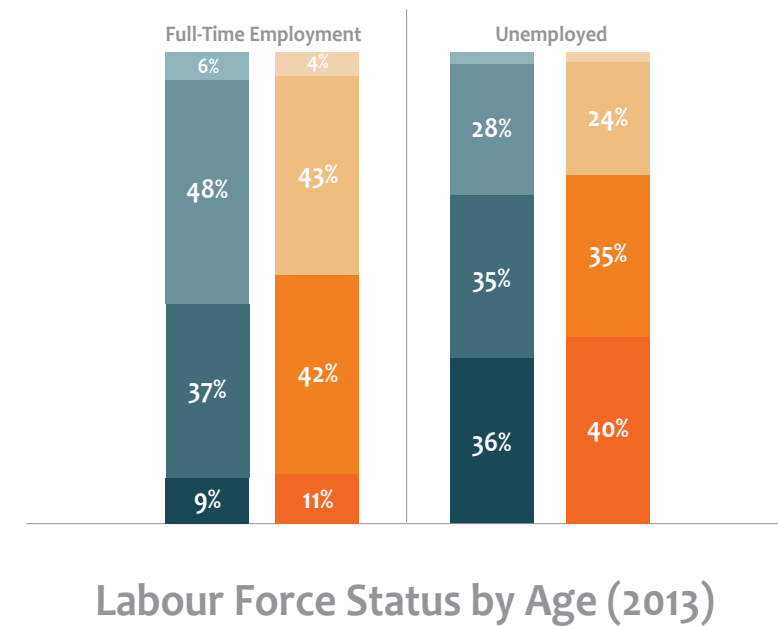


**Figure 1.24** A young, homeless, New Zealander, sitting beside his belongings and a bucket for monetary donations.





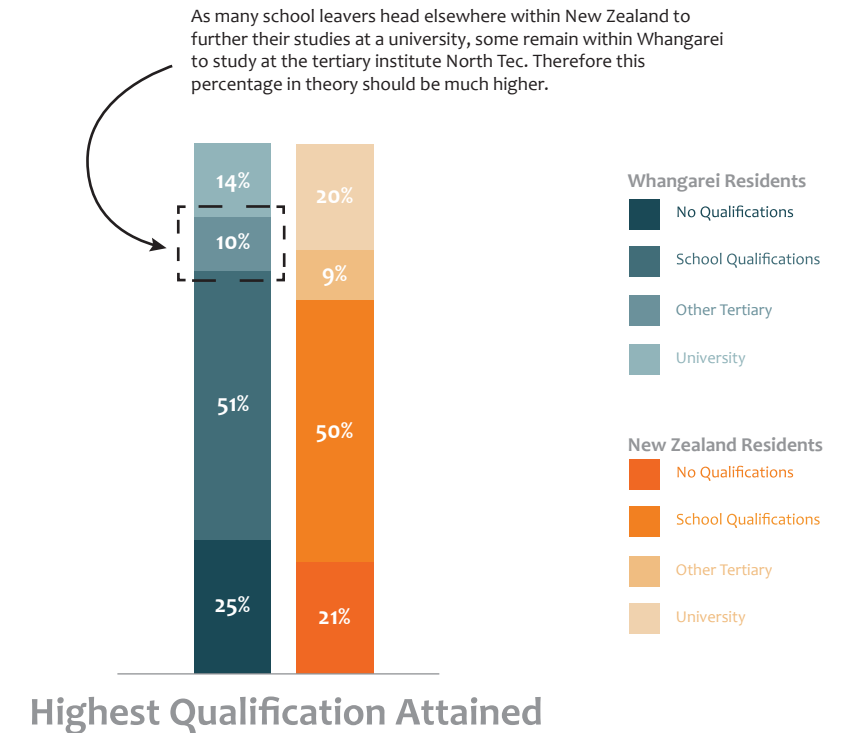
**Figure 1.25 (right)**  
Labour force Status comparison between Whangarei and New Zealand. Shows that unemployment in Whangarei has been consistently larger than the rest of New Zealand (2001-2013).



**Figure 1.26 (right)**  
Labour force Status (by age) comparison between Whangarei and New Zealand.

The Whangarei District in 2013 had a significant number of people with no qualifications. The level of youth within the Whangarei District who leave school before receiving a qualification is much higher than the rest of New Zealand. These young people are considered less likely to seek further education, training and sometimes employment, leaving them to rely on income support (Stuthridge 44). They are also more prone to outcomes such as unemployment, reliance on benefits, criminal offending, substance abuse, homelessness, and physical/mental illness (Stuthridge 46). Young people who are Not in Education, Employment, or Training are known as ‘NEET’. Statistics show that within the District 22.5% of those under the age of 25 are categorised as NEET, while in New Zealand it is much less at 11.9%.

School leavers who receive University entrance are more likely to seek university qualifications, and it is probable that these students will leave Northland to attend Universities in other parts of the country (Stuthridge 44). This contributes to the shortage of those aged between 20-35 years, as many university graduates do not elect to return due to lack of career opportunities and lower pay rates within Whangarei. Whangarei has to rely on those who remain or migrate to the district seeking tertiary education to contribute to the districts workforce.



**Figure 1.27**  
Qualifications attained in Whangarei and New Zealand (2013). Those with no qualifications is much higher in Whangarei than it is in New Zealand. Whangarei houses the largest tertiary institution in Northland (North Tec).

## ■ Conclusion

Whangarei does not compare well with the rest of New Zealand in regards to socio-economic indicators (*“Growth Strategy” 79*). However, it is clear that improving education, as well as employment opportunities within Whangarei can improve both the income and deprivation levels within the district.

Establishing North Tec as a high-class tertiary institute is recognised as a way of attracting young people to the District. However, quality facilities and sought after courses are a requirement. Currently, North Tec is Whangarei’s largest provider of tertiary education. In 2008 there was a total of 3,480 full time students enrolled throughout Northland, 20% of which were enrolled in trade-related programmes at the Future’s Trades Campus, which works in conjunction with local businesses. North Tec is located in Raumunga, approximately 3.0 km from Whangarei city. Facilities within the campus need to be upgraded in order to become more appealing to students, compete with other technical institutions around the country, and market itself as a high-class facility (*Stuthridge 55*).

Whangarei with its current social and economic issues is causing the majority of the young cohorts to leave the district seeking opportunity elsewhere. Consequently, the outflow of those within the 15-24 age range is contributing to the shortage of 20-35 years within the population (*Stuthridge 55*). Priority needs to be given to the improvement of the education and training of young people and giving them a position within Whangarei’s workforce (*“Growth Strategy” 79*).

While the economic and social aspects are the main factors which contribute to those leaving, the environment contributes to retaining as well as attracting people to Whangarei. This is proven with the growth in population within the coastal and rural areas of Whangarei. All though these areas are beautiful, the Whangarei city centre also has a unique and beautiful environment, which, if fully utilised, could be the key to attracting people back to the city.



**Figure 1.28** Whangarei’s city centre has a beautiful and appealing environment, which could be the key to drawing more people back into the city.

## 1.2

### *Research Question*

This thesis asks; How might Whangarei's dying commercial centre be revitalised through the integration of its thriving water's edge and key activities surrounding the city centre?

## 1.3

### Scope

It is essential to have a well-defined scope for any design research.

The scope of this investigation is to examine a real situation in the Whangarei CBD. Whangarei CBD has one successful area and a second area that is struggling to survive. The dying Commercial Centre has a range of wider implications for the community and the success of Whangarei as a city. The investigation sets out to achieve a single design solution that mitigates and improves the issues creating this situation.

The investigation is limited to the real situation within Whangarei CBD. This includes its contemporary issues, geography, history and an existing built form. It is limited to re-purposing an existing structure as a design solution. It is also limited to generally accessible public knowledge and data and technical understanding that is reasonably within the reach of an architecture student without using external consultancy expertise. In reality a comprehensive and multidimensional strategy would be required to solve issues of this magnitude, and this thesis identifies a single element of such a strategy.

Beyond the investigation are all aspects of cost, funding, detailed engineering design, structural integrity and processes of consenting and community consultation.





## Chapter Two

### Literature Review & Case Studies

## ■ Introduction

Whangarei's city centre has the qualities and problems of many cities around the world. The characteristics of Dying City Centres and River Cities will be explored within the literature review as well as the opportunities that come about as a means of solving such issues. This will then be tied back to Whangarei through and evaluation and critique of the Whangarei District Council's own plans and proposals for Whangarei city centre and how they will solve such issues.



## 2.1

### Urban Sprawl & Dying City Centre's

**Figure 2.1** (next page)  
San Jose, California. Oliver Gillham describes the  
“contemporary metropolis” as a “vast horizontal world.” (Gillham 3)







**Figure 2.2**  
Early Suburb in Chicago during the 1920's

The central business district (CBD) is an important component within any city; it impacts the majority of a city's population, as well as its life and economy (Alexander xxi). The book, *'Public Places, Urban Spaces'*, states that as cities have progressed with the introduction of new technology, the traditional centralised city form has evolved into an illegible environment of sprawling polycentric cities (Carmona 21). This dispersing of functions beyond the restrictions of the city centre is known as decentralisation or 'urban sprawl', and is the foundation for commercial centres losing their supremacy within cities (Carmona 32).

Joshua Arbury, writer of *'From Urban Sprawl to Compact City,'* states that urban sprawl was an outcome of a mixture of regulatory, economic, and cultural factors over time (Arbury 16). Before the industrial revolution only a small portion of the world's population lived in urban areas (Arbury 19). Technological changes to farming methods, in the late 1700's, produced an excess of workhands in agricultural districts (Carmona 25). Simultaneously, cities began to thrive as people migrated in great numbers to urban areas for employment and a perceived better standard of living (Carmona 25).

City authorities were not prepared for such immense growth and urban development was constrained by peoples need to remain centred, as well as restricted transport methods (Carmona 25). Such excessive growth prompted an indiscriminate development of poorly constructed workhouses, severe overcrowding in urban areas, and extremely poor public health (Carmona 25).

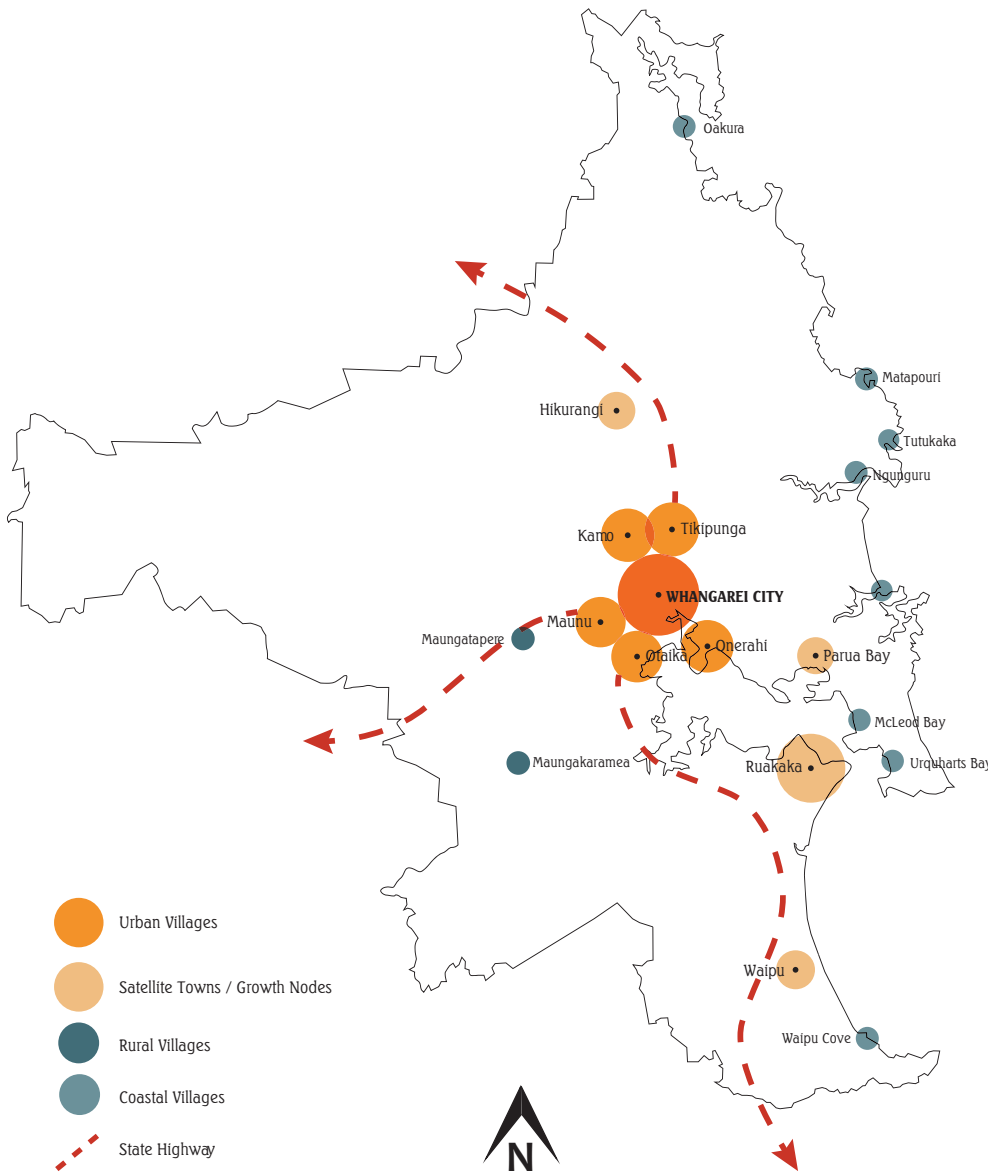
Industrialisation, in the 19th and 20th century, brought on new waves of innovation (Carmona 24), which altered the structure of the urban environment (Arbury 19). The introduction of mass transport systems disrupted the close arrangement between workplace and residence, allowing dispersion within cities (Carmona 25). In the 1940's automobiles and buses enabled the possibility to develop in all directions (Arbury 19); making lower density, less compact sub-centres feasible (Carmona 25). People were no longer forced to live near their place of employment (Carmona 25). Today, this sprawling form of urban development dominates low-density cities in North America, Australia and New Zealand (Arbury 19).



There is no true, succinct definition of urban sprawl that is collectively agreed upon (Gillham 3). Among the more predominant definitions is Arbury's summary: "...unplanned, uncontrolled, and uncoordinated single use development that does not provide for a functional mix of uses" (Arbury 15). Oliver Gillham, author of 'The Limitless City: A Primer on the Urban Sprawl Debate,' wrote that the most widely accepted characterisation of urban sprawl is that made by Professor Reid Ewing, which is "essentially a list of descriptors," or forms of development. The four forms identified are Leapfrog development, commercial strip development, low-density development, and single-use development (Gillham 4).

**Figure 2.3**

Urban Sprawl within the Whangarei District. The size of each circle indicates the predicted future growth.



Leapfrog development is defined as scattered communities that sit beyond the urban fringe. Whangarei's urban population is declining, but the population of rural and coastal areas has increased ("Demographic Profile" 7) (as seen in **Figure 2.1**) resulting in development pressure ("Sense of Place" 78).



**Figure 2.4 (above)**

Leapfrog Development is described as: suburbs which have "leaped" over intervening natural features (Gillham 4).

**Figure 2.5 (below)**

Leap frog development in a suburban setting creating disconnected roads and an inefficient use of land.

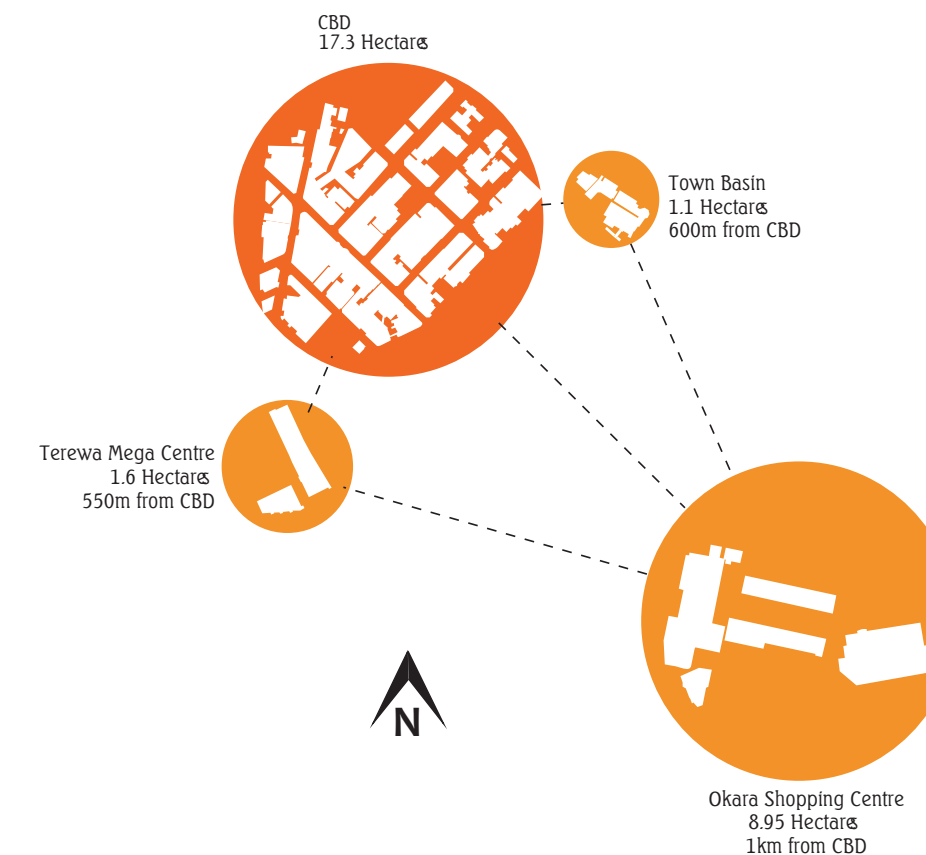




**Figure 2.6**  
Commercial strip development. The scene is dominated by pavement, vehicles and carparking, as well as a haphazard arrangement of big box retail.

The Whangarei CBD is greatly affected by commercial strip development, primarily in the form of the Okara shopping centre, Tarewa Centre as well as the Town Basin (“*Making Great Places to Shape our Future*” 14). Although close in distance, transportation between these retail centres is primarily by vehicle, due to a significant lack of appropriate pedestrian infrastructure connecting the four areas.

**Figure 2.7 (right)**  
Additional commercial development on the outskirts of the Whangarei CBD. This sprawling commercial development is compromising the integrity of the commercial centre as many buildings are becoming vacant. The CBD currently has 56 vacant buildings (13.7%).  
Scale 1:12000



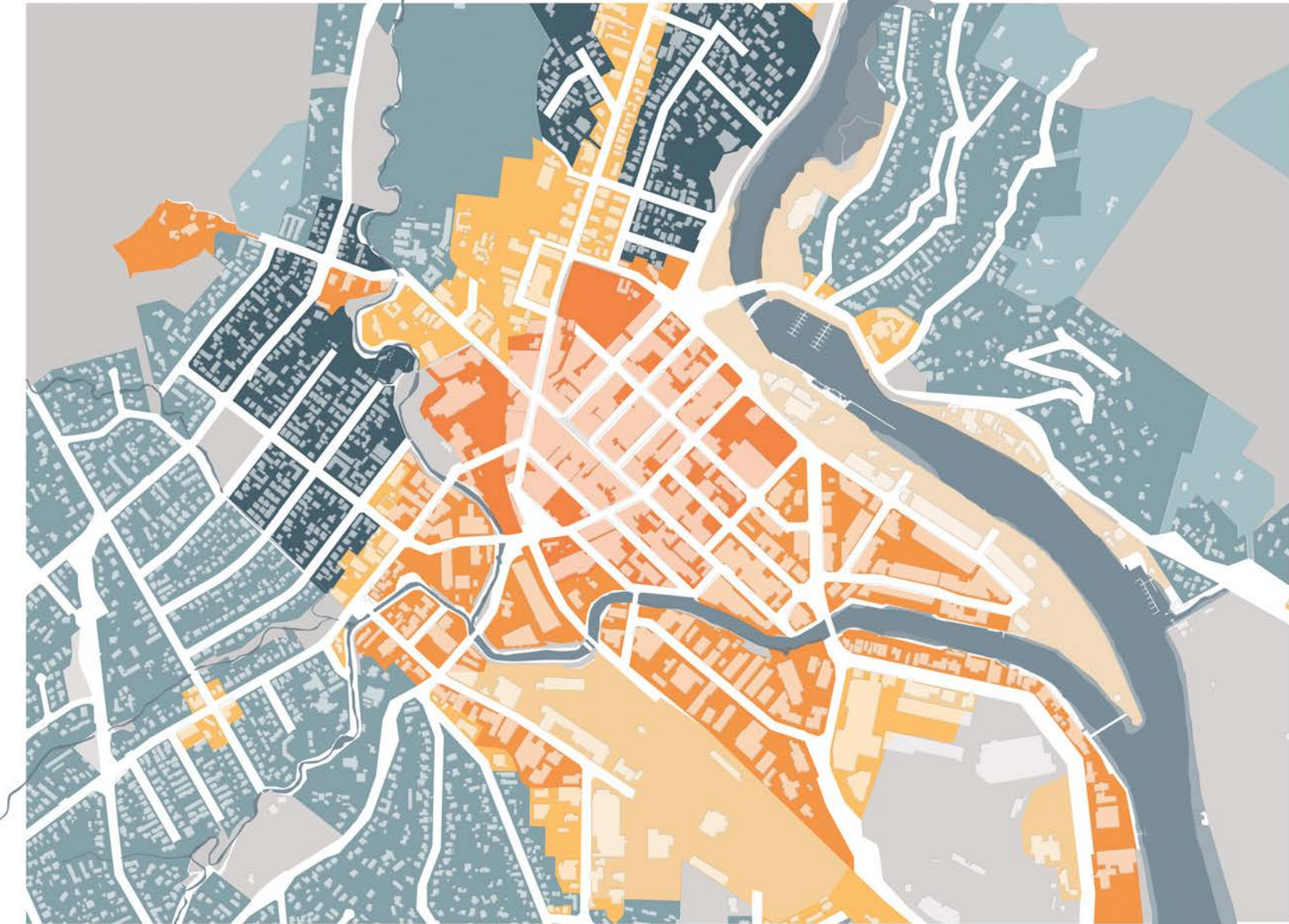


Gillham describes low density as, “neither a crowded urban core nor an open countryside. It lies between the two in various gradations.” Low density has been the standard model of suburban growth in Whangarei as well as most New Zealand towns and cities (“Sense of Place” 6). Single-use development was a result of poor living conditions brought on by the industrial revolution. It began as the separation of land uses but during the mid-20th century. This separation exaggerated to become large expanses of land disconnecting amenities (Arbury 26). The principal housing form of Whangarei’s suburbs has been the single-use, owner-occupied, detached dwelling. Medium and high-density residential development, as well as mixed-use development, is almost non-existent within Whangarei (“Sense of Place” 39).



**Figure 2.8** (above)  
A low density neighbourhood. Each property has a large expanse of land surrounding each dwelling.

**Figure 2.9** (next page)  
Whangarei zoning map. Whangarei, like many cities, have been zoned into single-uses.  
Scale 1:12500



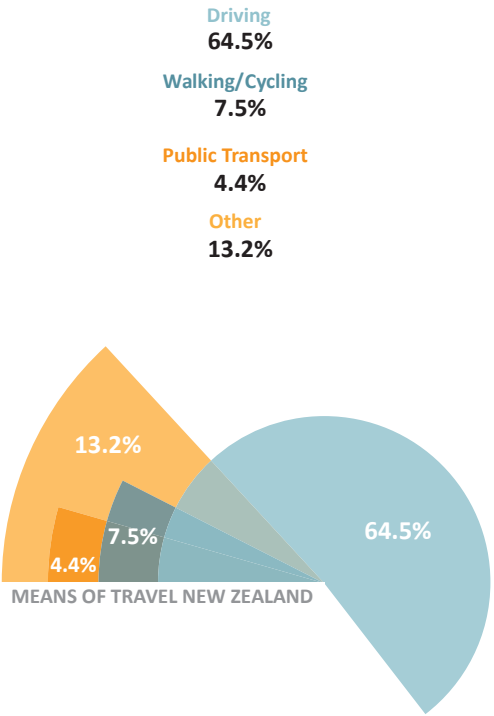


Ewing named two additional “indicators” - automobile dominance, and a lack of public open space. Many agree that the automobile was likely the most significant contributor to urban sprawl (Gillham 7, Alexander xxi, Arbury 27). Arbury states that it was the development and popularisation of automobiles that made possible the dispersed nature of urban development. Isolated communities have an exclusive reliance on automobiles for transportation leading to a variety of issues: an increased need for vehicle related infrastructure, road congestion (Arbury 17), and environmental and health impacts (“Sense of Place” 6). Whangarei has been described by the Whangarei District Council as having a high car dependency (“Making Great Places to Shape our Future” 12), and Whangarei’s current low-density urban form, along with its spread out land uses and amenities makes vehicle transport more efficient for individual residents (“Sense of Place” 6).

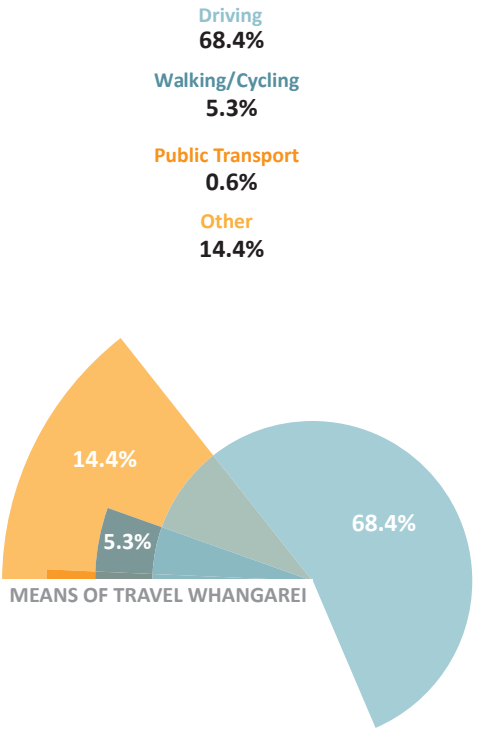
Whangarei has been identified as having little vitality due to the cumulative effects of inadequate central open space, and poor amenity of city streets and public spaces (“Making Great Places to Shape our Future” 14). Although there are existing parks, open spaces, and central public spaces (Cameron Street mall), which have potential, they are not well articulated into the CBD. (“Sense of Place” 24)



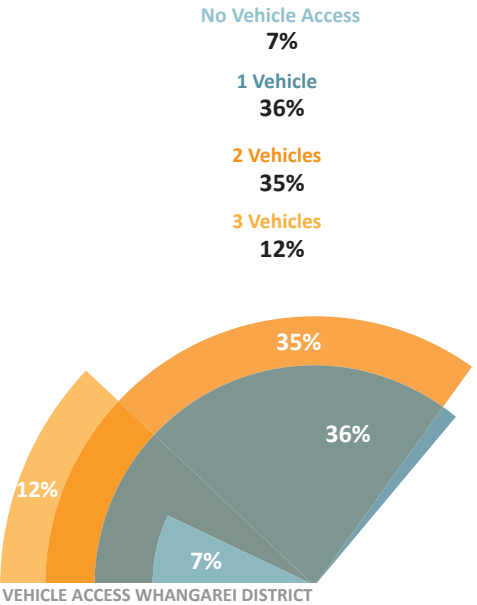
**Figure 2.10**  
Traffic congestion in Whangarei due to excessive vehicle use. Those commuting to work from Onerahi to the CBD can be reduced to a crawl, as seen in the image above.



**Figure 2.11** (above)  
Means of travelling to work in New Zealand. Other represents those who do not work and those who work from home.



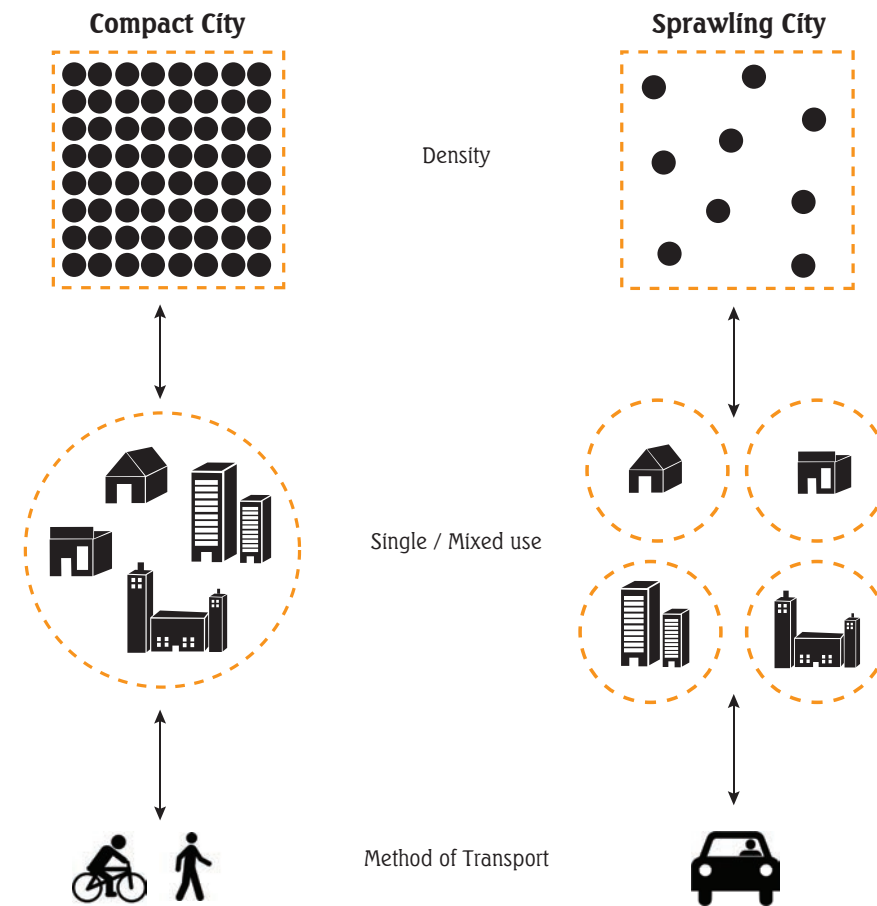
**Figure 2.12** (above)  
In comparison to New Zealand, vehicle use is much higher in Whangarei and public transport is almost nonexistent. There is also a higher number in other, representing those who are unemployed.



**Figure 2.13** (above)  
Although Whangarei is a low-income community many households have access to more than one vehicle.

Today, the issues related to urban sprawl dominate the majority of cities within New Zealand. However, new models have been established aiming to create a more sustainable city centre. The compact city concept was developed in the 1990's, and aims to counteract the negative impacts of urban sprawl. (Arbury 44) Elizabeth Burton of Oxford Centre for Sustainable Development defines the compact city model as “a relatively high-density, mixed-use city, based on an efficient public transport system and dimensions that encourage walking and cycling.” (Burton 1). Urban compaction can be implemented in many ways. Within New Zealand intensification is primarily focused on the promotion of medium density housing and mixed-use development (Arbury 64).

**Figure 2.14**  
Differences between the compact urban form and the sprawling urban form



The compact city model is not without limitations. Many have said that the predicted benefits have not occurred (Arbury 54). Some have found that there has been no reduction in vehicle use within intensified areas. Urban Designers, Louise Thomas and Will Cousins stated that such benefits “do not reflect the hard reality of economic demands, environmental sustainability and social expectations” (Thomas and Cousins 46). The reality is that the city was something which people preferred to escape rather than embrace.

Recent research has found that the ‘design’ of the city at a community level is the next step to creating successful urban environments. This is achieved using urban design, an important tool in addressing the complicated relationship between urban form, function and sustainability (Arbury 59).

**Figure 2.15**  
Potential social impacts associated with High Density living - residential overcrowding, higher crime rates, as well as social segregation (Arbury 55). China is an example as they are facing some of the largest urban density issues in the world.



## 2.2

### *River Cities*



**Figure 2.16**

Panorama view of Whangarei from Parihaka, showing the city and the Hatea River running through its centre.





**Figure 2.17 (above)**  
Wellington Harbour in 1951, was dominated by port infrastructure.

President at American Rivers, Rebecca Wooder writes, in *‘Ecological River Design,’* that cities are in the process of rediscovering their rivers after they faced a regression during the twentieth century (Otto, McCormick and Lecces v), leading to the public ultimately turning their back on the water’s edge. However, an interest in historic preservation, efforts to counteract urban sprawl (Otto, McCormick and Lecces 6), increasing environmental awareness and a need to expand central urban areas (Timur 169), spawned a new model for waterfront development.

Both Brisbane and Wellington have successful waterfronts. Brisbane’s natural characteristic has always been its winding river, dominating the city geographically. The city *‘averted its gaze from its muddy waters,’* during industrialisation, but the river was an impairment to movement around the city. This led to new development in the 1980’s turning Brisbane River into a cultural asset, an economic driver and the centre of city transport. (Brisbane City Council 44) Wellington was once considered an industrial wasteland (Stqry), but from the 1980’s it has since been transformed into a vital, and vibrant centre (Stqry). Today Wellington’s Waterfront features a fusion of cultural, educational, artistic, residential, retail, business and industrial uses (Wellington City Council). It is a vital and vibrant place, which hosts an average of 300 events per year and is visited by 77% of Wellington residents weekly (Stqry).

This renaissance of waterfronts reflects a recoupling between the public and the water’s edge and city’s growing interest in the restoration of damaged urban waters (Otto, McCormick and Lecces v). Betsy Otto, Kathleen McCormick, and Michael Leccese authors of the *‘Ecological River Design,’* wrote that immense physical alterations to riverbanks and the dumping of large volumes of sewage and industrial pollutants lead to the steady decline of urban waters during the first 70 years of the twentieth century (Otto, McCormick and Lecces 12). People were not interested in being within close proximity of waterfronts as industrial waste, sewage, and decomposing algae turned urban waterways into

“stomach-turning cesspools.” (Otto, McCormick and Lecces 6). Many urban rivers suffered including the river Thames in central London and Cuyahoga River in Cleveland. This river caught fire at least three times due to debris and oil floating in the river. The most famous occurrence, in 1969, caused widespread outcry throughout the United States. The public had begun to voice their dissatisfaction as rivers were “devoid of life, dangerous to touch, and unpleasant to smell.” (Otto, McCormick and Lecces 12)

**Figure 2.18 (below)** River Thames during the industrial revolution (late 19th century).





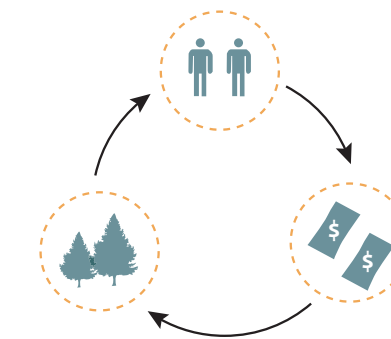


**Figure 2.19**  
Fire in the Cuyahoga River in 1952.

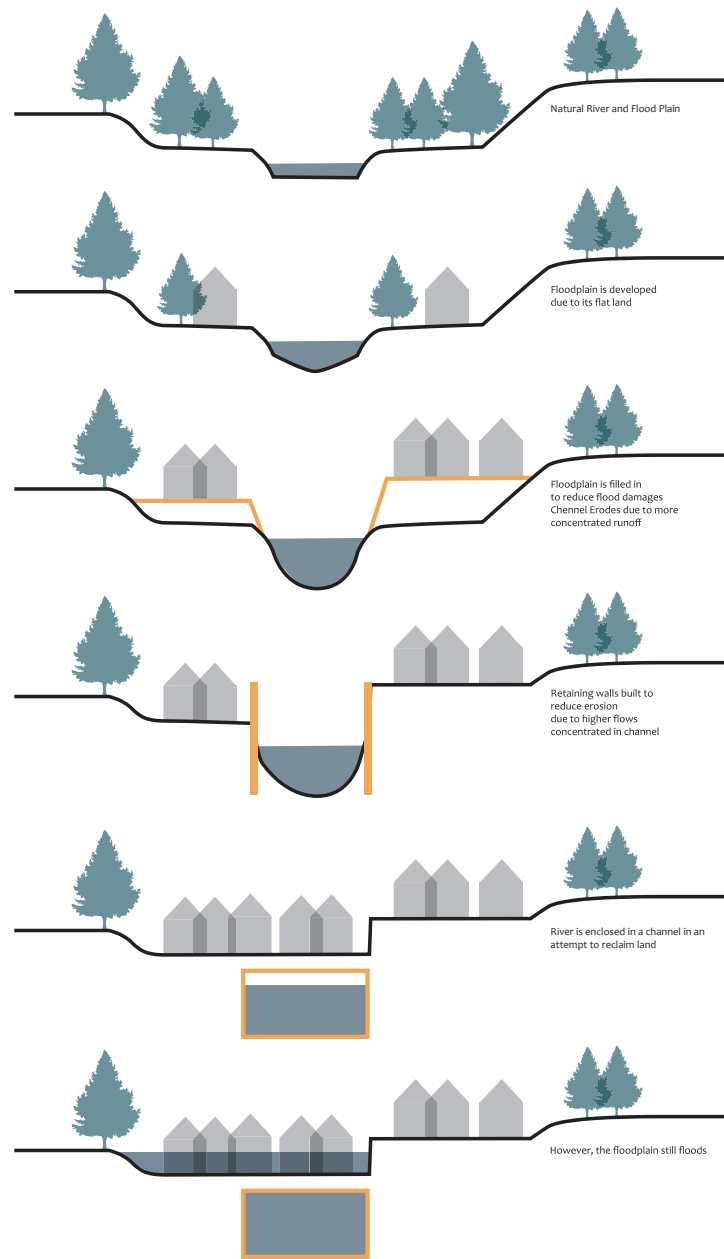
Provisions were created in order to restore waterways chemical, physical and biological integrity, and eliminate the discharge of pollutants. Many rivers today are remarkably cleaner and are occupied by a healthy wildlife and allow for recreation in and on the water (Otto, McCormick and Lecces 12).

However, some believe there is still a deficiency in the balance between social, economic and ecological benefits (Grant, Hochalter 8, Das). Landscape architect Andrew Grant states that waterfronts today are dominated by “...forgettable waterfront apartments, hotels, casinos, retail malls and offices all fed by chains of cafes, bars and restaurants.” These versatile developments are driven by the economics of commercial expansion rather than the enhanced benefits of waterfront regeneration and a sustainable ecology (Grant). Architect P.k Das claims that this type of waterfront is considered the ideal development within many cities. He styles this as the ‘Barcelona-like’ waterfront, which uses the appeal of the natural landscape to create further market interest (Das).

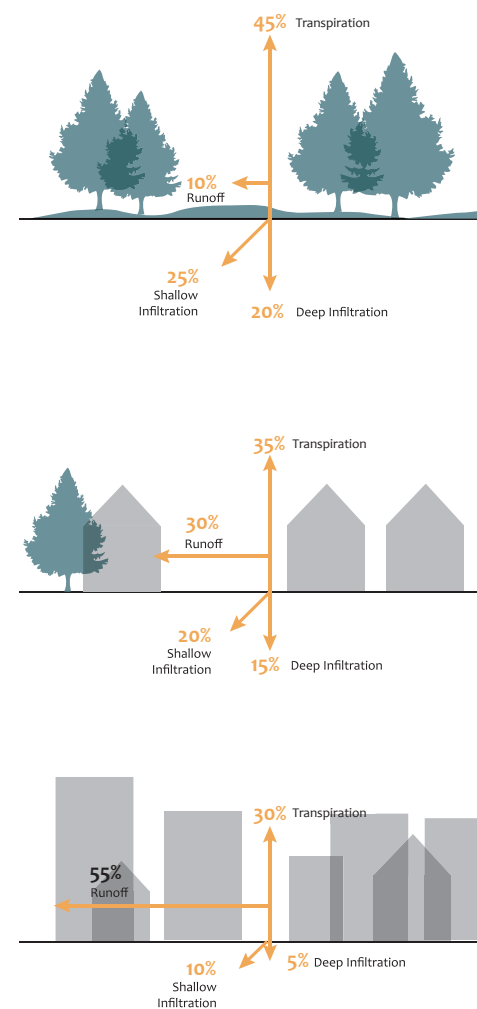
Wooder writes that while visual improvements and economic development on river edges are prevailing and positive, too often the possibility of enhancing the ecological value of the river is not considered (Otto, McCormick and Lecces).



**Figure 2.20** (above)  
Rivers should have a balance between social, environmental, and economical factors.



**Figure 2.21 (left)**  
Urban River formation and how it changes overtime through development



**Figure 2.22 (above)**  
Hydraulic changes as a result of urbanisation.  
Shows that as development continues, urban runoff or stormwater increases

Despite substantial progress in water-quality, it is the physical alterations to rivers over time that has caused enduring damage to their ecosystems (Otto, McCormick and Lecces 12). These modifications are often presented as ‘economic progress,’ but comprise of straightening, dredging and deepening conduits, squeezing rivers into narrower concrete or steel channels, separating rivers from their natural floodplains and building on the water through reclamation (Otto, McCormick and Lecces 14). City development, or ‘landscaping,’ also causes problems, as water cannot be absorbed into the soil as it naturally would (Otto, McCormick and Lecces 20). Alternatively the water hits impervious surfaces, and rushes into storm sewers, causing larger volumes of water to surge through streams and rivers more rapidly than they naturally would (Otto, McCormick and Lecces 20). This exploit causes the natural ecological environment to suffer, faltering the production of flora and fauna (Das). Sediments and pollutants from storm-water runoff increases, and the erosion of riverbanks intensify. These changes harm rivers, and the effects of extreme natural hazards such as droughts or floods are intensified. Impermeable surfaces create complications and leave the natural water runoff system unattainable. Alternatively, water is taken directly from streams and transferred into groundwater. This potentially leads to rivers drying

out causing droughts (Otto, McCormick and Lecces 20). There is also an increased frequency and severity of flooding (Caraco/Kriss) as the connection between rivers and their natural floodplains are severed (Otto, McCormick and Lecces 21). Floodplains are important for storing floodwaters and reducing the river waters velocity (Otto, McCormick and Lecces 24). Plants that grow upon floodplains improve water quality by filtering out pollutants, strengthen the riverbanks with their root system, as well as shade the water to reduce its temperature. Lastly, they provide an important habitat for river wildlife. Despite such benefits cities continue to build upon their flood plains, compromising them with flood control structures.

Das states that moving forward it is important to build with the environment to “...re-establish the symbiotic relationship between nature, people and habitation” (Das). There is an opportunity to make urban waterfronts not only ecological but also beautiful and memorable. Grant anticipates that the future will be a time of nature and commerce, “where waterfronts are transformed into resilient urban filter zones providing extensive habitats within and alongside high density beautiful developments.” Waterfront value will evolve focusing more so on the aesthetic, sensory and benefits which come with a healthy river ecology. (Grant)



## 2.3

### *Whangarei Urban Design and Opportunities*



**Figure 2.23** (next page)  
Whangarei Town Basin from Victoria Canopy Bridge



The Whangarei District Council recognises that Whangarei is subject to many urban design issues. Over the last 25 years there has been much discussion and planning put into harnessing Whangarei’s potential. However, a lack of vision and support has constrained growth and development (“Making Great Places to Shape our Future” 5). A commitment to increasing the practice of urban design was established in Whangarei when the Whangarei District Council (WDC) signed the New Zealand Urban Design protocol in 2008 (“Making Great Places to Shape our Future” 5).

The development of the Town Basin in the mid-1990s was the first step in emphasising the lack of amenity within the city centre (“Sense of Place” 24). What Whangarei is missing is a strong heart to the city. Currently, the primary public space is the Cameron Street Pedestrian mall. A prominent building or a natural feature does not anchor this space, therefore its importance is considered transient (“Sense of Place” 24). Natural features are not in short supply. Whangarei has strong landscape – rural land, bush-clad hills, river-scapes, and diverse coastal landscapes (“Growth Strategy” 61). Although Whangarei has a variety of attractive natural features they are not incorporated into the city centre (“Sense of Place” 25). Laurie Hall Park, for example, is the most central of green spaces and has the qualities to become an icon for the CBD but does not function as such (“Making Great Places to Shape our Future” 16).



**Figure 2.24**  
Whangarei's Laurie Hall Park or 'car park'. The parks appearance is hindered by the large carpark at its centre and the wall of buildings along its edge (“Sense of Place” 25), separating it from the city centre and the waterfront.



**Figure 2.25 (above)**  
The Waiairohia Stream, which defines the southern edge of the city. Its edge is defined by industrial buildings and overgrown plants.

The Waiairohia Stream has the potential to strongly define the southern edge of the city. Currently this waterway is mostly ignored, with the exception of its incorporation with Cafler Park, which is also hidden from the city. The Hatea River is the primary waterway within central Whangarei and provides a distinctive and attractive gateway from the northeast. However, its strength is lost between the Town Basin and the city centre (“Sense of Place” 25).

The WDC envisions Whangarei as a “vibrant, attractive and thriving District by developing sustainable lifestyles based around out unique environment, the envy of New Zealand and recognized worldwide”. They aim to make Whangarei a leading destination and meeting place through the following eight urban design qualities – compact, connected, distinctive, diverse, attractive, appropriate, sustainable, and safe. (“Making Great Places to Shape our Future” 19)

The Whangarei 20/20 plus guidelines examines ways of revitalising the city centre. It suggests dividing Whangarei city into smaller walkable precincts (“Growth Strategy” 86), defined by their own characteristics, and key catalyst projects (“20/20 Plus” 4). Projects to improve the CBD and Town Basin have already begun, such as the Hatea Loop Walkway and Sculpture Park. The 20/20 Plus – CBD Guideline development plan highlighted the development of the Town Basin and the waterfront as a focus (“Sense of Place” 29). The Town Basin is a valued amenity within the Whangarei district, providing a distinct experience for locals and visitors. However, the Hatea River has not been utilised to its full potential to help articulate a sense of place or the entire city (“Sense of Place” 26).





## ■ Conclusion

Whangarei suffers from the effects of urban sprawl. In the past, increasing density was considered the ideal way of mitigating these effects, but now it is understood that integrating urban design at a community level is the key to alleviating such negative effects. The Whangarei District Council hopes to use design to create liveable, walkable precincts within the city centre which have strong qualities of urban design. Their focus has been on the Town Basin at a social, cultural, and heritage level, aiming to make it a prominent amenity within Whangarei city. Due to this the CBD, despite its proximity to the waterfront, has been left behind in the developments.

**Figure 2.26** (next page)  
The colonial style buildings found in the Whangarei Town Basin.

## 2.5

### *Precedent Studies*

### ■ Introduction

The case study section will assess a variety of projects based on their relevance to the issues described within the literature review. The focus is on how derelict or abandoned sites or infrastructure can be changed to attract people, how the environment and its development can be used to interest and attract people, and how can a space be developed to inform of the cultural history, and encourage discussion and informal learning.





**Figure 2.27** (previous page)  
The Wave performance space with Valparaíso city as a backdrop.

■ **The Wave (2015)**  
The Scarcity & Creativity Studio / Valparaíso, Chile

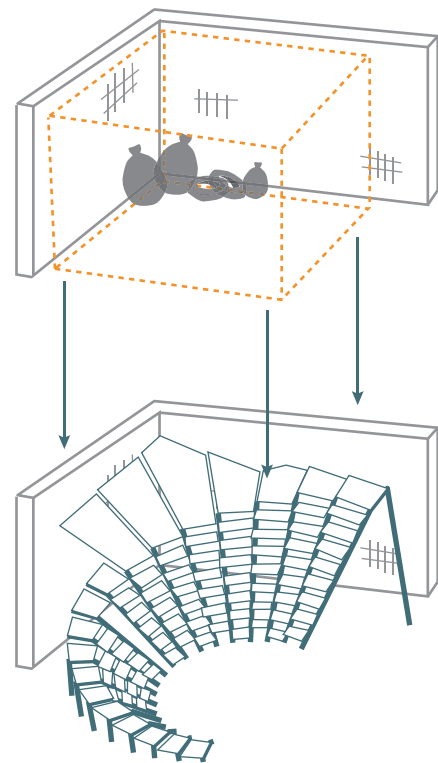
The Wave, was a project produced within the 2003 UNESCO World Heritage site of Valparaíso, Chile. Its aim is to bring vitality to the derelict areas within the city. The wave recovered one abandoned site and turned it into a diverse and lively performance space built from recycled materials. It is a great example of adapting an underutilised space to attract people, and reconnect the community to its city's heritage. (Wang)



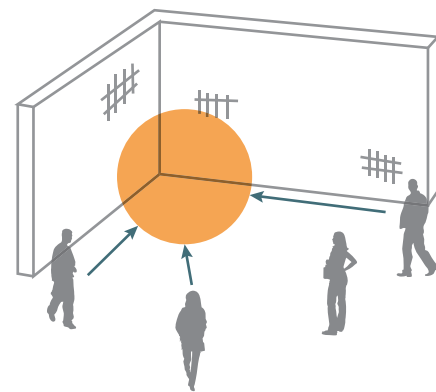
**Figure 2.28** (above)  
The wave amphitheatre seating, created out of recycled materials

**Figure 2.29** (below)  
The wave wrapping around the performance space

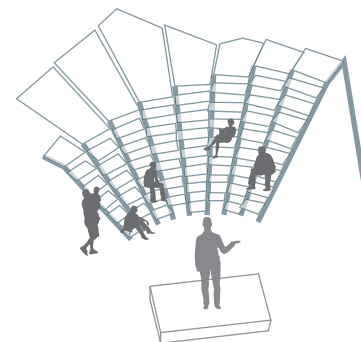




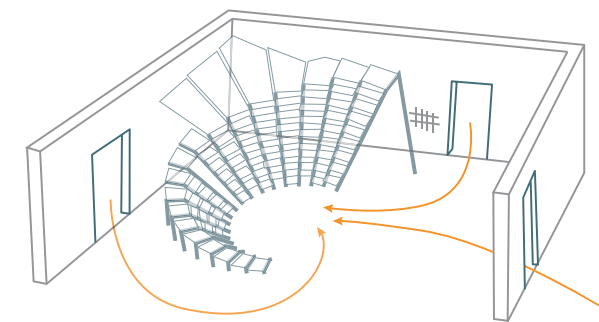
**Figure 2.30** (above)  
Utilising an abandoned and derelict space.



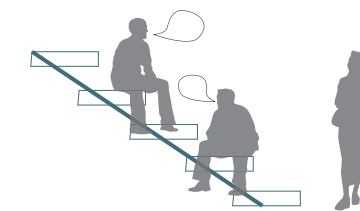
**Figure 2.31** (above)  
Attracting the community to the space.



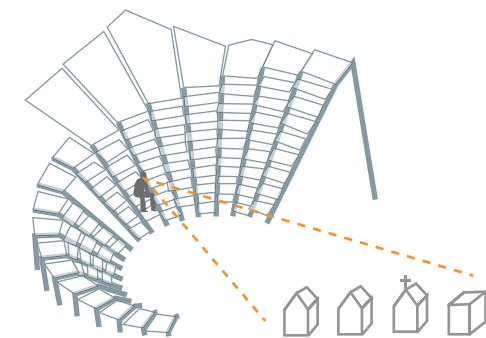
**Figure 2.32** (above)  
Multipurpose space which can be used for a range of performances.



**Figure 2.33** (above)  
Accessible from multiple areas around the site.



**Figure 2.34** (above)  
Encourages social interaction and informal learning as a community gathering space.

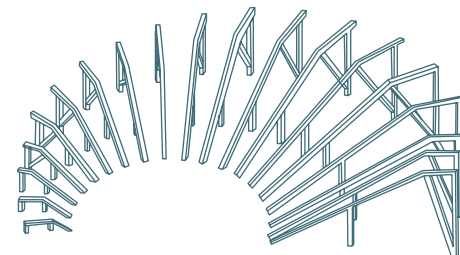


**Figure 2.35** (above)  
The Historic city acts as a backdrop to the space and performances.

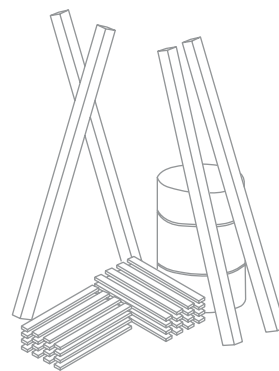




**Figure 2.36** (above)  
Reconnecting the community to the cities architectural heritage



**Figure 2.37** (above)  
Simple structural system.



**Figure 2.38** (above)  
Use of recycled materials making it sustainable.



**Figure 2.39** A concert performance held within the wave





### ■ The High Line (2009)

James Corner Field Operations, Diller Scofidio + Renfro, and Piet Oudolf - Manhattan, New York City

The High Line was originally designed to transport trains through Manhattan. The structure was abandoned in the 1980's but in 2009 was repurposed with each section becoming a diverse and unique public space. The planting and design is inspired by the derelict state during its 25 years of abandonment. (*Friends of the Highline*)

**Figure 2.40** (left)

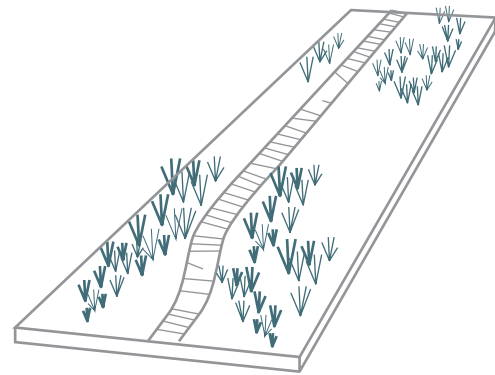
The High Line elevated Park within its New York Setting.

**Figure 2.41** (next page)

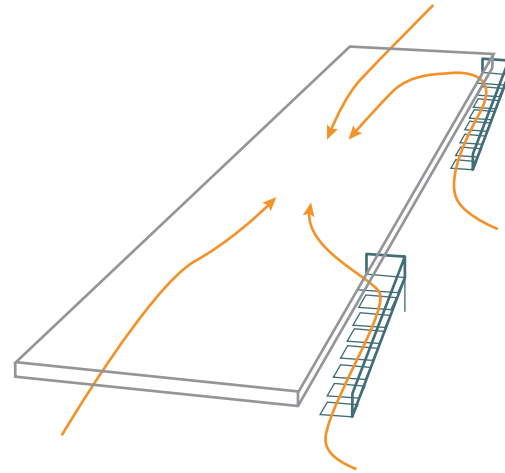
Top view of High Line showing street below.



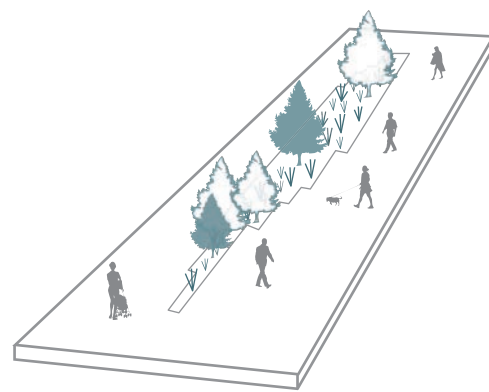




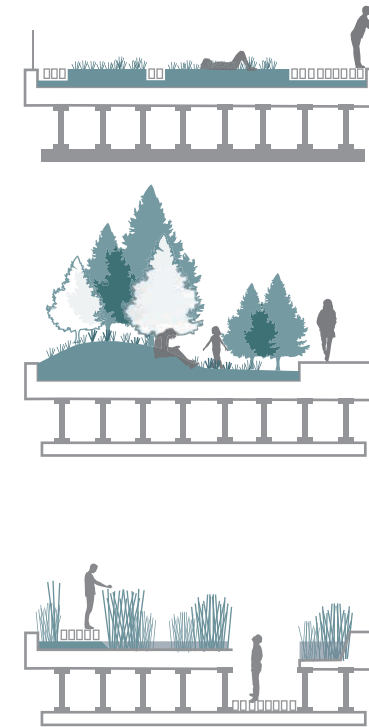
**Figure 2.42** (above)  
Converting previously underutilised infrastructure.



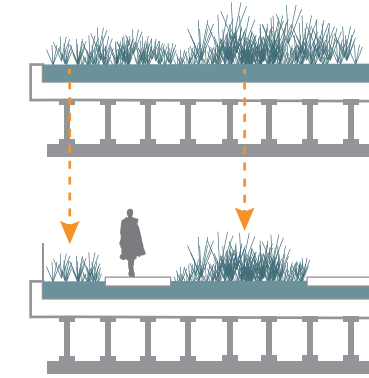
**Figure 2.43** (above)  
Accessible from multiple areas of the streets below.



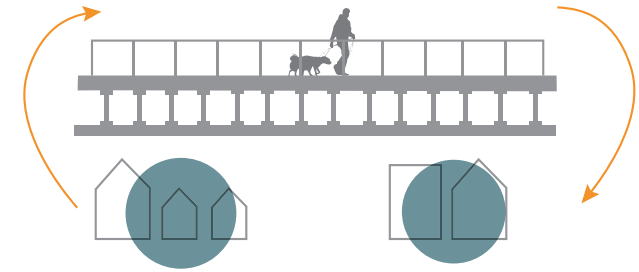
**Figure 2.44** (above)  
Key landscape components to attract people.



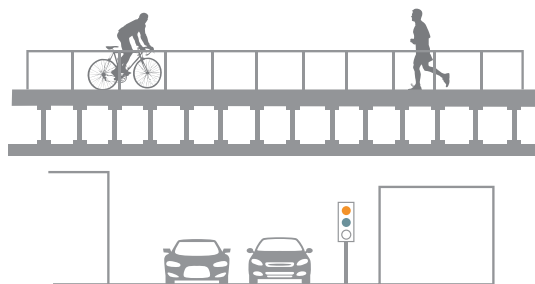
**Figure 2.45** (above)  
Changing landscapes and aesthetic to keep things diverse.



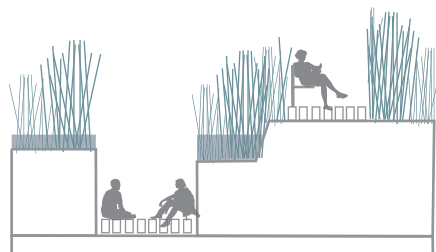
**Figure 2.46** (above)  
Planting inspired by the natural landscape during abandonment.



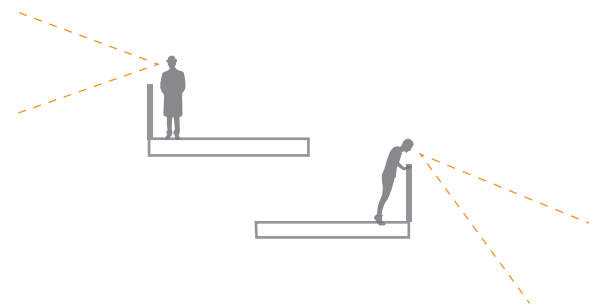
**Figure 2.47** (above)  
Better connecting amenities within the streets below.



**Figure 2.48** (above)  
Encourages walking and cycling as alternative transport methods.



**Figure 2.49**(above)  
Spaces decrease in size to create more intimate space, while still being a part of the surrounding environment.



**Figure 2.50** (above)  
Different levels to create different viewpoints to experience the city in different ways.



**Figure 2.51** People using and experiencing the High Rise's diverse spaces.

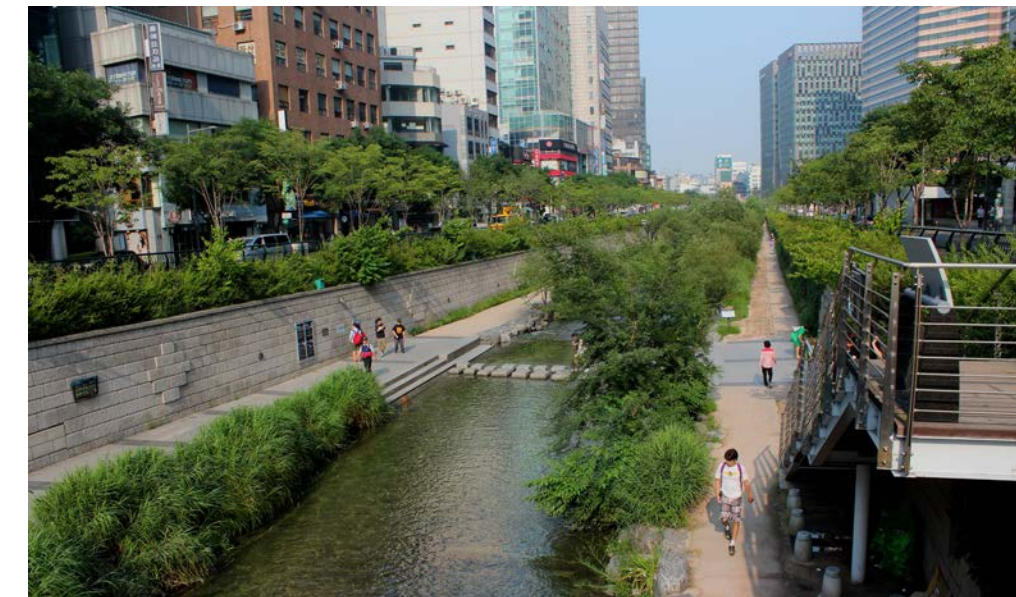




**Figure 2.52**  
Community celebrating a Lantern Festival along the edge of the Chenoggyecheon Stream.

■ **Chenoggyecheon Stream Restoration Project (2005)**  
SeoAhn Total Landscape - Seoul, South Korea

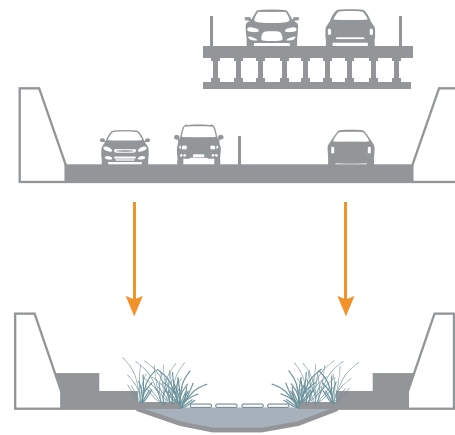
The City of Seoul restored their Cheonggyecheon Stream due to their hope to change from a vehicle-oriented community to one which values the life of its people and its environment and involved demolition of an elevated highway to restore the historic stream. This example shows how a change to reconnect a community with its natural heritage lead to an increase in environmental values and recreational opportunities, stimulation of economic growth and invigoration of an area within a city centre which had deteriorated over several decades. *(Landscape Architecture Foundation)*



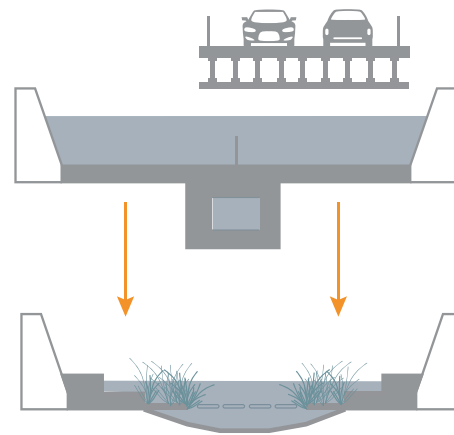
**Figure 2.53 (above)**  
Photograph of the Chenoggyecheon Stream showing its terraced steps.

**Figure 2.54 (below)**  
Native vegetation seen on the edge of the Chenoggyecheon Stream.

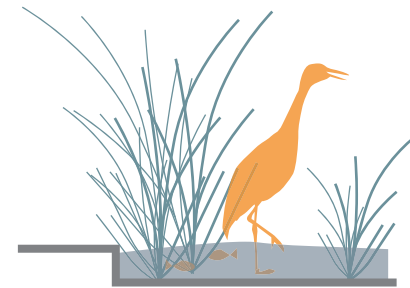




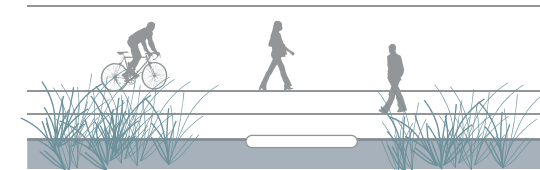
**Figure 2.55** (above)  
Demolishing highway infrastructure to restore the previously existing stream.



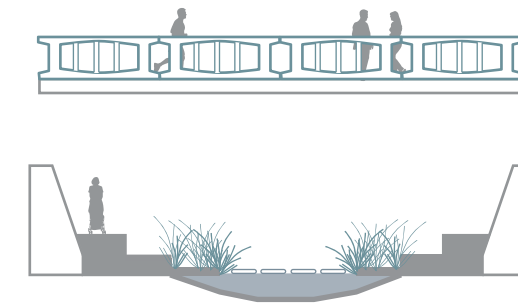
**Figure 2.56** (above)  
Vertical terraced walls along edge of stream put in place for flood protection.



**Figure 2.57** (above)  
Recreating a habitat for native wildlife and fish.



**Figure 2.58** (above)  
Encourages walking and cycling in the city centre.

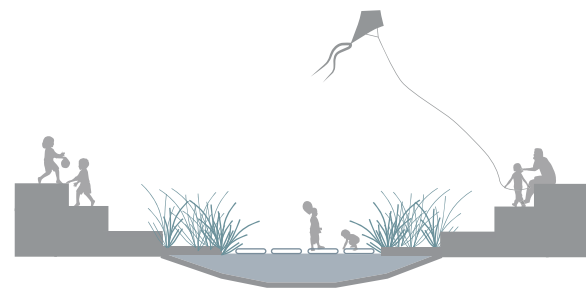


**Figure 2.59** (above)  
Twenty-two new bridges have been put in place to help better connect pedestrian networks to the stream.

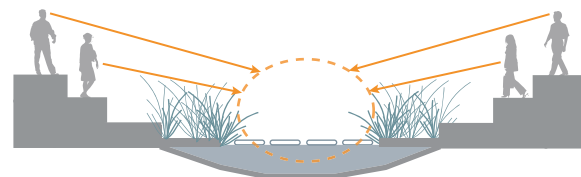


**Figure 2.60** (above)  
Native vegetation used to re-establish ecosystems.





**Figure 2.61** (above)  
Combines ecological and recreational activities



**Figure 2.62** (above)  
Attracts a large number of people - an average of 64,000 visitors daily.



**Figure 2.63** (above)  
Encourages the use of public transport and has led to an increase in the use of bus and subway services.



**Figure 2.64** People sitting on the edge of the Chenoggyecheon Stream.





**Figure 2.65** Wellington's Waitangi Park facing north towards the waterfront.

■ **Waitangi Park (2006)**  
Wraight Athfield Landscape + Architecture -  
Wellington, New Zealand

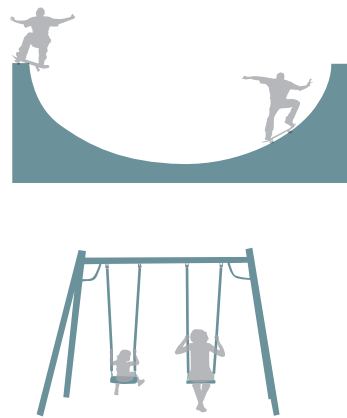
The design of Waitangi Park was an exploration into environmental technology establishing a water sensitive approach to design within Wellington. It contributes to improved water quality of the Waitangi stream and the harbour as well as the parks overall aesthetic and unique character. It also offers a diverse range of environments and activities, which appeal to people of different ages, and hosts a large range of community events. *(Wraight + Associates)*

**Figure 2.66** (above)  
Children's playground at the edge of Waitangi Park.

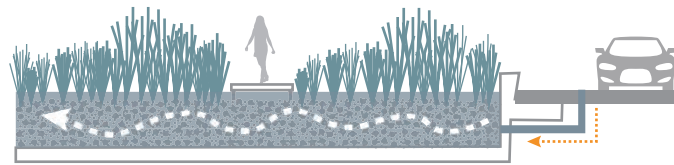
**Figure 2.67** (below)  
Small pedestrian bridge crossing the Waitangi stream to the  
skate park.



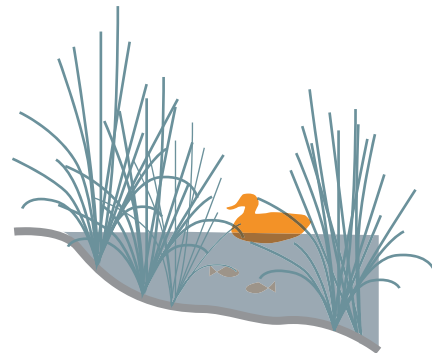




**Figure 2.68** (above)  
Utilising space for youth based activities.



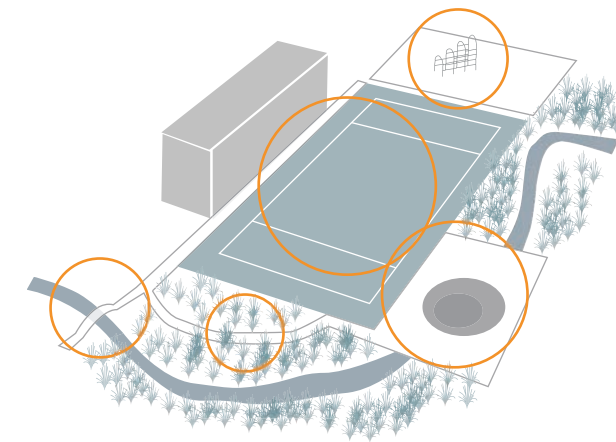
**Figure 2.69** (above)  
Storm-water treatment and water sensitive urban design.



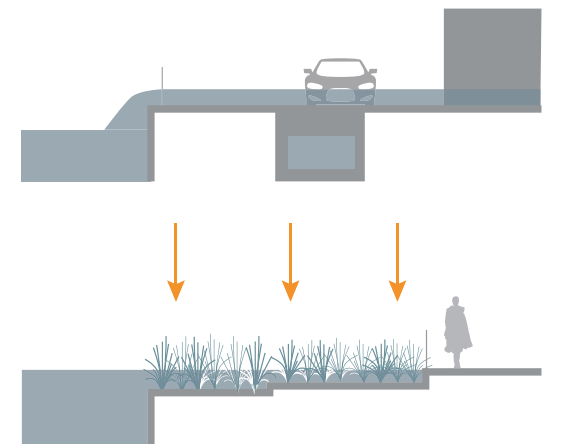
**Figure 2.70** (above)  
Restoring previous wetland ecosystem.



**Figure 2.71** (above)  
The use of indigenous vegetation



**Figure 2.72** (above)  
Diverse spaces which creates a park that is multipurpose.

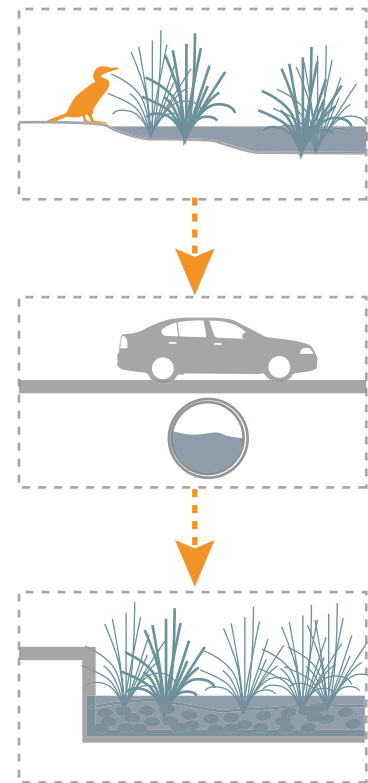


**Figure 2.73** (above)  
Mitigates flood risk.

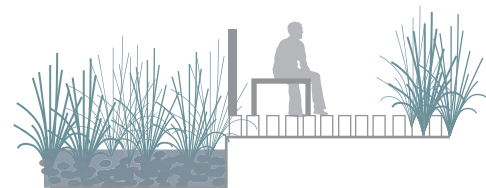




**Figure 2.74** (above)  
Harnessing the harbour side location.



**Figure 2.75** (above)  
Restoring the natural and cultural heritage through physical changes as well as narratives.



**Figure 2.76**(above)  
Opportunity for people to get amongst and witness the natural ecology.



**Figure 2.77** View of Waitangi Stream, playground and skate park.





**Figure 2.78** (previous page)  
Wellington Civic Square facing east towards the City to Sea Bridge.

### ■ Civic Square and The City to Sea Bridge (1992-1994)

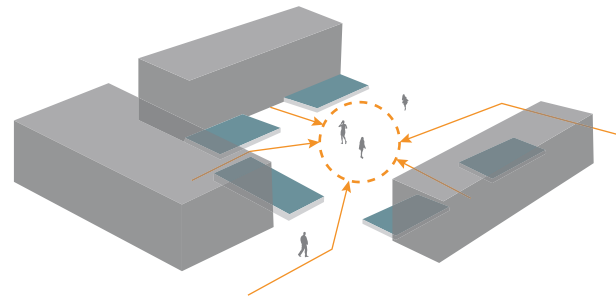
Athfield Architects, John Gray, Rewi Thompson,  
and artists Paratene Matchitt and Peter  
Kundycki - Wellington, New Zealand

The Wellington Civic Square was formed in the early 90's to fill the community's need for a city centre. Its importance is anchored by its location between significant civic buildings such as the Town Hall and Public Library as well as its strong connection with the Wellington Waterfront, in the form of the City to Sea Bridge. The City to Sea Bridge, while primarily acting as a pedestrian thoroughfare is also a public artwork. Both the Civic Square and the City to Sea Bridge act as a focal point within the city centre, and can be adapted for large-scale cultural and political gatherings as well as social events such as sports and music. By day, it also draws office workers during lunchtime. *(Maclean)*

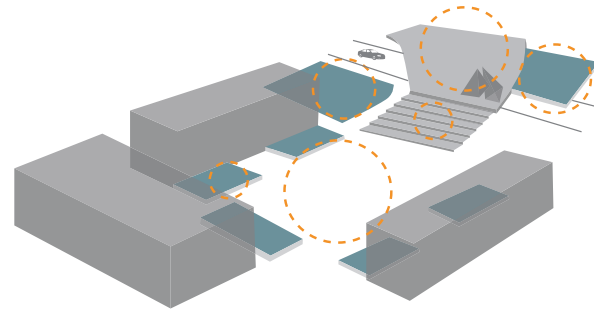
**Figure 2.79** (above right)  
The site of Wellington Civic Square in front of the Public Library (now Art  
Gallery) prior to construction in 1955.

**Figure 2.80** (below right)  
Today, turf is often laid in the Civic Centre for public use.





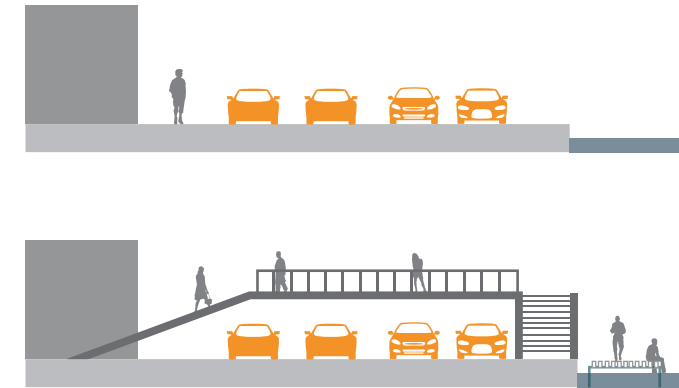
**Figure 2.81** (above)  
Civic Centre attracts people due to central location and surrounding public buildings.



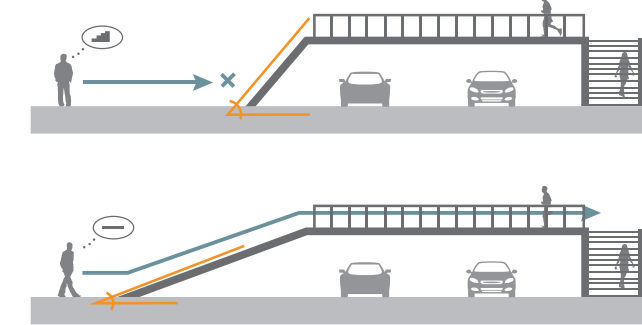
**Figure 2.82** (above)  
Diverse spaces for multiple uses.



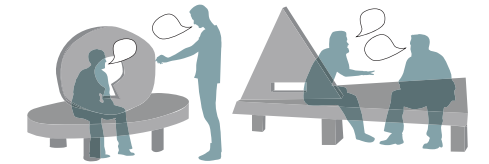
**Figure 2.83** (above)  
City to Sea Bridge has small intimate spaces.



**Figure 2.84** (above)  
The City to Sea Bridge scales the busy Jervois Quay to reconnect the city to the waterfront.

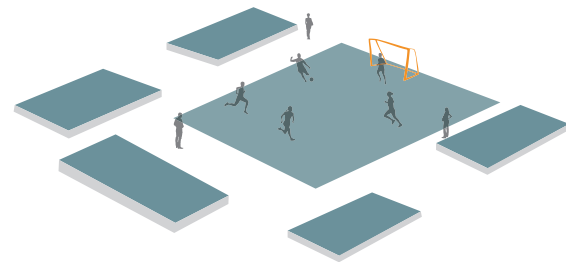


**Figure 2.85** (above)  
The City to Sea Bridge has a smaller incline making it easier and more attractive for pedestrians.

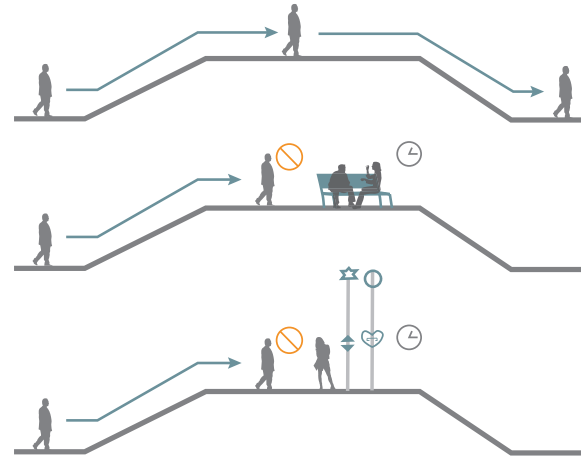


**Figure 2.86** (above)  
Interactive sculptures and seating attract people to meet and converse on the bridge.

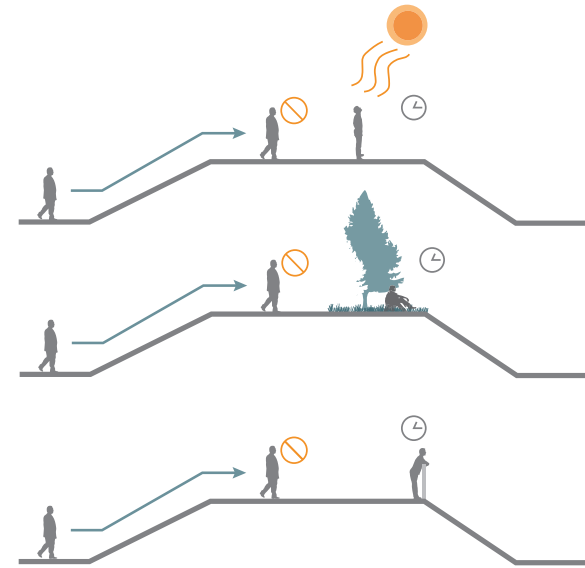




**Figure 2.87** (above)  
The Civic Centre due to its size is flexible and can be adapted for different events.



**Figure 2.88** (above)  
Although the City to Sea Bridge is primarily used as a thoroughfare, people often stop on the bridge and use it for other reasons - including, sitting and conversing, admiring the sculptures, sunbathing, enjoying the natural spaces, and enjoying the waterfront views.



**Figure 2.89** (above)  
The whale sculpture on the City to Sea bridge, which contains small confined spaces for sitting.



**Figure 2.90** (above)  
Small sculptures scattered on the City to Sea Bridge are often used for sitting, gathering and conversing.





**Figure 2.91** (previous page)  
Fawood Children's Centre, a three storey building which is housed within a colourful meshed shell.

■ **Fawood Children's Centre (2004)**  
Alsop Architects - London, England

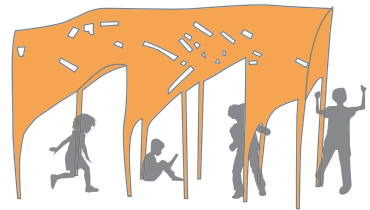
The Fawood Children's Centre is a large meshed shed-like structure, containing single classroom units connected by elevated platforms. Each space is designed using colourful shipping containers and interspersed with a series of external play areas. Fundamental to the design was giving the children choice. Space was provided for socialisation, or to be alone, enabling group and independent learning. (*Arcspace*) It is a good example of Will Alsop architectural style and his use of bold colours. A design technique which creates a sense of fun, interest and gives the building diversity (*Belogolovsky*).

**Figure 2.92** (above)  
Fawood Children's Centre is open to the outdoors through the large mesh shed surrounding the site, allowing all weather play.

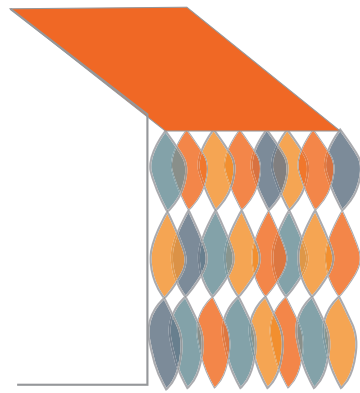
**Figure 2.93** (below)  
The Willow Tunnel is one of the structures designed by Will Alsop.



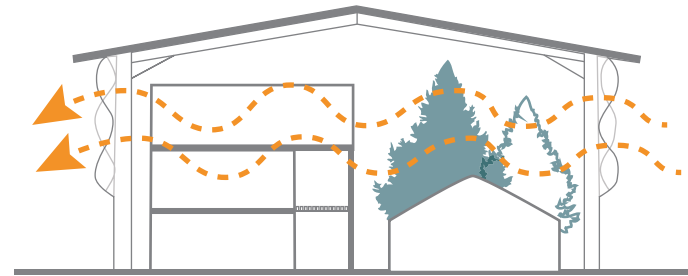




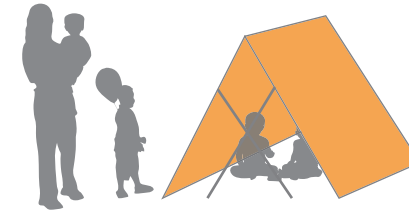
**Figure 2.94** (above)  
Spaces which stimulate children's imagination.



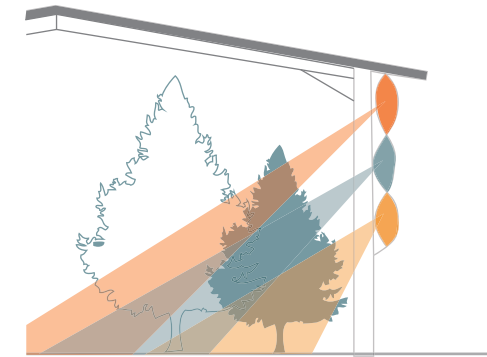
**Figure 2.95** (above)  
Use of colour which creates a sense of fun and joy within the space.



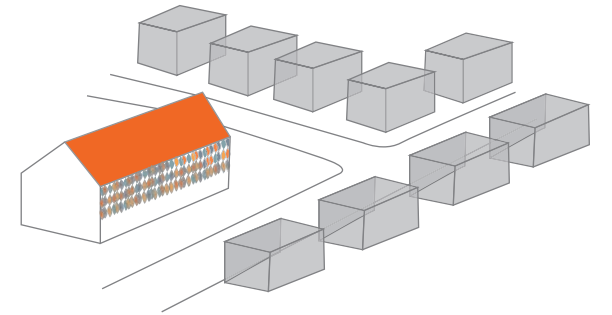
**Figure 2.96** (above)  
Although sheltered within the mesh exterior. The



**Figure 2.97** (above)  
Smaller intimate spaces for learning and play.

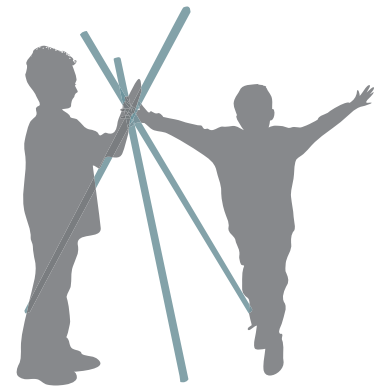


**Figure 2.98** (above)  
A mixture of the facade and natural light creates interesting shadows and coloured light within the space.

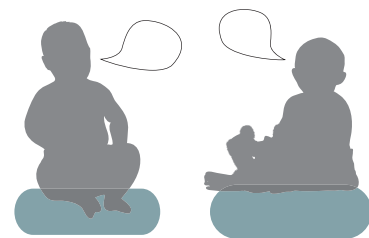


**Figure 2.99** (above)  
Considered a ray of light as it stands out within the rundown community.

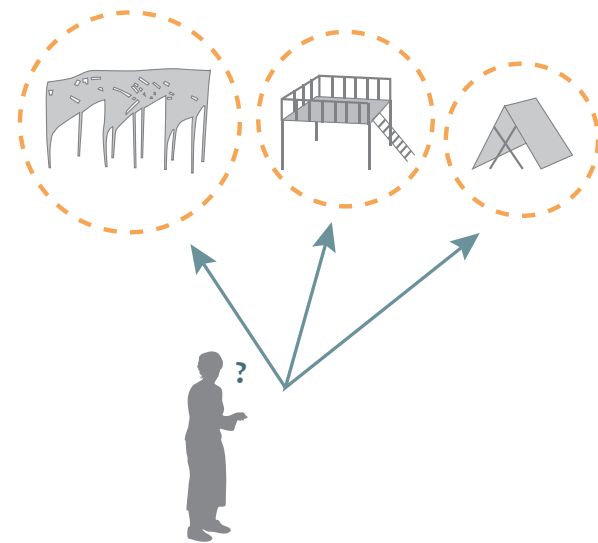




**Figure 2.100** (above)  
Play areas encourage independent, group and informal learning.



**Figure 2.101** (above)  
Space for socialisation.



**Figure 2.102** (above)  
A range of spaces and play areas provide choice for children.



**Figure 2.103** The facade is covered with elliptical colour acrylic 'lozenges.'





## ■ Paddington Reservoir (2009)

JMD Design - Sydney, Australia

The Paddington Reservoir is an example of re-interpreting a part of Sydney's heritage to create an engaging open public space. This project preserved the partially ruined brick structure, and maintained its atmosphere through minimal landscaping. The subterranean space houses Victorian era inspired gardens, a lawn with a single gum tree, and a single reflective pond. The space is used in a variety of ways. It is enjoyed as an 'adventure playground', a gathering place, and a retreat. (JMD Design)



**Figure 2.104** (above left)

The historic brick archways were maintained as much as possible.

**Figure 2.105** (below left)

The internal space within the reservoir. The atmosphere of the historic space was preserved.



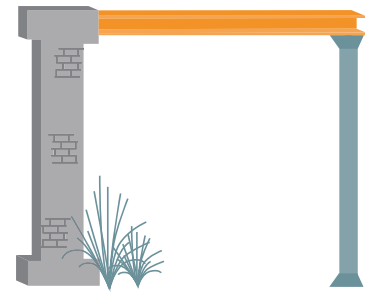
**Figure 2.106**

The new structure was created using steel and timber, reminiscent of the historic structures, while not overshadowing them.

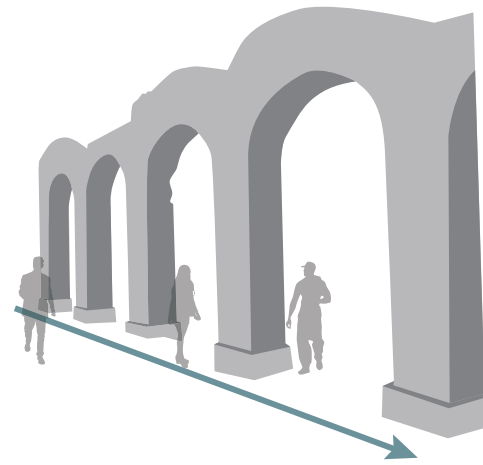




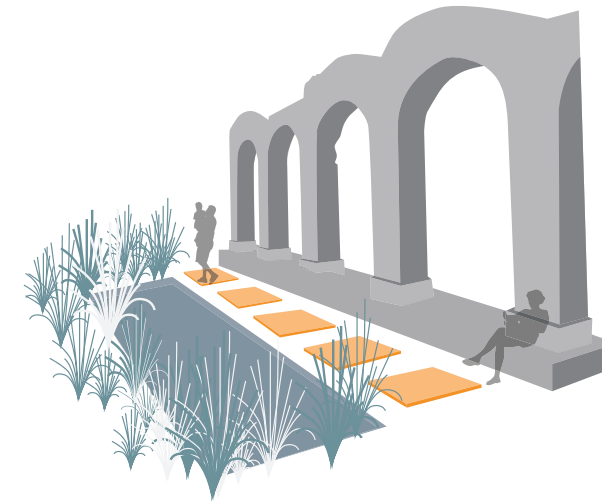
**Figure 2.107** (above)  
Repurposing of existing structures.



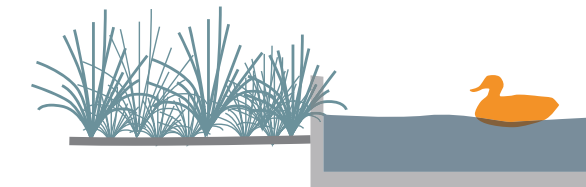
**Figure 2.108** (above)  
Differentiating the old from the new with materials.



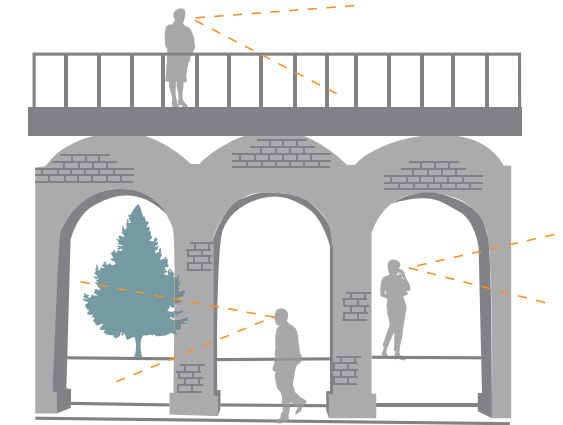
**Figure 2.109** (above)  
Using existing structure to create a journey or narrative.



**Figure 2.110** (above)  
Recreate structures as an urban park and open space.



**Figure 2.111** (above)  
Resurrect previous waterways and ecology.



**Figure 2.112** (above)  
Multiple levels and sightlines to experience the space in different ways.

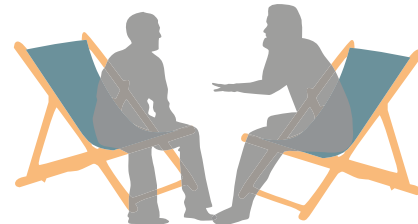




**Figure 2.113** (above)  
Reconnect people with a key part of their heritage.



**Figure 2.114** (above)  
A diverse range of spaces.



**Figure 2.115** (above)  
Flexible furniture and chairs which can be used  
throughout the space.



**Figure 2.116** The park is sunken below street level to make use of the formerly underground structures.



## ■ Conclusion

The precedent study demonstrates a number of examples which have revitalised portions of a failing CBD.

The common themes are:

- creation of gathering sites and public spaces to bring people to the location for education, socialisation or recreation,
- support of the environment by re-establishing ecological and natural features which once existed in the place,
- designs which work within the specifics of the existing site rather than adopting major transformation of the place and its context with the surrounding area,
- repurposing of abandoned or poorly utilised infrastructure for maximum gain while retaining the values of heritage and culture

The design process will consider each of these opportunities in relation to the CBD in Whangarei.







# Chapter Three

## Site Analysis



## ■ Introduction

The key urban issues that exist in Whangarei contribute to a dying city centre and aspects of population decline and social depravation. The site which is under analysis is the Whangarei CBD which incorporates the socially successful Town Basin, the Commercial Centre that is in decline and the area which will be defined as the ‘no mans land’ which bridges the gap between the two. The site analysis will focus on applying the learning’s from case studies and the literature review to successfully address these issues.

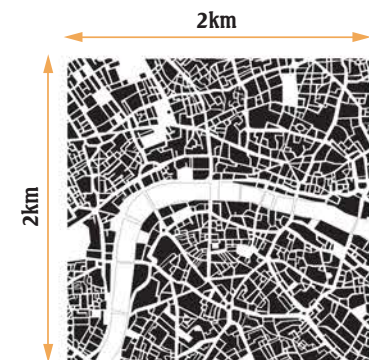
### 3.1

#### Present Day Site - Features and Issues



**Figure 3.1** (next page)  
Site - Whangarei City Centre  
Scale 1:12500





London, England



New York City, US



Barcelona, Spain



Auckland, New Zealand



Wellington, New Zealand



Tauranga, New Zealand



Rotorua, New Zealand



Napier, New Zealand



Whangarei, New Zealand

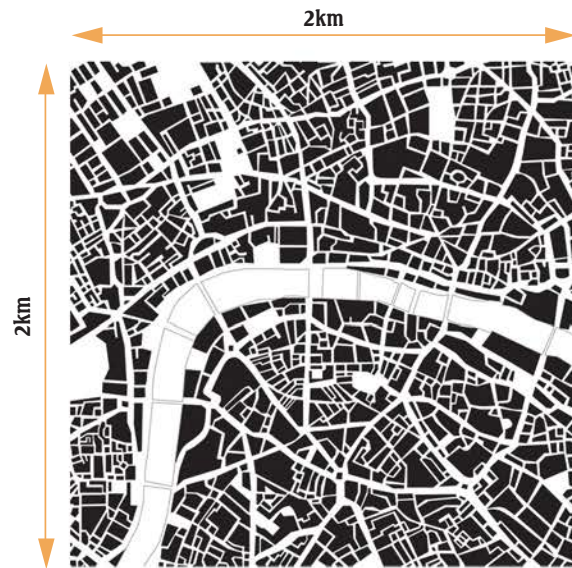
## Density Analysis

Unlike some cities in New Zealand, there was no master plan for Whangarei, rather it was built upon various uncoordinated and scattered developments (*"Whangarei District Historic Heritage Report"* 18). This disjointed composition led to the absence of a strong heart within the city. Whangarei's density is compared to various international and national city centres, by using a figure ground study.

**Figure 3.2** (full spread)

Figure Ground Studies of nine international and national cities.  
Scale 1:50000

■ International Cities



London, England  
Population: 8.5 million / Density: 5,100 people/km<sup>2</sup>



New York City, US  
Population: 8.4 million / Density: 2,050 people/km<sup>2</sup>

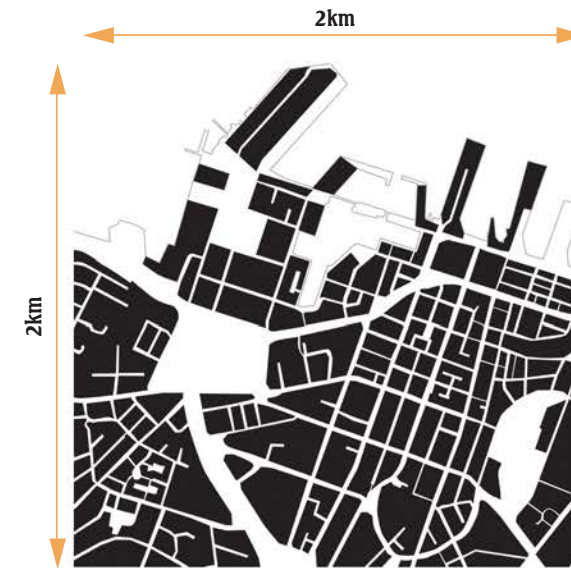


Barcelona, Spain  
Population: 1.6 million / Density: 16,000 people/km<sup>2</sup>

**Figure 3.3**

The international cities are of a much higher density and population. These figure ground maps show they have many smaller streets which break up the block sizes  
Scale 1:30000

■ Large New Zealand Cities



Auckland, New Zealand  
Population: 1.4 million / Density: 2,770 people/km<sup>2</sup>



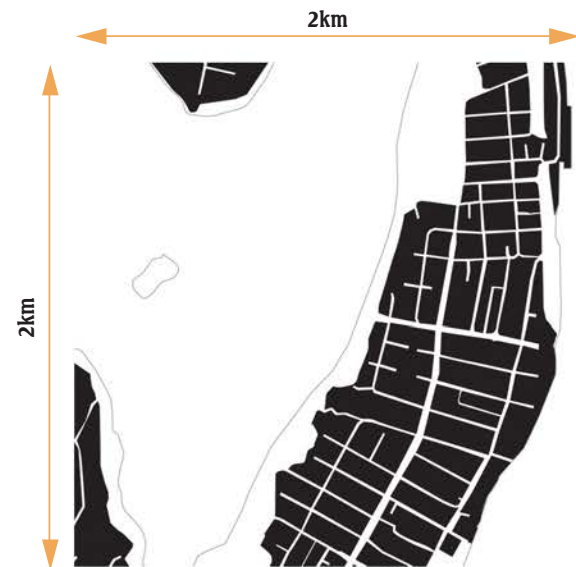
Wellington, New Zealand  
Population: 204,000 / Density: 1,600 people/km<sup>2</sup>

**Figure 3.4**

The larger New Zealand cities are not as dense or complex as the large international cities. However there is a clear street hierarchy.  
Scale 1:30000



## ■ New Zealand Cities of Similar Population



Tauranga, New Zealand  
Population: 118,000 / Density: 650 people/km<sup>2</sup>



Rotorua, New Zealand  
Population: 66,000 / Density: 600 people/km<sup>2</sup>



Napier, New Zealand  
Population: 58,000 / Density: 420 people/km<sup>2</sup>

**Figure 3.5**

These cities have a similar population to Whangarei. Again there is a clear street hierarchy and grid system.  
Scale 1:30000

## ■ Whangarei

Whangarei has large block sizes and an inconsistent building scale and density. The block size is similar to Tauranga, Rotorua and Napier, but bigger than the larger cities, and with a far lower density. While other cities have strong arterial routes and smaller inner city streets, Whangarei's appear the same size. They do not follow a legible pattern making them difficult to interpret at a pedestrian scale through predictable form or visual connection.

**Figure 3.6**

Whangarei's figure ground analysis.  
Scale 1:20000



Whangarei, New Zealand  
Population: 84,000 / Density: 350 people/km<sup>2</sup>

## Architecture

The buildings within the older areas of the city, Cameron Street and Lower Bank Street, are of a more appropriate scale and contribute to the streetscape with interesting character facades and verandas (as seen in **figure 3.7, 3.8, and 3.9**). However this distinctive style disappears in the streets leading up to the Town Basin where the level and quality of development becomes uneven and more reflective of low quality light industrial structure (*“Sense of Place” 25*). This creates a ‘no mans land’ between the Commercial Centre and the Town Basin.



**Figure 3.7**  
The Municipal Chambers on Bank Street. One of Whangarei's heritage buildings.



**Figure 3.8**  
Cameron Street Pedestrian Mall.



**Figure 3.9**  
Character architecture within the commercial centre.



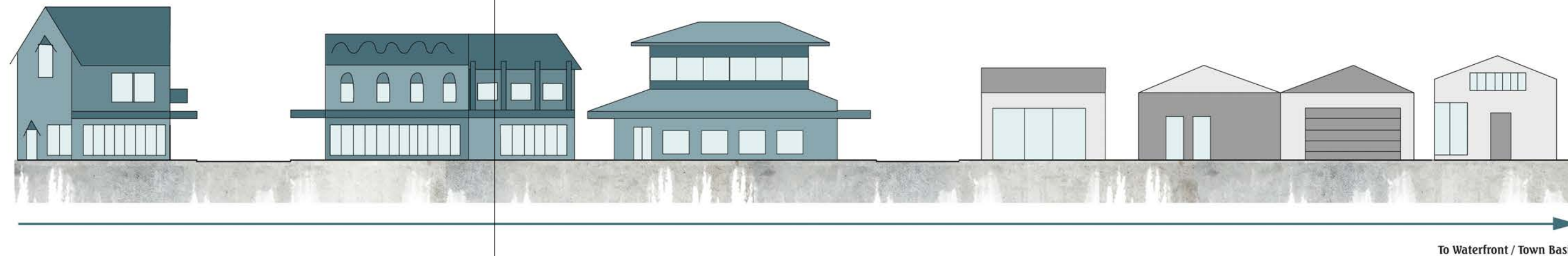
**Figure 3.10**  
Image of Whangarei's light industrial areas.



**Figure 3.11**  
Looking down James Street towards the waterfront.



**Figure 3.12**  
Industrial shed style architecture found within the 'no man's land.'



**Figure 3.13** (right)

Diagram showing the typology of architecture leading up to the Town Basin and its lack of character as it moves further east.





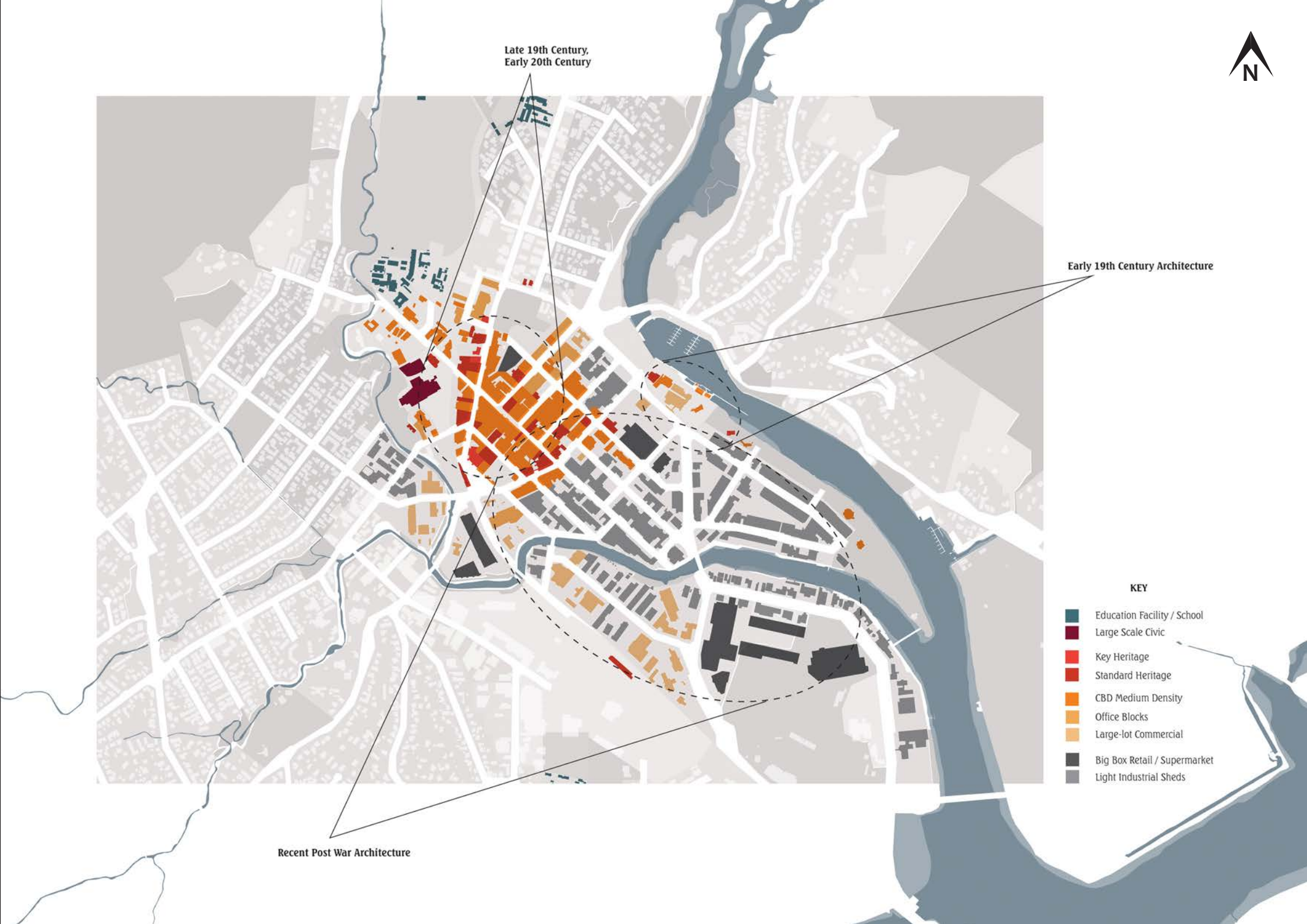
There are no prominent buildings within the Commercial Centre. Buildings with historical relevance such as the Municipal Chambers and the Grand Hotel on Bank Street are not well integrated into their adjacent streets. The cultural and event centre Forum North and the neighbouring central public library are close to the CBD but are separated by the railway embankment.

**Figure 3.14** (above)  
Whangarei's Municipal Building (1912). Although striking it is not well integrated into the surrounding street.



**Figure 3.15** (below)  
Grand Hotel (1900). Falls along the edge of Whangarei's bus station and the city's largest intersection.

**Figure 3.16** (next page)  
Building typologies within the Whangarei CBD.  
Scale 1:12500







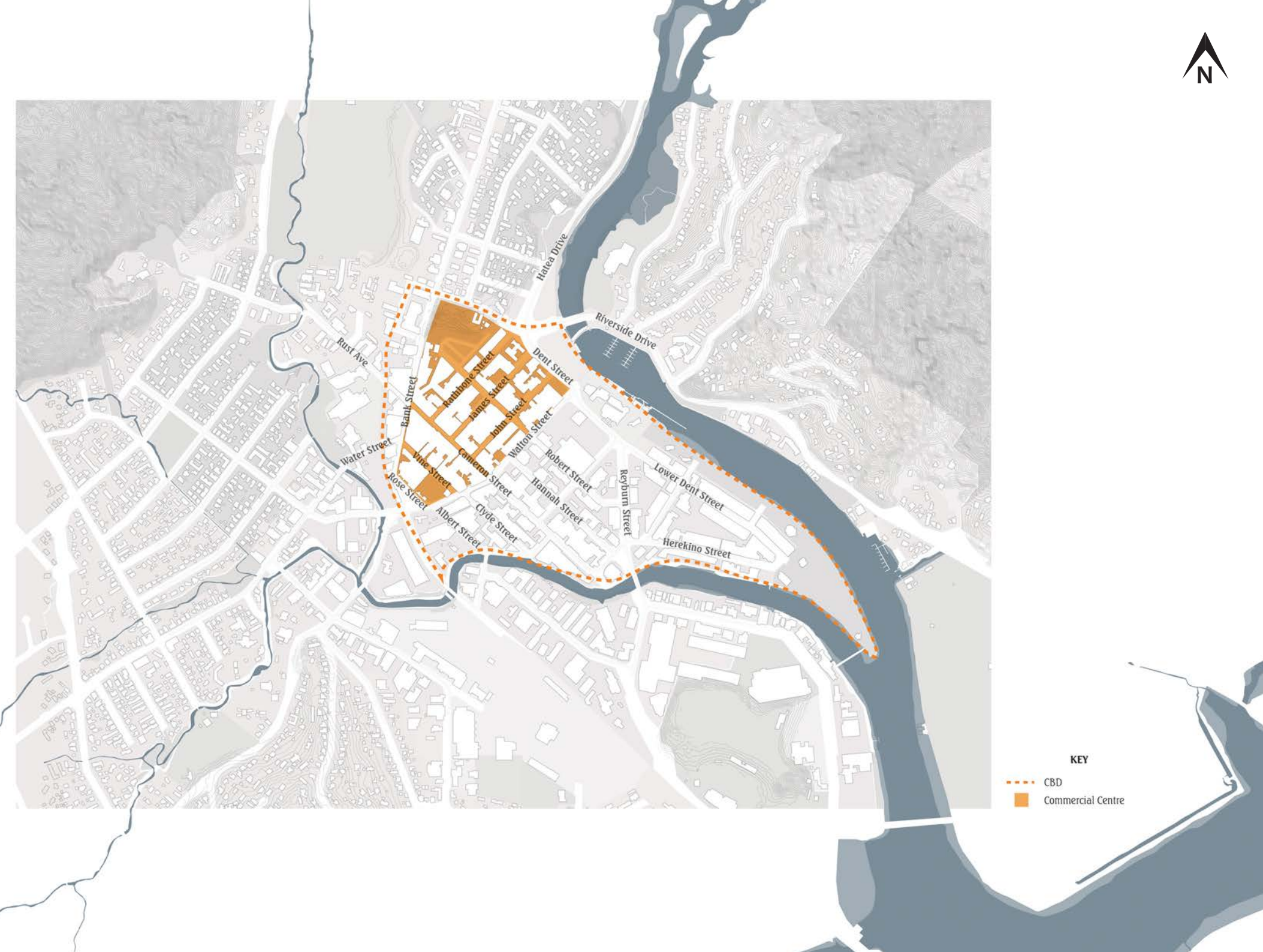
## ■ Road Network

The lack of a city plan provoked a road network which was poorly aligned leading to a deficiency in the circulation of traffic. The complex road system creates heavy traffic which reduces amenity within the Commercial Centre, and high vehicle use leads to parking pressures which undermines attractive areas such as the Town Basin and Laurie Hall Park.

**Figure 3.17** (above)

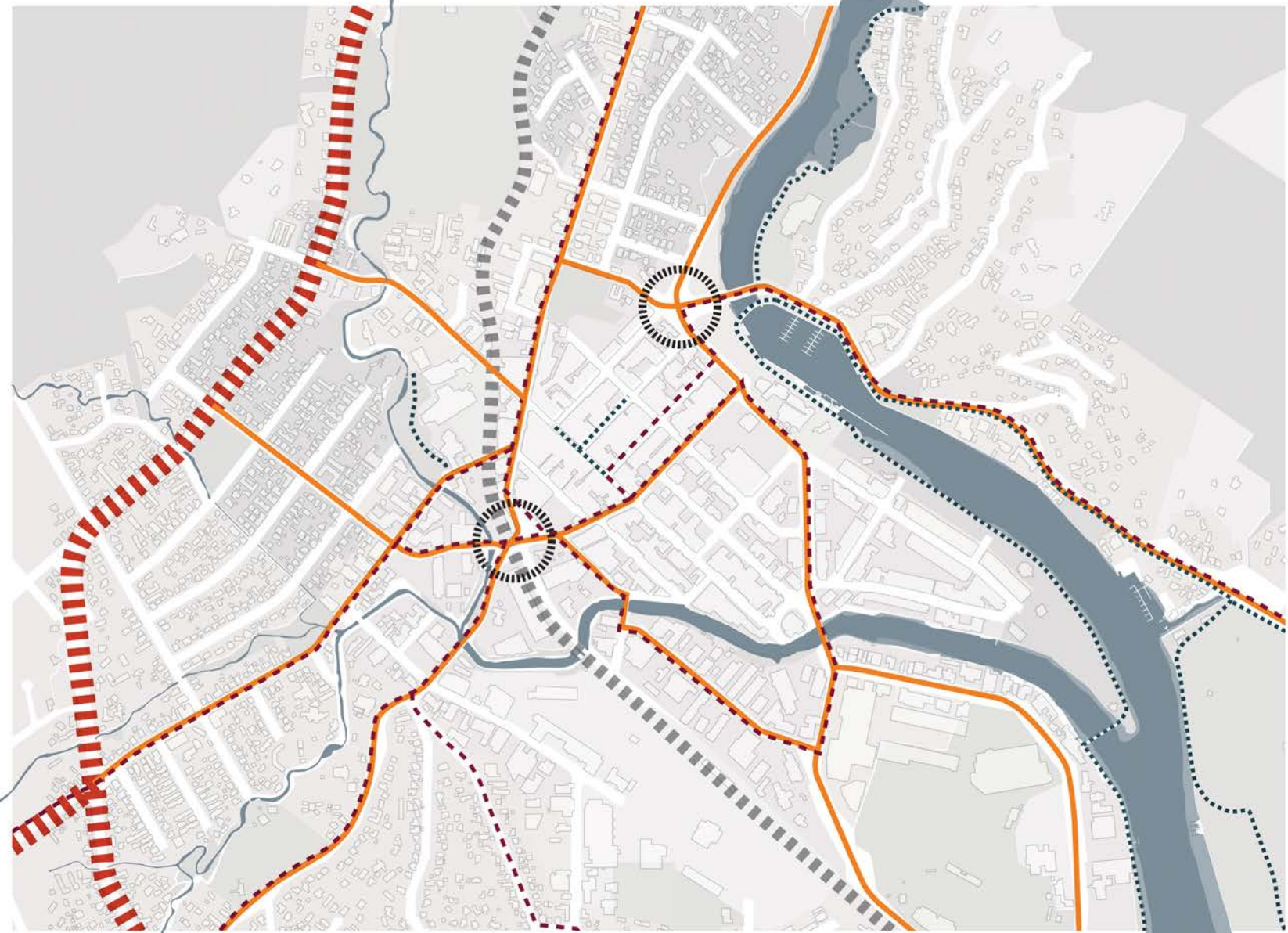
The 'brown fields' or old building sites which are currently used as parking. This space is located between Dent Street and the Town Basin.

**Figure 3.18** (next page)  
Whangarei Street Names  
Scale 1:12500









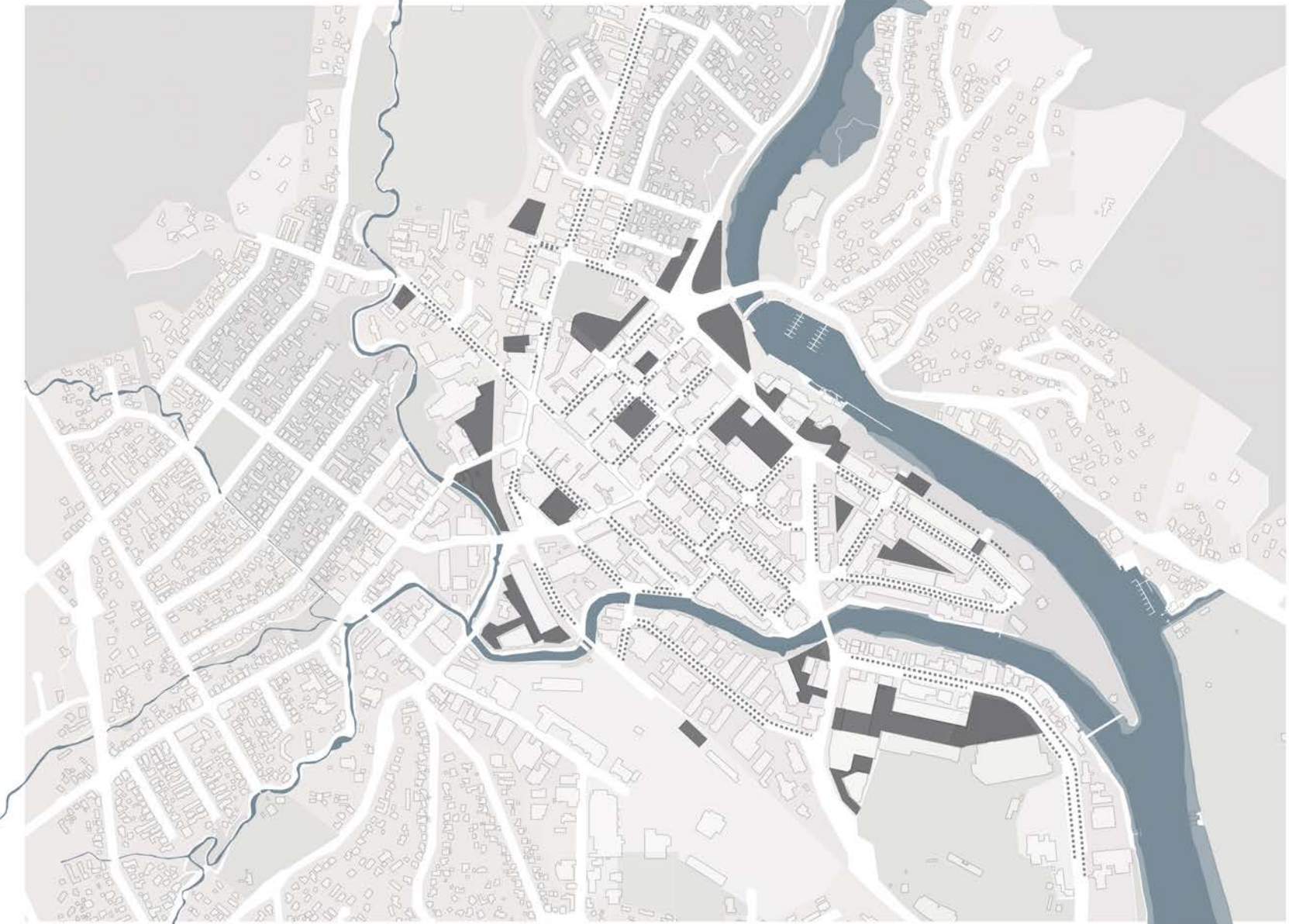
**KEY**  
--- CBD  
■ Commercial Centre






**Figure 3.19**  
Whangarei road Hierarchy,  
which shows the strange  
configuration of main arterial  
roads, as well as the weak  
connection between north and  
south routes.  
Scale 1:12500

- KEY
-  State Highway
  -  Railway
  -  Main Roads
  -  Walking / Pedestrian friendly
  -  Bus Route
  -  Key Intersections



**Figure 3.20**  
Whangarei Parking. There is a  
large quantity of low density  
parking-lots and on-street  
parking, yet there is still  
considered to be a shortage due  
to the vehicle quantity  
Scale 1:12500

- KEY
-  On-Street Parking
  -  Parking Blocks / Buildings







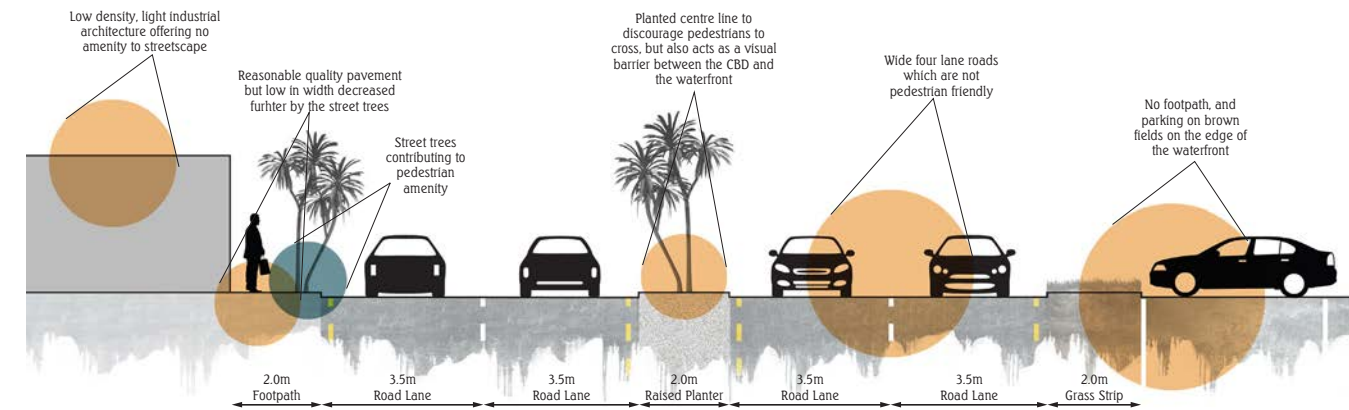
## Streetscape

Whangarei's streets have a mixed quality. Most areas have poor quality footpaths, and no street furniture. They are also wide, catering more so to vehicles and not functioning as pedestrian streets, making them feel unsafe to those walking or cycling.

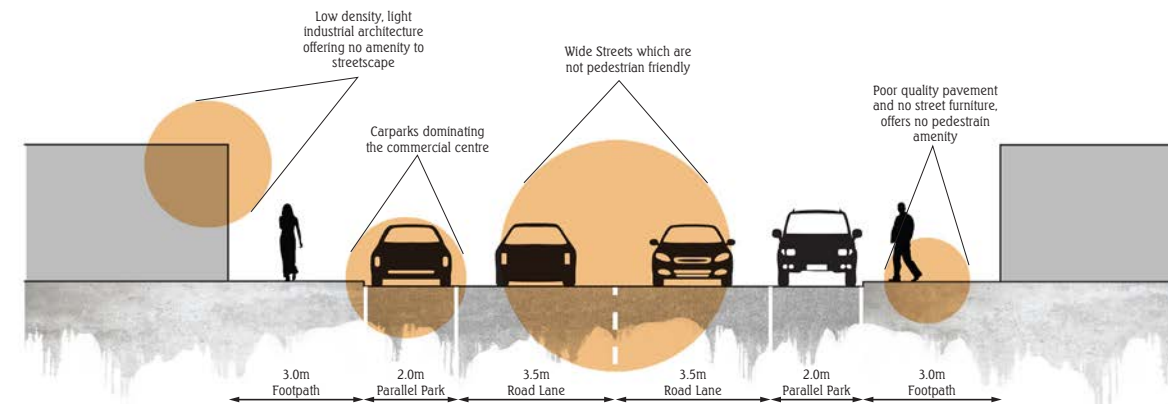
**Figure 3.21 (above)**  
Street Quality of James street heading towards the Town Basin



**Figure 3.22 (below)**  
Cameron Street Mall has a higher quality pavement, planting and street furniture.



**Figure 3.23 (above)**  
Dent Street - a major arterial route which separates the CBD from the Town Basin and waterfront.  
Scale 1:60



**Figure 3.24 (above)**  
Section of industrial streets. The majority of roads within the CBD are of this quality.  
Scale 1:60

## Streetscape Comparison

**Legend Fig. 3.23 (1:50000)**



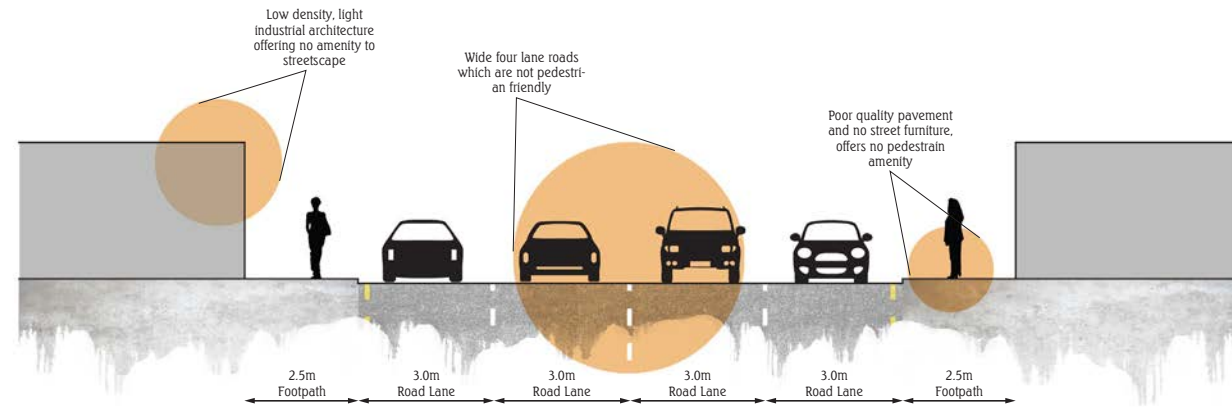
orange circle negative aspect of streetscape

blue circle positive aspect of streetscape

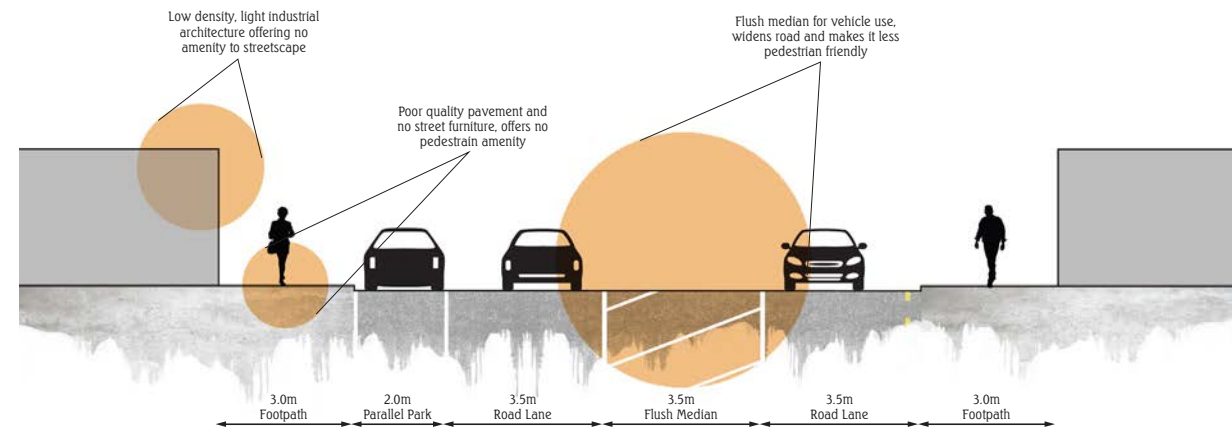
**Legend Fig 3.24 (1:50000)**







**Figure 3.25 (above)**  
Section of roads on the outskirts of the commercial centre, which are primarily vehicle oriented with no pedestrian amenity.  
Scale 1:60



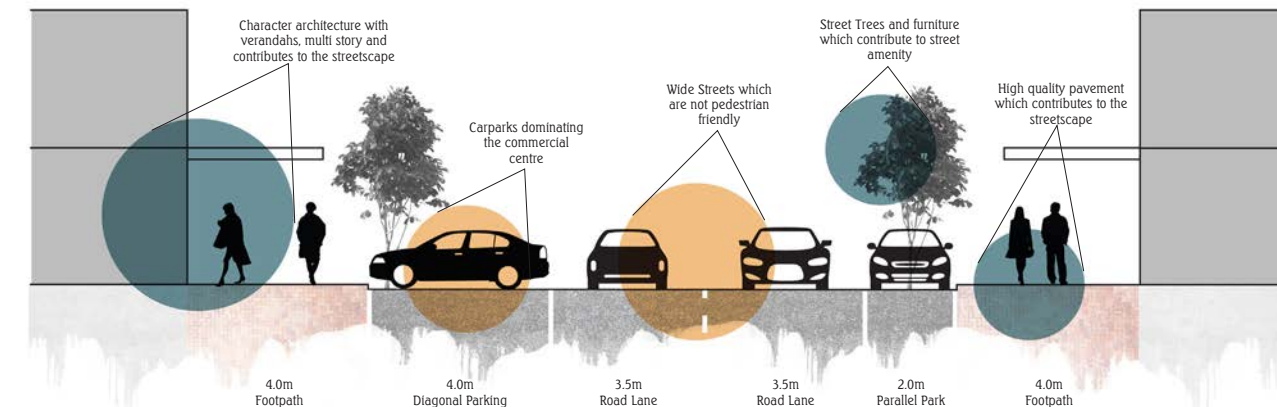
**Figure 3.26 (above)**  
Arterial roads - contain a flush median which widens the road making it less pedestrian friendly.  
Scale 1:60

**Legend Fig. 3.25 (1:50000)**

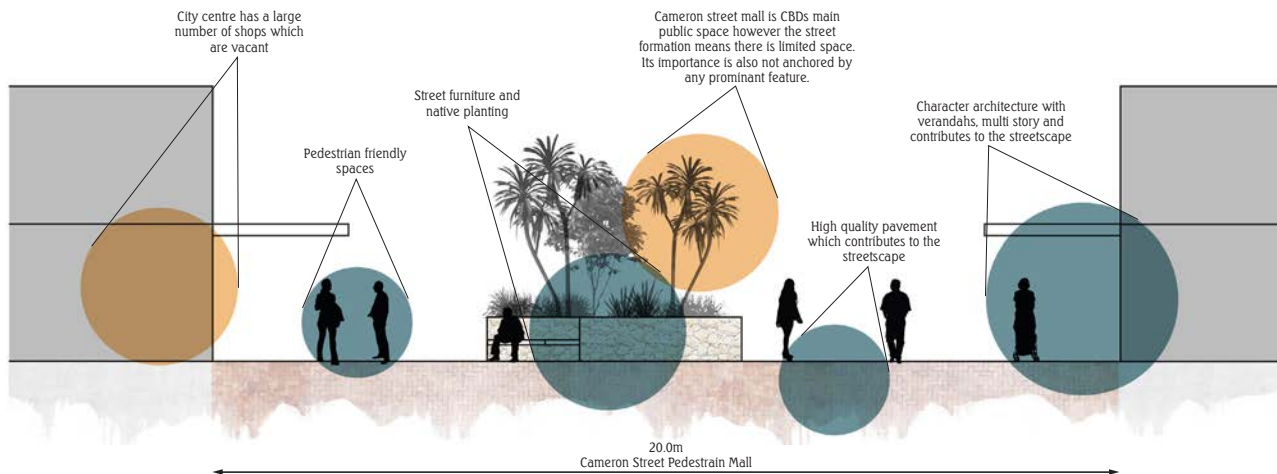


negative aspect of streetscape

**Legend Fig 3.26 (1:50000)**



**Figure 3.27 (above)**  
Streets within commercial centre are of a higher quality but still dominated by vehicle use and parking.  
Scale 1:60



**Figure 3.28 (above)**  
Cameron Street pedestrian mall Is the central public space within the CBD but is limited in scale.  
Scale 1:60

**Legend Fig. 3.27 (1:50000)**



negative aspect of streetscape

positive aspect of streetscape

**Legend Fig 3.28 (1:50000)**







## Public Open Space

The Cameron Street pedestrian mall (see **figure 3.22**) was created to develop better pedestrian amenity within the Commercial Centre. It is the only public space in the centre of commercial activity, however, its importance is not anchored by a natural feature or prominent buildings and it suffers spatial limitations. This has led to the area suffering from ongoing lack of focus.

Whangarei has attractive green spaces close to the city centre, but they are not fully integrated into the Commercial Centre. Laurie Hall Park is cut off from the city by buildings and a large carpark. Cafler Park runs adjacent to Waiarohia River and, while attractive, it is hidden away by council buildings and the public library.

**Figure 3.29** (above)

Laurie Hall Park

**Figure 3.30** (below)

Waiarohia River running through Cafler Park

**Figure 3.31** (next page)  
Green Spaces within Whangarei Central  
Scale 1:12500





The Hatea River and the Town Basin are the most prominent open public space within the CBD. The Town Basin is the centre of arts, heritage and recreation within Whangarei and is the biggest contributor to Whangarei's character. However, this space is divorced from the Commercial Centre by the 'no mans land' which is formed largely by the distance, lack of visual connection and high traffic density on Dent Street.

**Figure 3.32 (below)**  
Southern view of Town Basin, Dent Street and the 'no man's land' leading up to the commercial centre can be seen in the photo below.



**Figure 3.33 (above)**  
The disconnection between the commercial centre and the Town Basin is attributed to the large four lane road which runs between them. This road is 20m wide and has one pedestrian crossing at its centre.  
Scale 1:15000



**Figure 3.34 (centre)**  
There is no visual connection between the commercial centre and the waterfront due to the lack of a legible street pattern and the separation.  
Scale 1:15000



**Figure 3.35 (below)**  
The developments are not adjacent to one another therefore creating poor physical connection. There is also 'brown fields' parking which separates any physical connection.  
Scale 1:15000





## 3.2

### The Town Basin & the Blue/Green Network

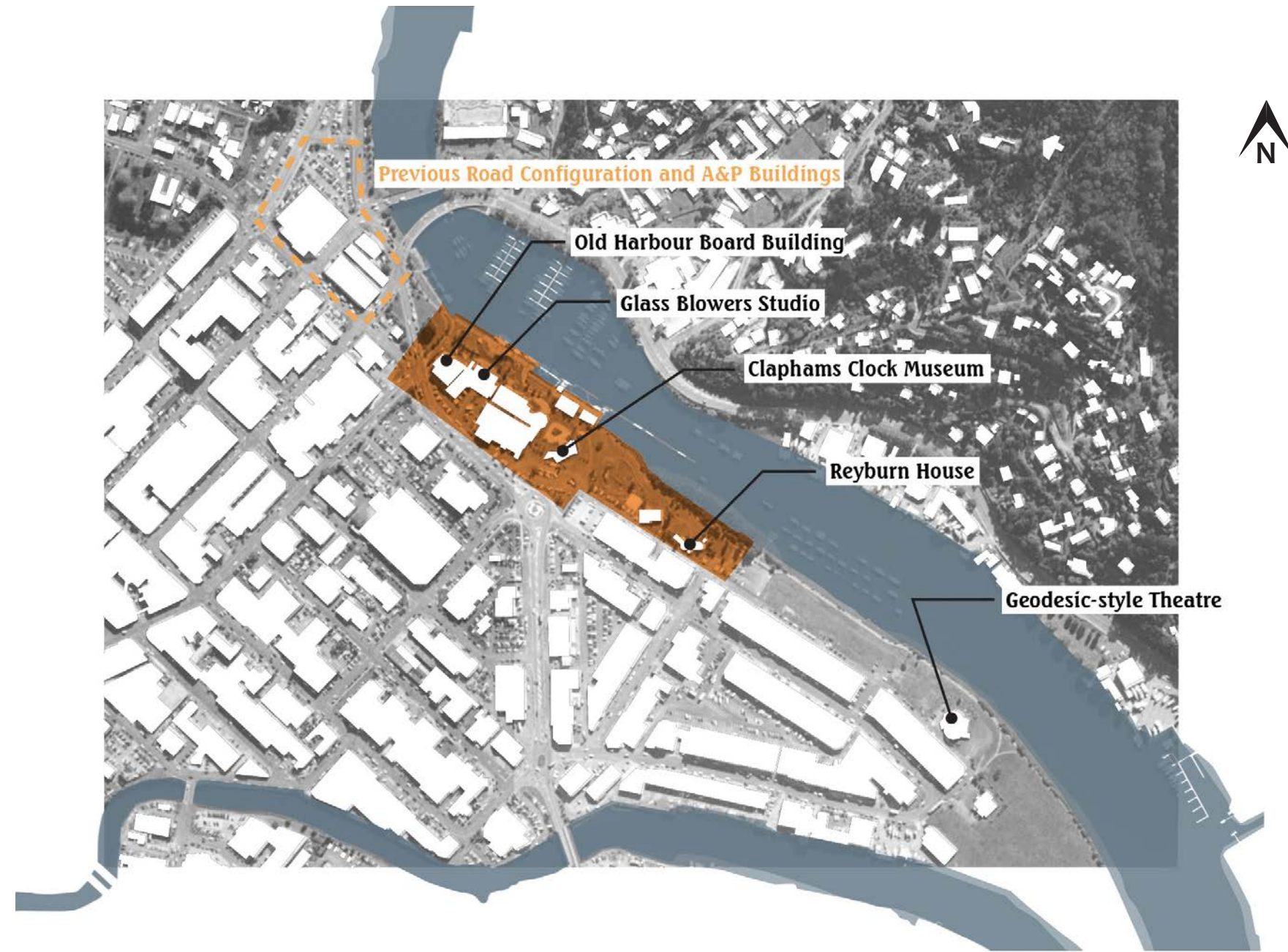
The success of the Town Basin after its redevelopment in the mid 1990's indicated Whangarei's potential as a lively centre, a tourist destination (*"Environmental Rules"* 1) and has become the centre of arts, culture and heritage and recreation within Whangarei (*"Sense of Place"* 25).

**Figure 3.36**

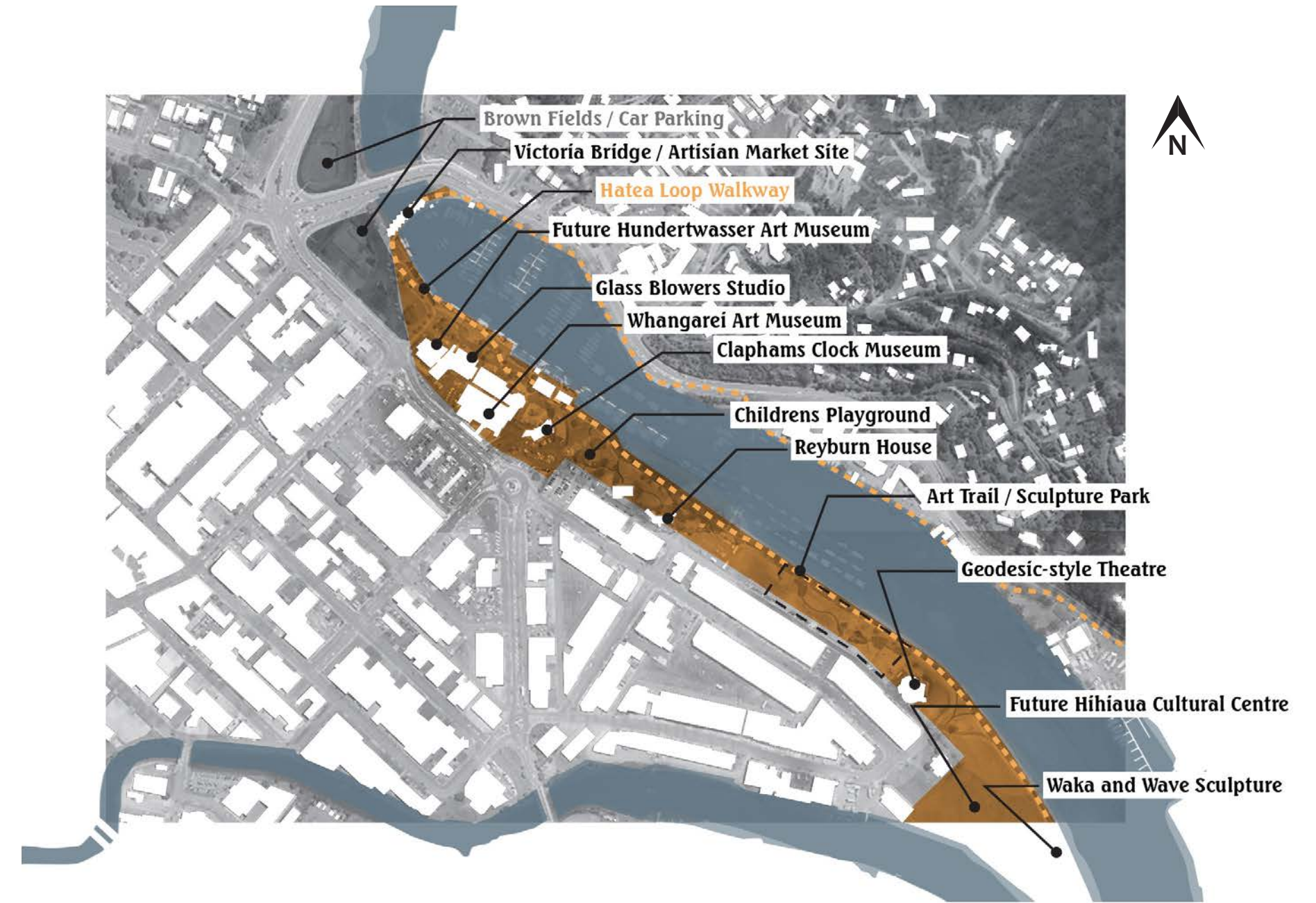
Whangarei Town Basin looking towards  
Claphams Clock Museum







**Figure 3.37**  
Whangarei Town basin in 2000 was restricted to the few colonial styled buildings at its centre. Engagement with the water as well as recreational activities was limited.  
Scale 1:6000



**Figure 3.38**  
Whangarei Town basin today (2015) has extended further down the Hatea River. The Town basin now holds an assortment of galleries, art walks, walking tracks and other recreational activities. There is also many other developments planned for the future.  
Scale 1:6000





## ■ The Blue/Green Network and Hatea Loop Walkway

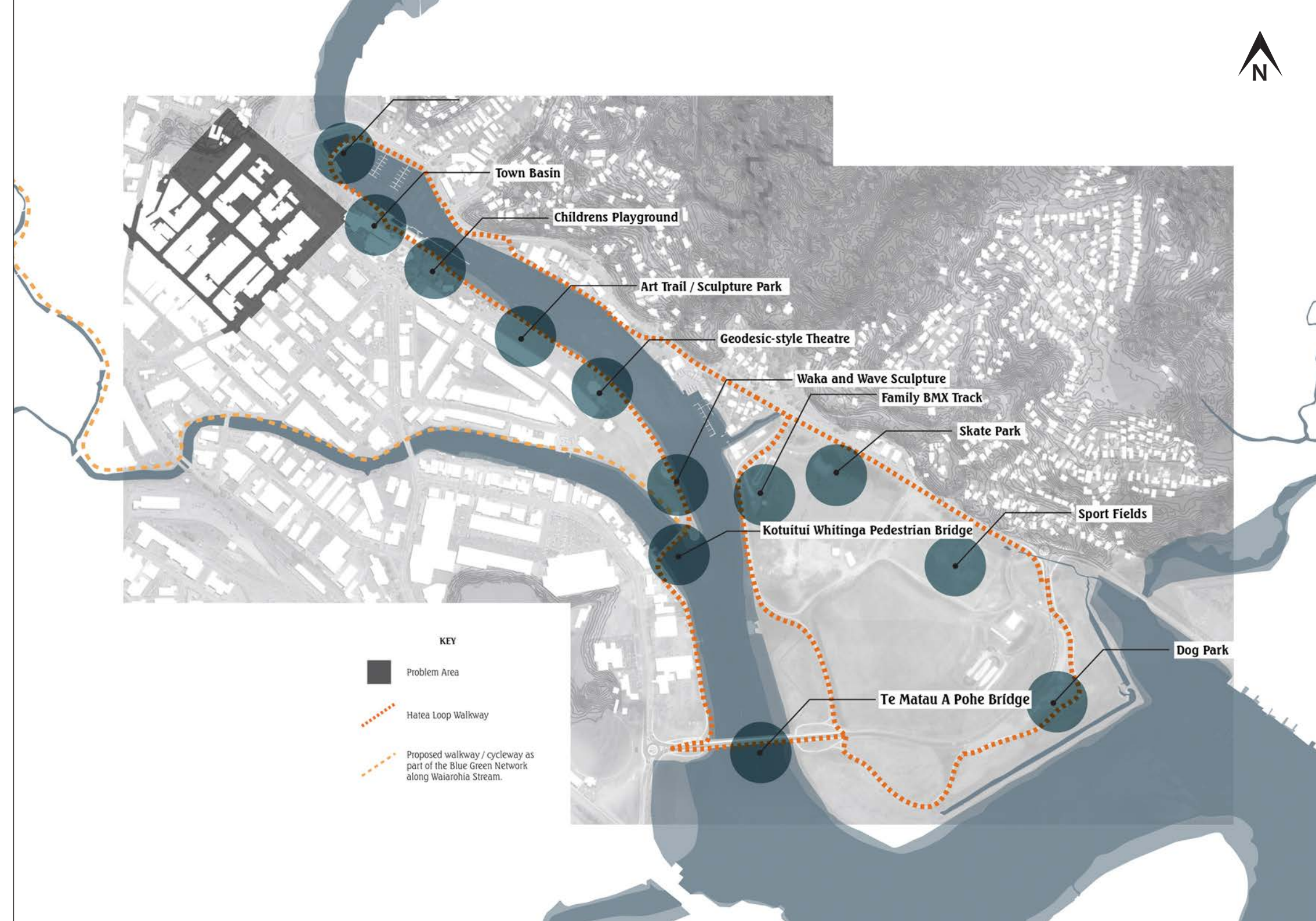
Even though the Town Basin is located on the edge of the Hatea River, there was a lack of engagement between people and the river. Prior to 2014 there was a lack of pedestrian access and visual connection with the water. The Hatea Loop walkway attempts to create further engagement. This 4.2 km walkway circles the lower Hatea River and connects the recreational resources on Pohe Island to the Town Basin and acts as a hub for social interaction and cultural identity (“Waterfront Precinct Projects”).

The Loop walkway has been undeniably successful. In a survey completed by the Whangarei District council in 2015, the users were found to have increased from 2014 by 132% (*Jewel of the City Report 4*). It has revealed that integration between recreation and the environment has a lot of potential to attract people.

**Figure 3.38**  
View of the Hatea River from the Hatea Loop Walkway

**Figure 3.39** (next page)

The Hatea Loop Walkway connects a variety of recreational and cultural activity's along the Hatea River.  
Scale 1:10000







**Figure 3.40** (above)  
The Te Matau A Pohe Bridge which connects Port Road to Pohe Island .



**Figure 3.41** (below)  
The skate park on Pohe Island is now better connected to the Town Basin.

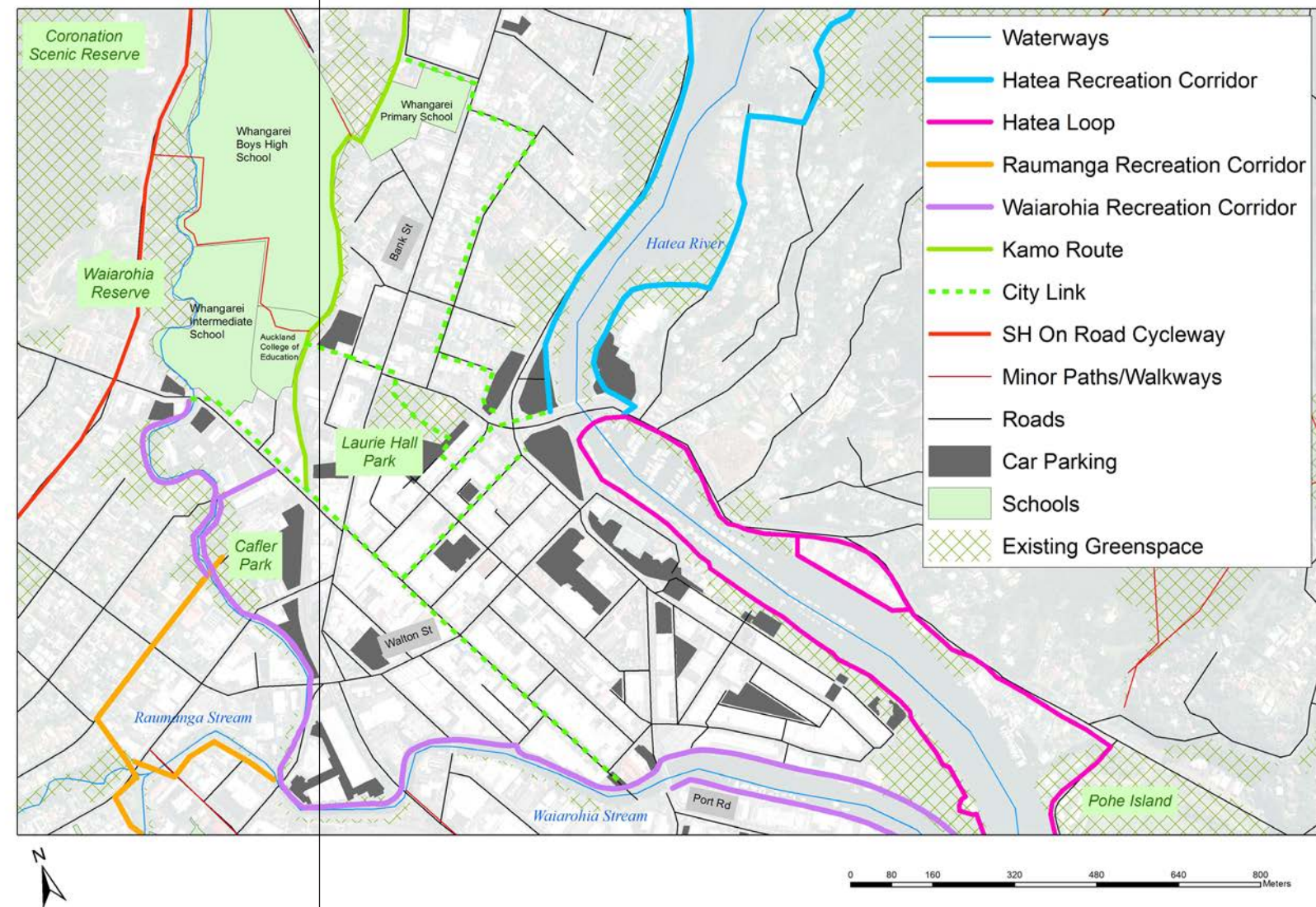
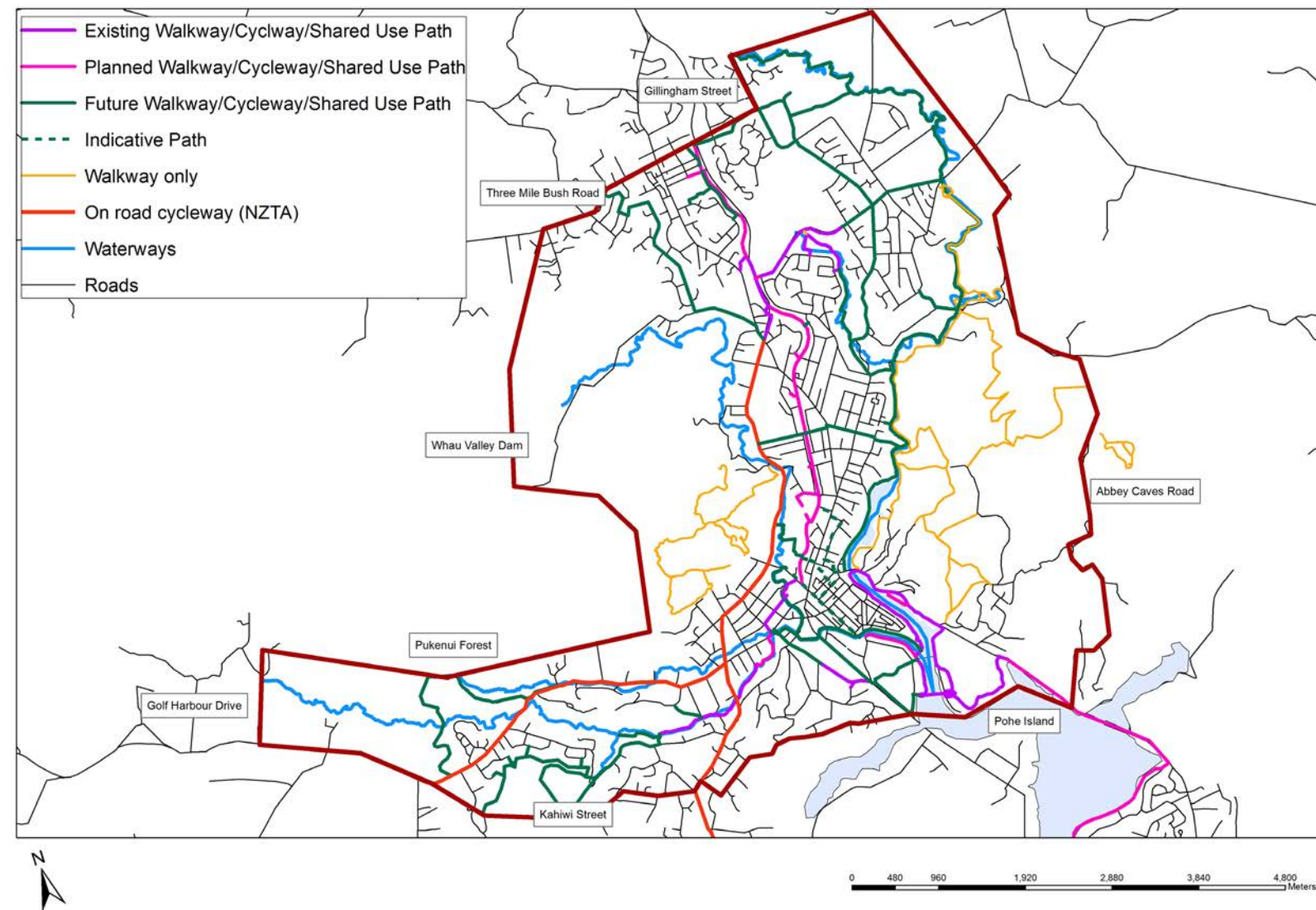
There has been a long-standing ambition to develop walking and cycling networks within the district (“Walking Cycling Strategy” 2). The success of the Hatea Loop walkway has reinstated this ambition (“Other Projects”). Walkways and Cycleways, as part of the Blue/Green Network Strategy, will connect the city centre to schools, parks, and residential centres via the various rivers and

streams which run through central Whangarei (“Walking Cycling Strategy” 5). There remains a lack of attention on the ‘no mans land’ between the Town Basin and the Commercial Centre. This is an opportunity.

**Figure 3.42** (below)  
Artist impression by the author of the proposed Blue/Green Network Strategy - a walkway and cycleway alongside the Waiarohia Stream.







**Figure 3.43** (far left)

Whangarei District Council proposed Blue/Green Network Strategy. Shows existing, future and planned walkways.

**Figure 3.44** (left)

Whangarei District Council proposed Blue/Green Network Strategy. View of walkways within the CBD. Note although there is a City Link this is made up of existing street side infrastructure.



## 3.3

### Hatea River

Figure 3.45

Hatea River with highly modified natural ecology providing easy access and high visual amenity.



### Tidal River Ecology

The environment and ecology of city waterways can successfully be used as a way to make development interesting and restore the natural qualities of a place.

The natural ecology of a tidal river, such as the Hatea River, contains a mixture of mangrove forests, mud flats and a rich diversity of flora and fauna which thrive in this environment. This ecology has positive impacts on aspects such as flood protection and water quality (Northland Regional Council).

Historically, this ecosystem has been detrimental to some uses such as access to the river for transport and recreation, view lines to the river, adjacent construction and also pedestrian access (“Dredging the Whangarei River”). This has meant the natural ecology has been changed and largely removed, creating some value but at a significant cost to the natural form and function.

Restoration of this natural ecology in part, would hold significant value in recovering the benefits created to flooding and water quality but also in reconnecting people with this natural form as a point of interest and difference.





**Figure 3.46** (above)

The removal of mangroves to create high visual amenity is evident at low-tide within Whangarei.



**Figure 3.47** (above)

The Elliott Reserve, a mature mangrove forest with a preserved natural ecology, remains further up river from the Whangarei Town Basin.



**Figure 3.48** (above)

Photo (1890's) of the Original Victoria Bridge (Swing Bridge), mangrove forests can be seen in the foreground and alongside the Hatea River.





**Figure 3.49 (previous page)**

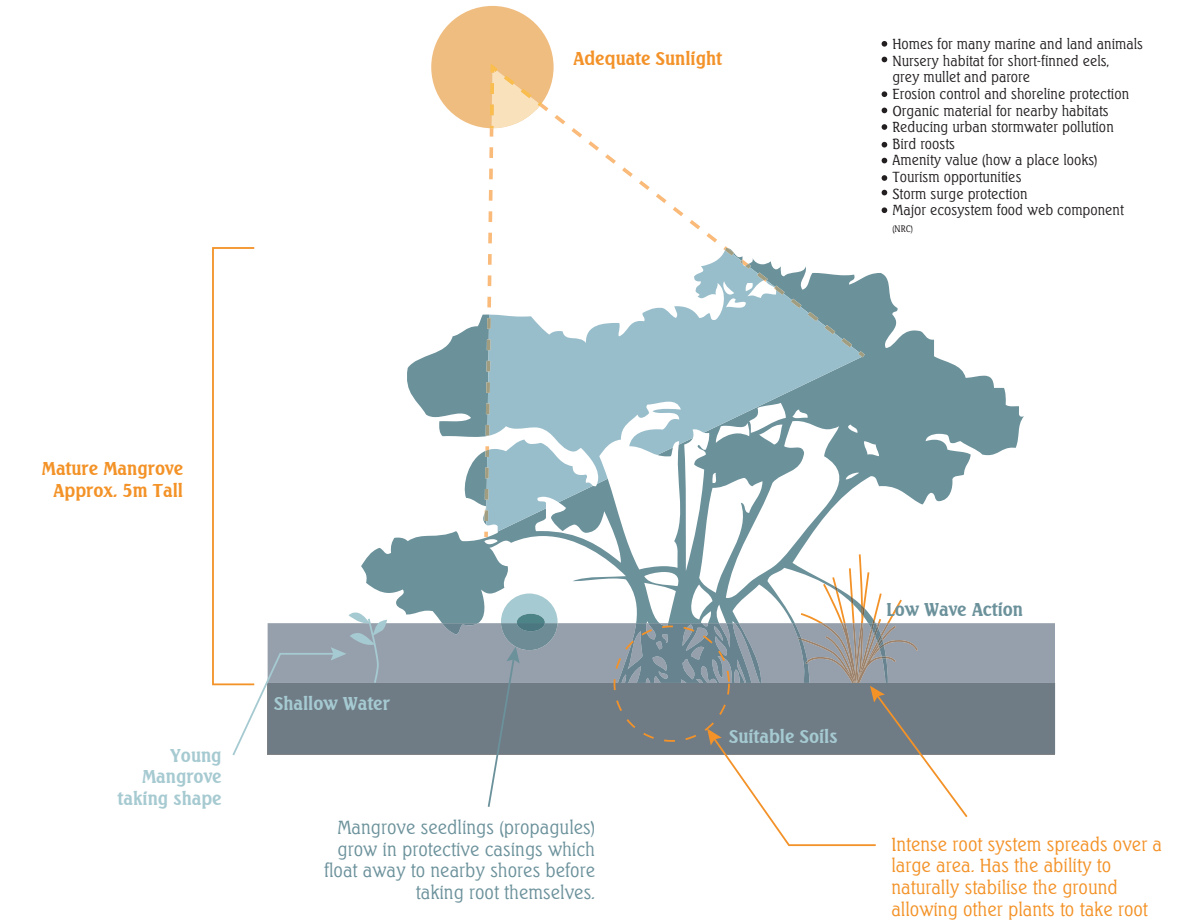
Poster showing the natural form of tidal rivers such as Hatea demonstrating rich ecology and diversity of flora and fauna.

Mangrove forest has a positive impact on control of tidal flooding and erosion during storm events by restricting fast and direct water movement, on water quality by consuming nutrients (which acts as a filtration process) and providing habitat for plants and animals. (Northland Regional Council)

Mangrove forests develop over decades and the process of re-establishing these is lengthy and will require careful transition planning with other plantings to fill the time void.

**Figure 3.50 (right)**

Diagram highlighting the characteristics, needs and benefits of Mangrove trees.







**Figure 3.51 (above)**  
Flooding from the Hatea River within the ‘no mans land’ of the CBD.

## ■ Flooding and Land Reclamation

Present day flood maps identify that the Hatea River and its boundary have changed over time. This establishes that land has been reclaimed and converted from waterway.

This is a common feature of many city developments. This reclamation has established new land areas to develop and in some cases a more orderly environment.

It is assumed that the land was reclaimed in two processes. One was the removal of obstructions to water flow through dredging of channels and removal of mangrove forests draining the surrounding wetlands. The second was establishment of new boundaries to the waterway through civil construction and the hard filling of the former flood plains and estuarine areas.  
(“Dredging the Whangarei River”)

**Figure 3.52 (next page)**

Flood mapping over a 200 year time frame is indicative of the transformation of significant areas of the Whangarei CBD.  
Scale 1:12500





## 3.4

### River history

Whangarei's Hatea River has a unique Maori and European History.

Whangarei, in Maori, translates into a number of meanings. One interpretation is '*the harbour of good things*' reflecting its value as a food basket for the region with wetlands and waterways abundant in birds, fish and shellfish. A second commonly accepted interpretation is the '*gathering place of whales*' which is also taken to mean gathering place of chiefs (*Taonui*). The importance of this harbour and river environment in the lives of local iwi is clear.

European Whangarei was originally a trading post between Pakeha and the local Maori (*Thomson*). It developed as a settlement with the arrival of William Carruth in 1839 to the Town Basin ("*Heritage Trail Signs*").

The town grew based on the transport and trade of natural resources such as kauri and coal from the surrounding area (*Thomson*). This transport was via the Hatea River to the coast and incorporated into most aspects of commercial activity in the area. One of the consequences of this is that the city developed initially along the existing form of the river and as it grew, the layout began to reflect this complicated landscape. Overtime a mixture of channel dredging, land reclamation and general development created significant changes to the river edge and consequently the form of the city and CBD. The following study of historic river and city maps reveals these changes.



**Figure 3.53** (next page)  
Two local boys watch a waka within the Whangarei Town Basin from the Waka and Wave Sculpture.

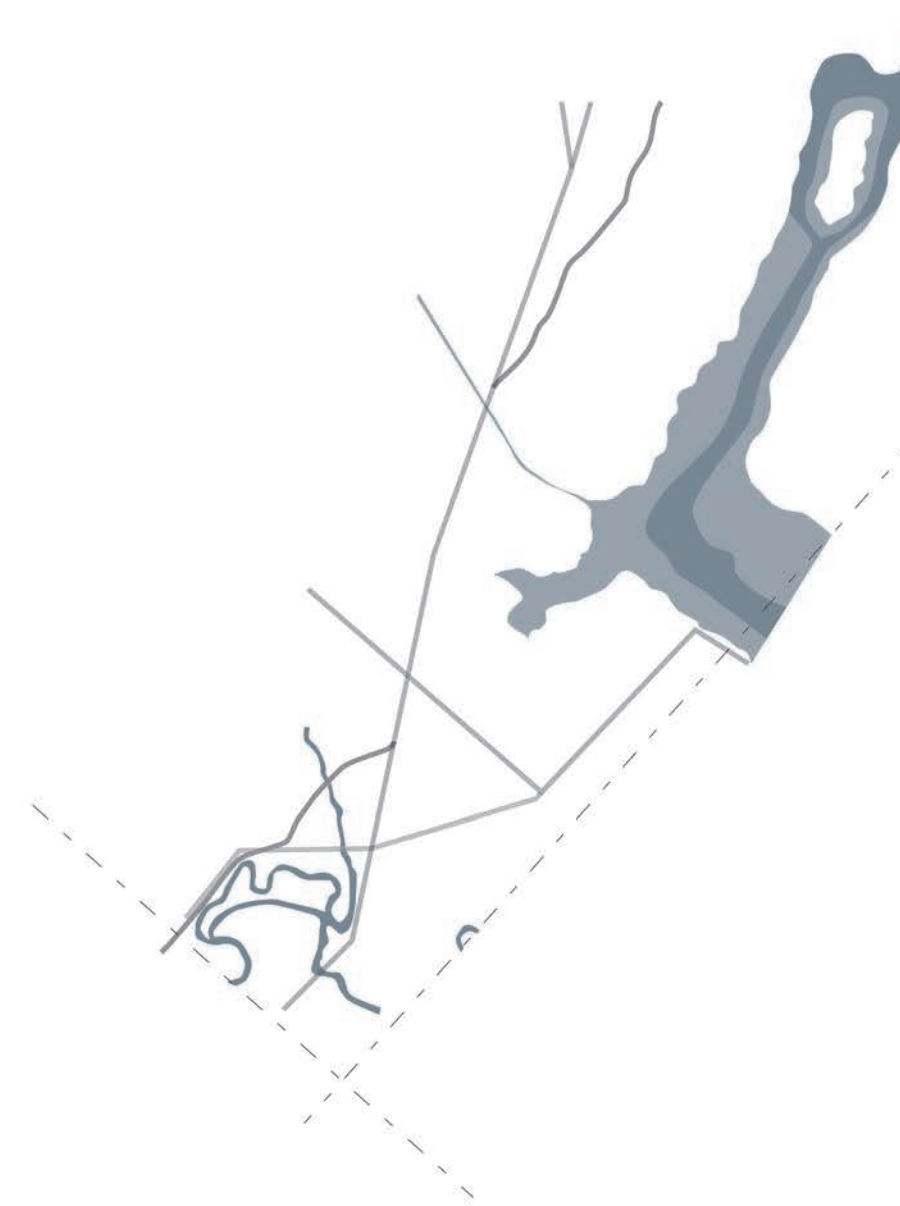




**Figure 3.54** (above)  
Aerial Photo of the Whangarei CBD in 1942.  
Scale 1:12500



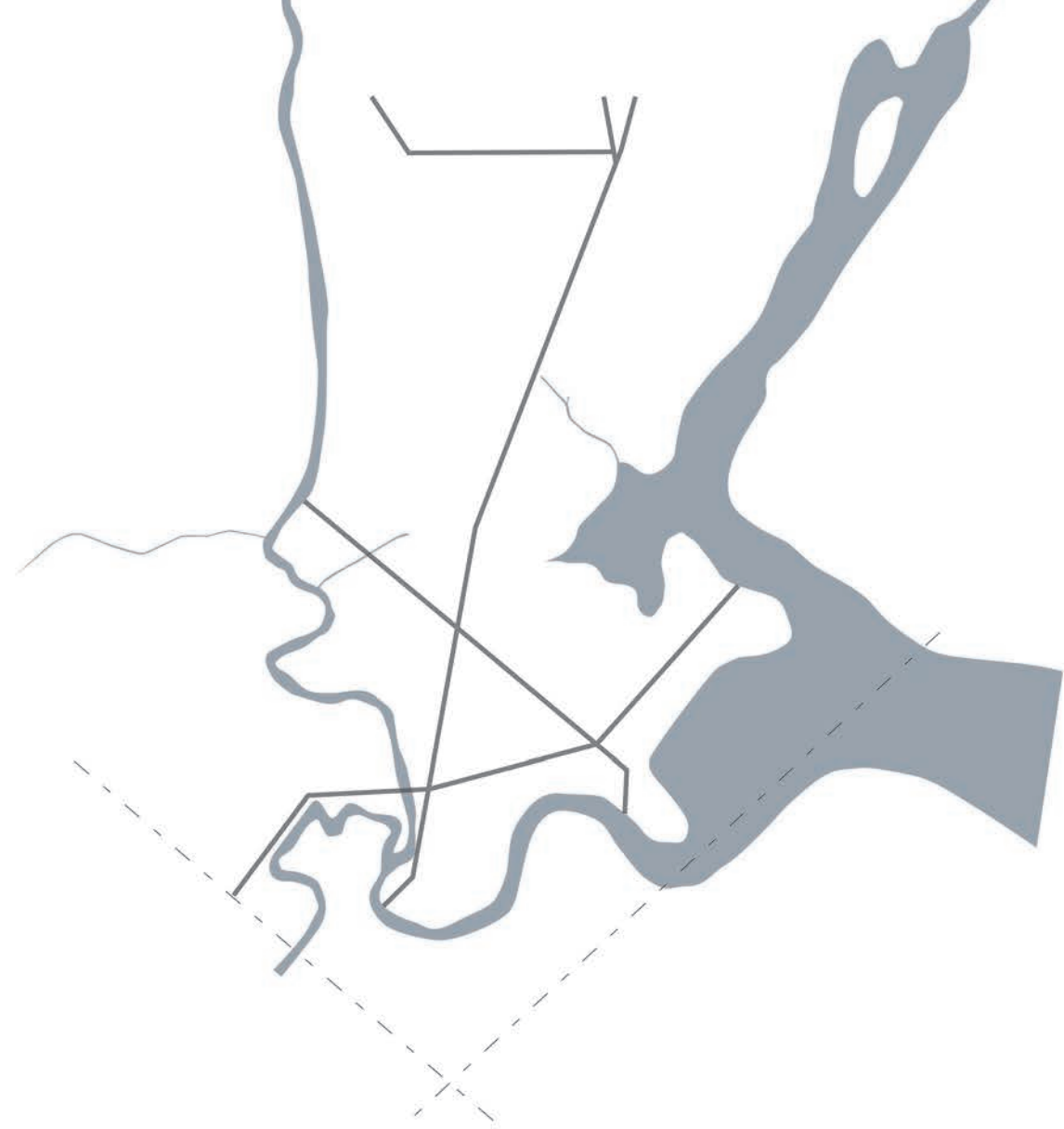
**Figure 3.55** (above)  
Aerial Photo of Whangarei CBD present Day.  
Scale 1:12500



**Figure 3.56**  
Map of Hatea River and Whangarei CBD location in 1860.  
At this point in time Whangarei had established itself as the trading  
centre for the increasing number of settlers in the surrounding district  
and the location for shipping for timber, coal and Kauri gum. Cameron  
Street, Bank Street and Walton Street had been established in some  
form.  
Scale 1:12500

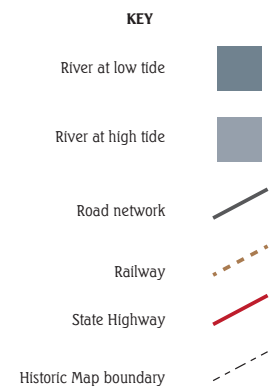
- KEY**
- River at low tide
  - River at high tide
  - Road network
  - Railway
  - State Highway
  - Historic Map boundary





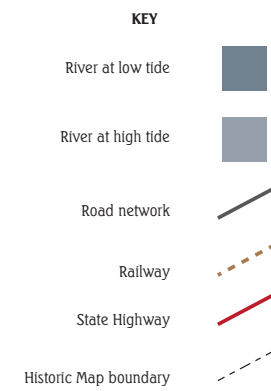
**Figure 3.57**

Map of Hatea River and Whangarei CBD location in 1872.  
The first form of local government was established with the  
Whangarei District Road Board in 1872.  
Scale 1:12500



**Figure 3.58**

Map of Hatea River and Whangarei CBD location in 1883.  
The Whangarei Borough was defined in 1876 due to the fast pace of  
growth.  
Scale 1:12500

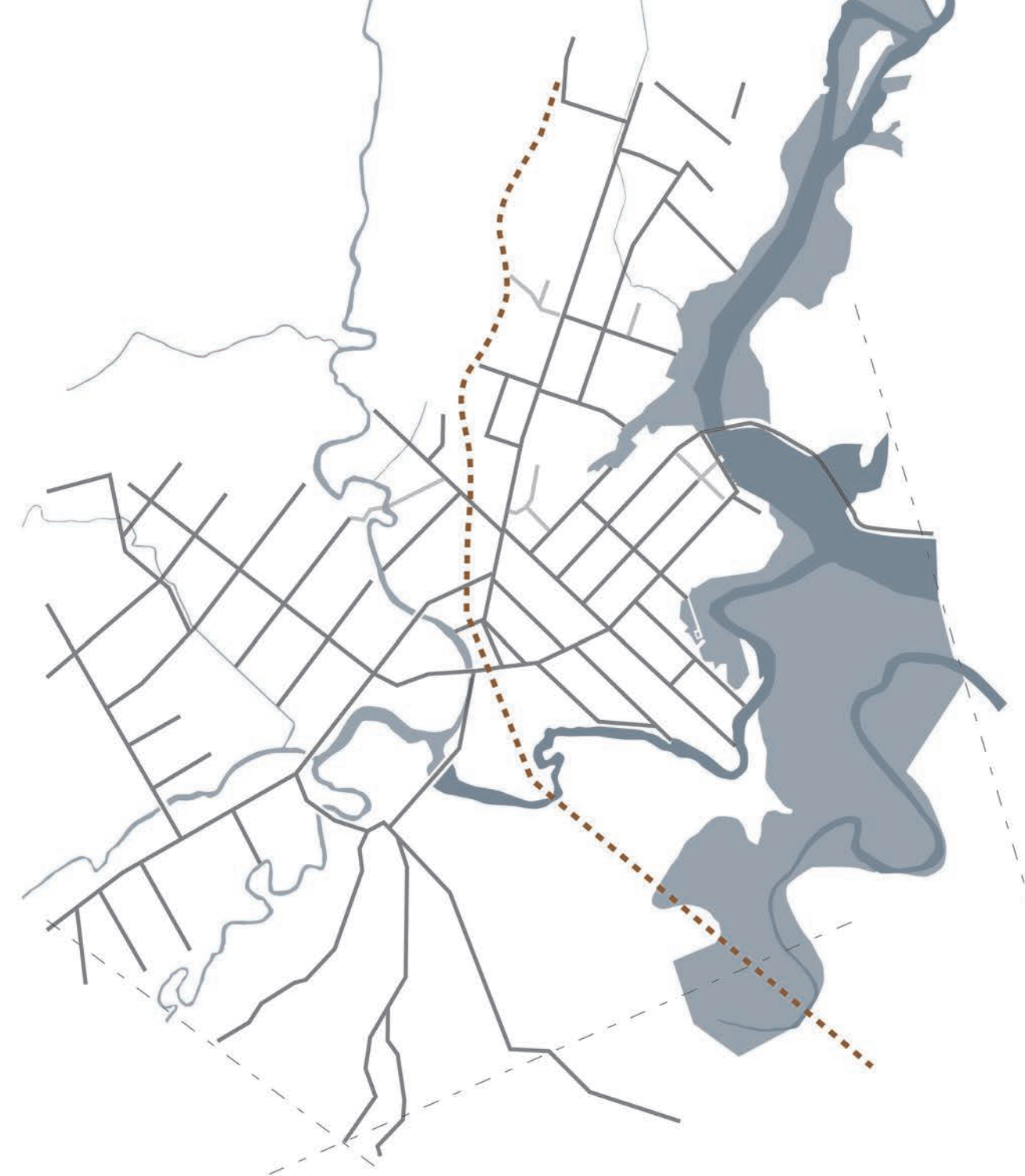
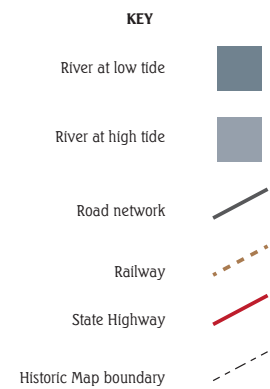






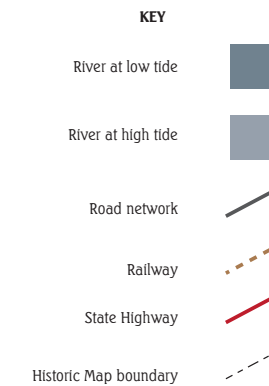
**Figure 3.59**

Map of Hatea River and Whangarei CBD location in 1886. The 1880's also saw the opening of the railway between Kamo to Whangarei wharf, improving the transport of coal from Kamo via rail down Walton Street to the Town Wharf for shipment.

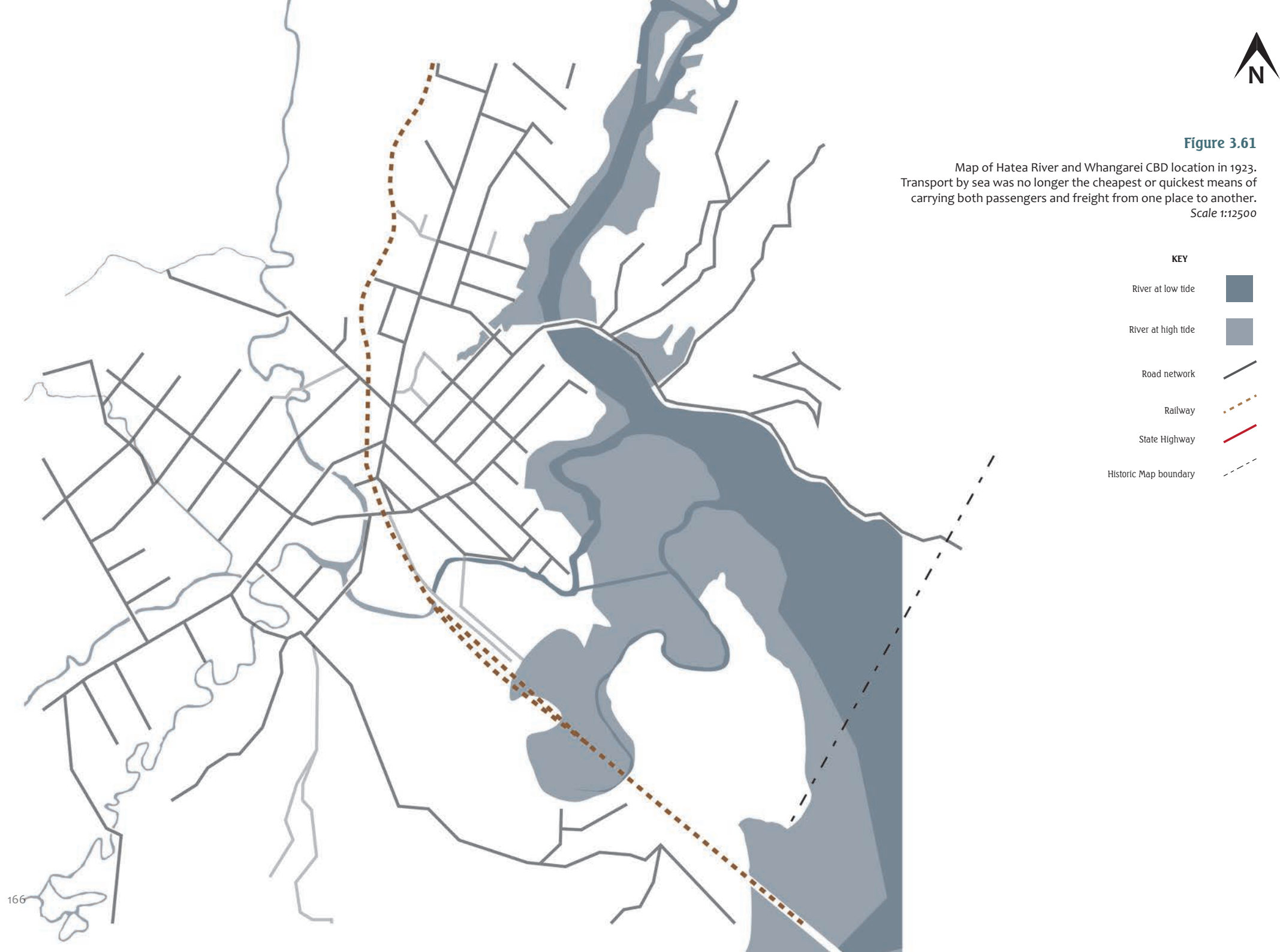


**Figure 3.60**

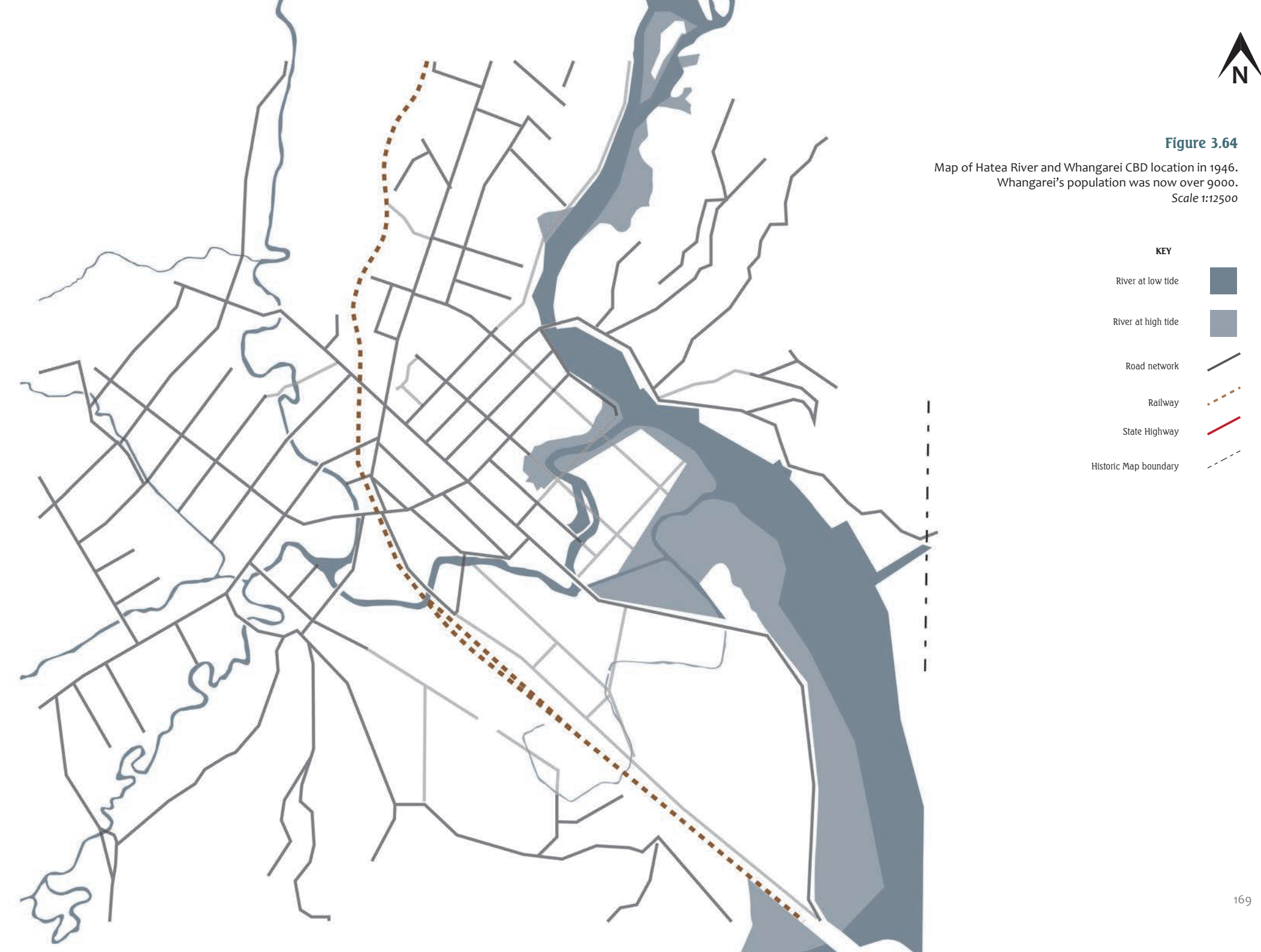
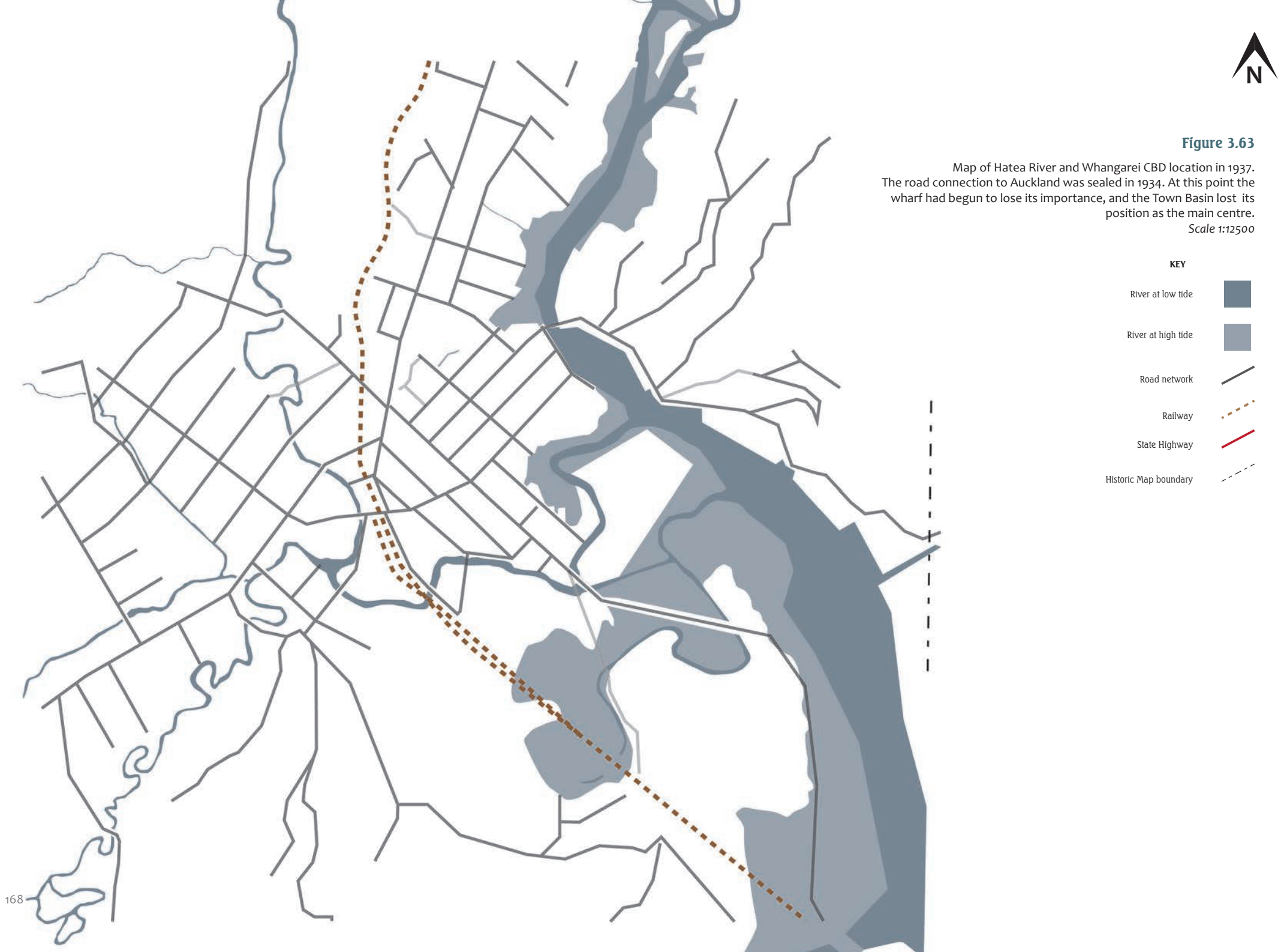
Map of Hatea River and Whangarei CBD location in 1917. The commercial heart of Whangarei along Walton, Cameron and Bank Streets was fully established at this time. Residential settlements were scattered throughout the area including ribbon development towards Kamo and Portland. Motor vehicles were also becoming more common. Scale 1:12500







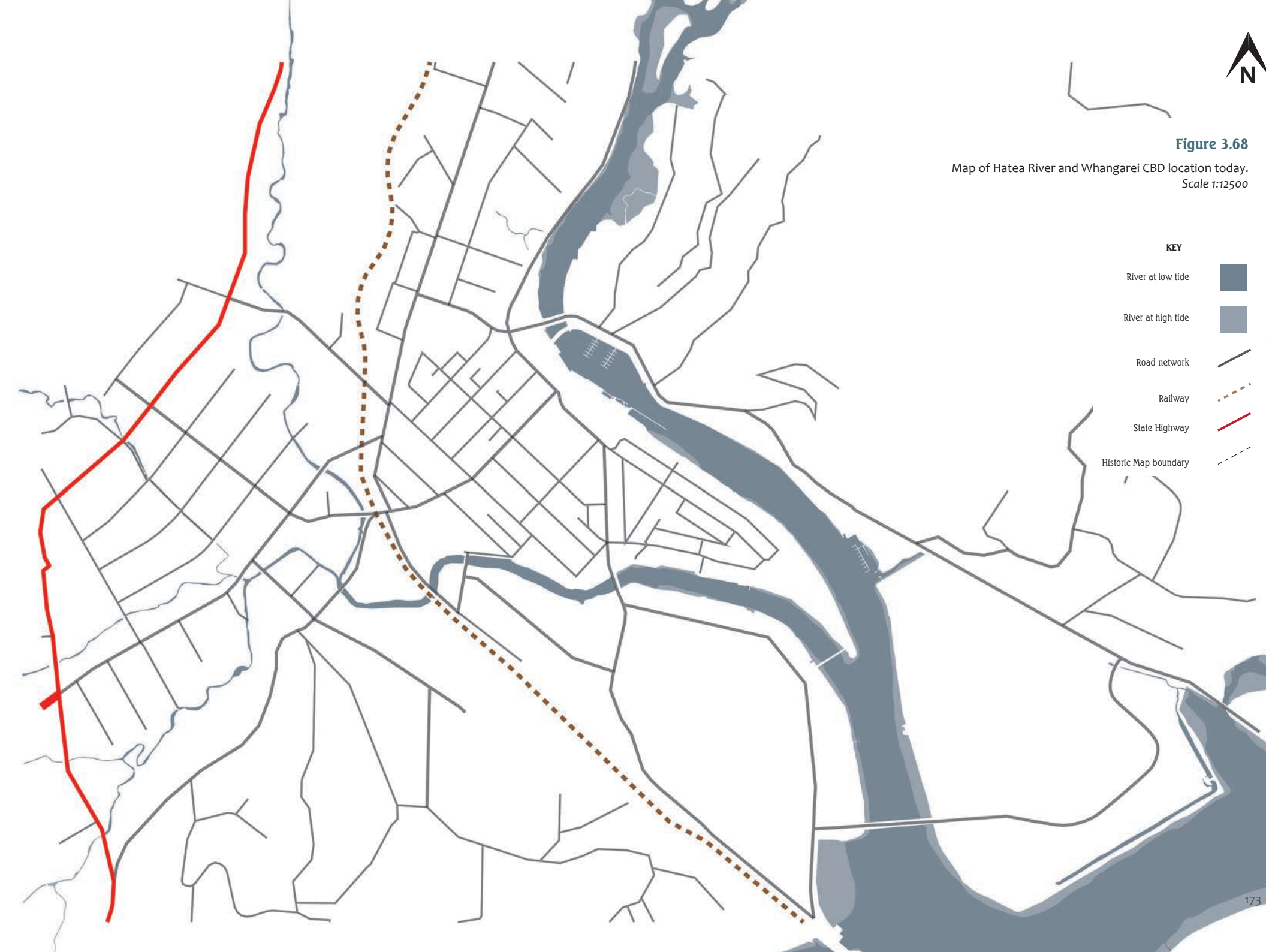














## 3.5

### Conclusion

The site analysis has identified a range of issues that have arisen from the evolution of the city without a clear plan, in a complex landscape and within a changing environment.

It has also highlighted the opportunities to address some of these issues by reflecting the natural ecology of the landscape in any design, by extending recent successful strategies in the form of the Blue/Green Network and by referencing the history of the river and its importance to iwi, early European settlers and its original form.







## Chapter Four

Design Experimentation



## ■ Introduction

The preliminary design phase of this thesis will employ several design methodologies, each reflected within the final architectural intervention.

The site analysis and investigation into Whangarei's urban issues highlighted the key site opportunities, as well as which aspects could be strengthened to create an attractive city centre. This, along with the criteria outlined within the literature review and the precedent studies, has created a platform in which to begin the design investigation.

The design experimentations will aim to resolve Whangarei's site specific issues and will respond to the aspects highlighted in the diagram on the following page.

**Figure 4.1** (next page)  
Criteria to help mitigate Whangarei's key issues.

### ENVIRONMENTAL

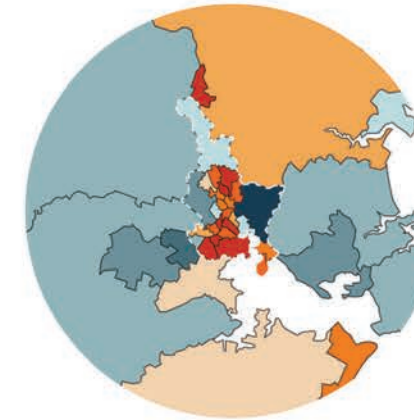


Enhance the natural environment to assist in attracting people to, as well as retaining people within the district.

Restore and embrace the ecological system of the Hatea river.

Use natural ecology to create a more sustainable environment with flood prevention and water sensitive urban design techniques.

### SOCIAL



Provide adaptable informal learning spaces which could be used for to promote educational and career opportunities.

Create a lively and attractive city centre which re-establishes a connection between the CBD and the waterfront as well as other local amenities.

Create a significant public space which can be used for events, performances as well as other social and cultural events.

### ECONOMIC



Provide opportunities or education and employment to help mitigate issues of social deprivation.

Establish a strong connection between the two centres as well as creates a attractive centre which draws more people into the city centre and ultimately leads to an increase in economic activity.

### CULTURAL



Provide a space which celebrates the local culture and heritage of the community.

Reconnect the city and the community to the Hatea river through the enhancement of its historical and cultural significant.



# 4.1

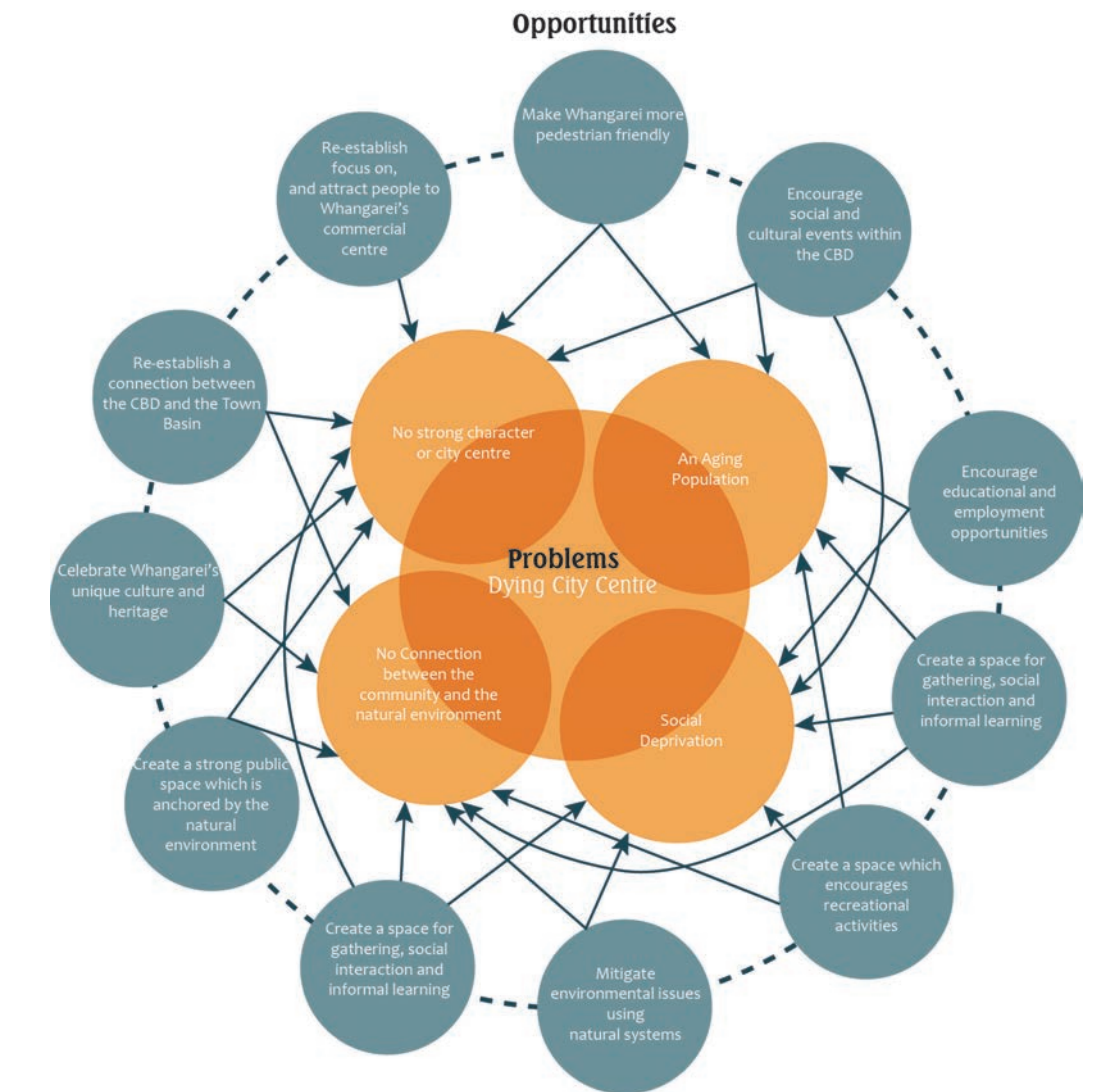
## Architectural Programme

To begin, the architectural programme will be considered. **Figure 4.1** highlights the key criteria for solving Whangarei's environmental, social, economical and cultural issues. This is looked at in greater detail within **Figure 4.2**. The crucial problem is Whangarei's dying city centre. However, secondary to that is the ageing population, a lack of educational and employment opportunities provoking social deprivation and Whangarei's site specific urban issues.

A programme, which helps to alleviate these problems, must be established. The opportunities highlighted are a broad spectrum of ways in which the issues could be mitigated. This program must address multiple issues and opportunities and not be singular in focus. For this reason, the concept of an architectural program that presents a range of solutions is most desirable. This will be the intent of the design.

The programme will comprise a built space which provides a mixture of informal learning opportunities, a central public space, a compelling pedestrian link between key areas of the CBD and a showcase of the natural ecology and historic river form.

**Figure 4.2**  
Diagram summarising the key problems and highlighting potential opportunities to mitigate these





## 4.2

### Whangarei River



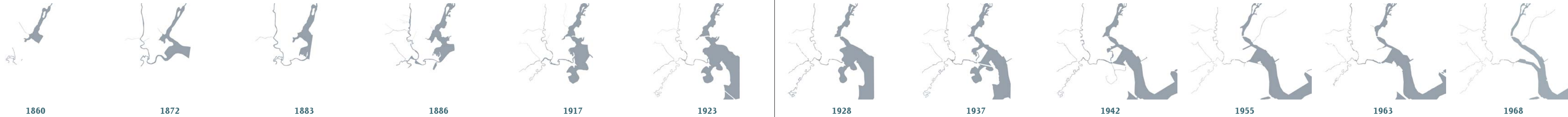
**Figure 4.3** The Whangarei Town Basin in 1910 looking towards the CBD up James Street.



## ■ Historic River Edges

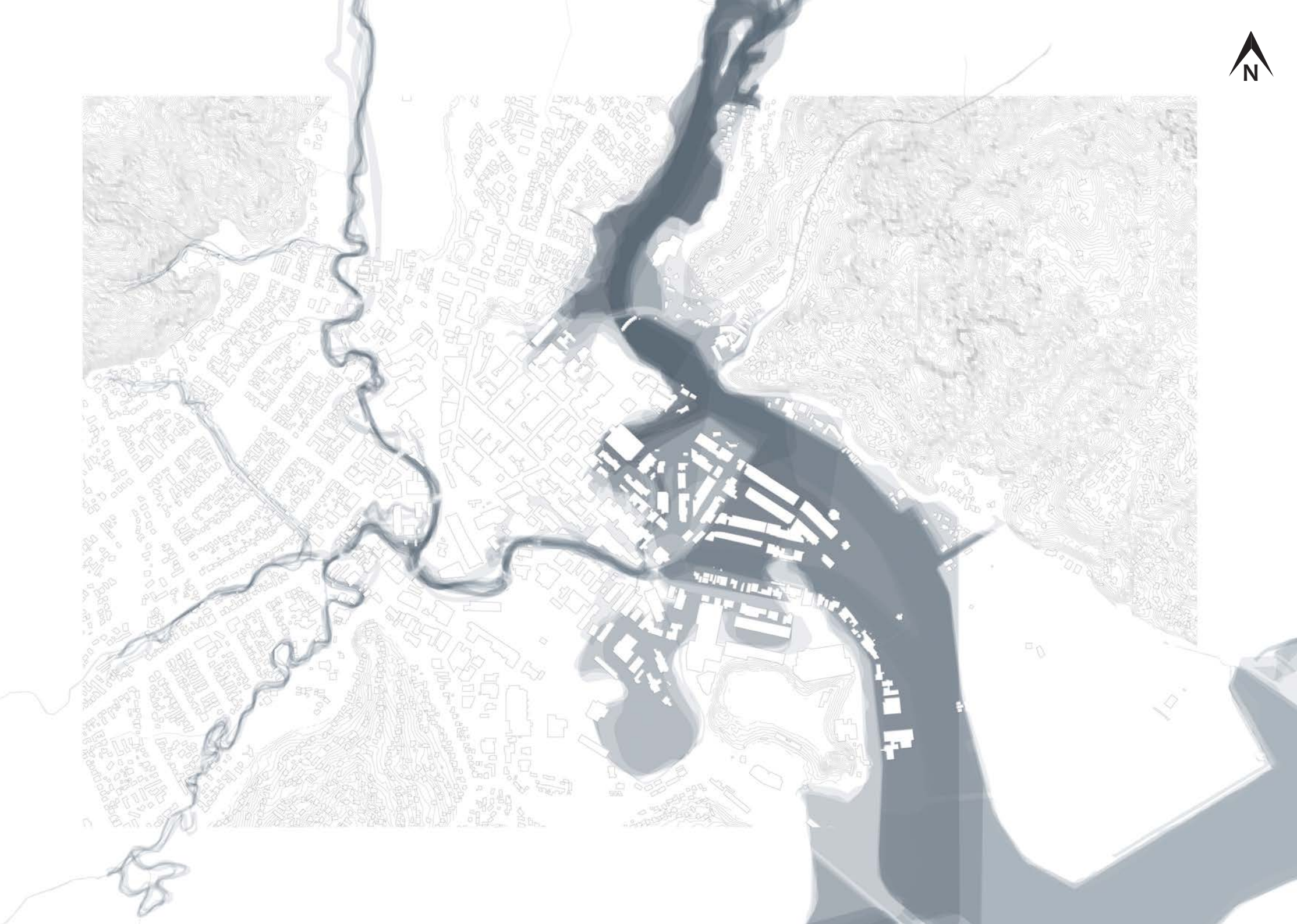
Learning from the literature review and precedent studies, it is clear that there is strength in designing with the environment in mind, and reconnecting the community to both their natural and cultural heritage. Within the site analysis, the ‘no mans land’ found between the Commercial Centre and the Town Basin were identified as the most significant problem. This ‘no

mans land’ is detrimental to the connection between the Commercial Centre and the Town Basin. A potential design solution would be to emphasise the Hatea River edge in the context of the Commercial Centre rather than the Town Basin. Through mapping, as an initial design step, the natural history of the Hatea River was explored.



**Figure 4.4** (full spread)  
Changes to the Whangarei River system from 1860 - 1968.





**Figure 4.5** (previous page)  
The historic river maps overlaying present day Whangarei.  
Scale 1:12500

The next step was to overlay each river map over present day Whangarei, showing the river's original landscape and how it would look within today's context. While the lower CBD is the most affected by this investigation, more inspiring is the small portion of the river which enters the Commercial Centre at the perimeter of Laurie Hall Park. This essentially falls within the 'no man's land' and highlights approximately half of the buildings within this space.

**Figure 4.6** (left)  
The historic rivers edge (highlighted orange line) generates a boundary which divides the buildings of present day Whangarei (highlighted in black).  
Scale 1:8000

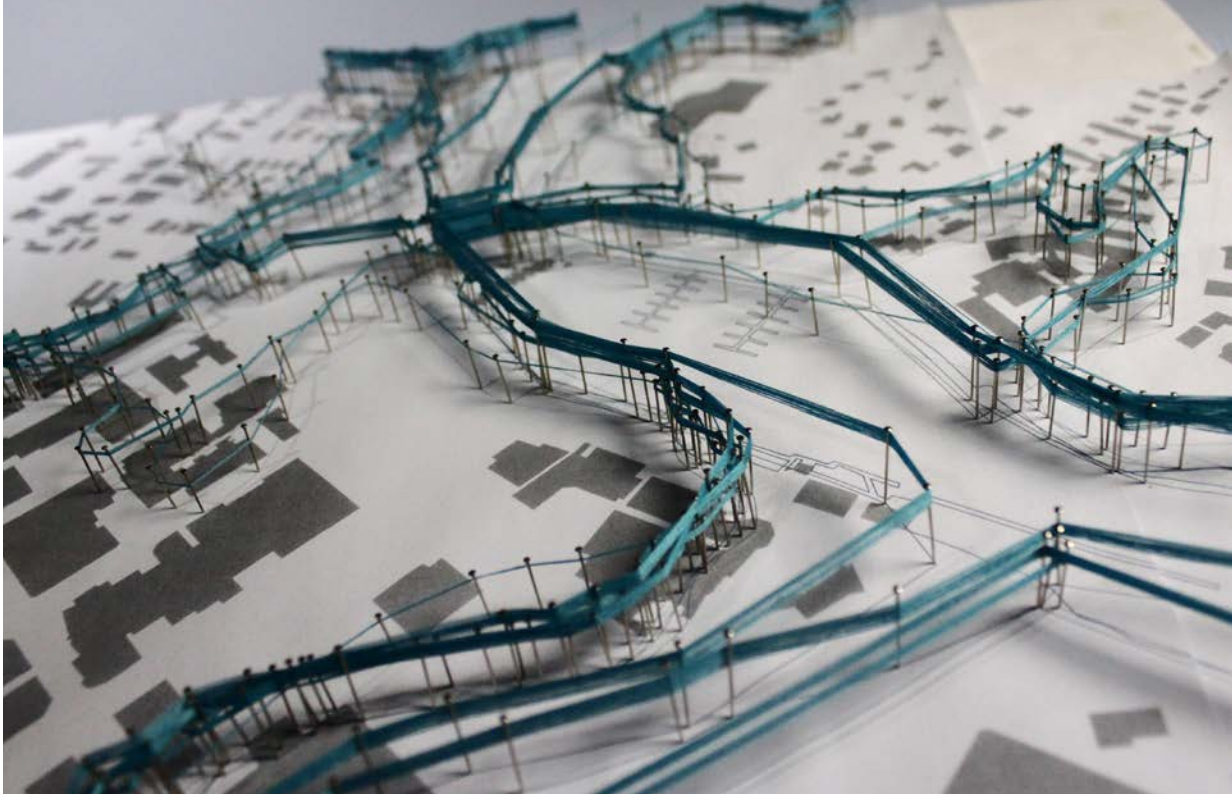




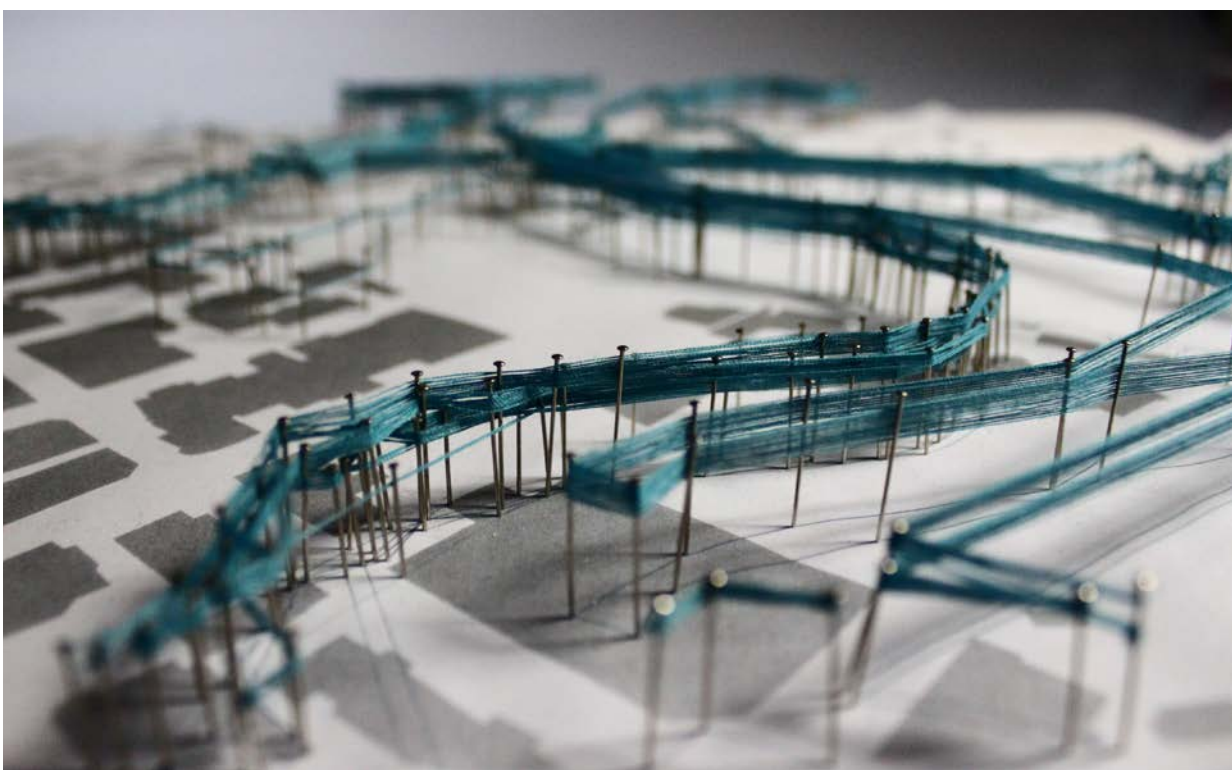
**Figure 4.7** (previous page)  
Complete string model which was built at a scale of 1:2000 to explore each individual river's edge.

### String Model

Previous images displayed the river lines as a single edge. To recreate a sense of complexity, three dimensional mapping of the river edges using a string model was used as a means of exploring each line as an individual element. This exploration reveals each lines solidity as well as expose where each of the edges join, interact and cross.

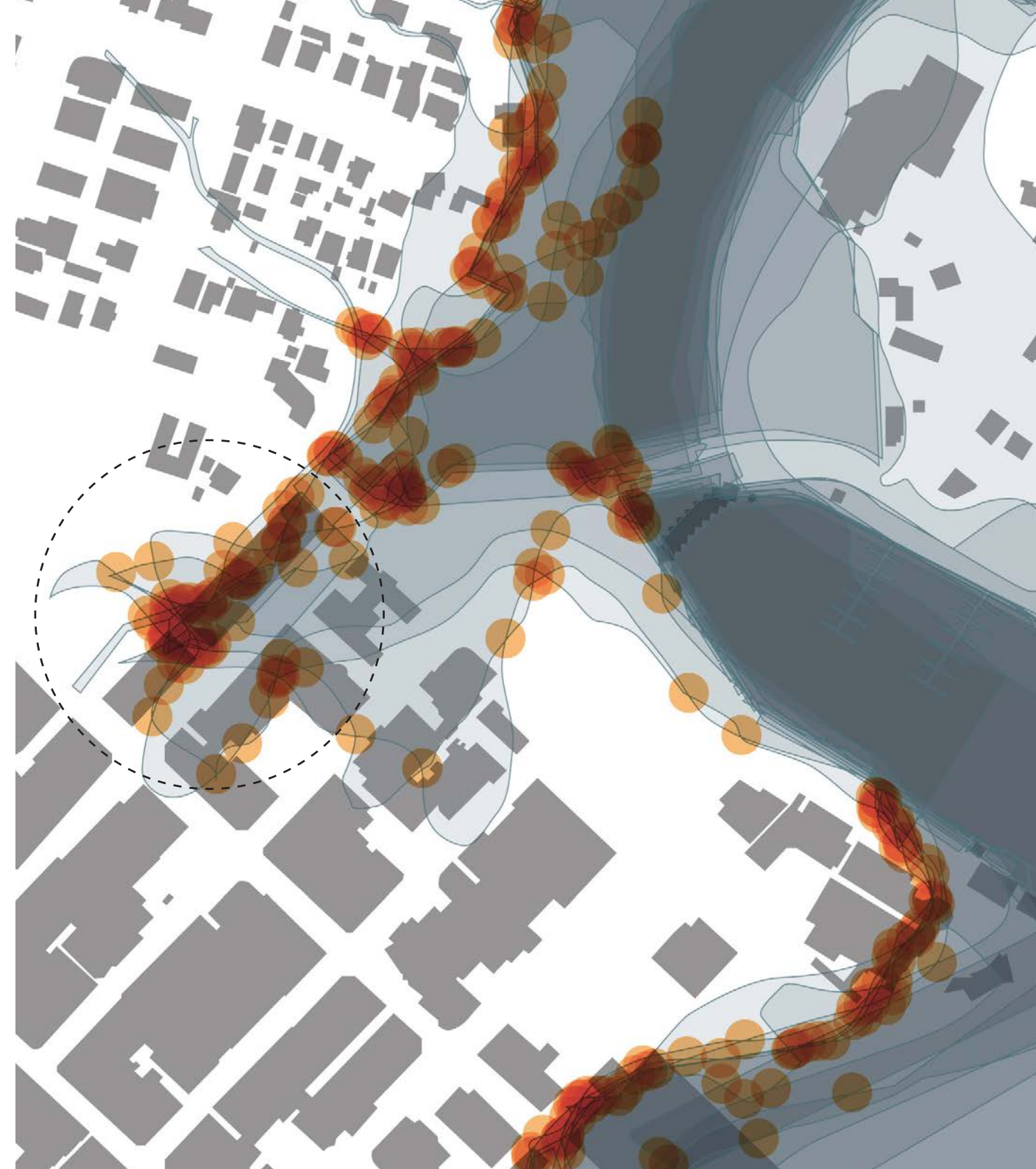


**Figure 4.8** (above right)  
The thicker lines express the river edges from later in time as well as where river lines conjoin.

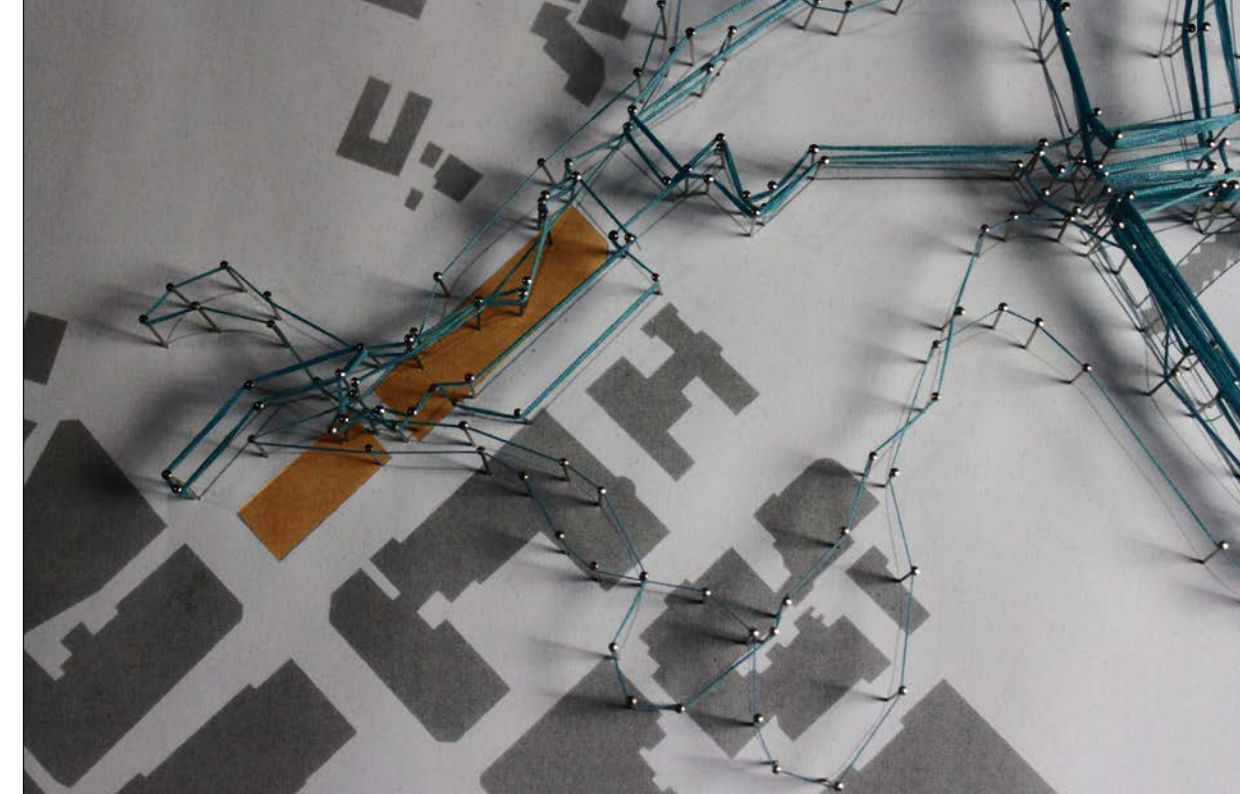


**Figure 4.9** (below right)  
Pins which are clustered closer together reveal where each line is intersecting and interacting.





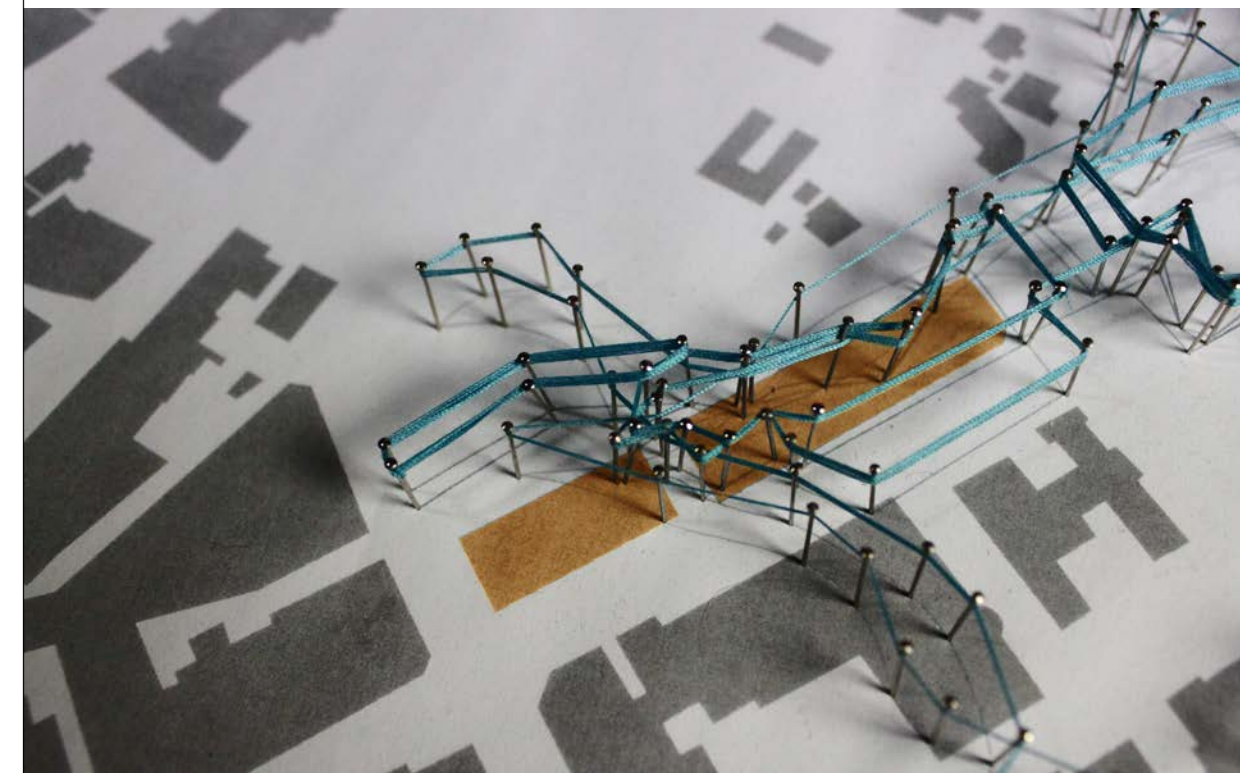
**Figure 4.10**  
Map highlighting where each of the river lines intersect (orange circles), which reveals areas with greater exposure to the historic river edges.  
Scale 1:2500



With the 'no mans land' in mind, each of the river lines were mapped in **figure 4.10**. Although only a few of the mapped historic river lines (1860, 1883, 1886, 1917, and 1923) enter the 'no mans land,' those that do cluster together, as demonstrated within the black circle.

The two orange blocks in **figures 4.11** and **4.12**, as found in 'no mans land', were identified as a potential site for design intervention due to their exposure to many of the mapped river lines.

**Figure 4.11** (above left)  
Photograph of the string model which shows that the rivers primarily intersect amongst the two block's highlighted.



**Figure 4.12** (below left)  
Zoom in on the two highlighted blocks, reveals that much of the clustering happens between them.



## 4.3

### *The Buildings*



**Figure 4.13** Three Whangarei office buildings viewed from Rathbone Street.

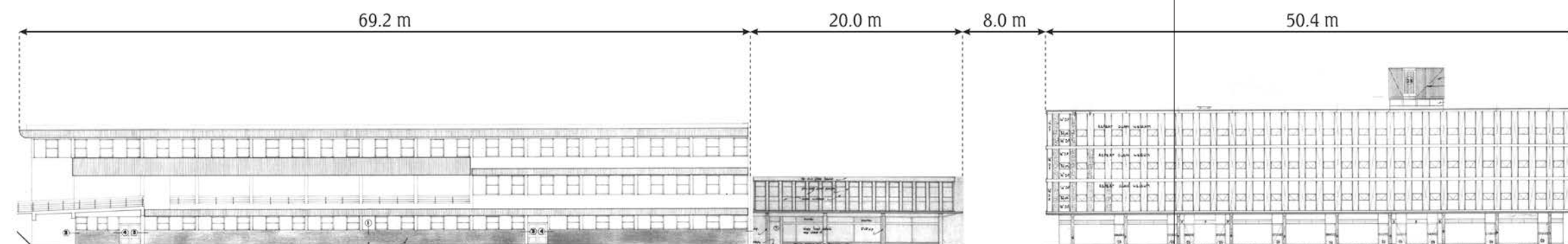




Within the site identified there are three large office buildings. The buildings sit on the edge of Laurie Hall Park and form a wall, which is a cause of the parks poor physical and visual connection with the Commercial Centre. The buildings, while sitting on the edge of Whangarei's busiest carpark, offer no interaction with the public or the surrounding streets. In fact many of the shop spaces on the lower floors are vacant due to lack of activity.

Many of the precedent studies analysed explored the repurposing of abandoned buildings and infrastructure. When considering Whangarei, there are no significant abandoned structures, but rather buildings which are underutilised.

**Figure 4.14** (above left)  
The three office buildings located on the edge of Laurie Hall Park.



**Figure 4.15** (below left)  
The building elevations along with each building width.  
Scale 1:500





**Figure 4.16**  
An example of an empty office building which has been removed of all services and partitions to reveal a vast space.

The buildings surrounding Laurie Hall Park, when considered as a space, are large in scale, simple in structure and are highly adaptable.

This space was identified as a potential design site due to its proximity to the river and the rivers heritage. There is potential in using the natural environment to enhance this space as identified in the site analysis. Therefore there is an opportunity to connect the river, not only figuratively, but also physically to this space.



## 4.4

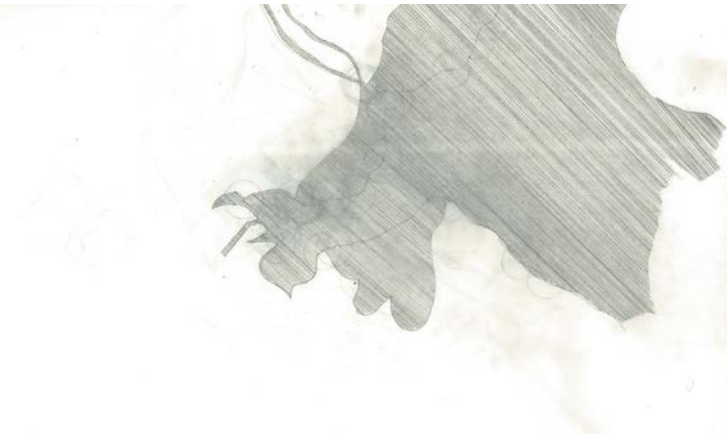
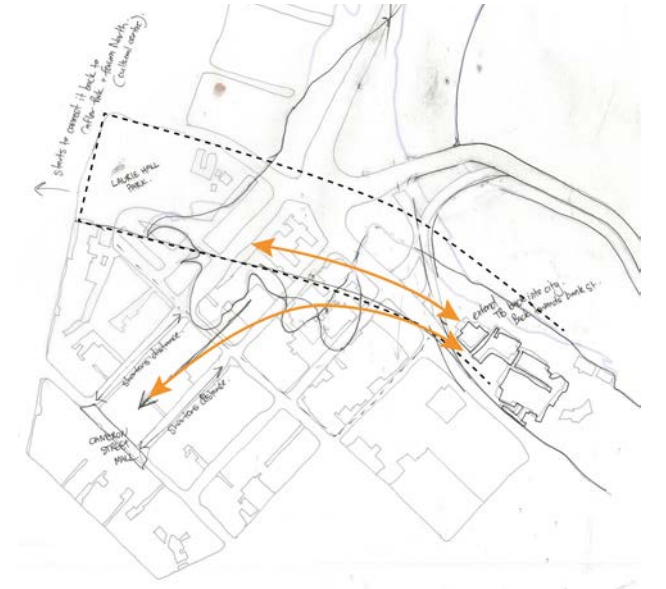
### A New River's Edge

#### Establishing a Terrain

While the Laurie Hall Park site was highlighted through mapping through the rivers history, it is also important to establish a strong connection between the site and the waterfront. Historic river restoration as a design solution is a technique used to connect the river back to its community. This was demonstrated within the precedent studies. By bringing the river back into the city it will allow the Town Basin to extend into the Whangarei Commercial Centre giving the river the opportunity to interact and enliven the centre.

**Figure 4.18 (right)**

Early diagram of idea to make the new rivers edge an extension of the Town Basin.  
Scale 1:8000



**Figure 4.17 (full spread)**

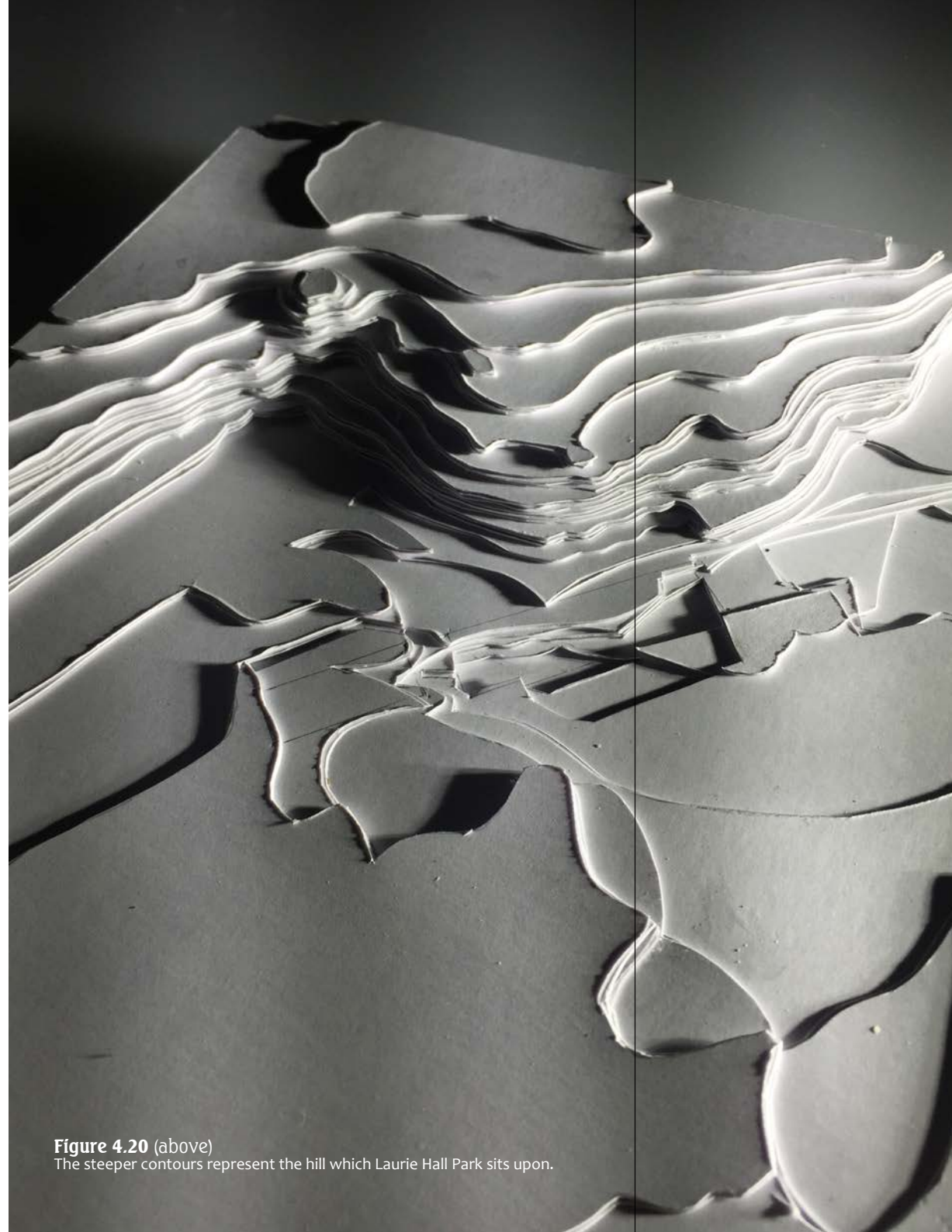
The historical river lines were drawn and overlaid to create a new river terrain, as shown in the sequence below.  
Scale 1:8000



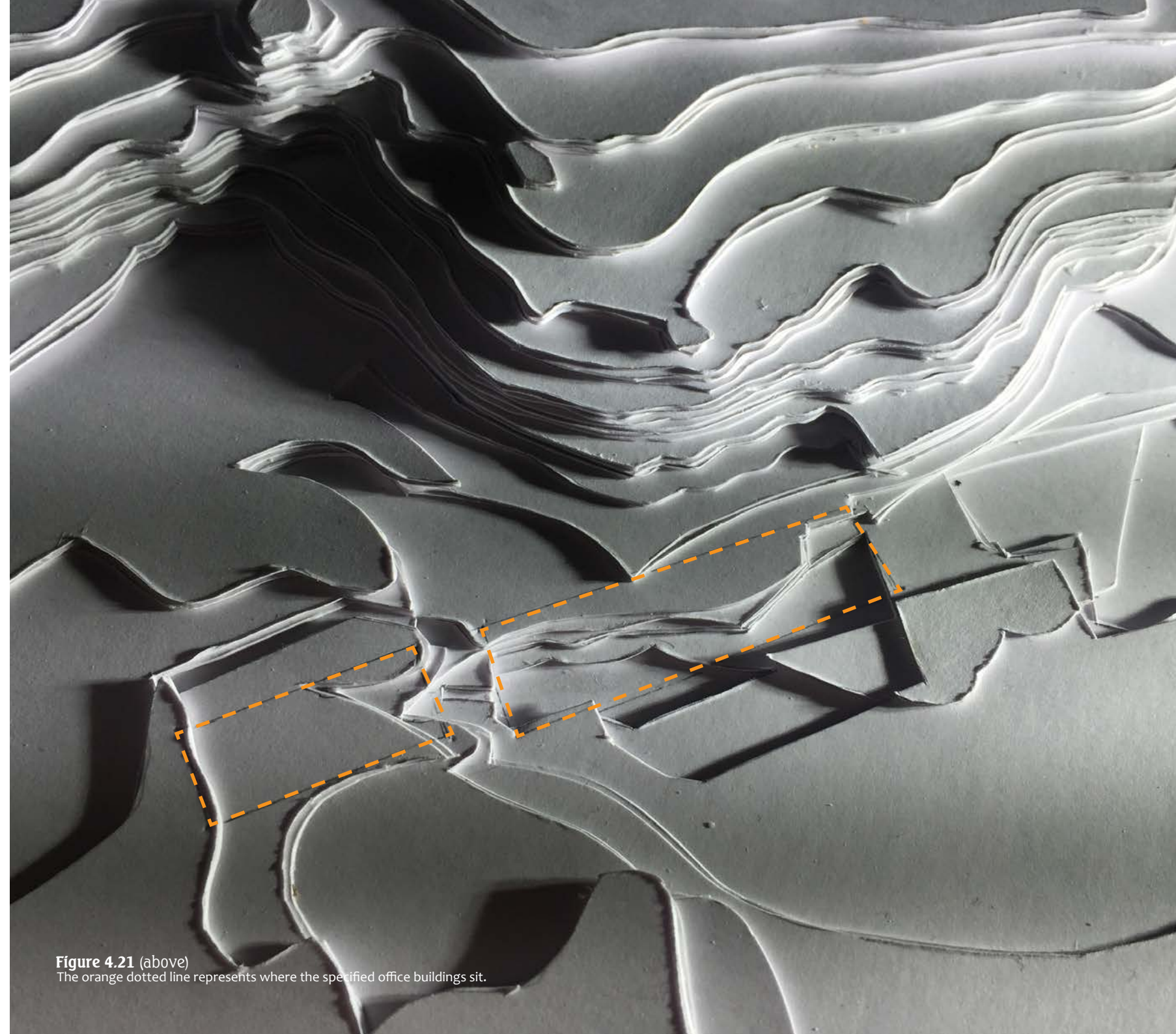




**Figure 4.19** (above)  
The new river terrain was combined with the existing terrain through physical modelling.



**Figure 4.20** (above)  
The steeper contours represent the hill which Laurie Hall Park sits upon.

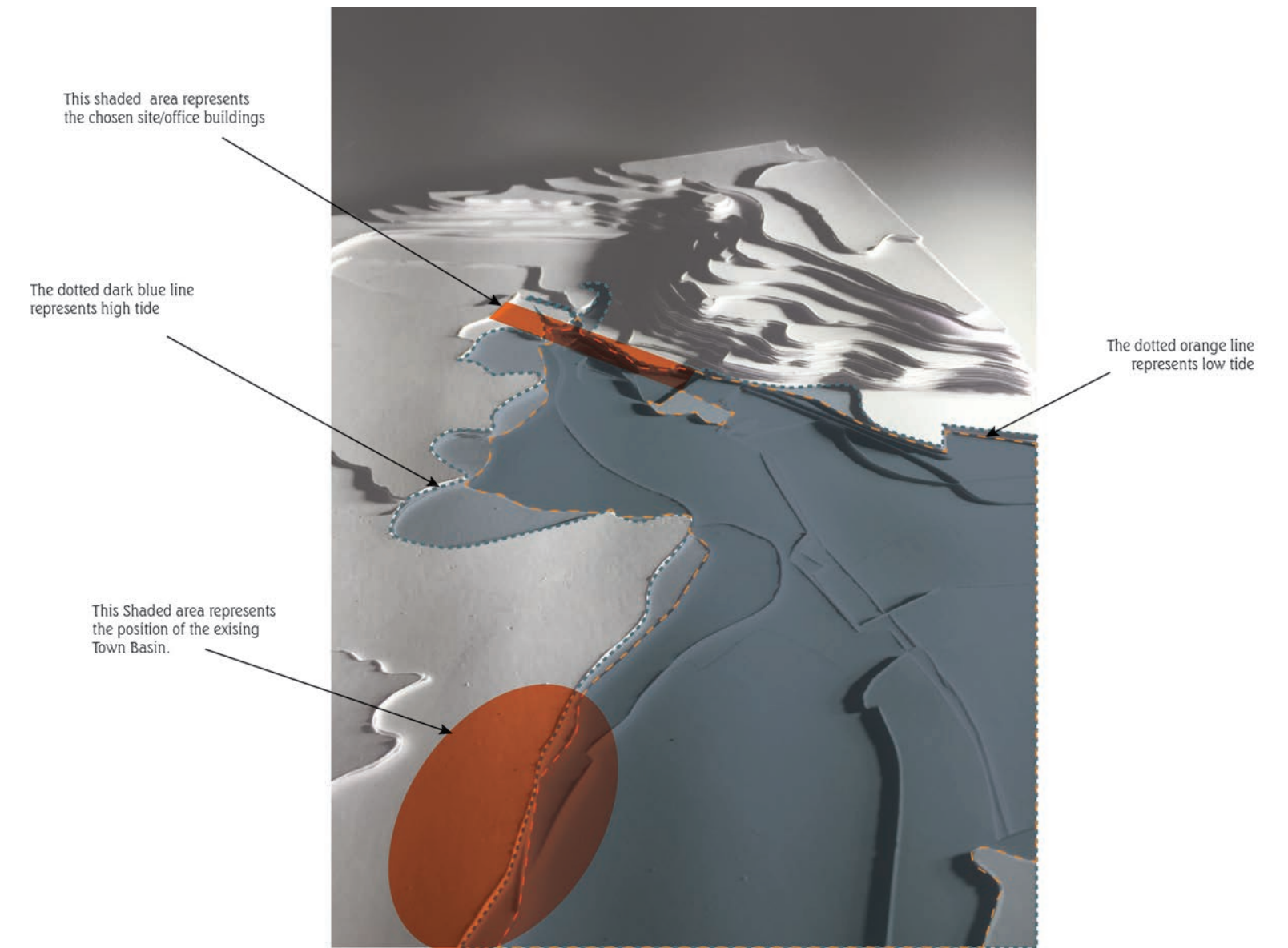


**Figure 4.21** (above)  
The orange dotted line represents where the specified office buildings sit.





**Figure 4.22**  
Image showing how the water will now enter the CBD. The different heights within the terrain will help with flood prevention.



**Figure 4.23**  
Image outlining key details of the newly established terrain and rivers edge.





## ■ A New Public Space

With the adapted rivers edge a new public space has been established. This newfound space reconnects the Commercial Centre and the Town Basin, as well as the underutilised Laurie Hall Park. It allows for waterfront development which is not just focused within the Town Basin but now more so within the context of the commercial centre. It also re-establishes Whangarei's natural ecology.

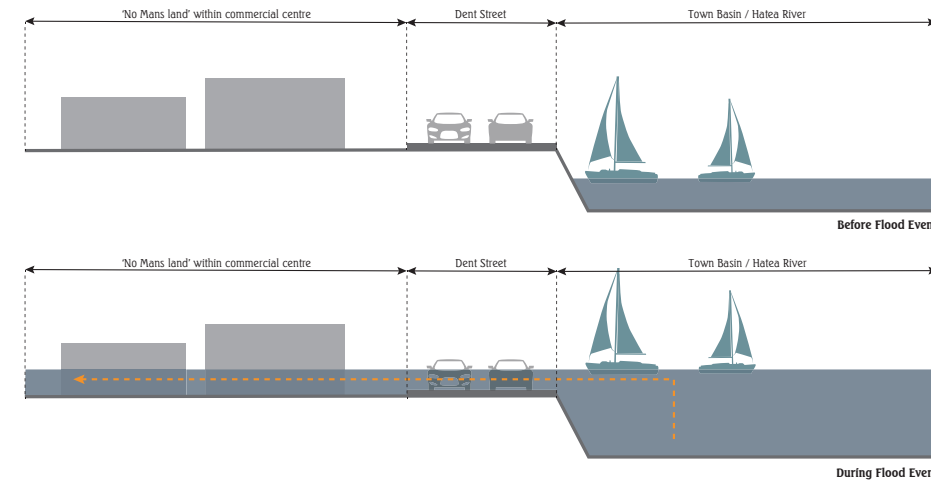
Although this new connection has been established, the space is not necessarily enough to attract people to it. Therefore the issue is drawing people to the space.

**Figure 4.24** (previous page)

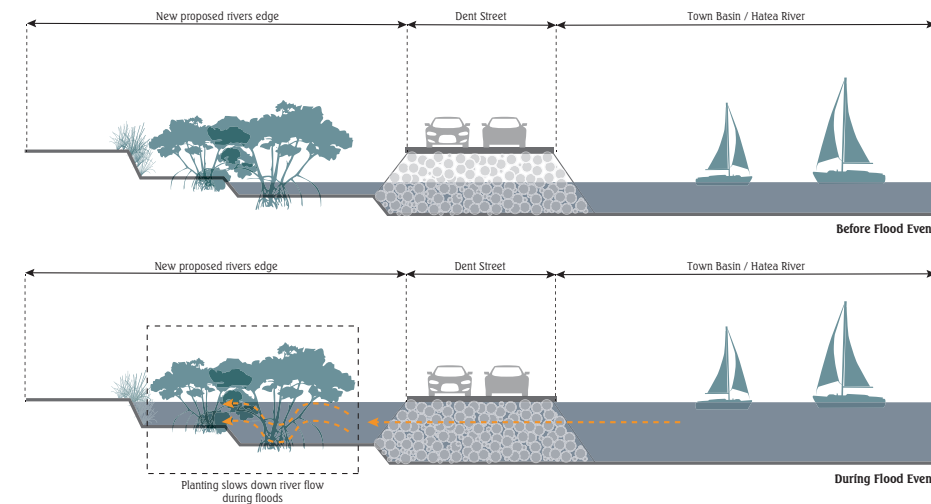
Masterplan of the proposed public space surrounding the new river's edge.  
Scale 1:4000



## Flood Mitigation

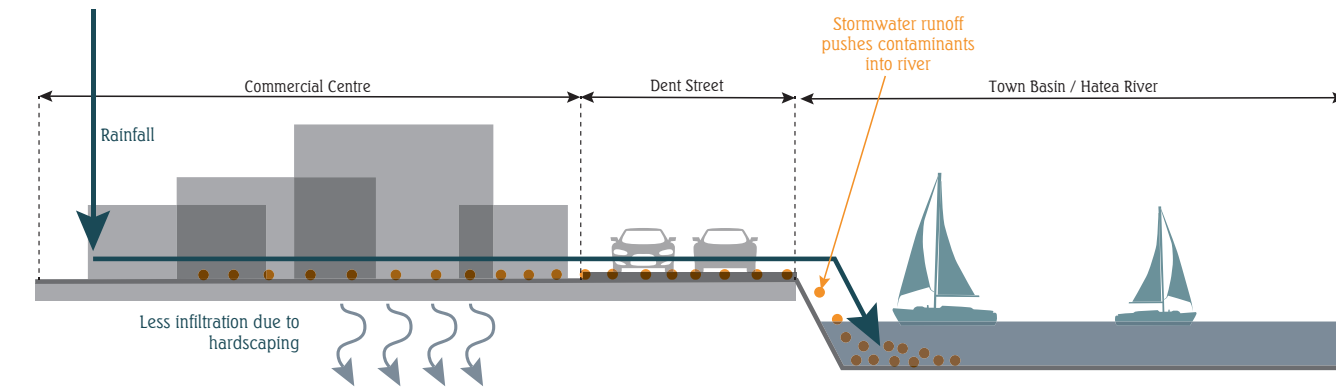


**Figure 4.25 (above)**  
A flooding event within Whangarei in its current state.  
Not to Scale

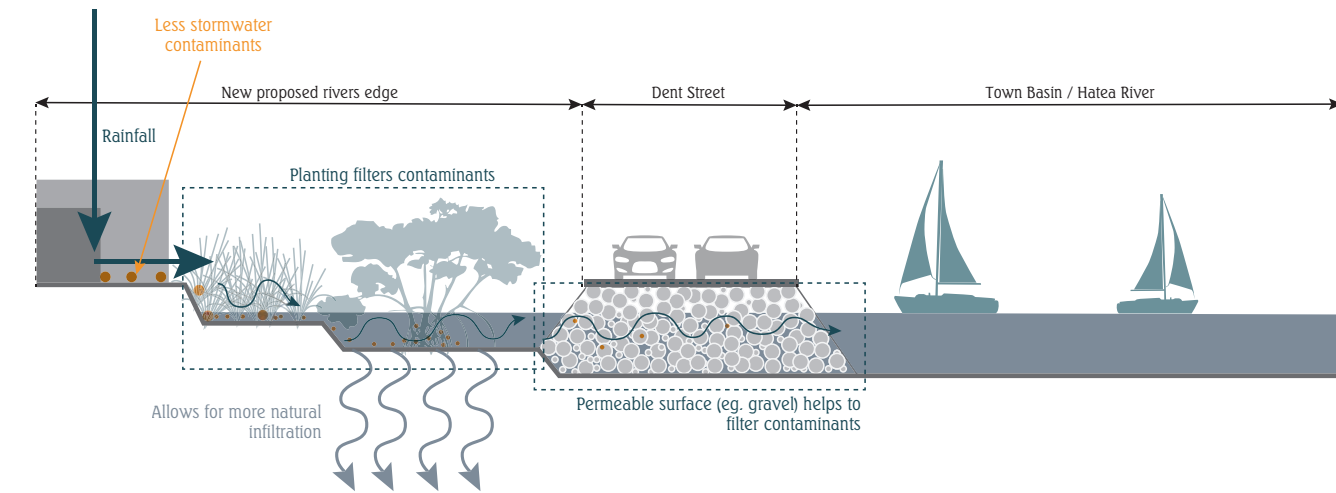


**Figure 4.26 (below)**  
The new proposed rivers edge will help prevent flood damage. Plants also help reduce damage by breaking up and slowing down water flows (as highlighted within the black box).  
Not to Scale

## Natural Stormwater Treatment



**Figure 4.27 (above)**  
Stormwater runoff within present day Whangarei.  
Not to Scale

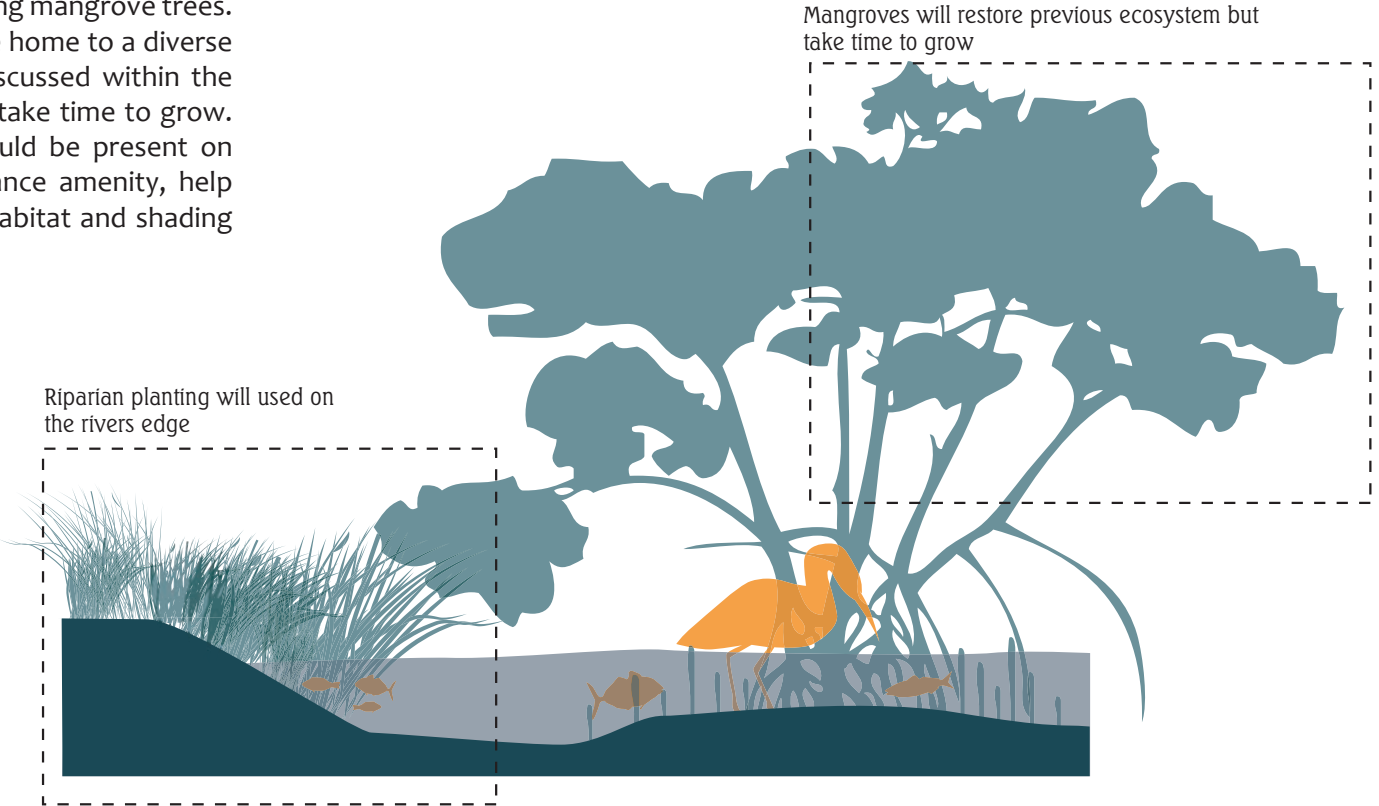


**Figure 4.28 (below)**  
The new proposed rivers edge will act as a natural stormwater treatment or wetland. The plants as well as permeable soils beneath dent street will filter pollutants before they reach the Hatea River.  
Not to Scale



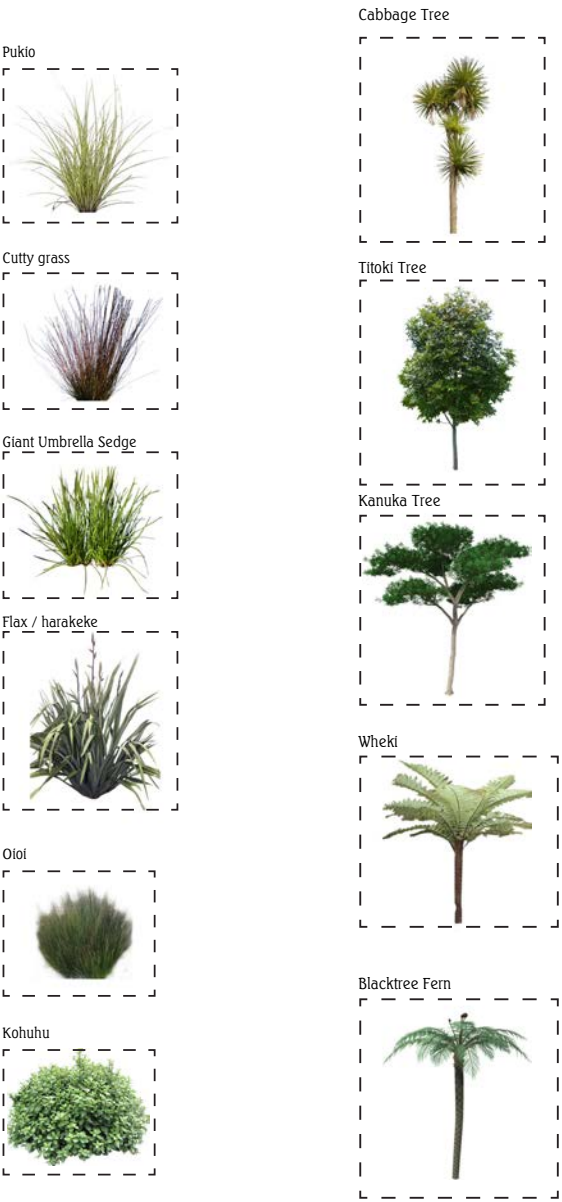
## ■ Planting

With the new river edge it is important to consider how we would go about restoring the natural ecological system, and introducing mangrove trees. The roots of mangrove trees are home to a diverse range of flora and fauna, as discussed within the site analysis. However, they do take time to grow. Therefore riparian planting should be present on the river edge. These will enhance amenity, help filter pollutants and provide a habitat and shading for fresh water species.



**Figure 4.29**

The new public space will have a riparian ecosystem with restored flora and fauna



**Figure 4.30 (above)**  
Examples of appropriate planting for a riparian ecosystem as highlighted by the Whangarei District Council.



**Figure 4.31 (above)**  
A mangrove forest within Whangarei. Grass like plants can be seen growing at the root of the mangrove.



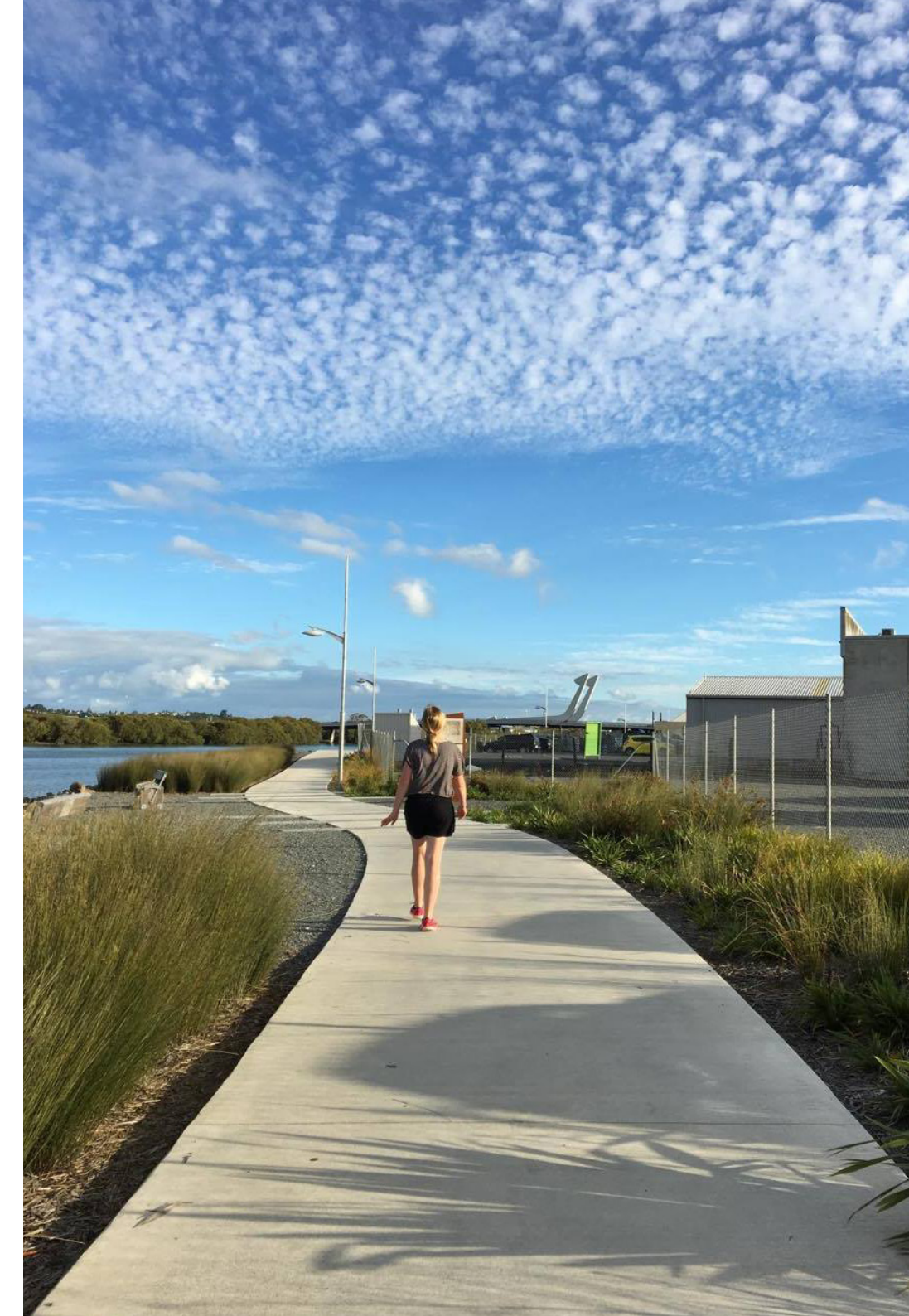


**Figure 4.32** (previous page)  
Masterplan (1:4000). To attract people to the public space, the loop walkway will extend around the new rivers edge.

### ■ Extending the Loop Walkway

The Hatea Loop Walkway is a development which has more than doubled the number of people visiting the Town Basin every day. This thesis proposes extending the Hatea Loop Walkway into the newly established public space. This will draw people from the Town Basin to the space, as well as attract more people to the Commercial Centre. The Laurie Hall park site, will act as an extension of the public space, as well as, a primary thoroughfare for the loop walkway.

**Figure 4.33** (right)  
The current Hatea Loop Walkway is a popular attraction and connection between amenities.





# Interaction of River & Building

It is important to consider how the chosen building site will differentiate from the rest of the loop walkway. Within its current building state it is merely a structure on the river edge. Creating a direct interaction between the building and the waterfront will allow the site to transform with the environment.

Figure 4.34 (below)

Initial sketch of the building on the water edge. The structure is uninspiring within its current state.

Figure 4.35 (right)

Initial ideas of how bringing the water into the building could adapt and change the space.

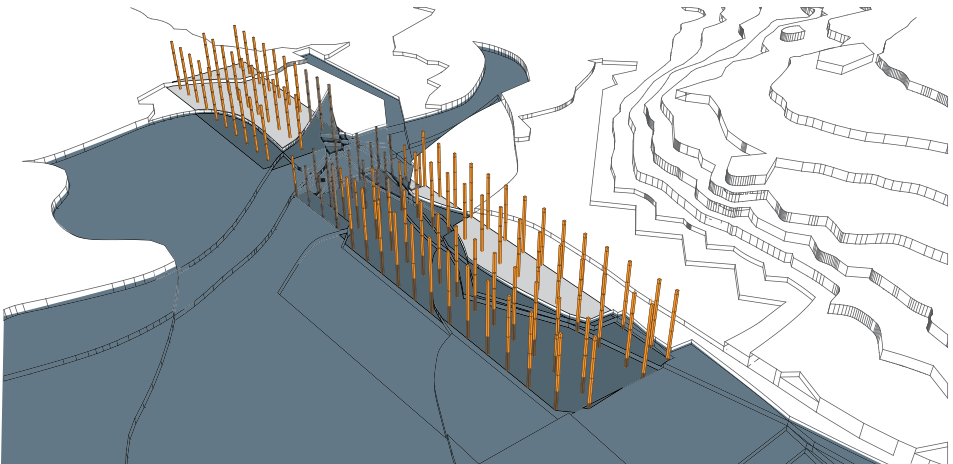
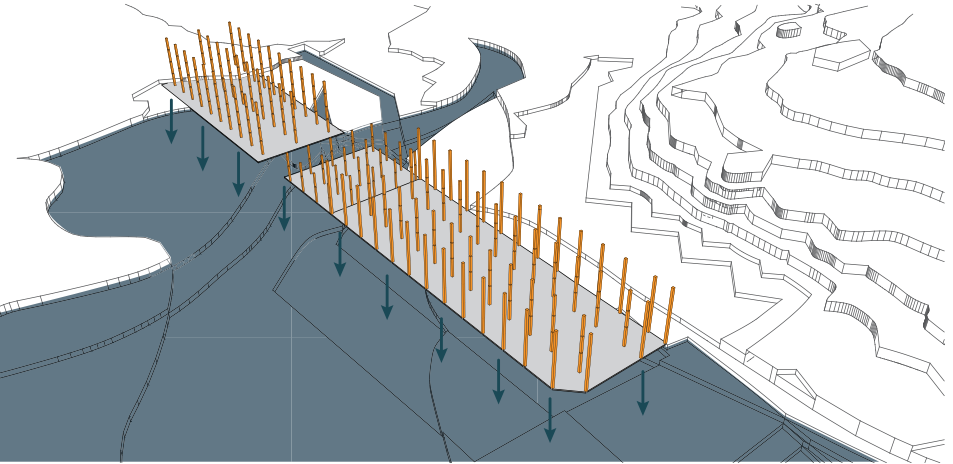
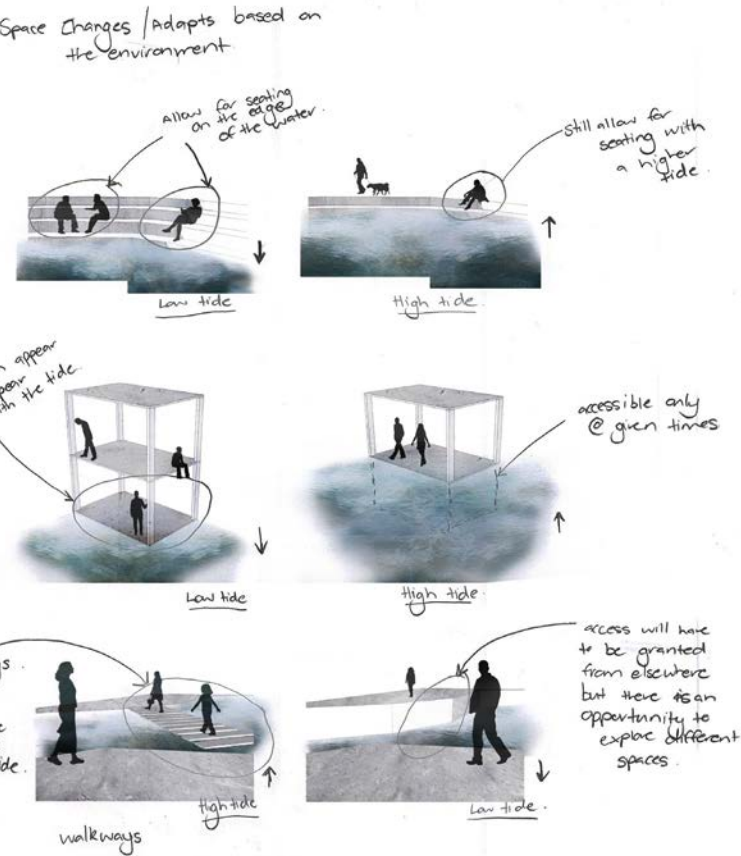


Figure 4.36  
To create a stronger interaction between the river and the structure, the ground floor level of the buildings was dropped to the level of the new river terrain.



## 4.5

### Extruding the Rivers Heritage

The next phase of design testing will focus on form. In their current state, the buildings have a physical connection with the surrounding river environment, however the buildings remain the same. The thesis will now return to the river's heritage to establish a form.

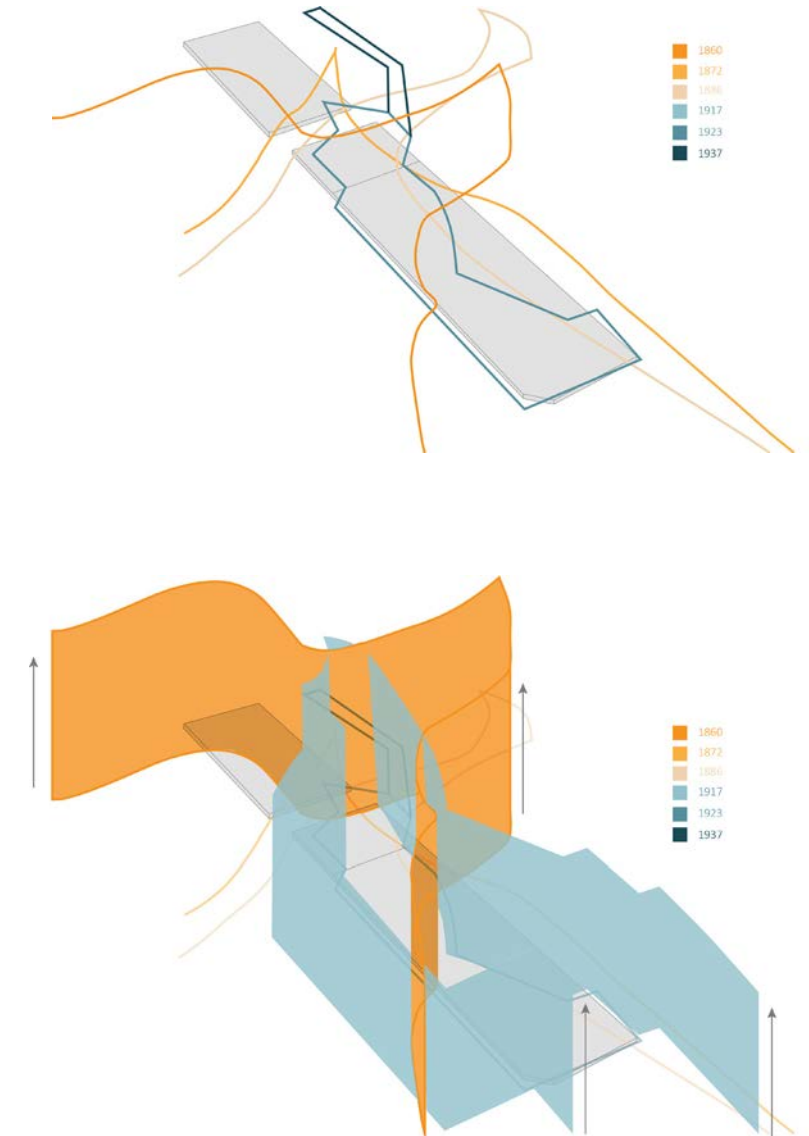
Exploring the heritage of a site and implementing its influence into design is an important tool for creating a character which is unique to a community. The river's natural history, although already present within the new terrain, is not clearly celebrated within the design. Therefore the river lines will be extruded to create an interesting form which represents and celebrates the Hatea River history.

**Figure 4.36** (above right)

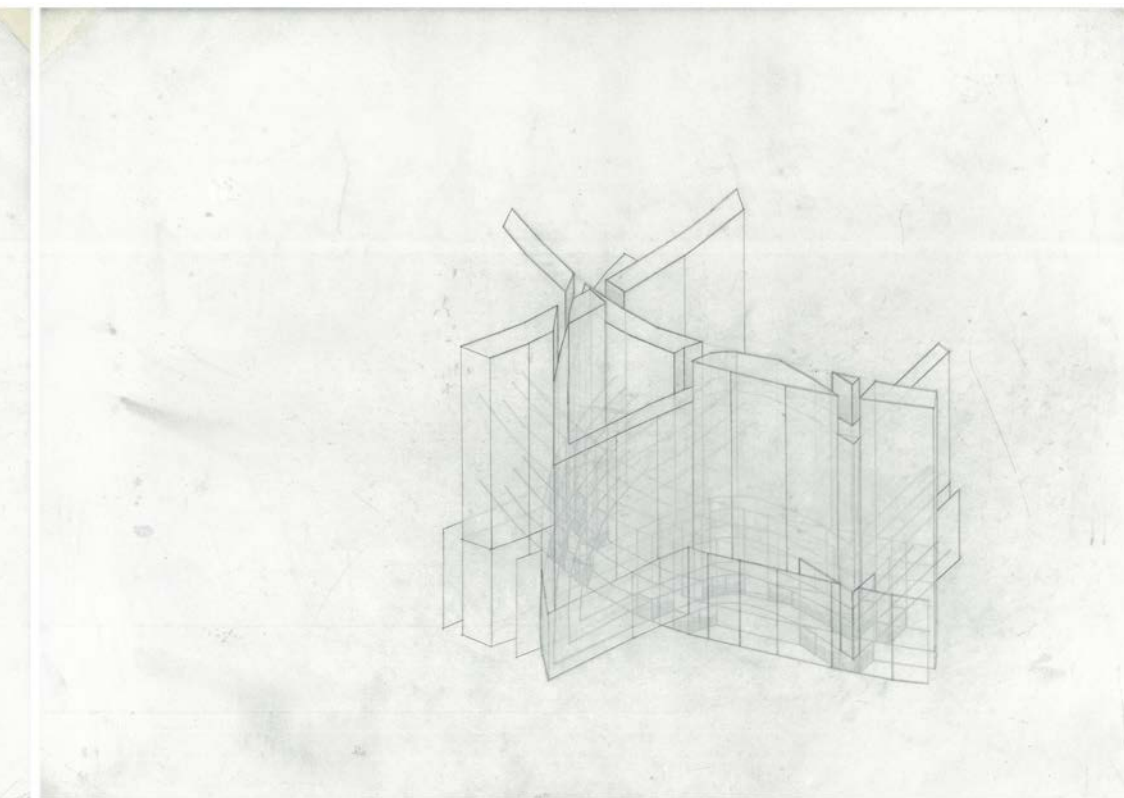
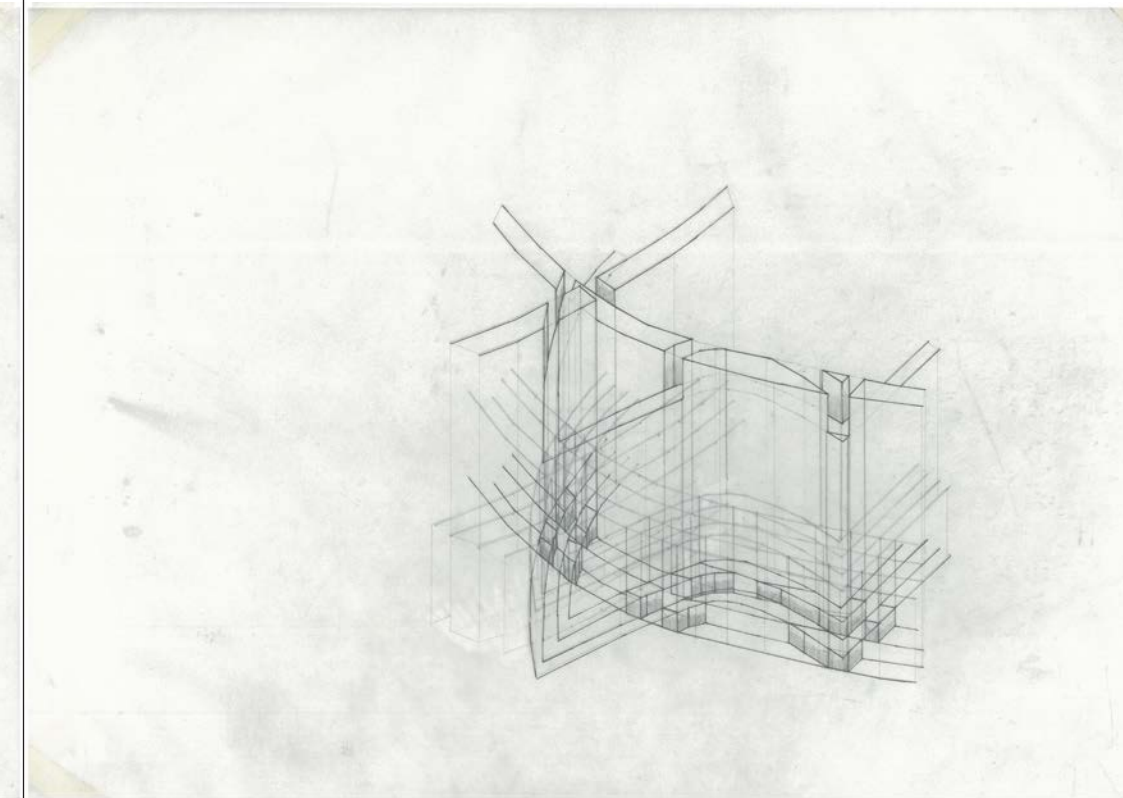
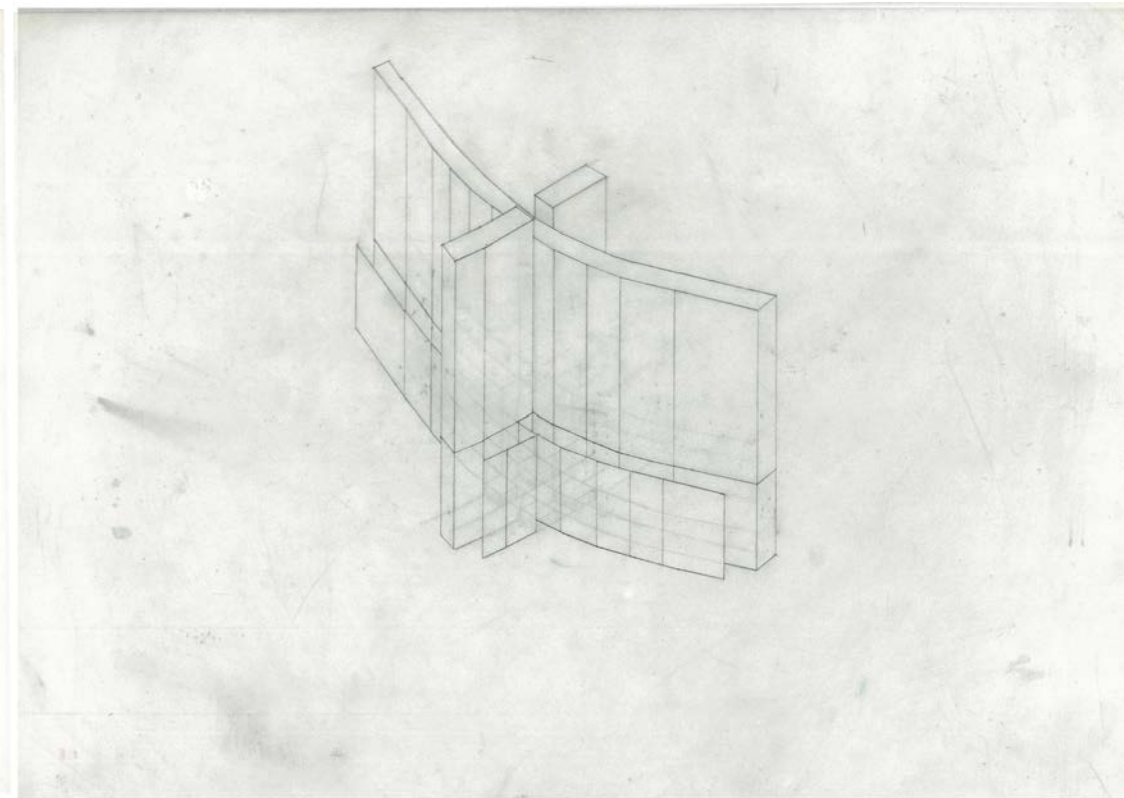
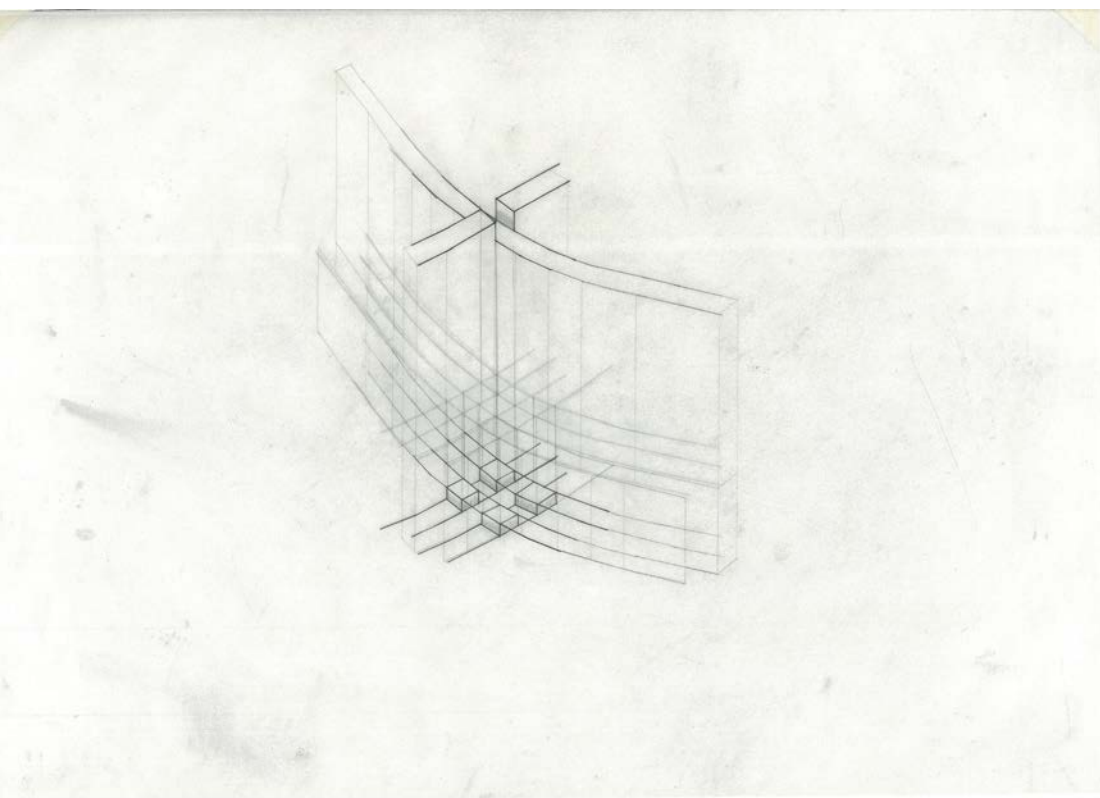
Diagrams showing the six river lines which fall within the context of the building.

**Figure 4.37** (below right)

These lines will be extruded in some way as a means of celebrating the rivers history and creating an interesting backdrop within the building.







**Figure 4.38** (full spread)  
Initial sketches of river line extrusions, exploring interactions. These experimentations established a hierarchy but lacked transparency and a strong relationship to a river form.

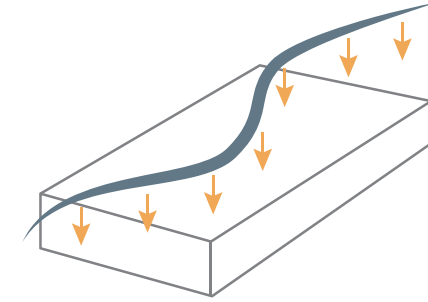
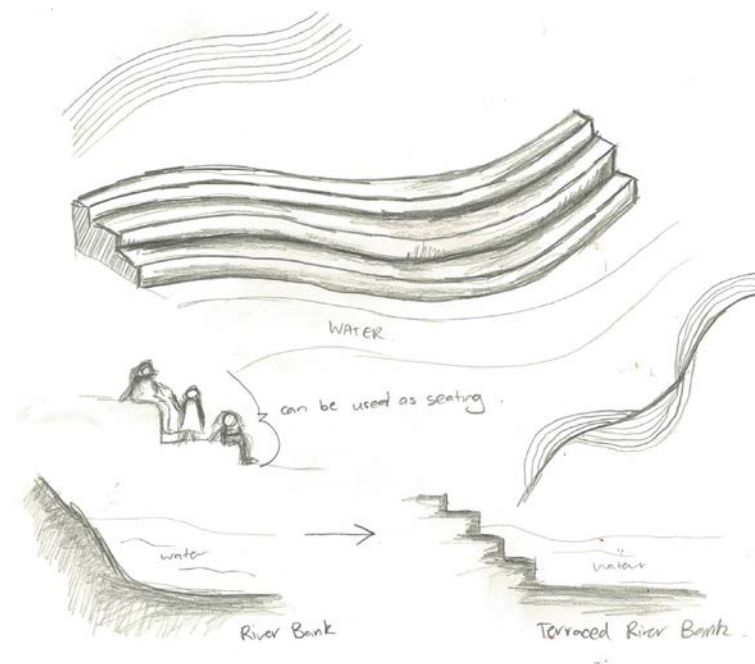


## River Shape

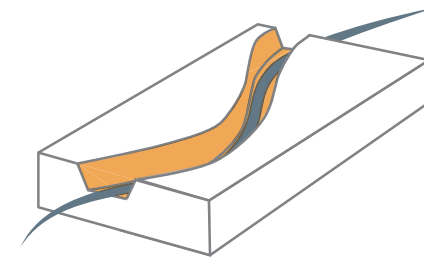
Form was explored by looking at the logic behind a rivers natural formation. This began with what shape the landscape takes when a river carves it.

**Figure 4.39 (below)**  
Initial sketches of the form or contours of a river bank.

**Figure 4.40 (right)**  
Diagram of the river carving its way through a landscape.



River meets the landscape



River cuts down into the landscape

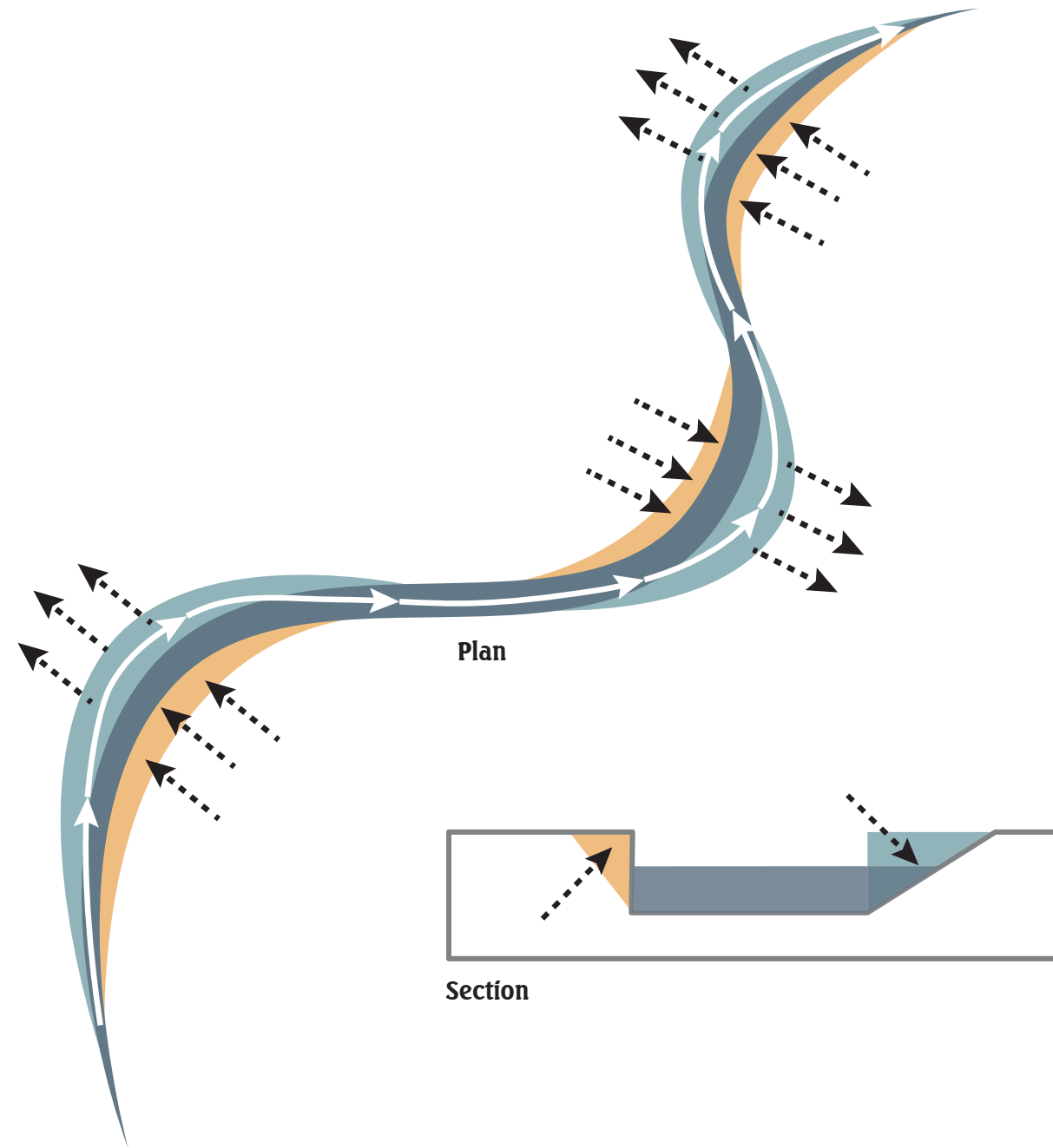


Section cut of new landscape



**Figure 4.41, 4.42, 4.43**  
Terraced Model Photos





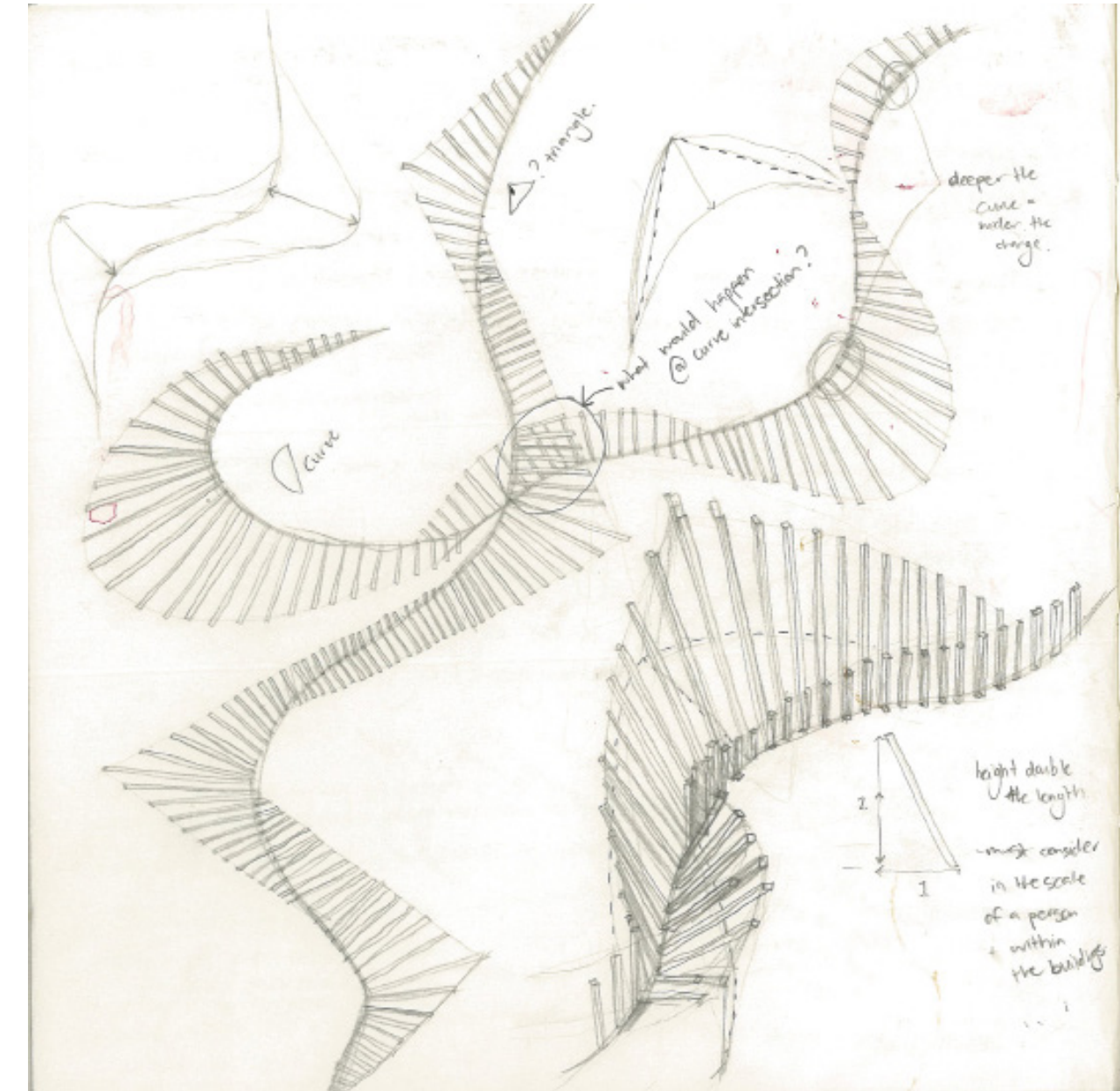
## River Bends

Although the initial models offered opportunities for interaction, what it did not achieve was height. For the next exploration the logic behind a river bend was explored using physical and computer modelling.

**Figure 4.44** (below and left)  
Diagrams showing the logic of a river bend. When a river bends it deposits land as it concaves, and erodes land as it convexs.

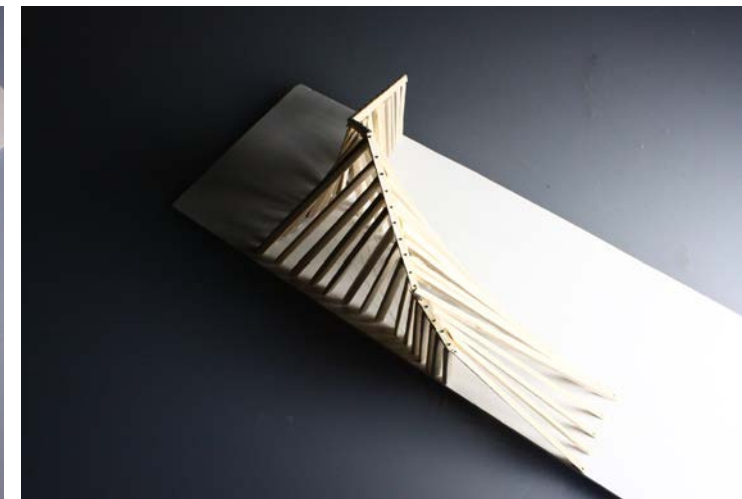
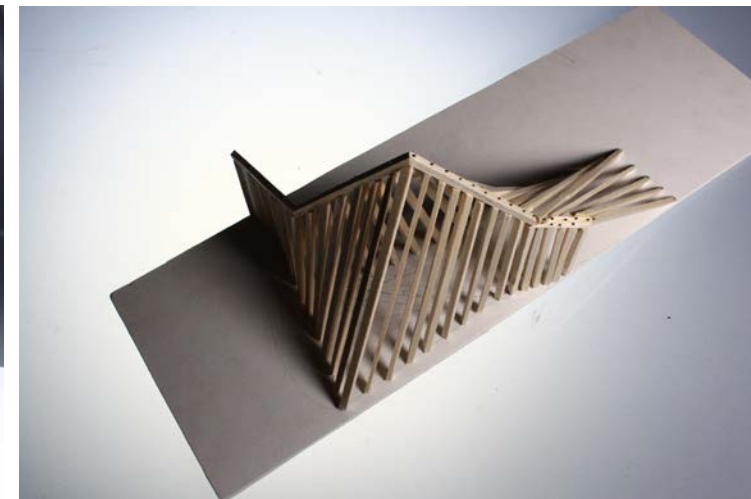
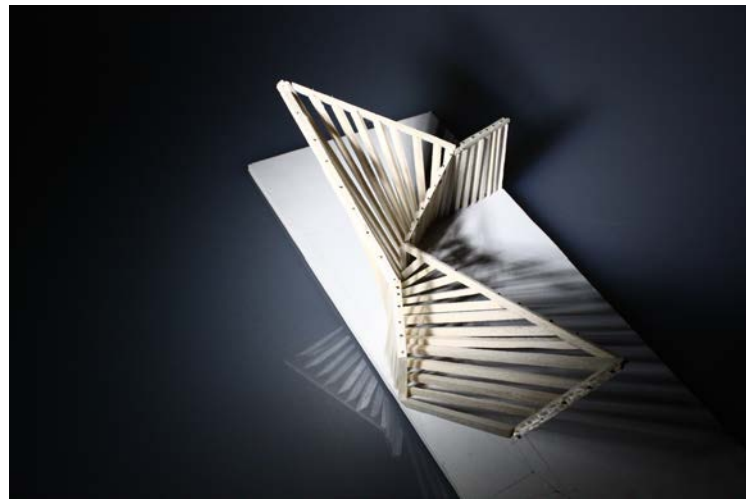
### Key

- River
- Eroded Land
- Deposited Land

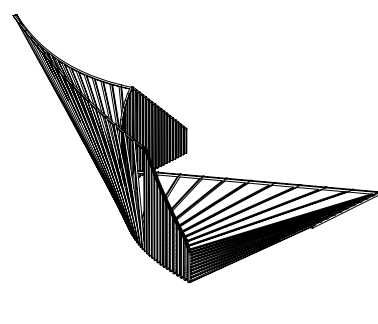
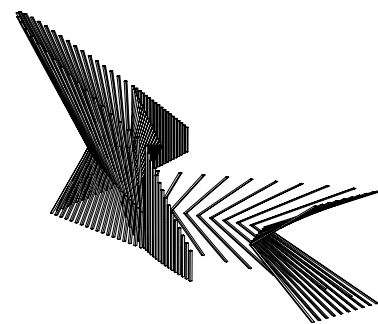
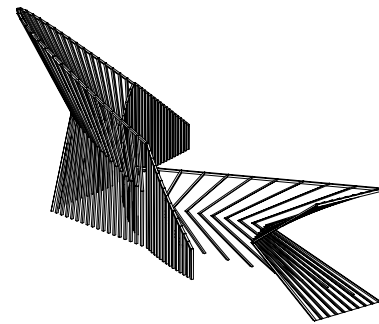


**Figure 4.45**  
Initial sketches abstracting the logic of a river bend. Timber panels were considered to ensure transparency.





**Figure 4.46** (full Spread)  
Two physical models exploring the river bend logic to create fan like shape. The second model was inverted to create a tunnel like structure.

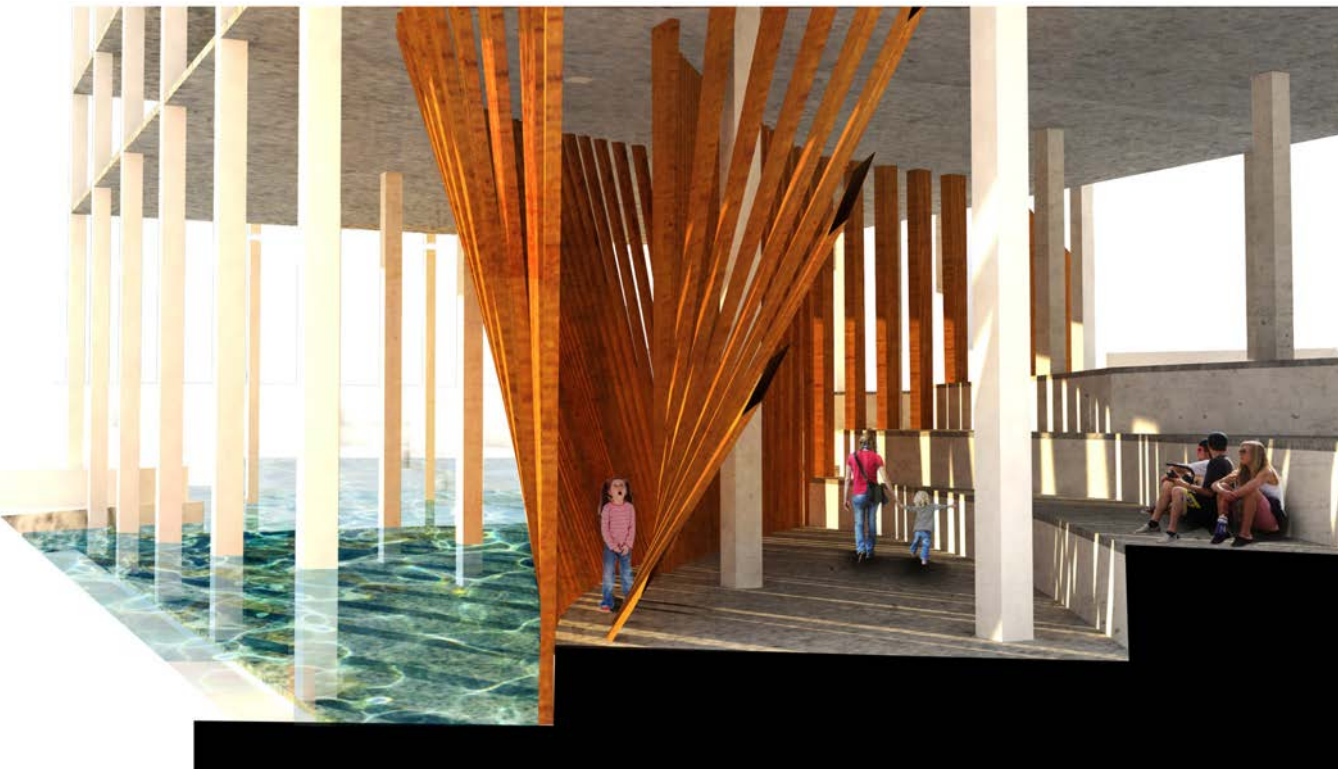


**Figure 4.47** (left)  
Three additional iterations explored using computer modelling.



## ■ Applying to Site

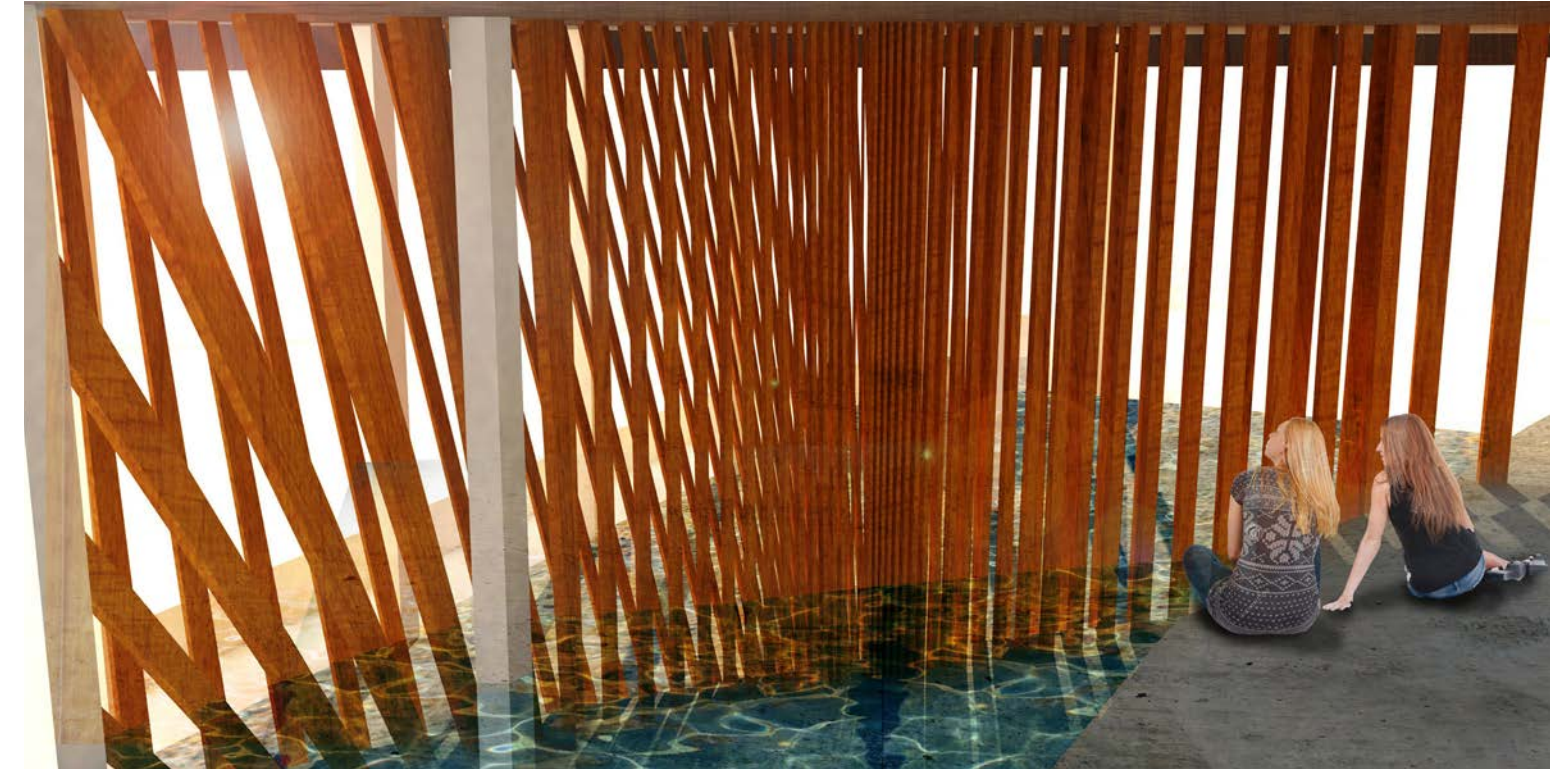
This concept was then put back onto site and explored in terms of human scale and transparency, as well as how it interacts with the water.



**Figure 4.48** (above)  
The 1860 river line was extruded within the boundary of one of the buildings. It creates interesting shadows as well as contrasts well with the existing building structure.

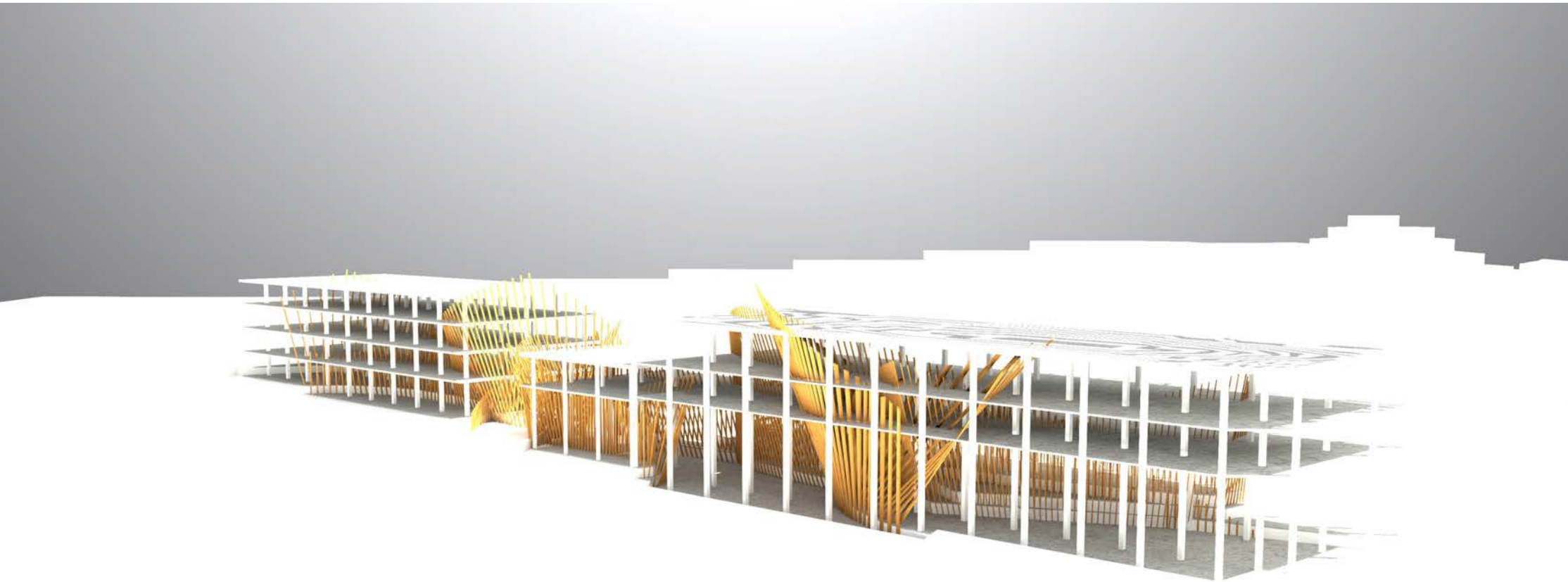


**Figure 4.49** (above)  
How people could interact with the water was also explored within this concept.



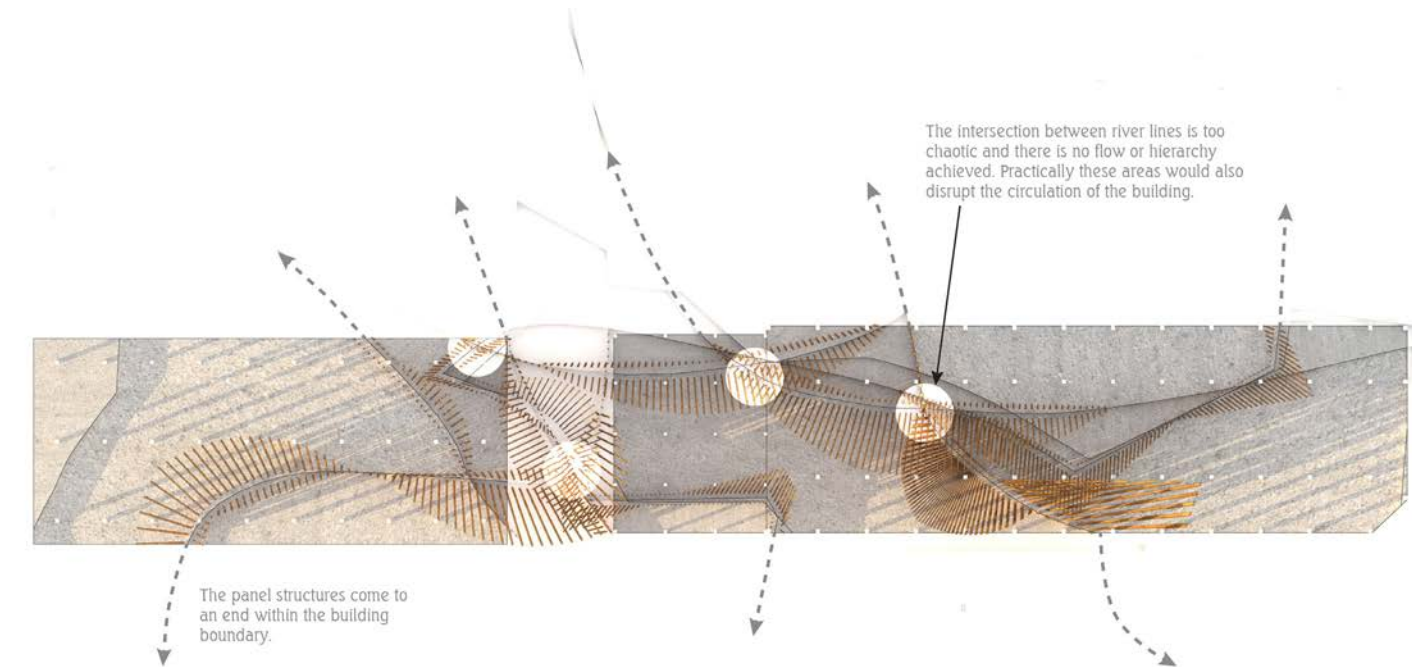
**Figure 4.50** (above)  
Although the lines were extruded upwards, there is still different levels of transparency achieved.





**Figure 4.51**

Perspective view of first concept where each river line was extruded. The hierarchy which was established in the first experimentation can be seen in the changing sizes between each river line. The earliest year (1860) is the largest and as the years progress to 1917 the height decreases.



**Figure 4.52**

Although the height, transparency and contrast is achieved, within this concept plan it is noted that changes to the connections between different river lines must change.  
Scale 1:800



## 4.5

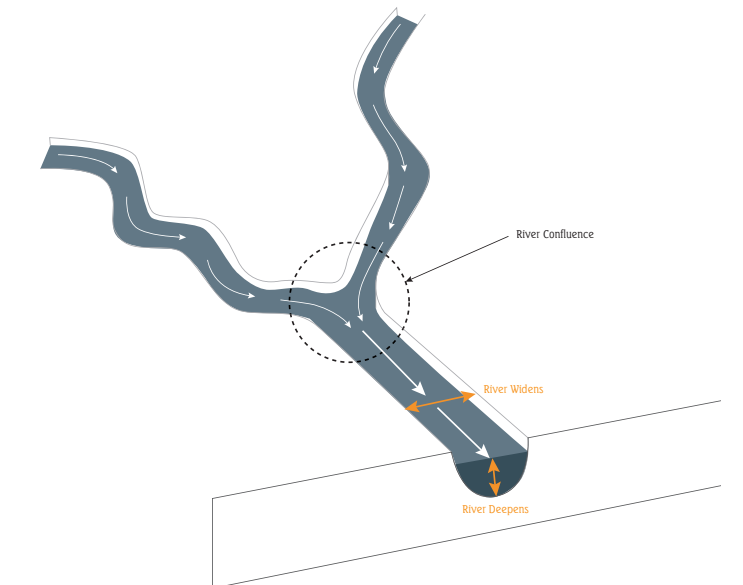
### Connecting with Confluence

**Figure 4.53** (right)

Whangarei's Hatea River and Wairohia Stream form a confluence where they meet at Hihiaua Peninsula.



As seen in **figure 4.52**, there is a lack of flow between each river line. Therefore this thesis returns to a river's natural process of formation. The meeting of two rivers is known as a confluence, where two rivers become one. The characteristics of a confluence are shown within **figure 4.54**, and how it will be applied to the design is explored in **figure 4.55**.



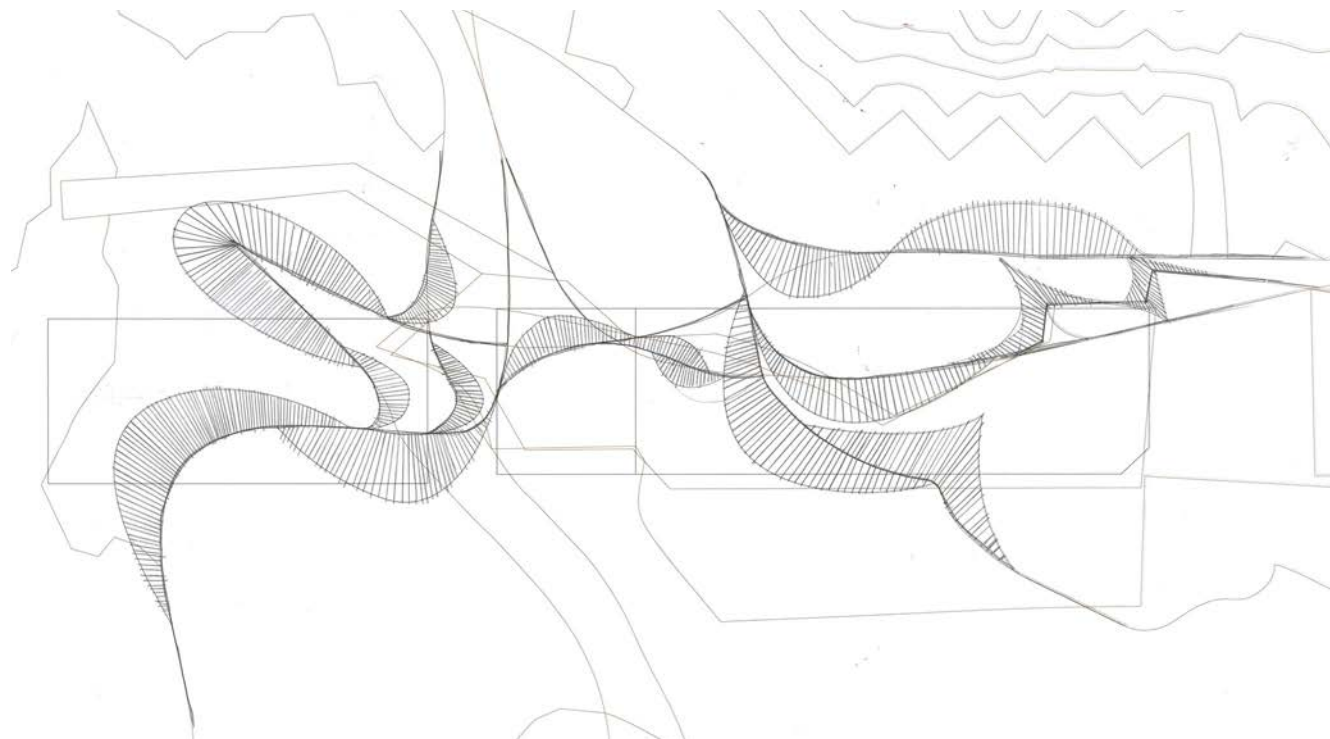
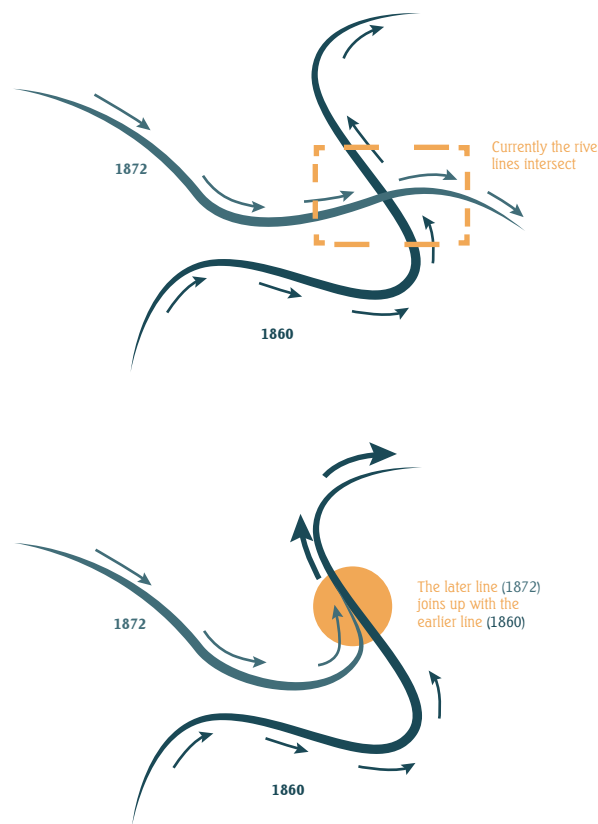
**Figure 4.54** (above)

Diagram noting the dynamics of a confluence.

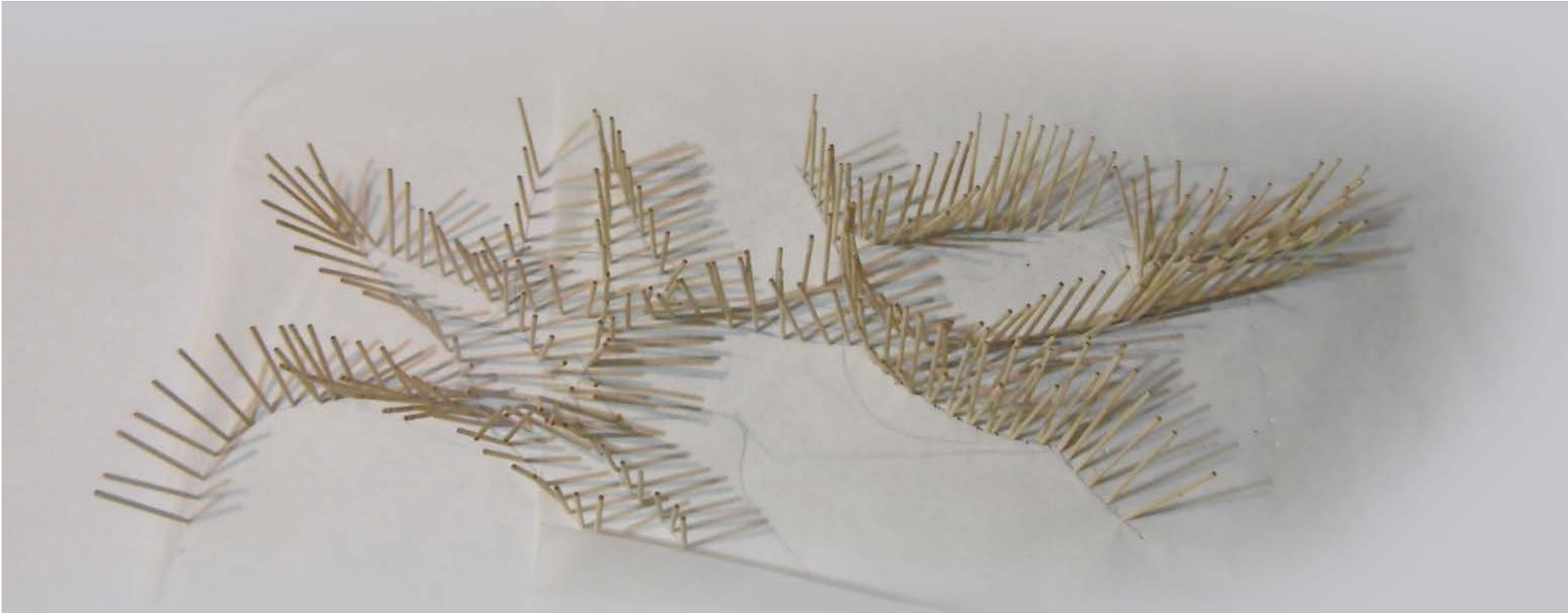


■ Creating Flow

**Figure 4.55** (below)  
Diagram establishing how two lines will intersect.



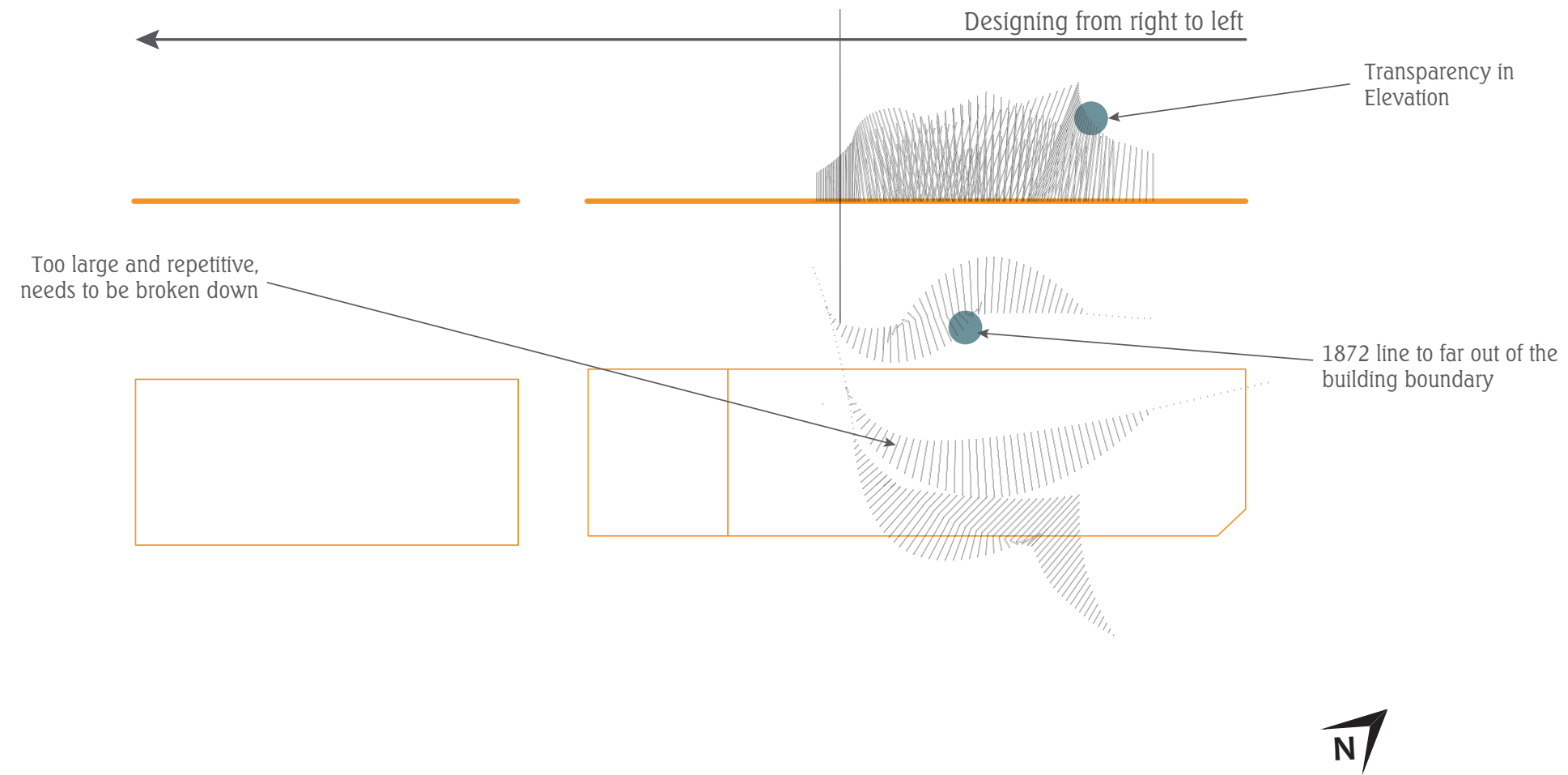
**Figure 4.56** (above)  
Initial sketch of logic applied to design.  
Scale 1:1000



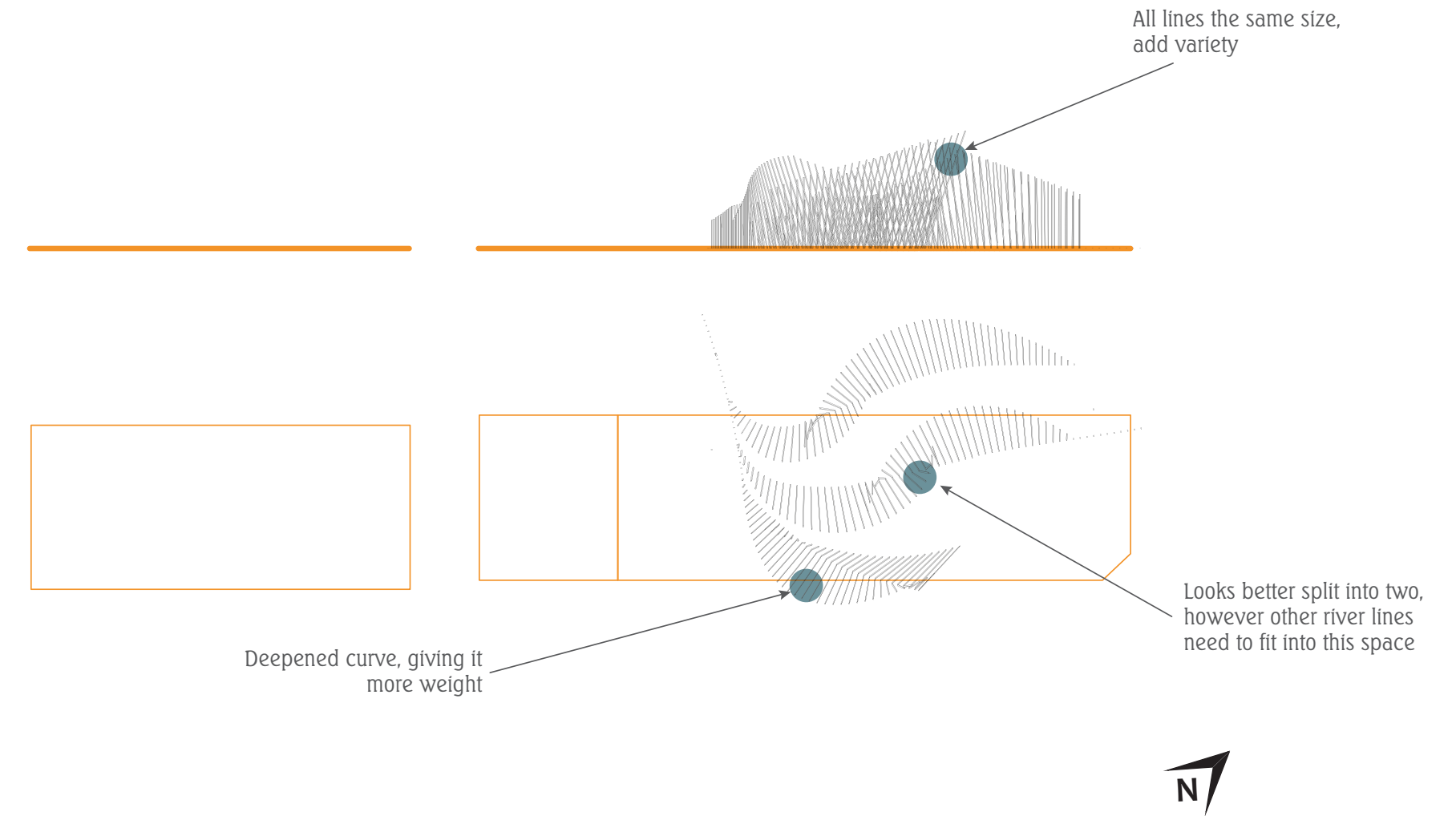
**Figure 4.57**  
Initial model which explored the characteristics of a confluence and how this could be applied to the design.



## ■ Design Iterations

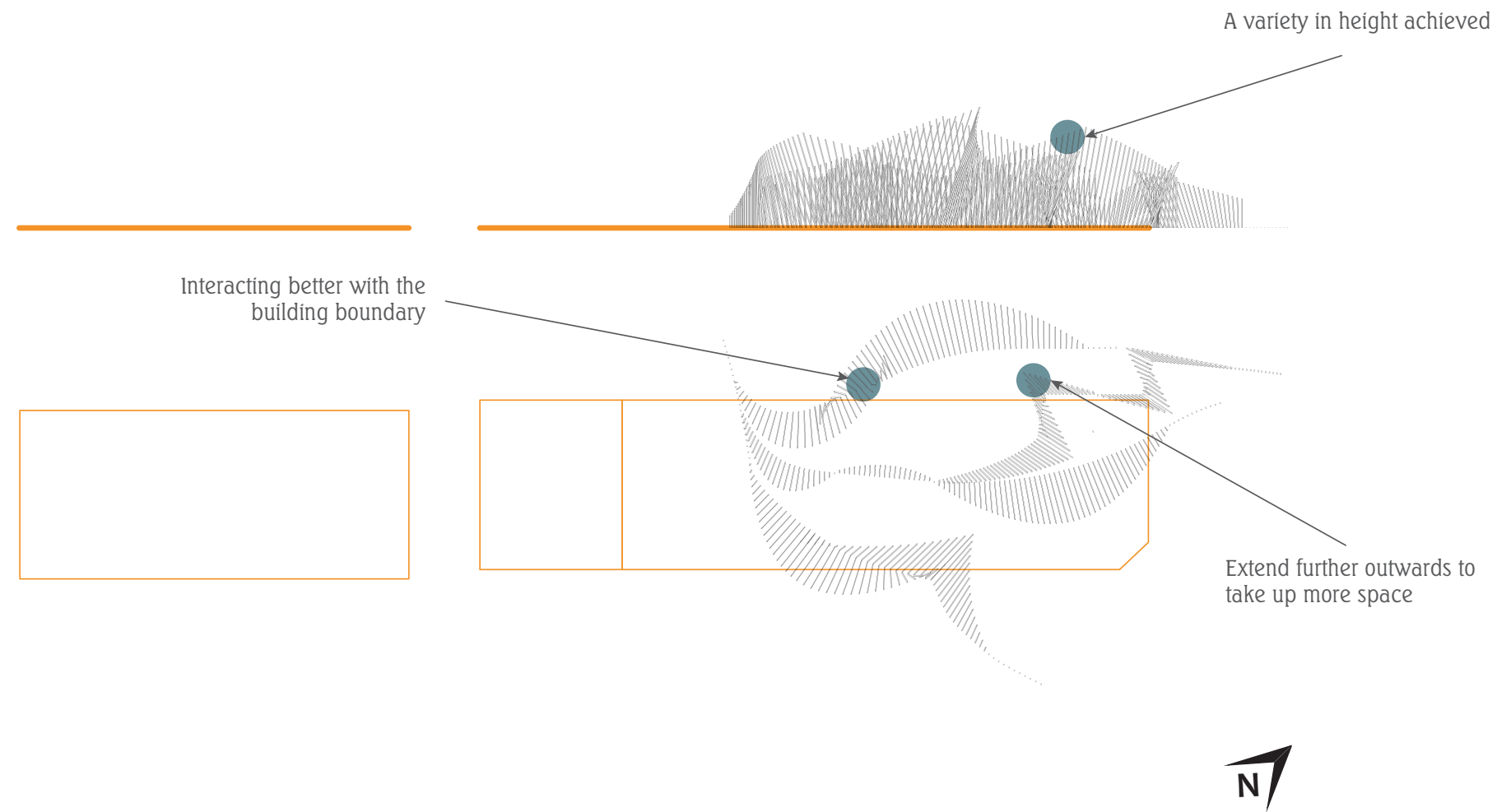


**Figure 4.58**  
Elevation and plan of design iteration four.  
Scale 1:800

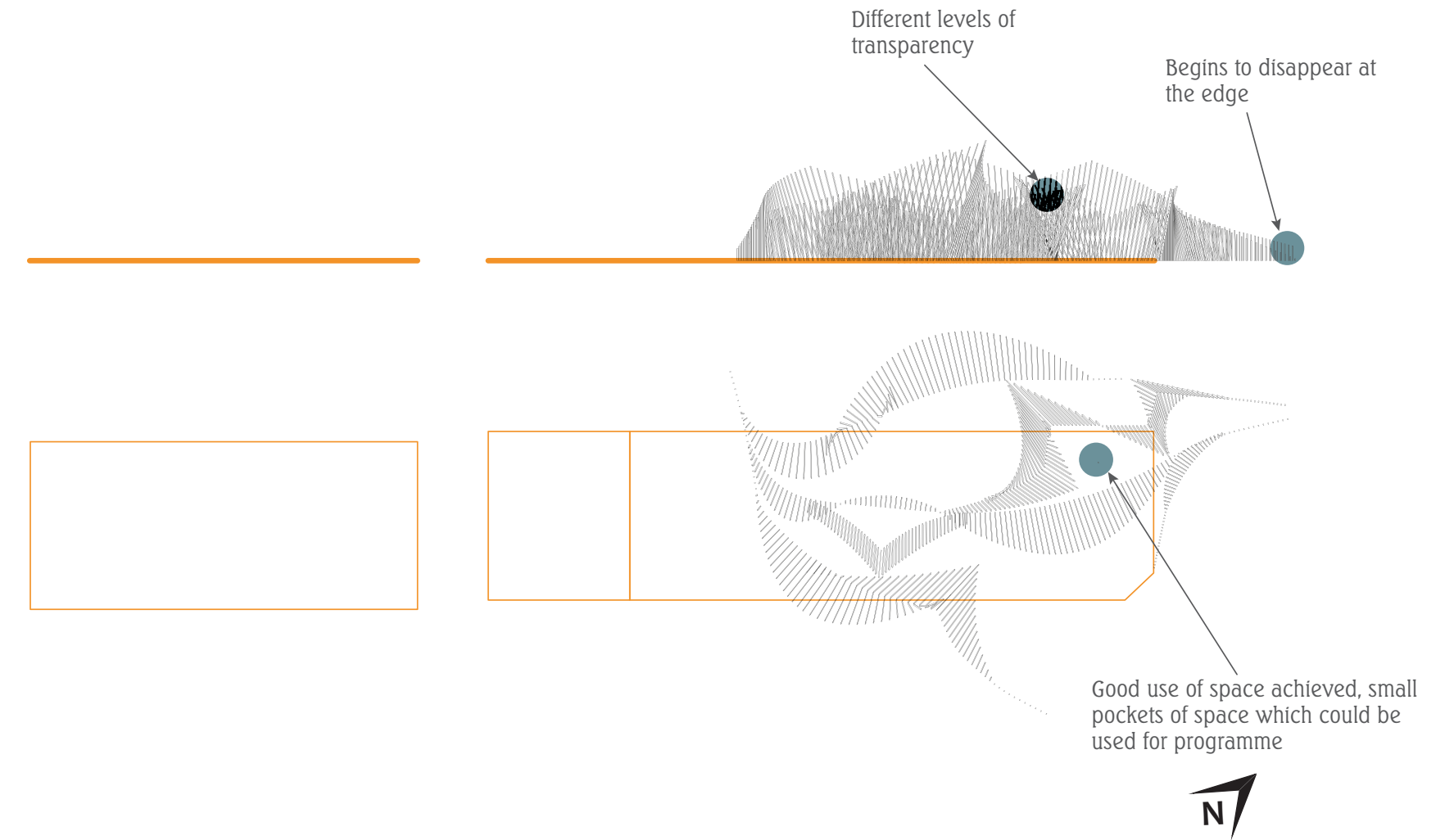


**Figure 4.59**  
Elevation and plan of design iteration nine  
Scale 1:800



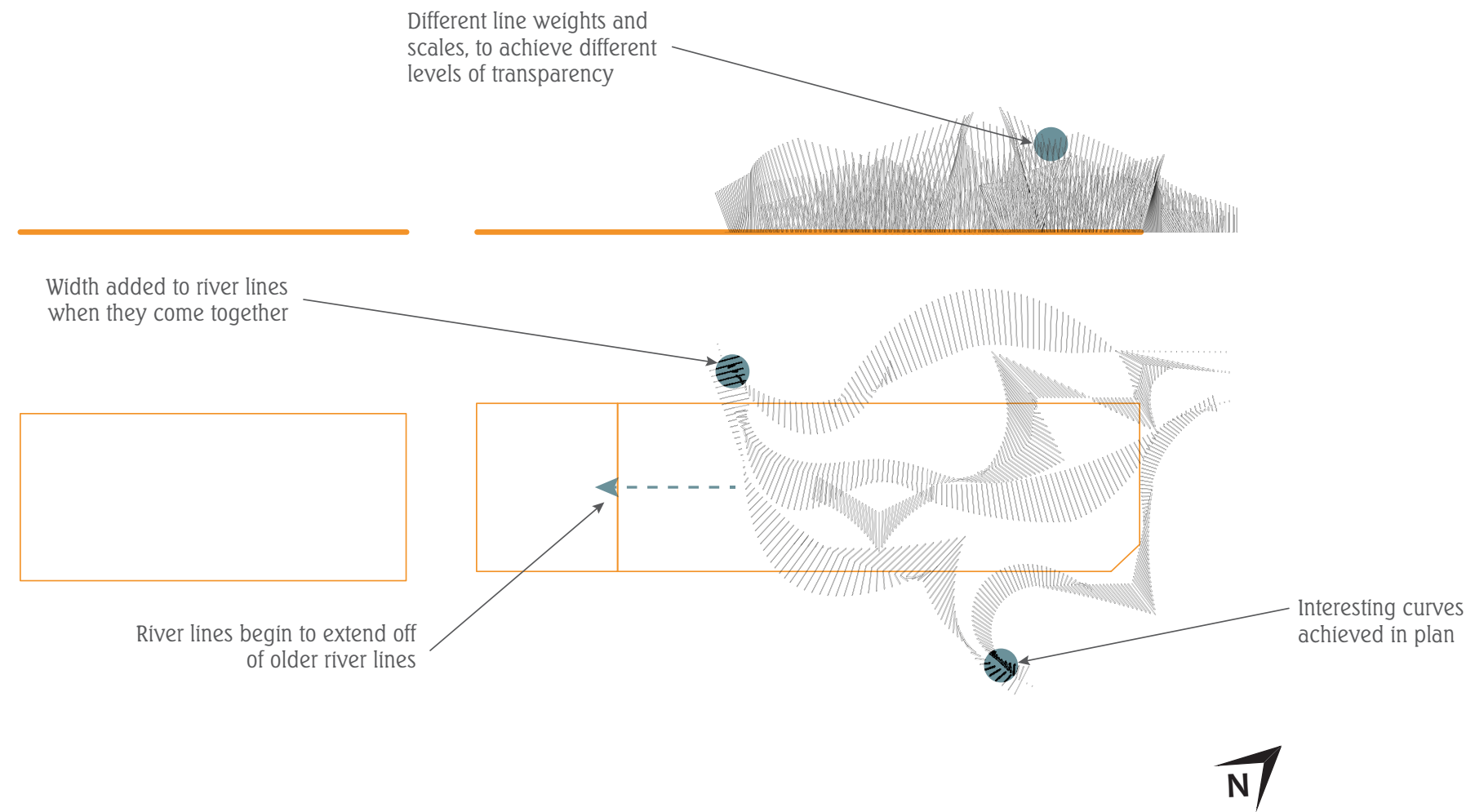


**Figure 4.60**  
Elevation and plan of design iteration twelve.  
Scale 1:800

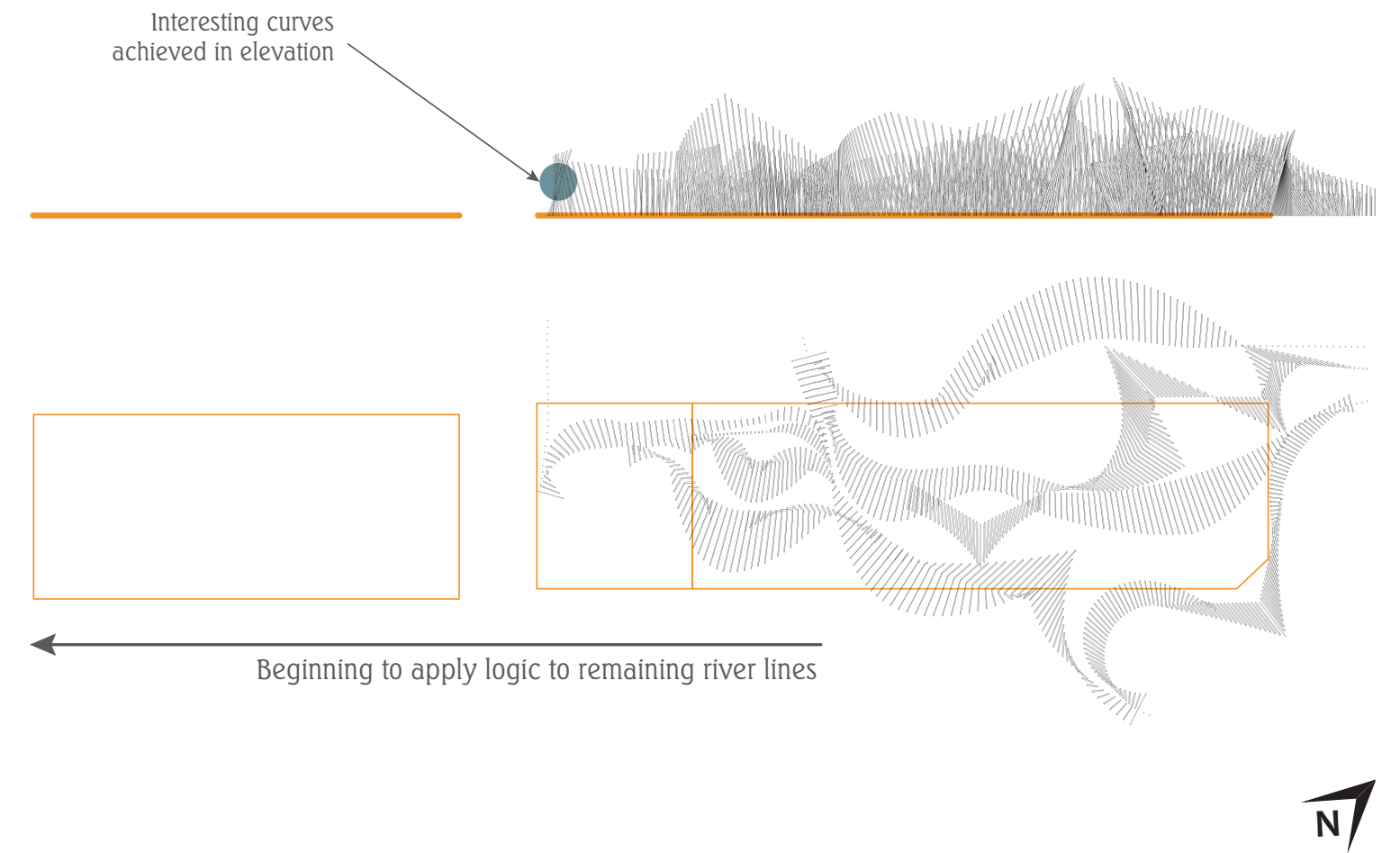


**Figure 4.61**  
Elevation and plan of design iteration fourteen.  
Scale 1:800



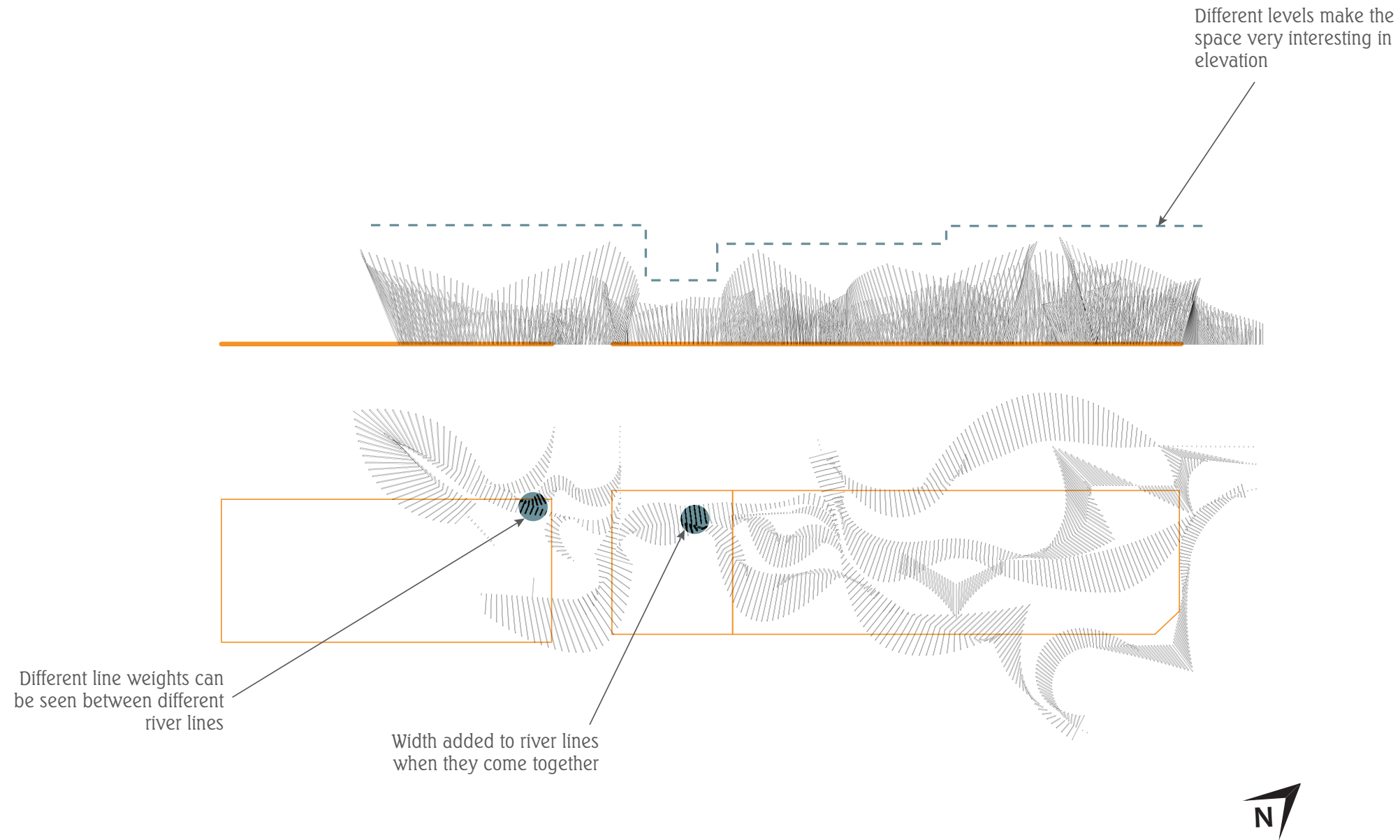


**Figure 4.62**  
Elevation and plan of design iteration twenty-two.  
Scale 1:800

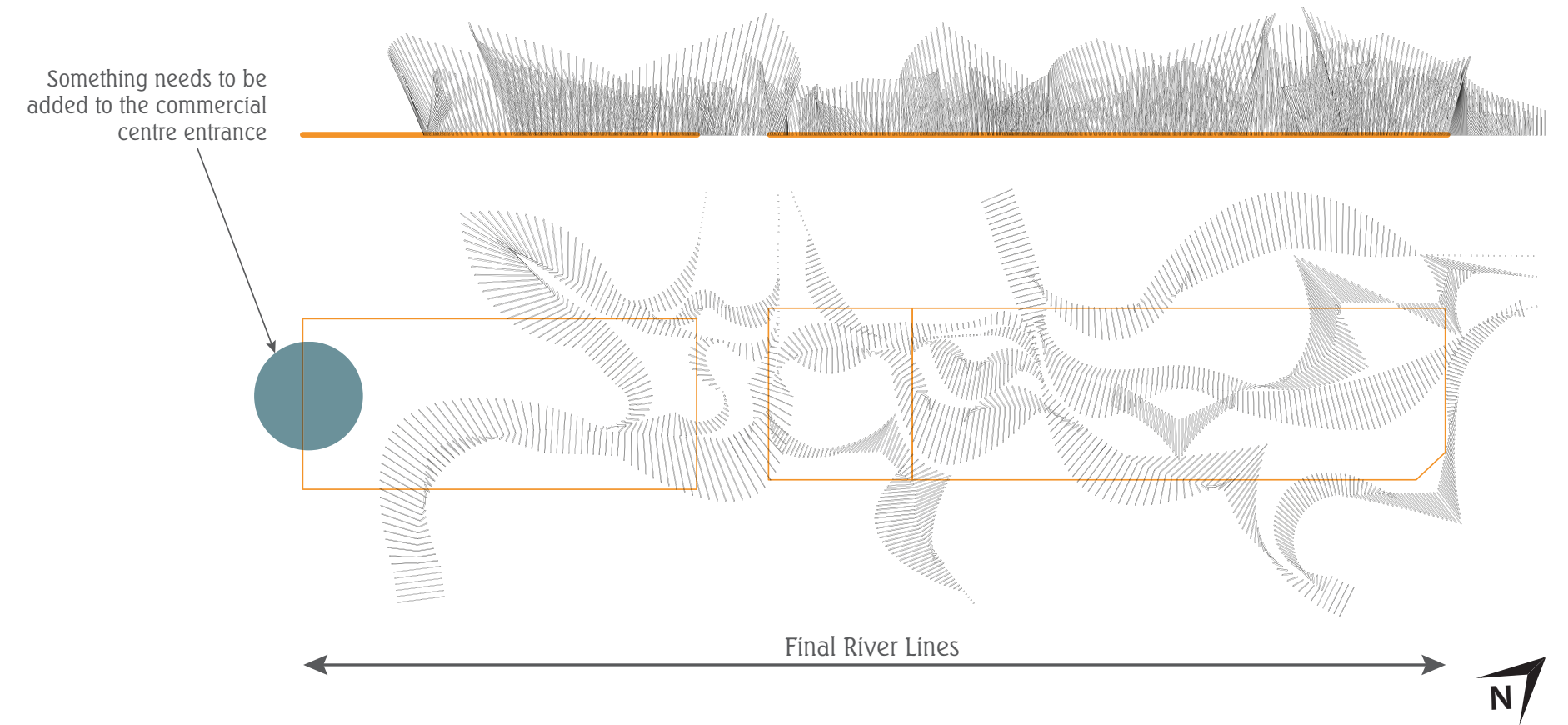


**Figure 4.63**  
Elevation and plan of design iteration twenty-four.  
Scale 1:800



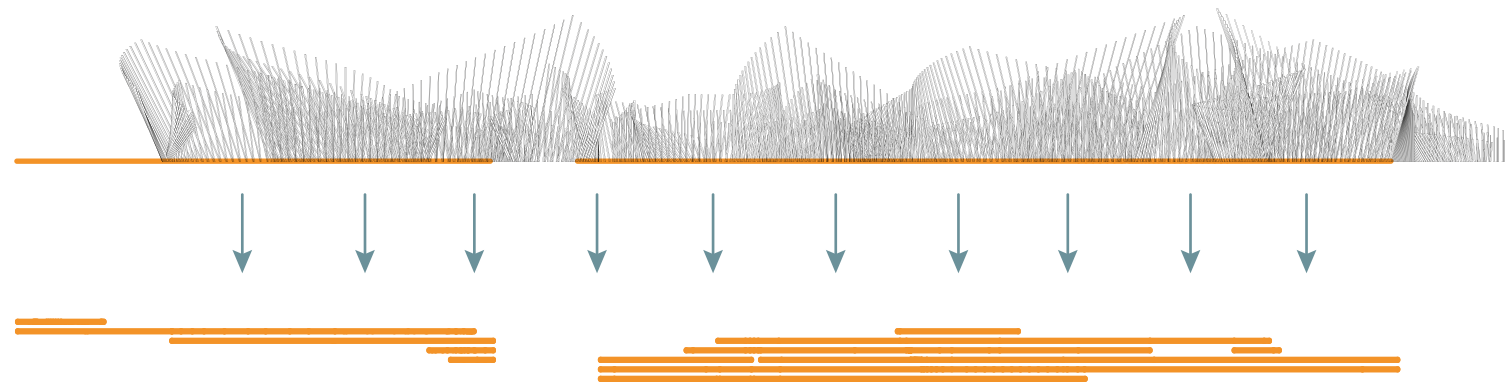


**Figure 4.64**  
Elevation and plan of design iteration twenty-six.  
Scale 1:800

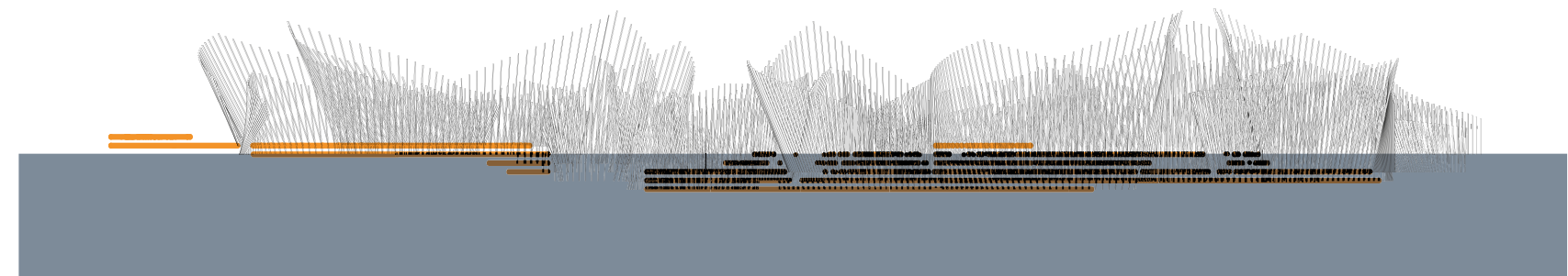


**Figure 4.65**  
Elevation and plan of design iteration twenty-eight.  
Scale 1:800



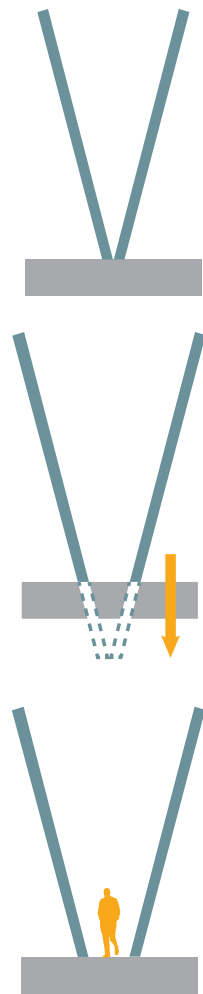


**Figure 4.66**  
Design needs to be returned to site and dropped onto the new terrain.  
Scale 1:800



**Figure 4.67**  
Elevation showing design on new terrain and its interaction with the water.  
Scale 1:800

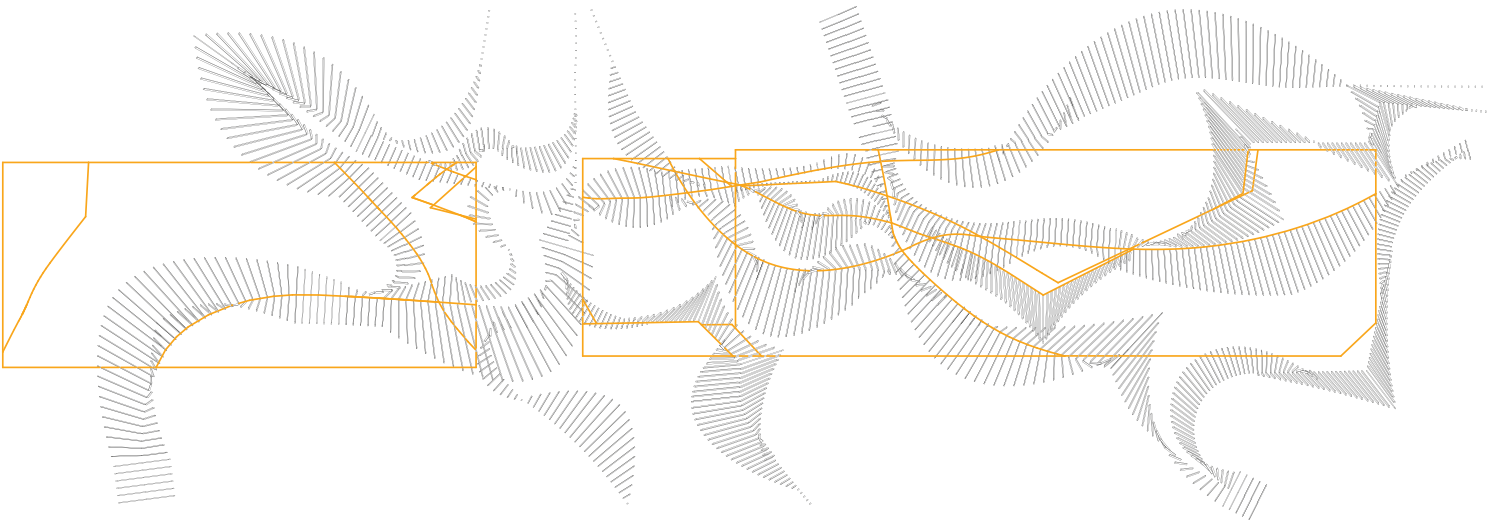




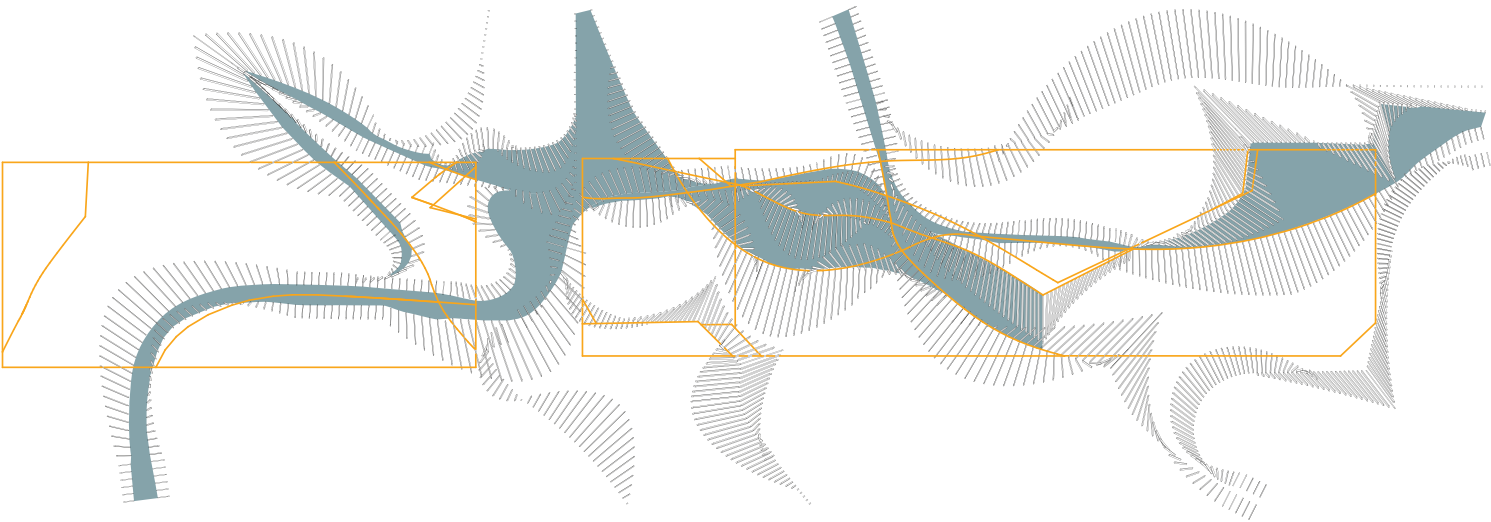
### ■ Creating a path

Not only does a river widen at a confluence but it also deepens. While there is a well-established form there is a lack of space in-between each river line. Using the logic of depth, paths will be formed through the centre of the river lines creating a clearer thoroughfare for the Hatea Loop Walkway.

**Figure 4.68** (left)  
Diagram showing how increasing the depth can establish a pathway



**Figure 4.69** (above)  
Building within its current state. There is a clear flow and hierarchy but a lack of space between each river line.  
Scale 1:800



**Figure 4.70** (above)  
Where the lines joined together they were deepened to create a clearer path through the space.  
Scale 1:800

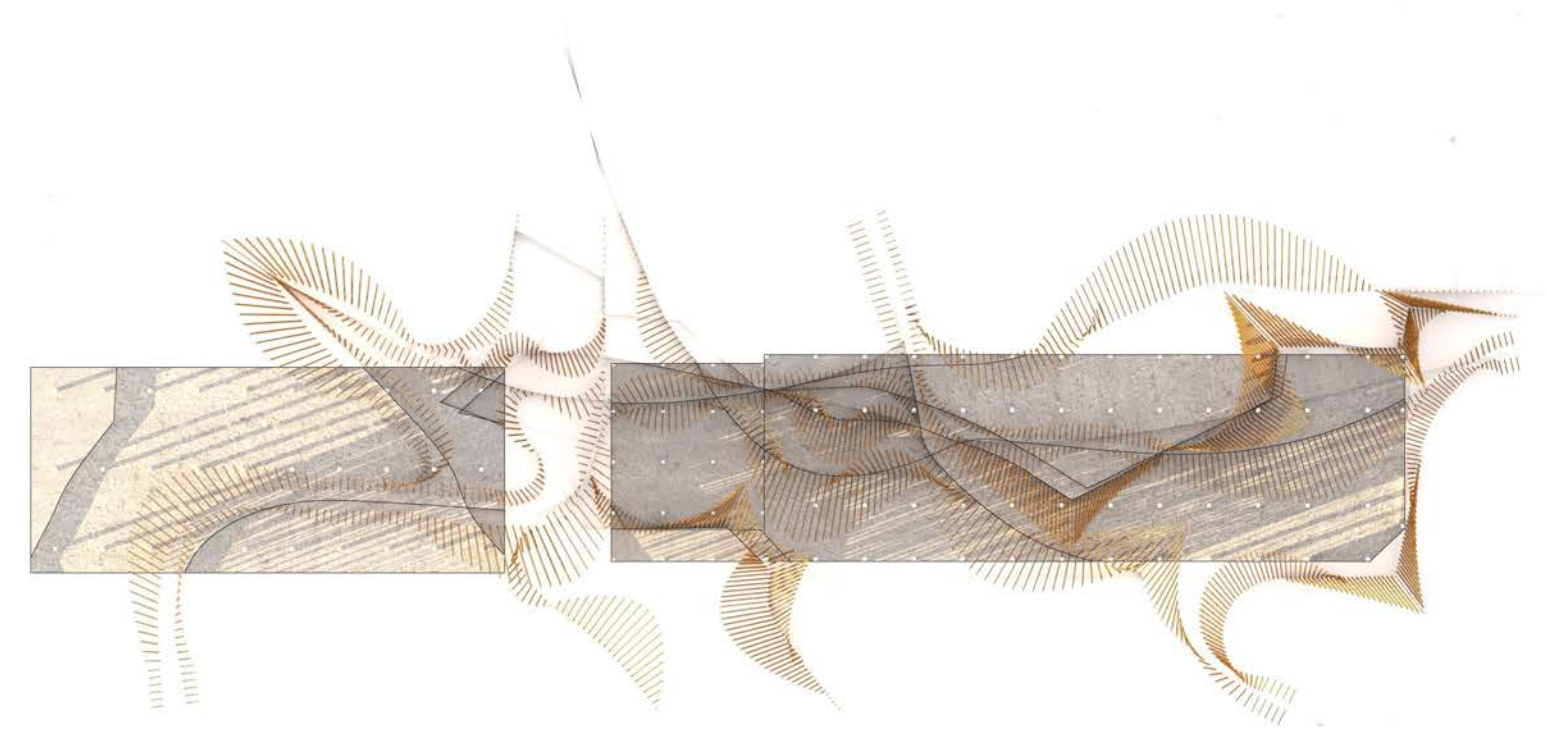






**Figure 4.71**

A hierarchy between each river line has been achieved, there is also a strong contrast between the building and the river lines. Now a clear walkway through the space as well as space for other uses must be established.



**Figure 4.72**

This plan shows the building at terrain level where the water will come into the building. The building structure and upper floors will need to be put back to establish spaces as well as a walkway through the building.

Scale 1:800





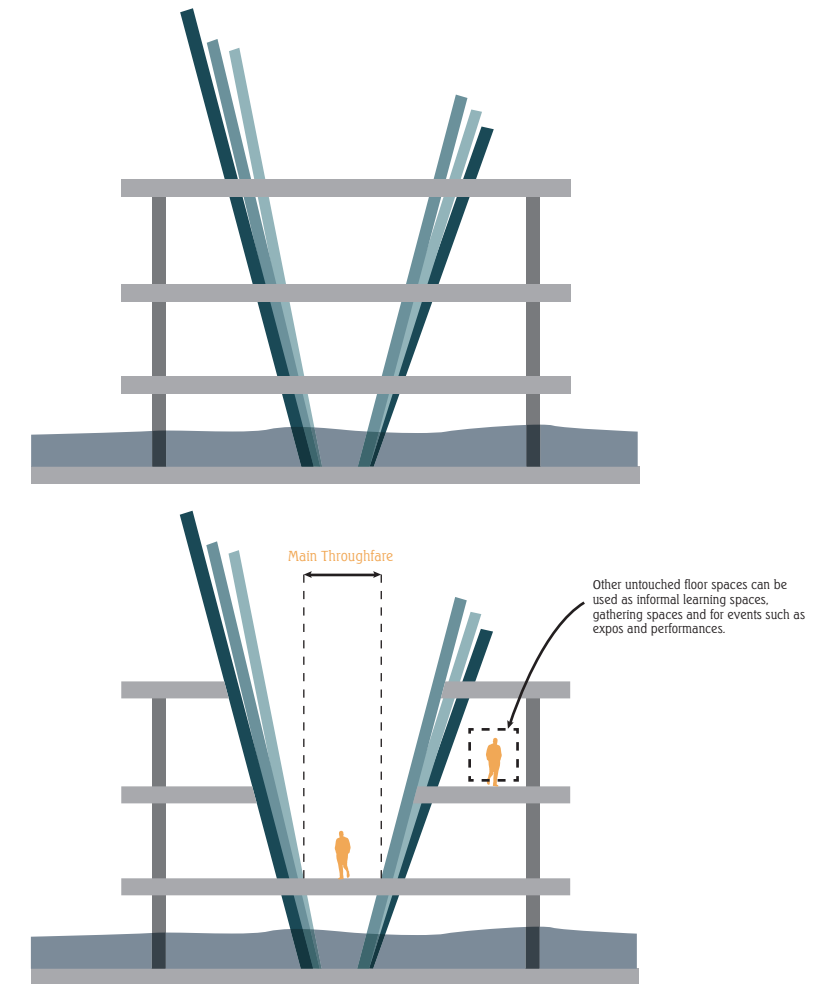
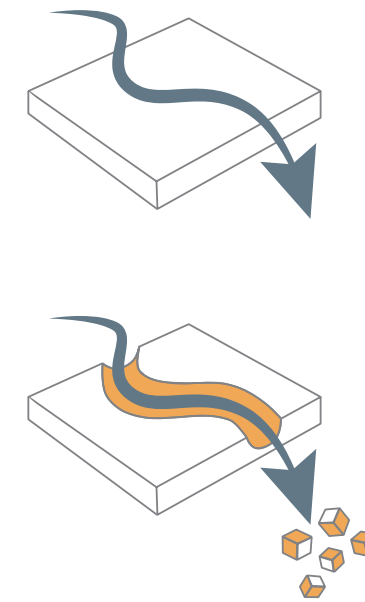
## 4.7

### Establishing spaces

Spaces will need to be established within the design to allow for the mixed programme, as well as a clear thoroughfare for the walkway extension. Returning to the river logic, the idea of using the river lines to carve through the space to create a walkway was identified.

**Figure 4.73** (below)

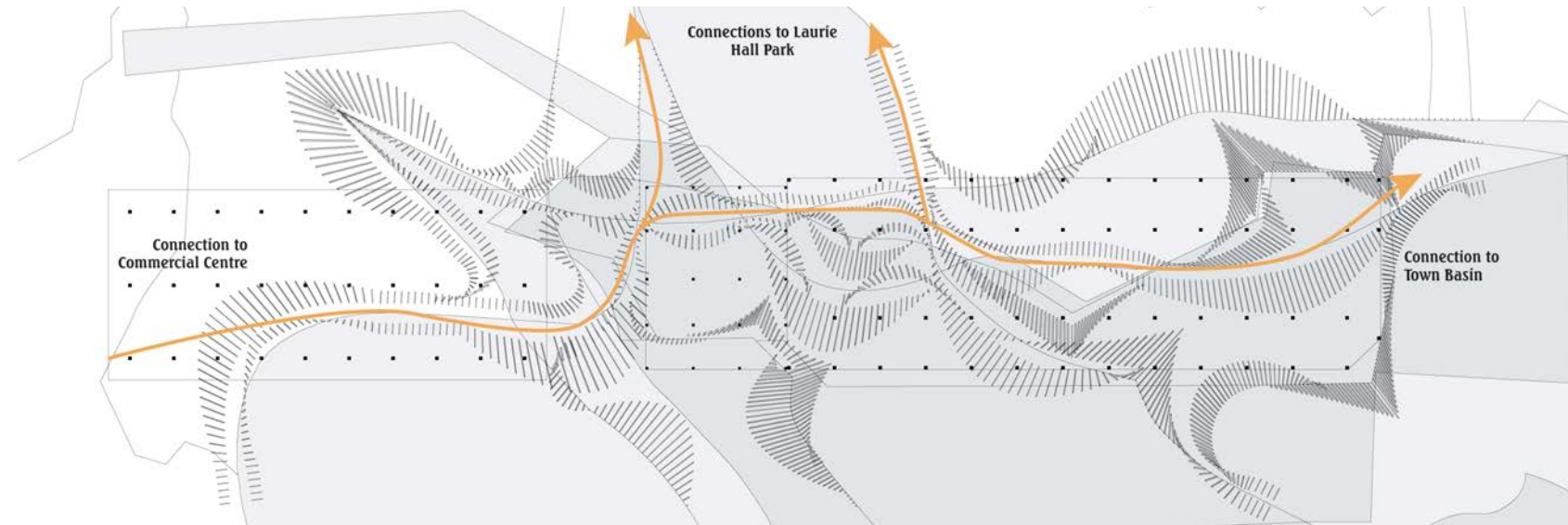
Diagram showing the river carving its way through a landscape.



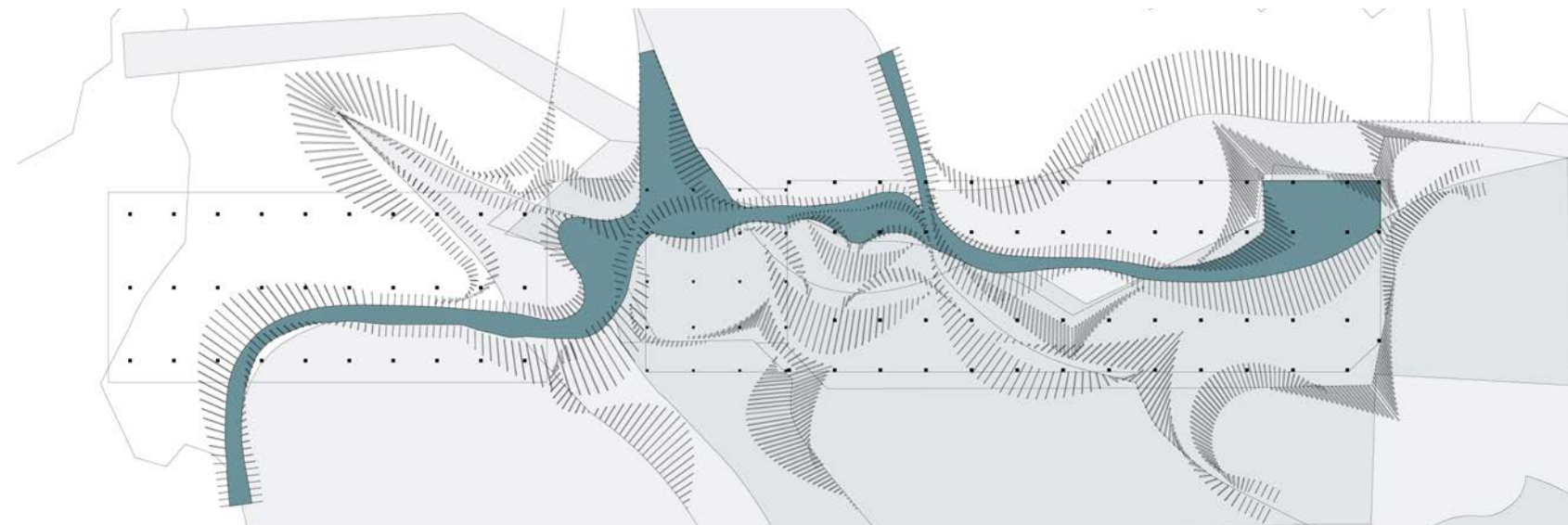
**Figure 4.74** (above)

Logic applied to the design to create walkways and spaces.

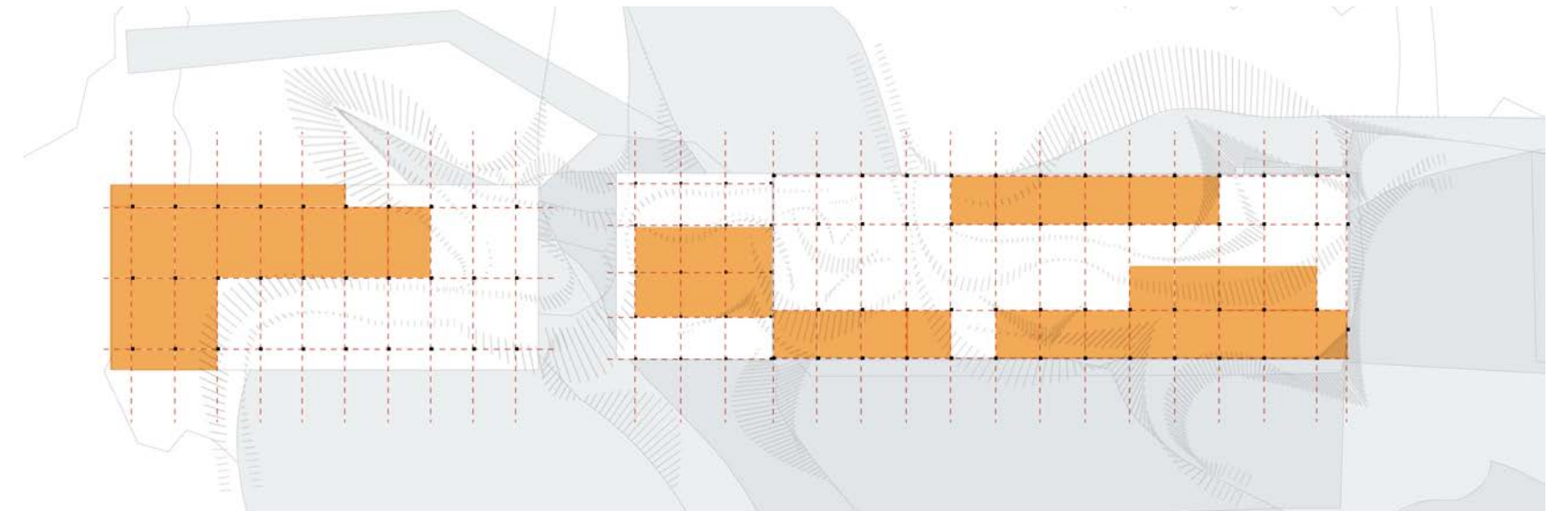




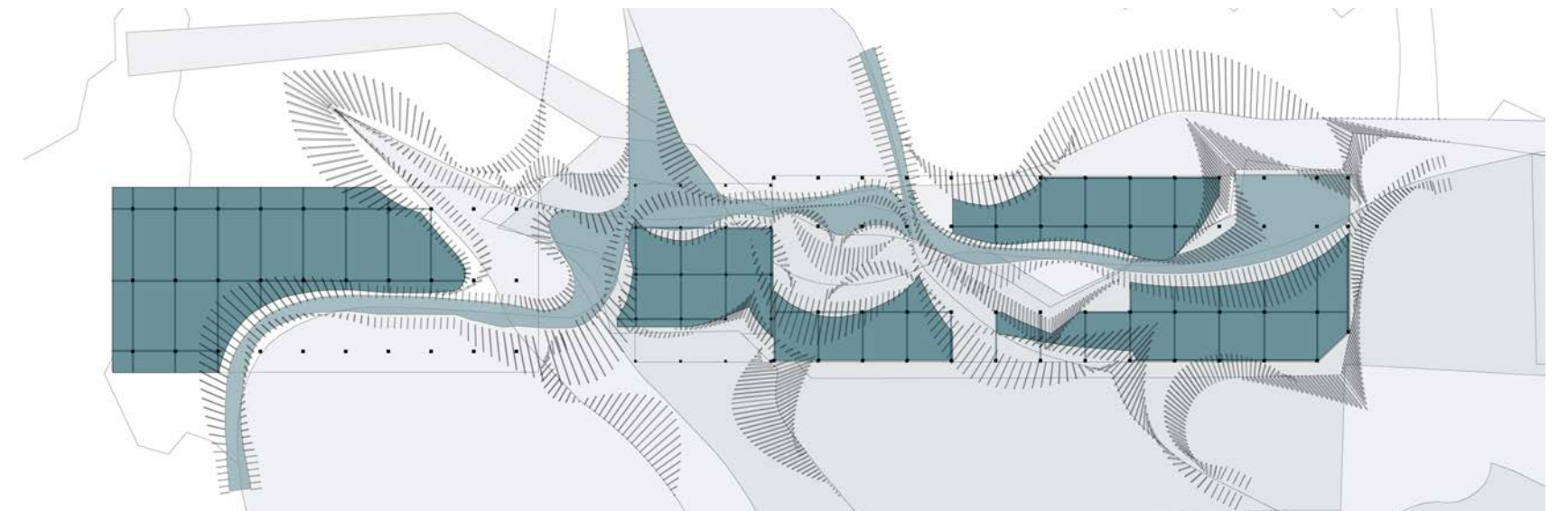
**Figure 4.75 (above)**  
A clear path has already been established through the deepening of the river lines. This path will run at the buildings original floor level.  
Scale 1:800



**Figure 4.76 (above)**  
The blue is indicative of the space provided for a thoroughfare through the buildings.  
Scale 1:800



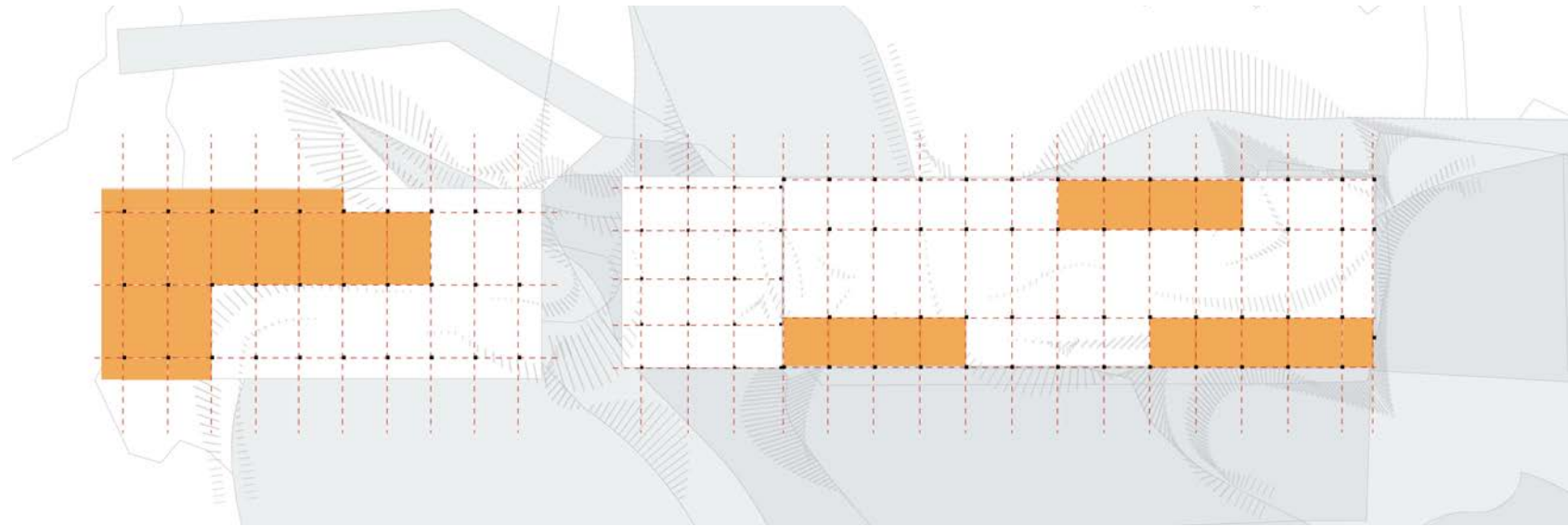
**Figure 4.77 (above)**  
First Floor. The existing structural grid was used to establish what would remain of the floor, which would not disrupt the river lines. This is indicated in orange.  
Scale 1:800



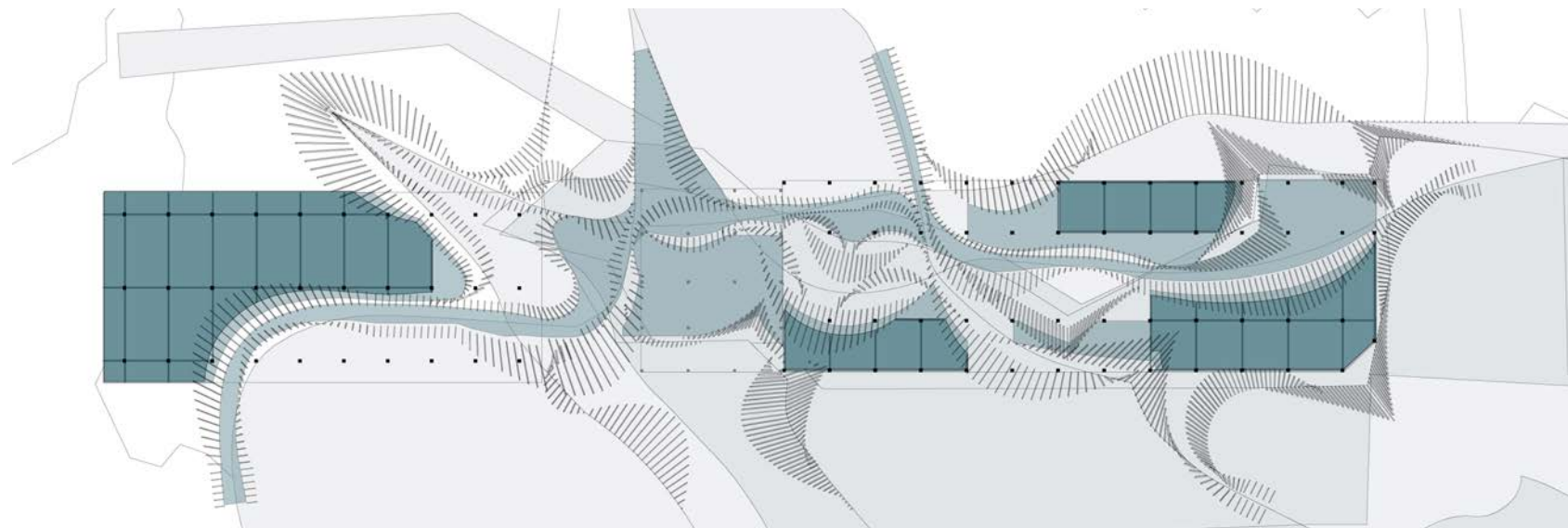
**Figure 4.78 (above)**  
First floor plan showing what is remaining of the floor level, as well as the structure which would remain to support it.  
Scale 1:800



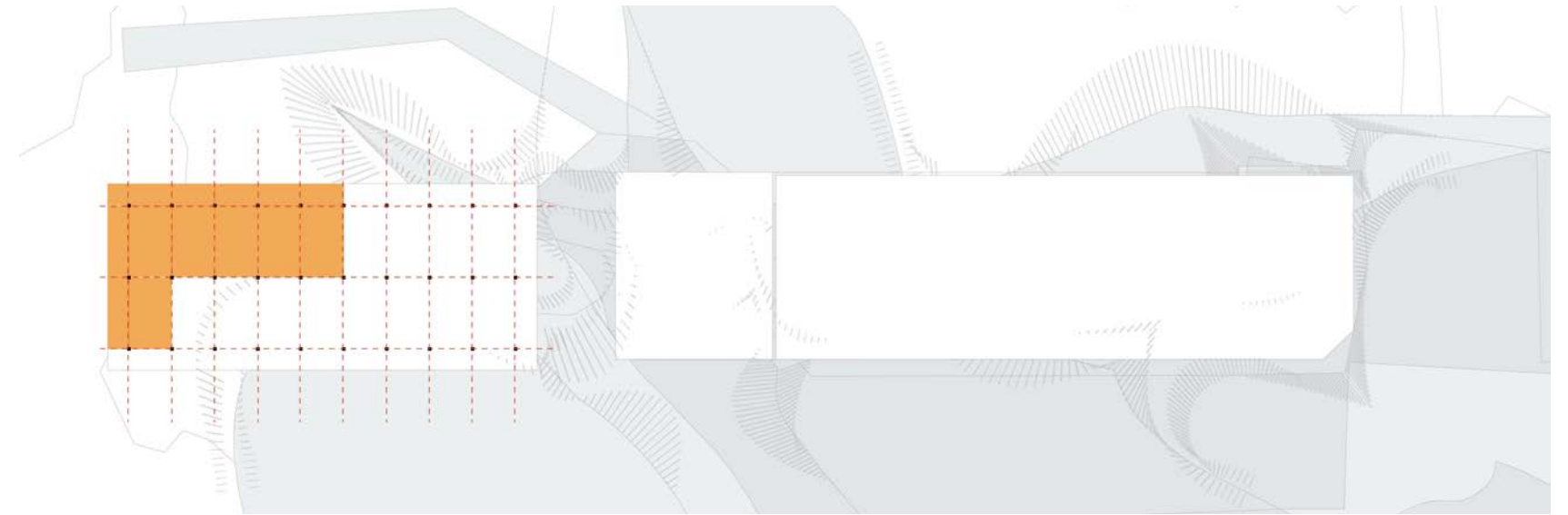




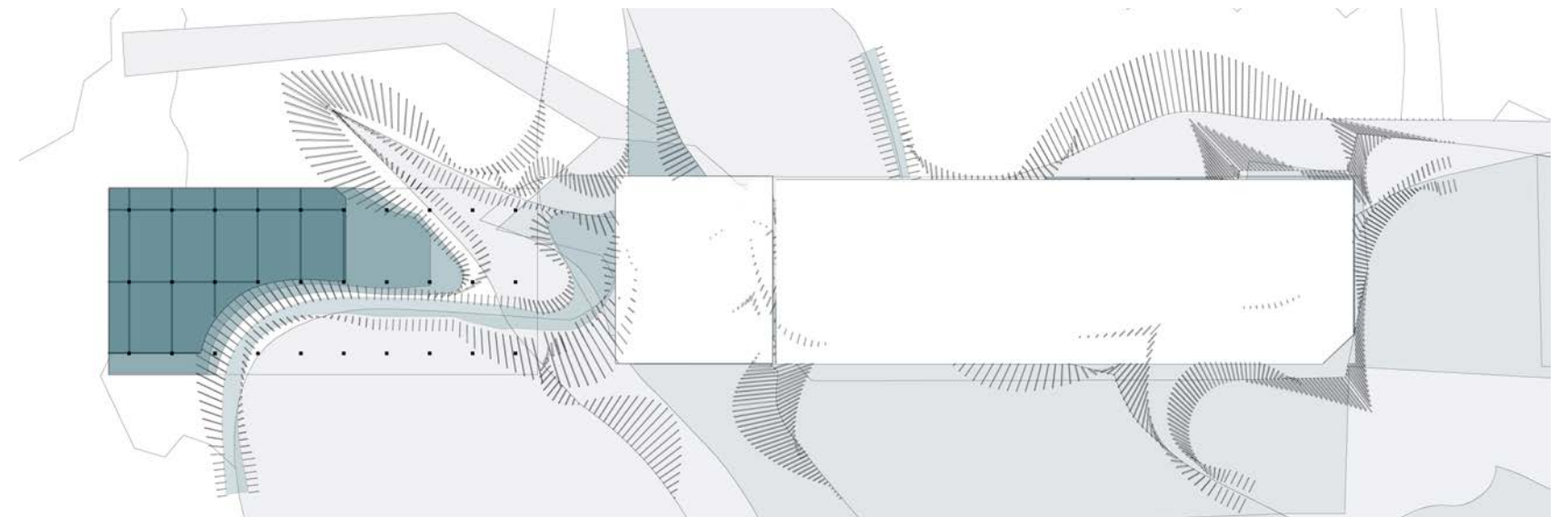
**Figure 4.79** (above)  
Second Floor Plan, the same grid system was applied.  
Scale 1:800



**Figure 4.80** (above)  
Second floor plan showing remaining floor and structure.  
Scale 1:800



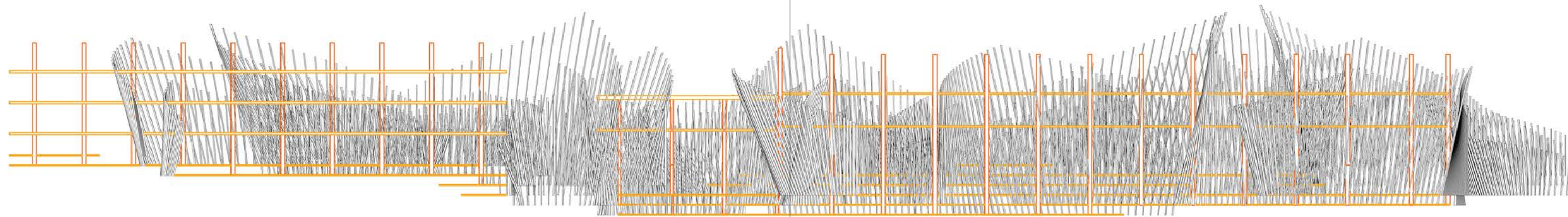
**Figure 4.81** (above)  
Third floor, the same grid system was applied.  
Scale 1:800



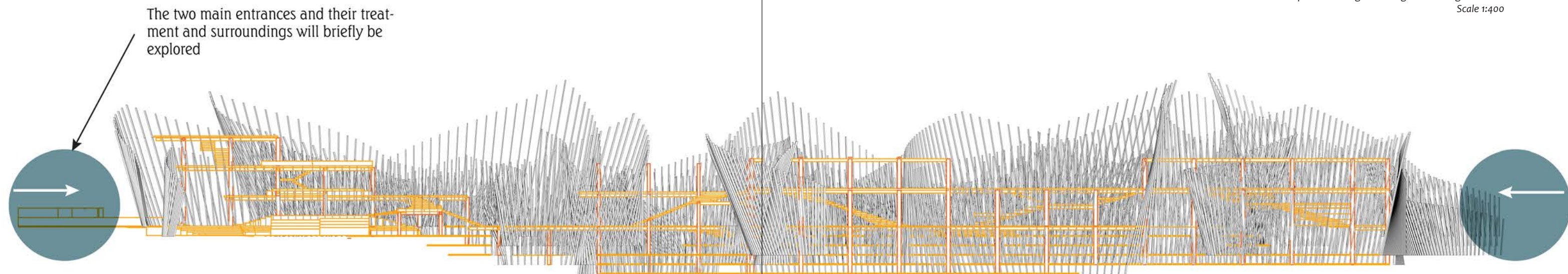
**Figure 4.82** (above)  
Third floor plan showing what is remaining of the floor level. There is only a third floor on far left building.  
Scale 1:800







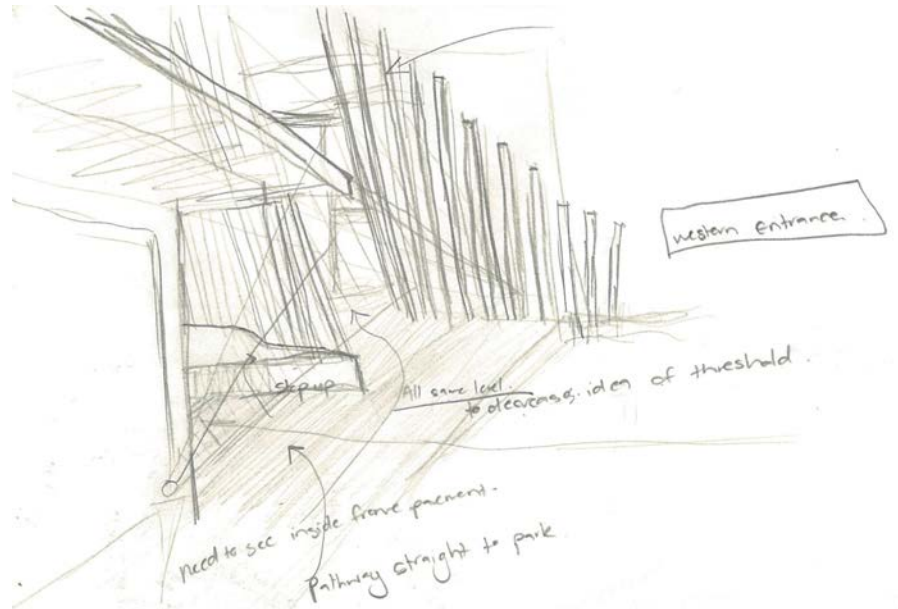
**Figure 4.83** (above)  
Timber panels amongst the original building structure  
Scale 1:400



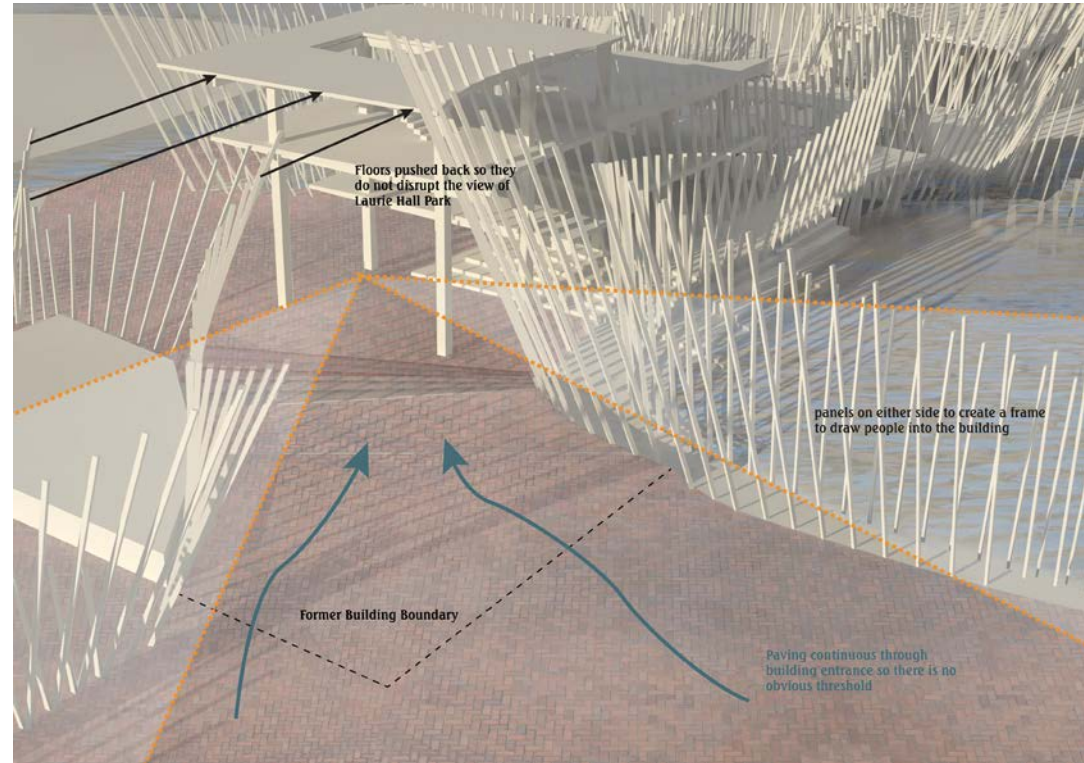
**Figure 4.84** (above)  
Timber Panels amongst the new structure and platforms. An important aspect of the design is the treatment of the main entrances highlighted within the blue circles.  
Scale 1:400



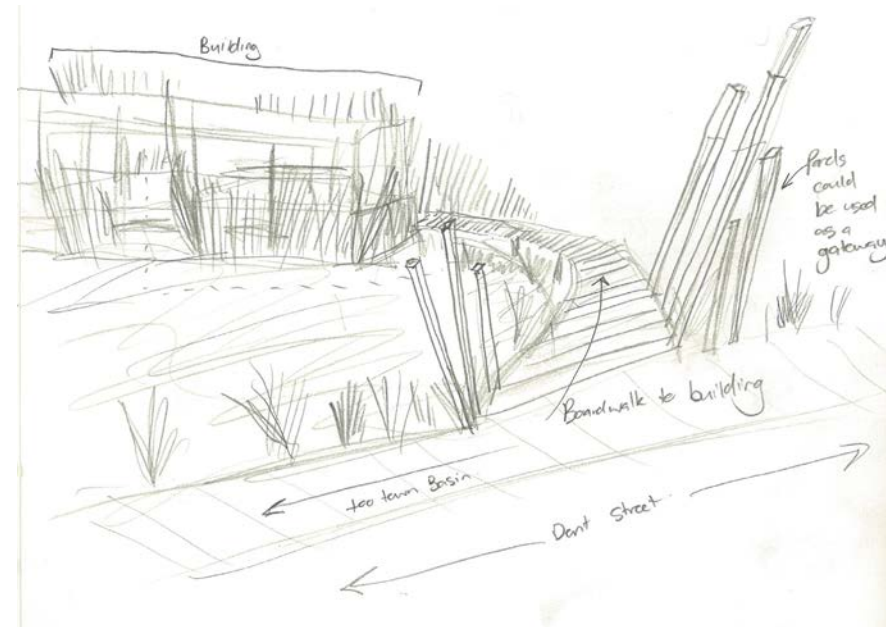
## ■ Treatment of Entrances



**Figure 4.85** (above)  
Initial sketch of main commercial centre entrance. View from corner of Rathbone and Robert Street.



**Figure 4.86** (above)  
Commercial centre entrance showing the extension of timber panels framing the entrance and leading people into the space.



**Figure 4.87** (above)  
Initial Sketch of Town Basin entrance. This path is not directly linked to the Town Basin, therefore additional timber panels can act as a gateway.



**Figure 4.88** (above)  
Boardwalk like path and planting can also be used as an additional lead into the space.



## 4.8

### Final Details

**Figure 4.89** (next page)  
Map Showing important viewports.  
Scale 1:4000

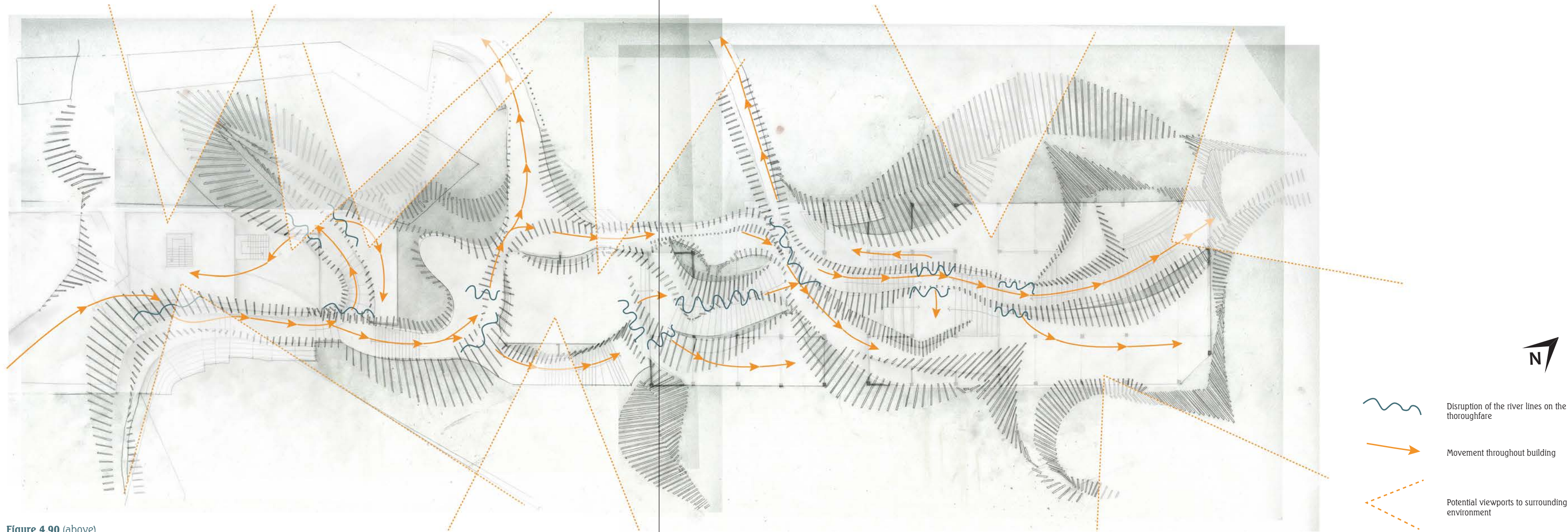


#### ■ Panel Spacing

Currently the timber panels are consistent and relatively the same throughout the structure. However, views and pathways need to be considered to determine the spacing between panels.

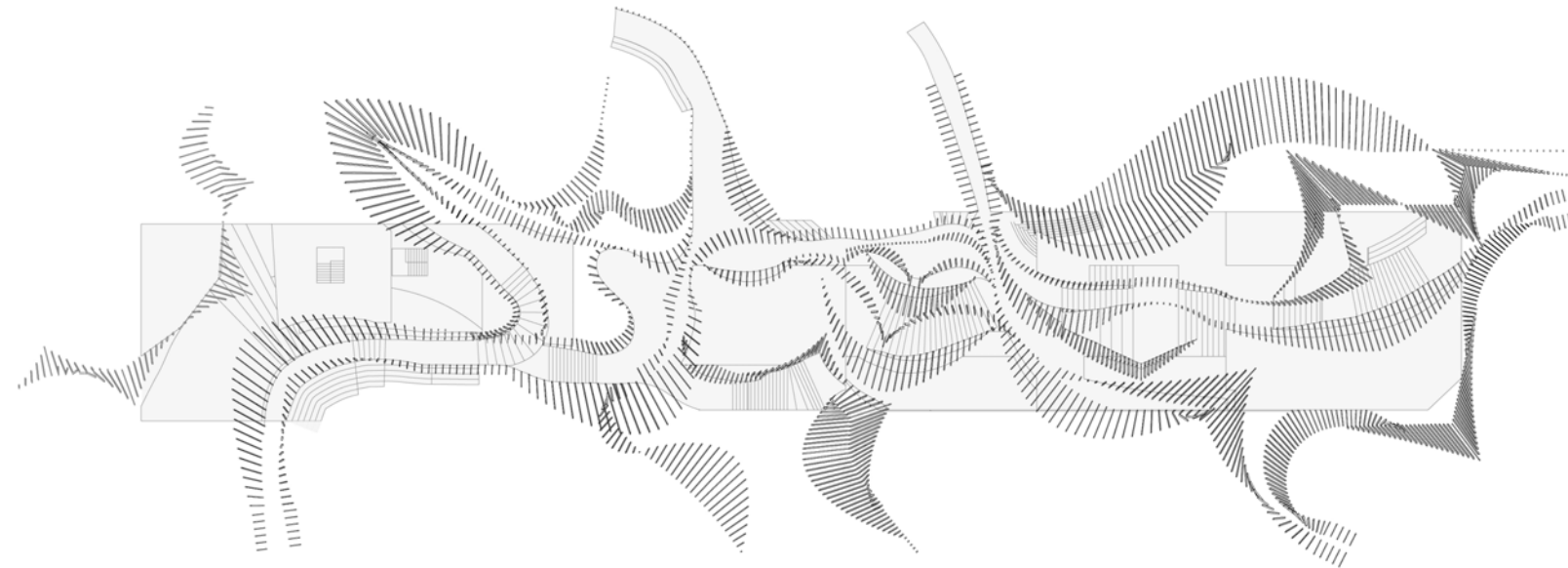




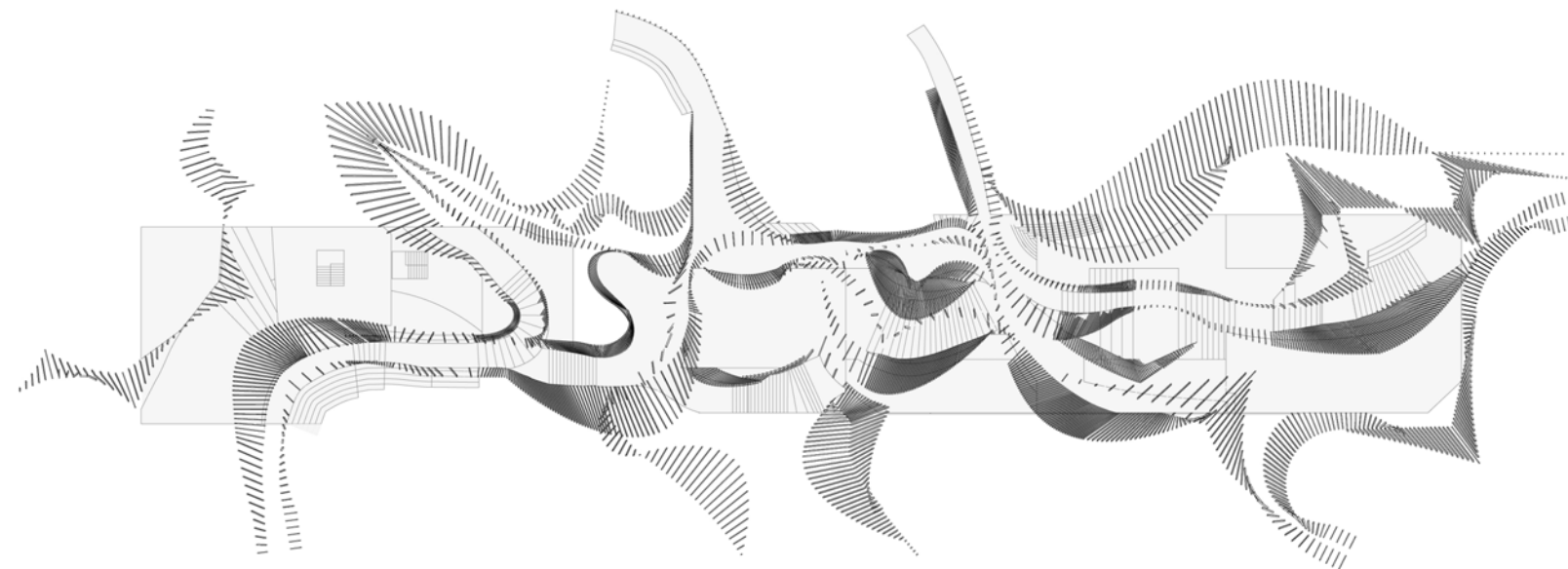


**Figure 4.90** (above)  
 Plan highlighting the building paths which are disrupted by the timber panels and key viewports.  
 Scale 1:400

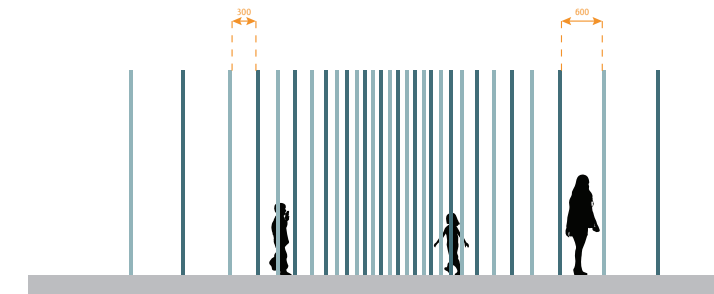




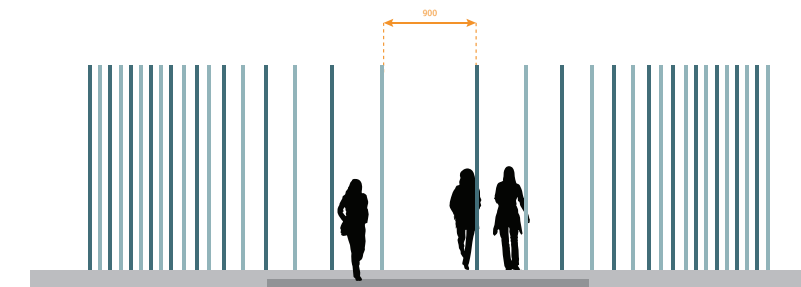
**Figure 4.91 (above)**  
Plan showing the original timber panel spacing.  
Scale 1:800



**Figure 4.92 (above)**  
Plan showing the new timber panel spacing.  
Scale 1:800



**Figure 4.93 (left)**  
Changing panel spacing can create spaces more easily accessible to children encouraging play.



**Figure 4.94 (left)**  
Panels need to allow for easy movement through the space. Main pathways can be no less than 900mm.

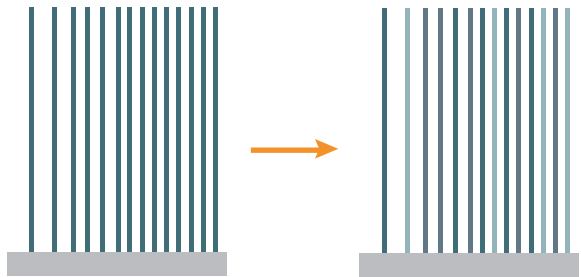


**Figure 4.95 (left)**  
Panel spacing can allow for clearer views of surrounding environment.

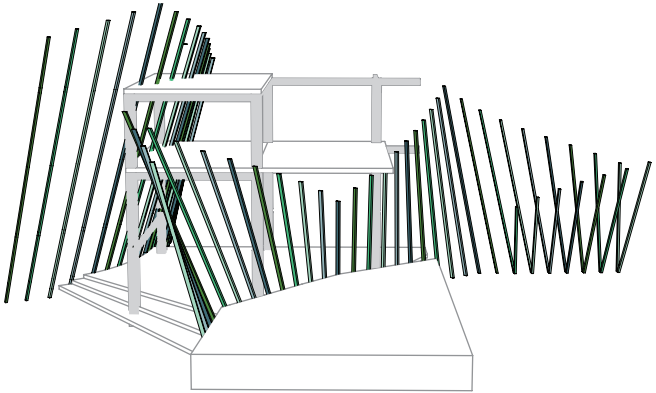


■ **Colour Differentiation**

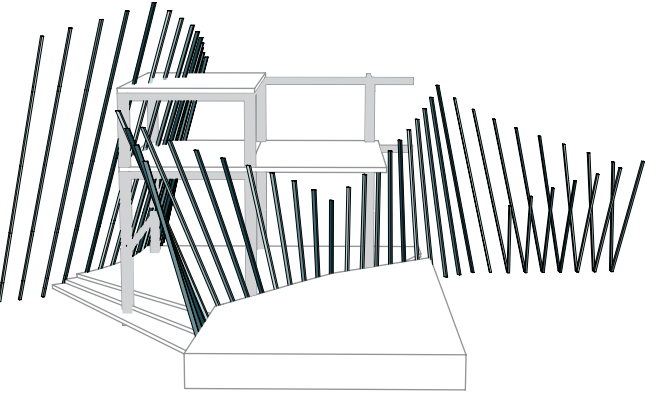
Currently there is no differentiation between each of the river lines. Will Alsop, as discussed in the precedent studies, applies colour to his buildings to create a sense of fun. Colour can be used not only to enliven the building, but also to differentiate each historic river line and help the structure stand out from its surroundings.



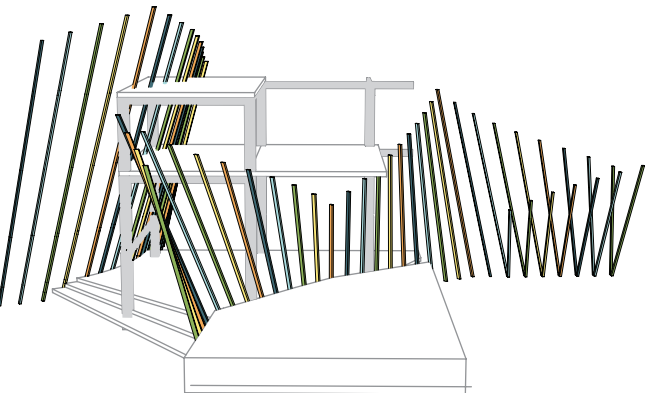
**Figure 4.96** (above)  
Diagram showing the differentiation colours can create.



**Figure 4.97** (left)  
Colour iteration one.

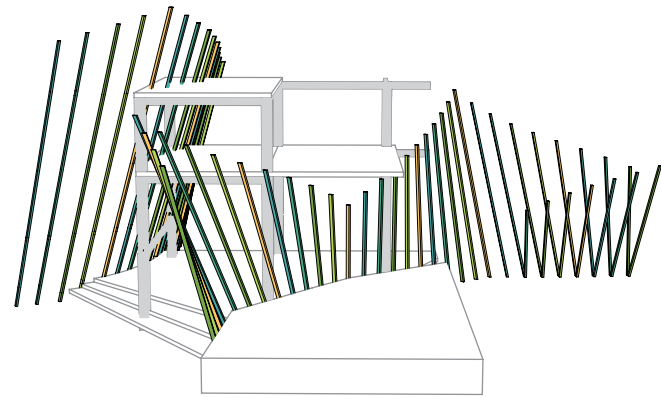


**Figure 4.98** (left)  
Colour iteration two.

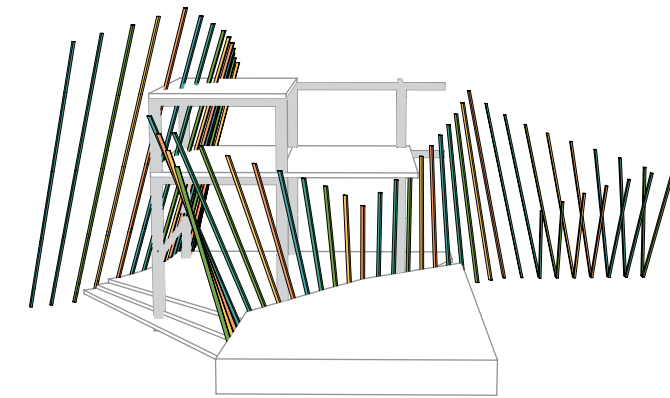


**Figure 4.99** (left)  
Colour iteration three.



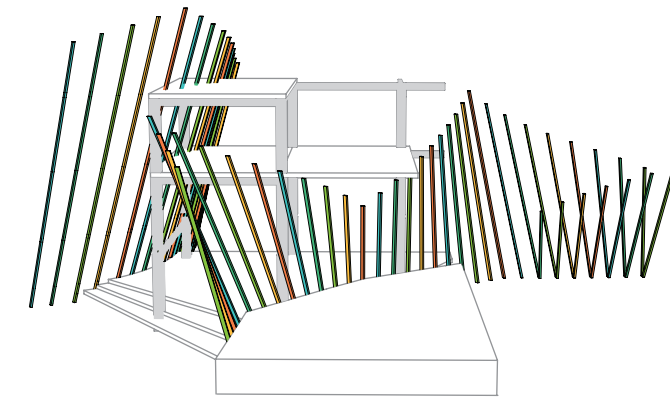


**Figure 4.97 (left)**  
Colour iteration four.

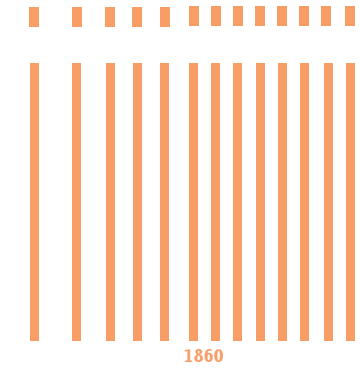
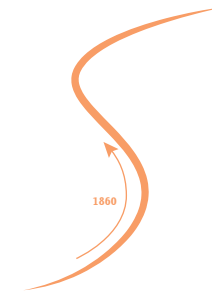


**Figure 4.98 (left)**  
Colour iteration five.

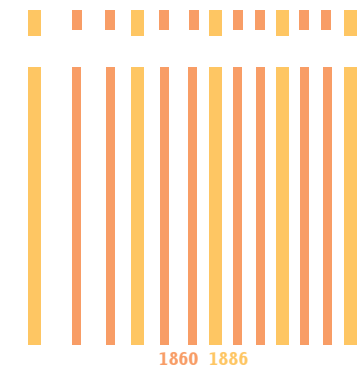
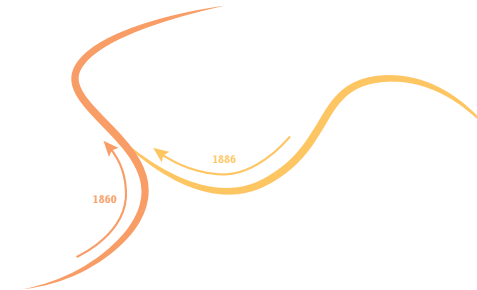
**Chosen Colour Scheme**



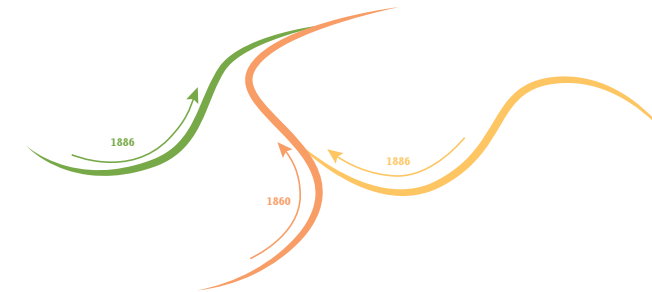
**Figure 4.99 (left)**  
Colour iteration six.



**Figure 4.100 (left)**  
Each year will have its own colour and cross section.



**Figure 4.101 (left)**  
As years interact (river confluence) their colours will merge.



**Figure 4.102 (left)**  
The different colours and cross sections will change throughout the structure creating a wide variety of colours.





**Figure 4.103** (above)  
Final building with coloured panels.



# Chapter Five

Final Design





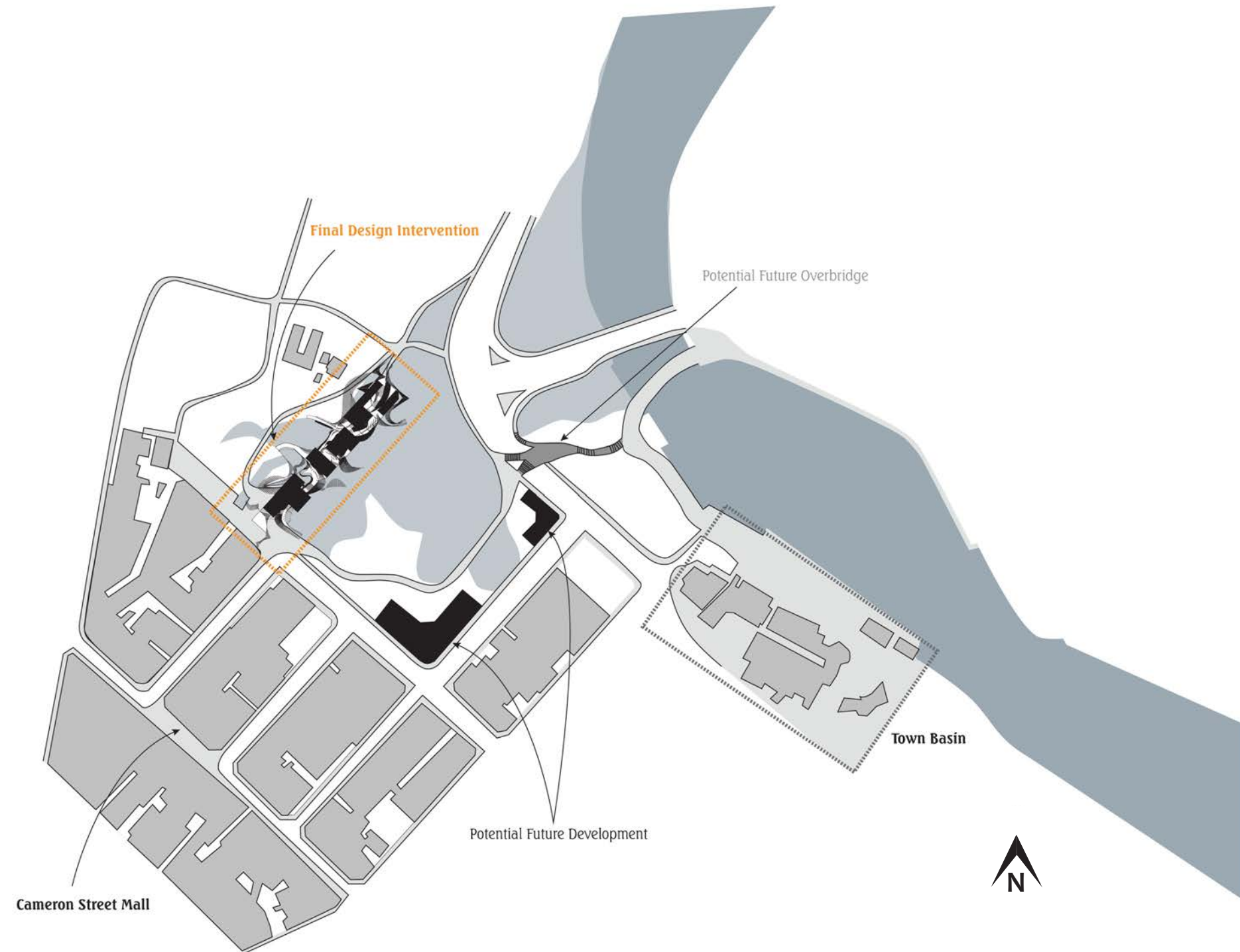


**Figure 5.1** (previous page)  
Final Design Intervention as viewed from Dent Street towards the  
Commercial Centre

**Figure 5.2** (next page)  
View of Design from the Commercial Centre.

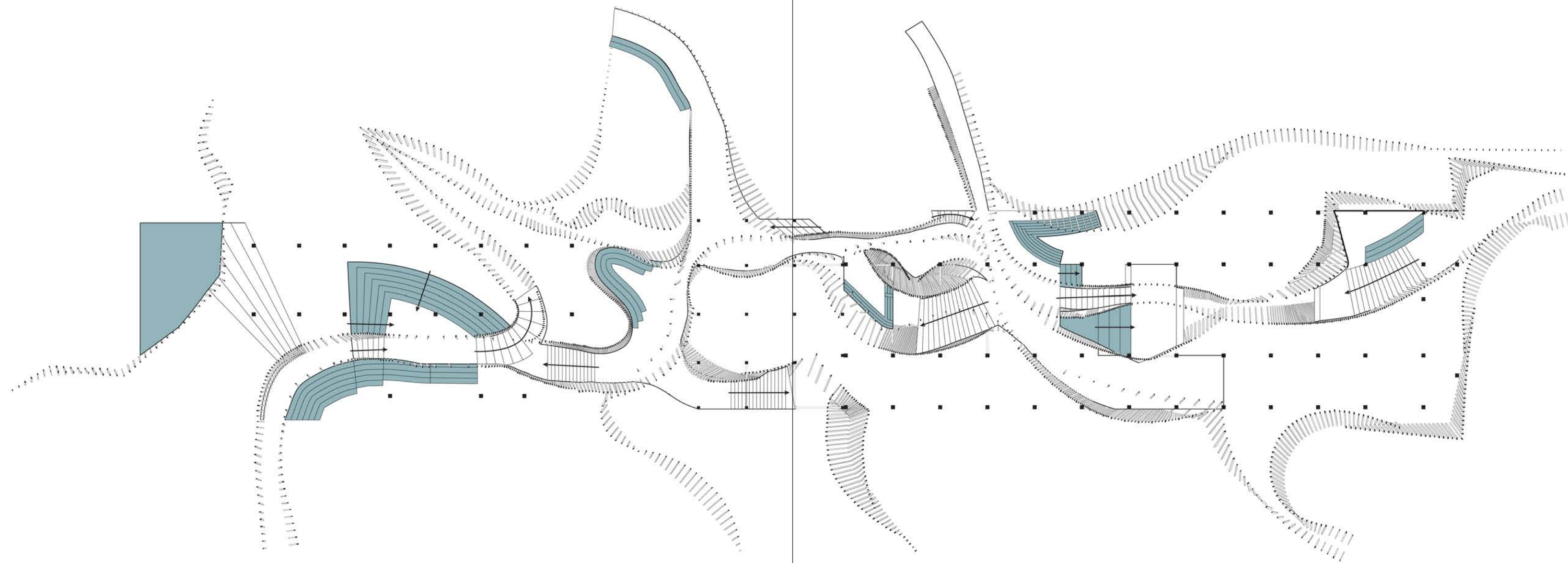







**Figure 5.3** (previous page)  
 Final Site Plan showing design solution as well as potential future development.  
 Scale 1:4000



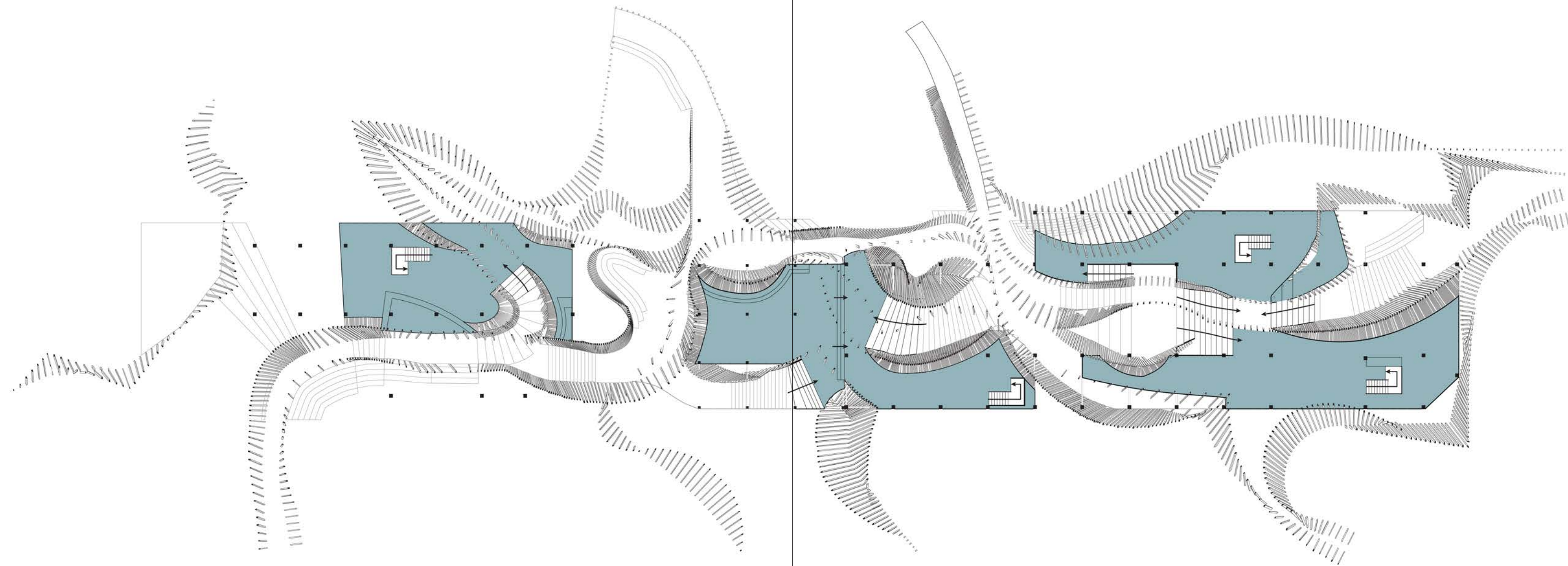


**Figure 5.4**  
Ground Floor Plan  
Scale 1:400




 Informal Learning, Performance  
and event spaces



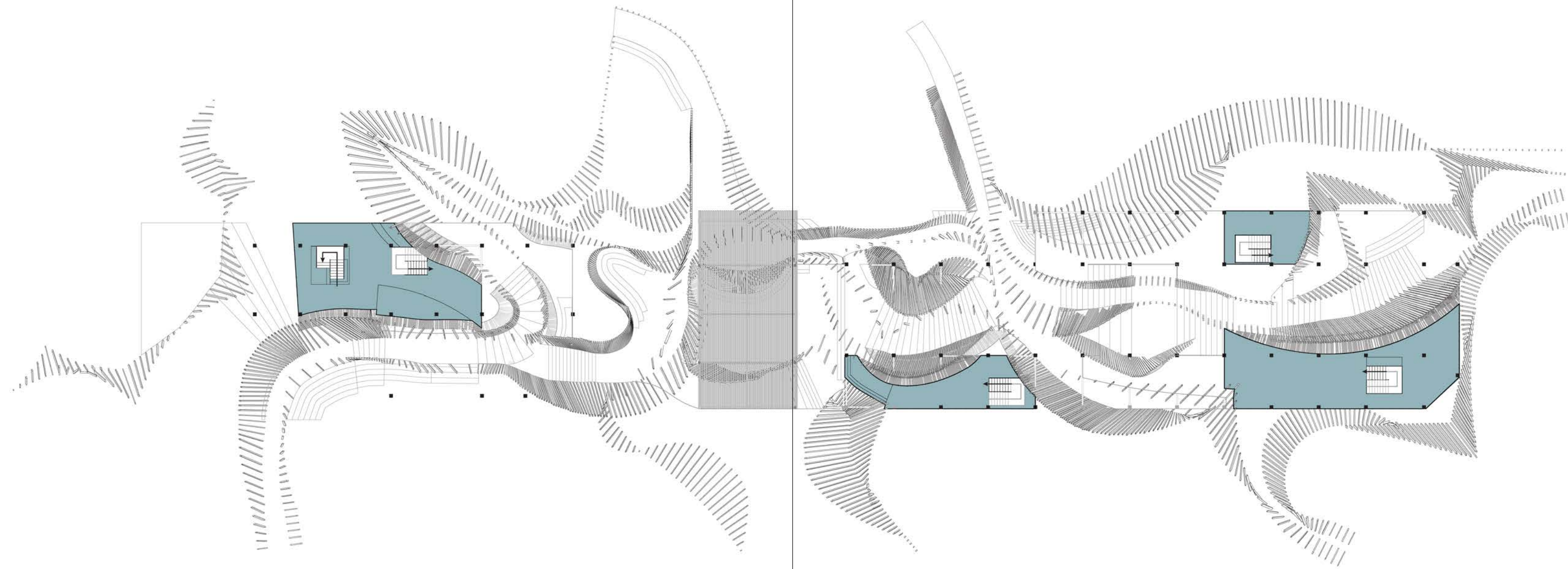


**Figure 5.5**  
First Floor Plan  
Scale 1:400



 Informal Learning, Performance and event spaces



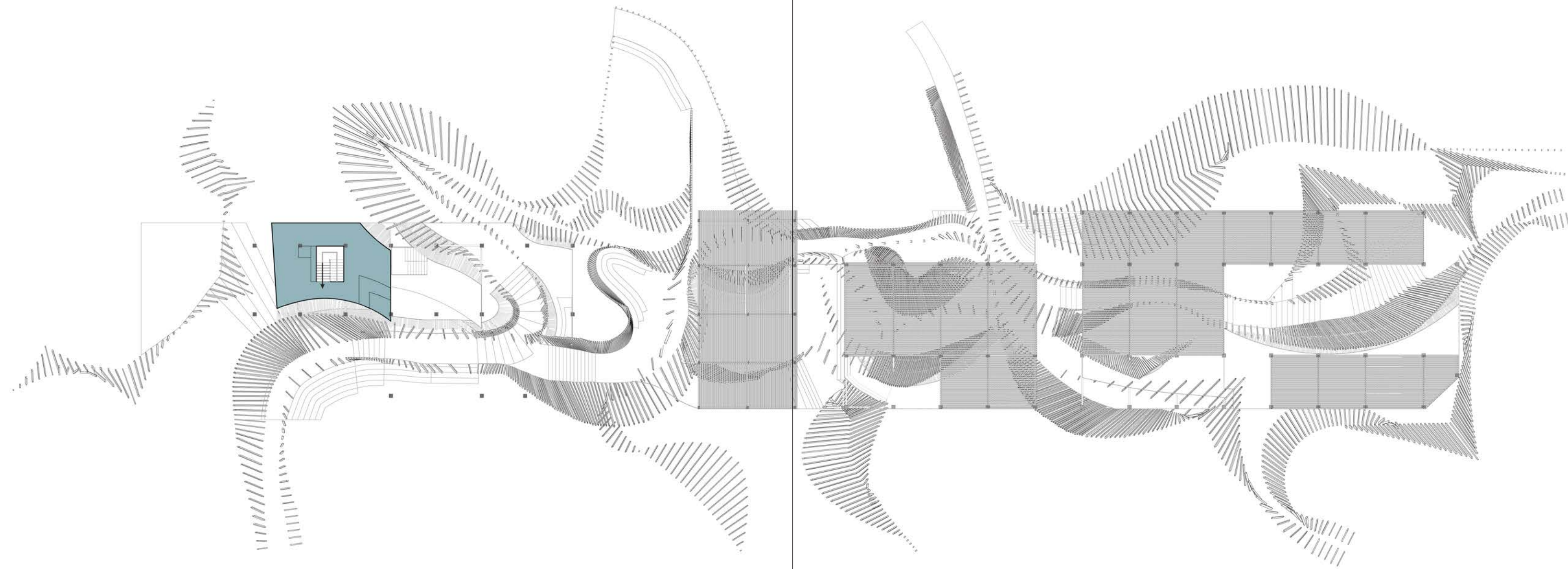


**Figure 5.6**  
Second Floor Plan  
Scale 1:400



Informal Learning, Performance  
and event spaces



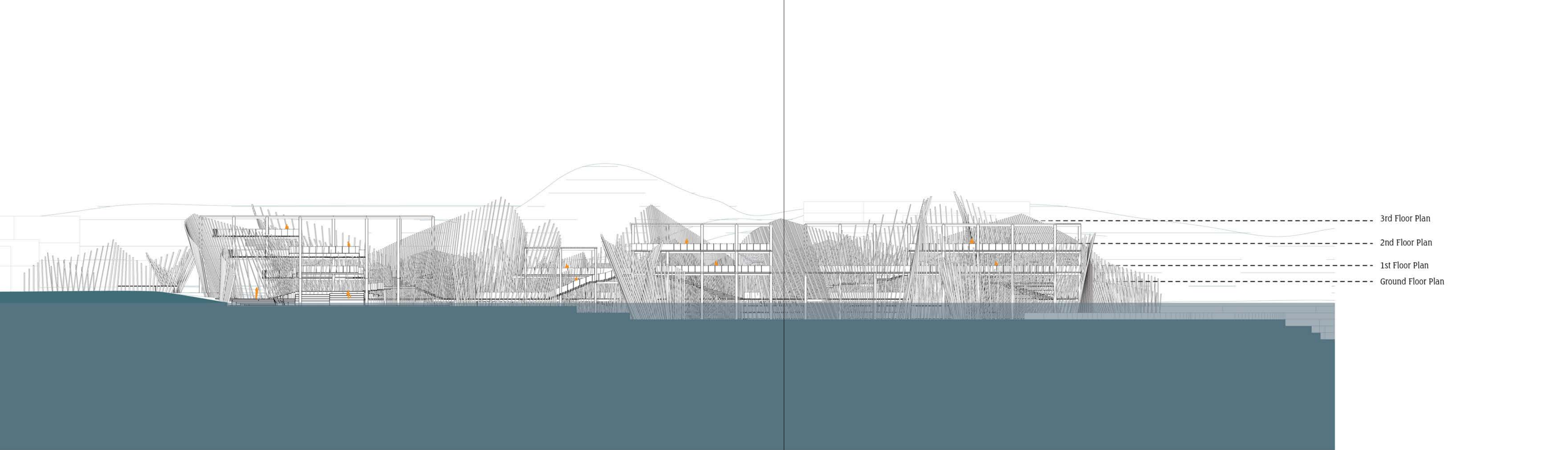


**Figure 5.7**  
Third Floor Plan  
Scale 1:400



Informal Learning, Performance  
and event spaces





**Figure 5.8**

North Elevation. Highlights where the plans were cut  
as the three buildings have different level heights.

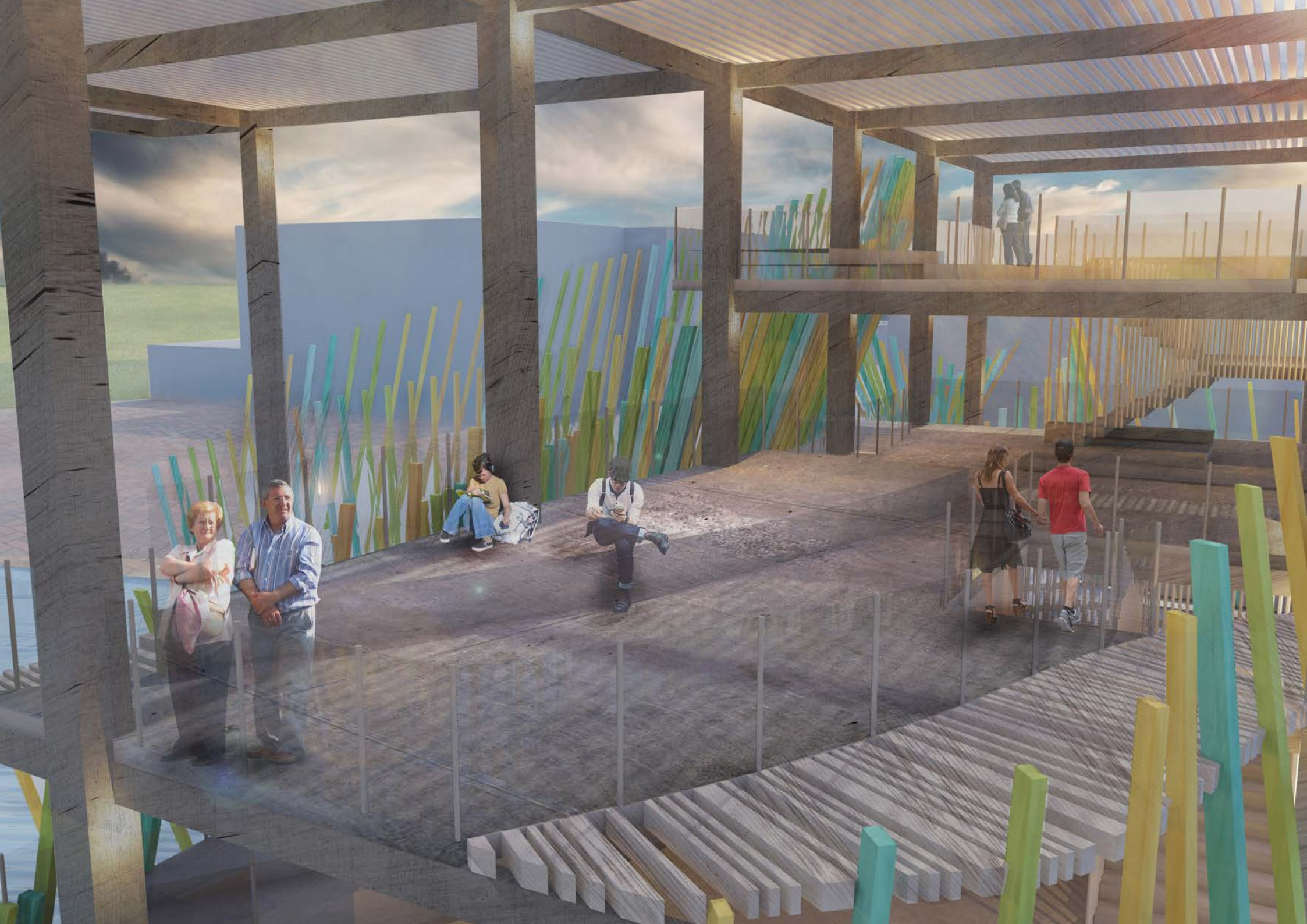
Scale 1:4000





**Figure 5.9** (next page)  
Design from above showing walkway as well as the sheltered informal  
learning spaces and the park beyond.





**Figure 5.10** (previous page)  
View of the informal learning/event spaces within the building closest to the Commercial Centre.



**Figure 5.11** (next page)  
Walkway connecting the Commercial Centre and the Town Basin.









## Chapter Six

Design Discussion



## ENVIRONMENTAL

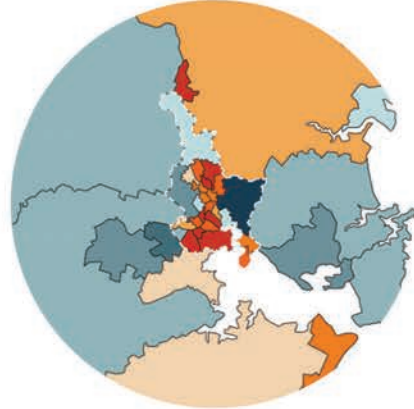


Enhance the natural environment to assist in attracting people to, as well as retaining people within the district.

Restore and embrace the ecological system of the Hatea river.

Use natural ecology to create a more sustainable environment with flood prevention and water sensitive urban design techniques.

## SOCIAL



Provide adaptable informal learning spaces which could be used for to promote educational and career opportunities.

Create a lively and attractive city centre which re-establishes a connection between the CBD and the waterfront as well as other local amenities.

Create a significant public space which can be used for events, performances as well as other social and cultural events.

## ECONOMIC



Provide opportunities or education and employment to help mitigate issues of social deprivation.

Establish a strong connection between the two centres as well as creates a attractive centre which draws more people into the city centre and ultimately leads to an increase in economic activity.

## CULTURAL



Provide a space which celebrates the local culture and heritage of the community.

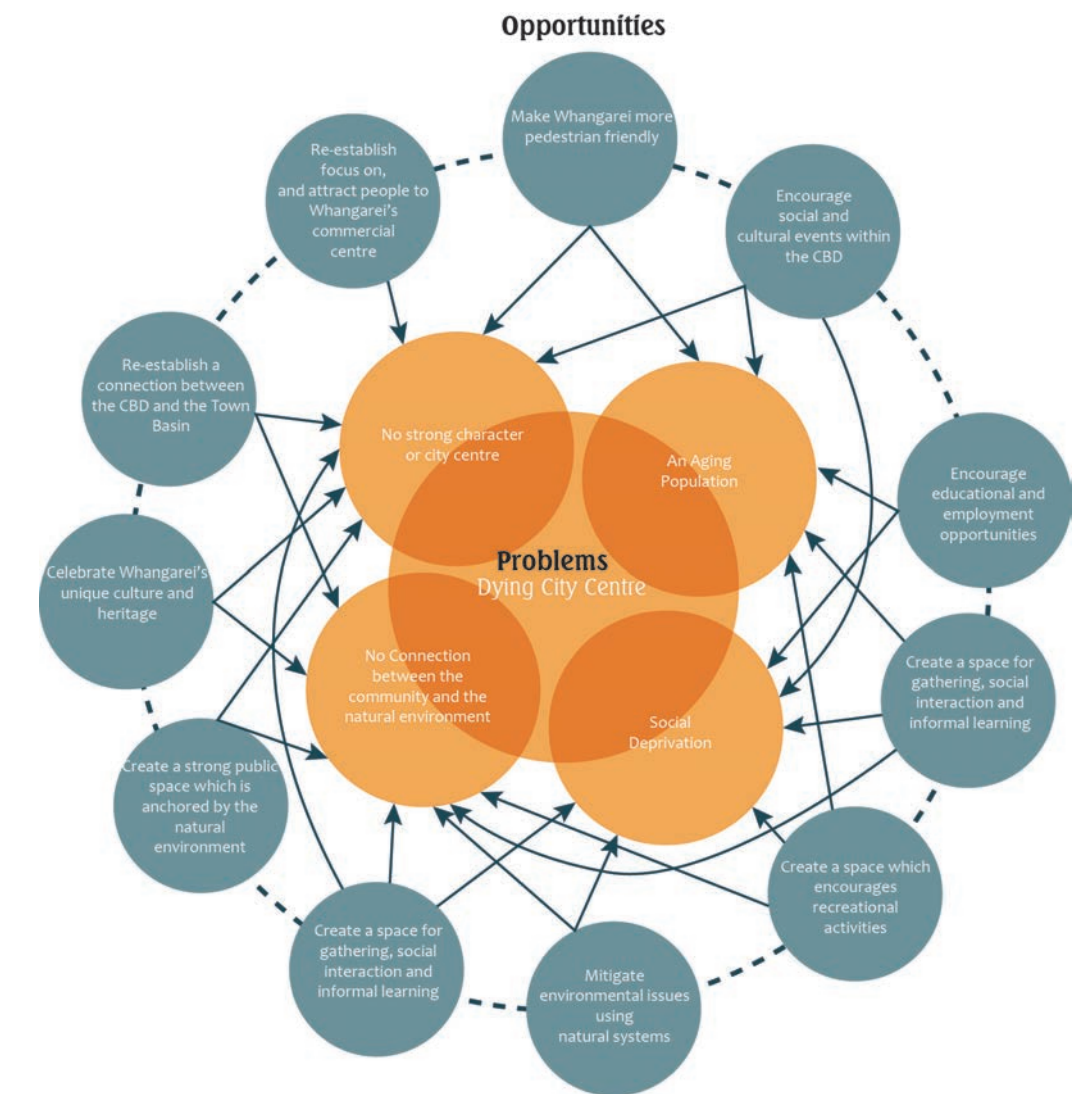
Reconnect the city and the community to the Hatea river through the enhancement of its historical and cultural significants.

**Figure 6.1** (previous page)  
Criteria as highlighted in previous chapters

## Introduction

The final design has addressed the issues identified throughout the previous chapters as detailed in the adjacent diagram. The discussion will look specifically at the way in which the final design works toward resolution of the four main sets of issues and opportunities being Environmental, Social, Economic and Cultural.

**Figure 6.2** (right)  
Problems and potential opportunities to help mitigate them.





## 6.1

### Environmental

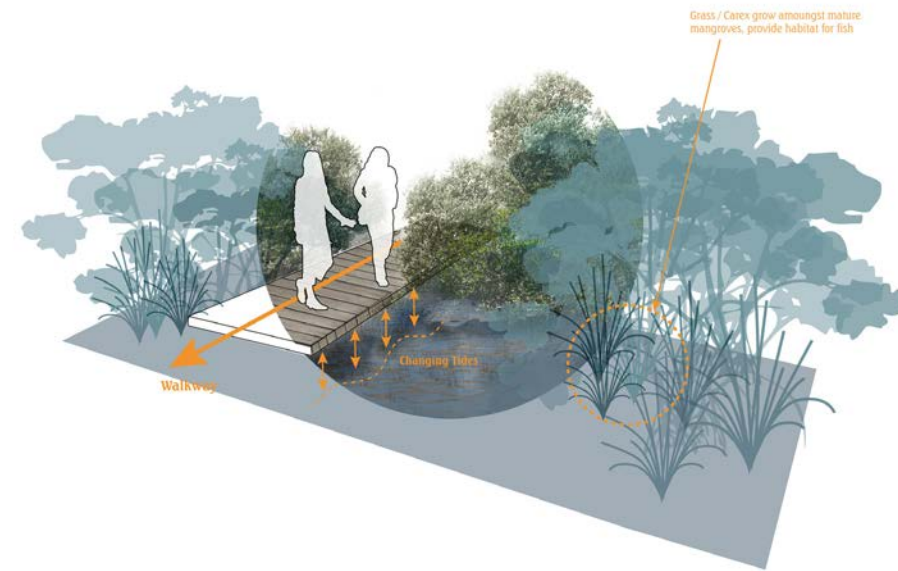
**Figure 6.3** (next page)

The design acts as a viewport into the rivers diverse ecology.





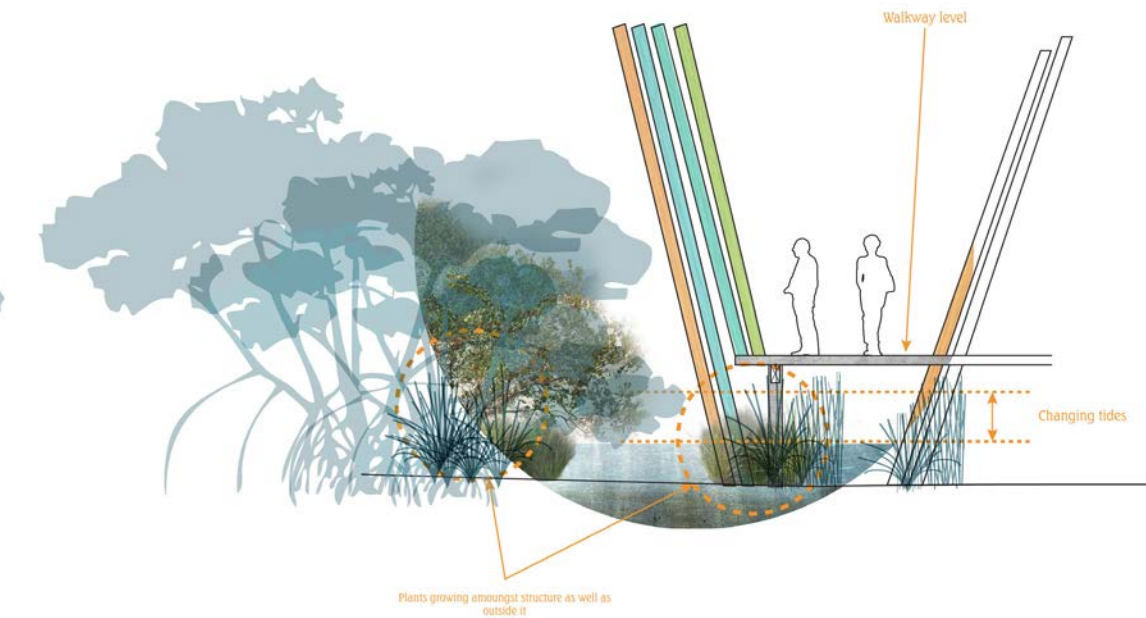
The environment is one of the reasons why people choose to come to and remain within the Whangarei District. The design solution has enhanced the environment within the CBD by restoring some of the historic ecological and natural features that were identified as opportunities. It brings some form of the original rivers edge back through the 'no mans land' area which makes this a more interesting place with greater intrinsic value. It showcases aspects of the original ecology of the tidal river and educates the public.



**Figure 6.4** (above)  
Ecological interaction from walkways through the riparian environment



**Figure 6.5** (above)  
Ecological interaction directly with the rivers edge and changing tides



**Figure 6.6** (above)  
Ecological interaction from walking past and viewing changing ecology.

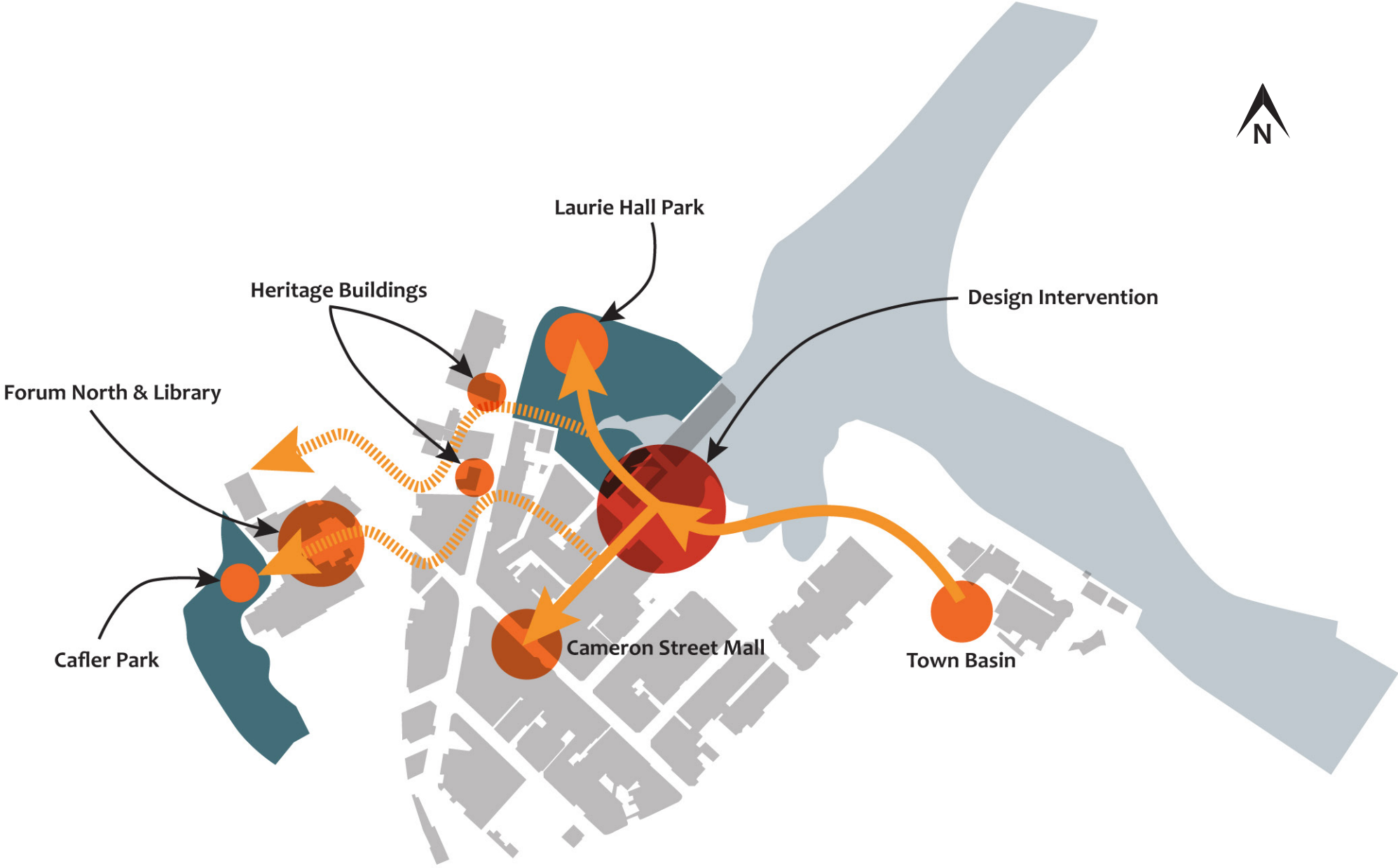


The re-establishment of the natural wetland ecosystem back into this area also provides benefits to flooding and water quality through the natural impacts of the restored flood plains and the flora and fauna which will populate it with living forms rather than only static built forms.

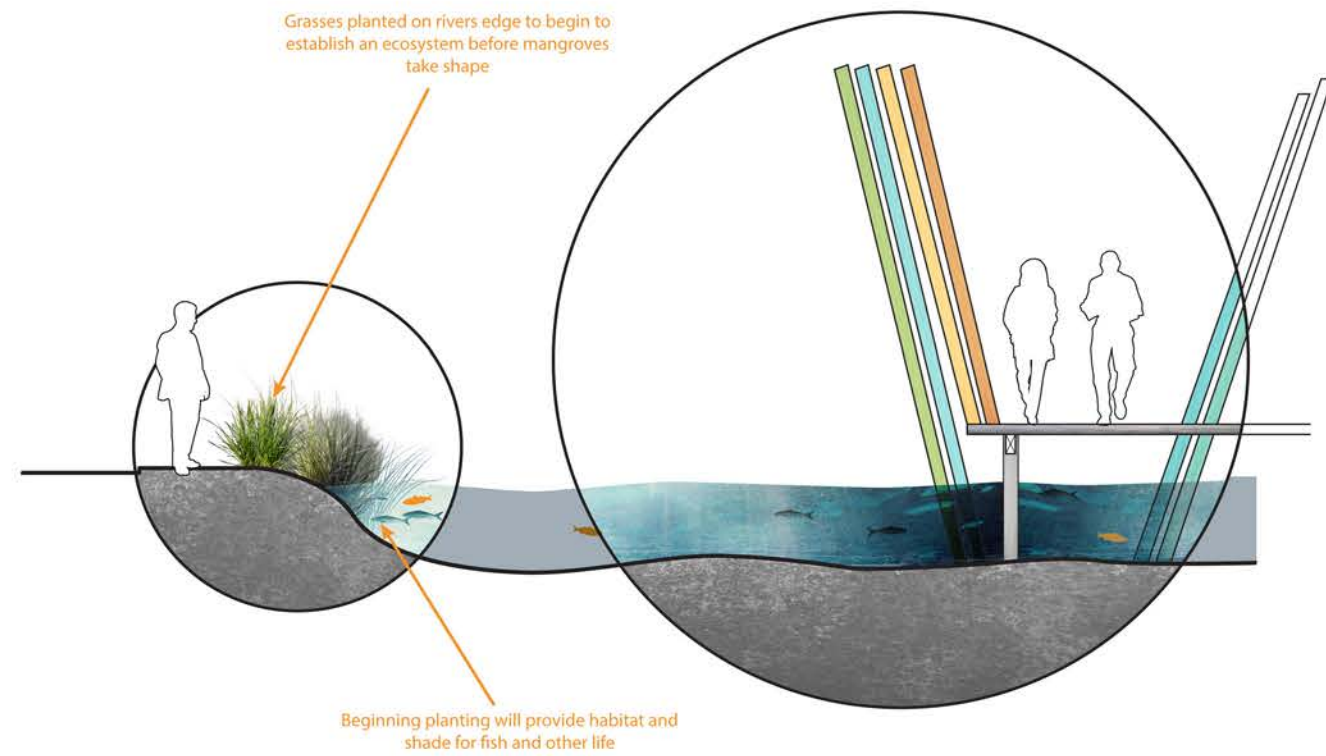
This new form also fits better with the two early areas of development within the city. The design bridges the gap between the Commercial Centre and the popular recreational and arts amenity of the Town Basin. It also begins to connect other key public amenities such as the library, Forum North, Cafler Park and isolated remaining heritage structures of the Commercial Centre.

The link also offers an alternative to the existing prevalence of vehicle transport by creating strong and attractive pedestrian experiences.

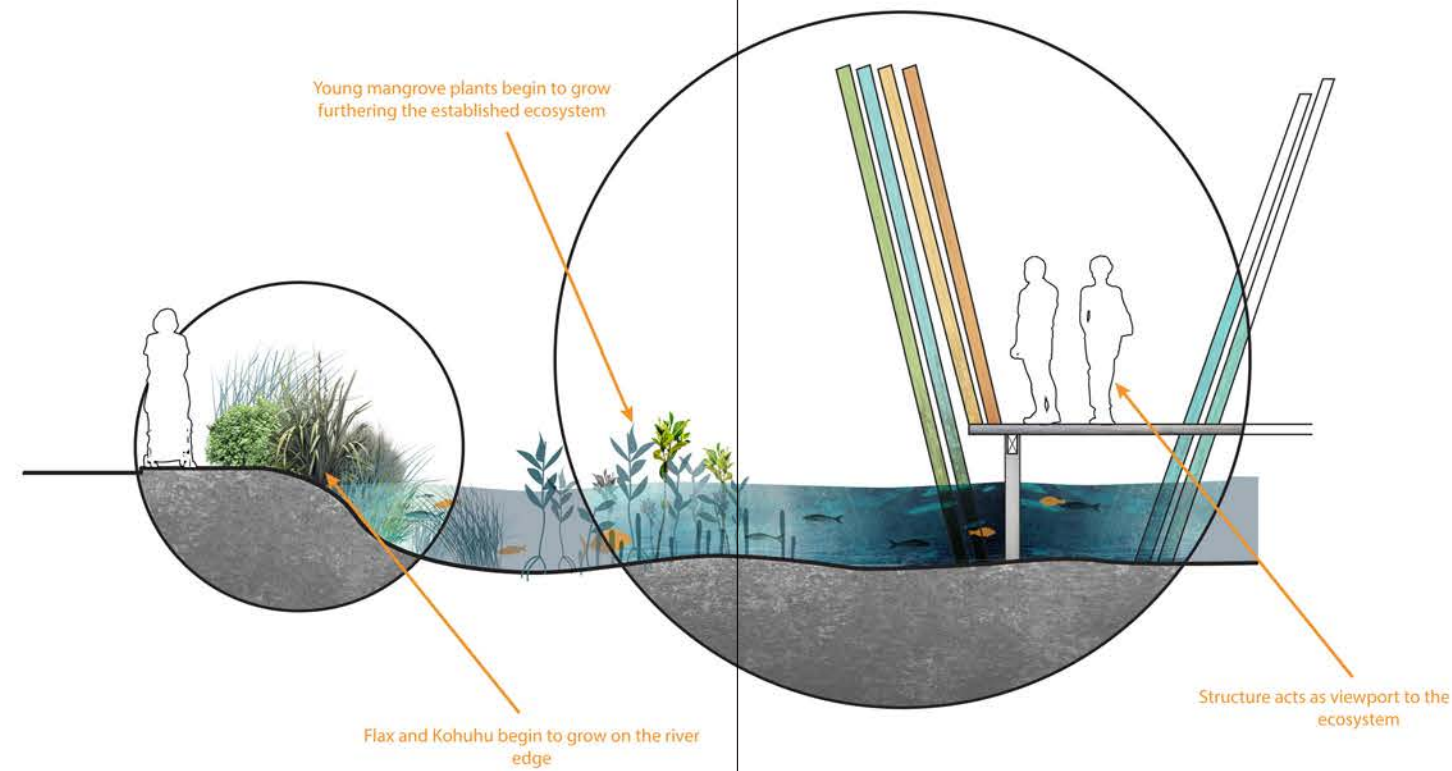
**Figure 6.7 (next page)**  
Diagram showing how the design intervention successfully connects the Commercial Centre, Town basin and Laurie Hall Park. It also begins to establish a further connection with other amenities.  
Scale 1:5000



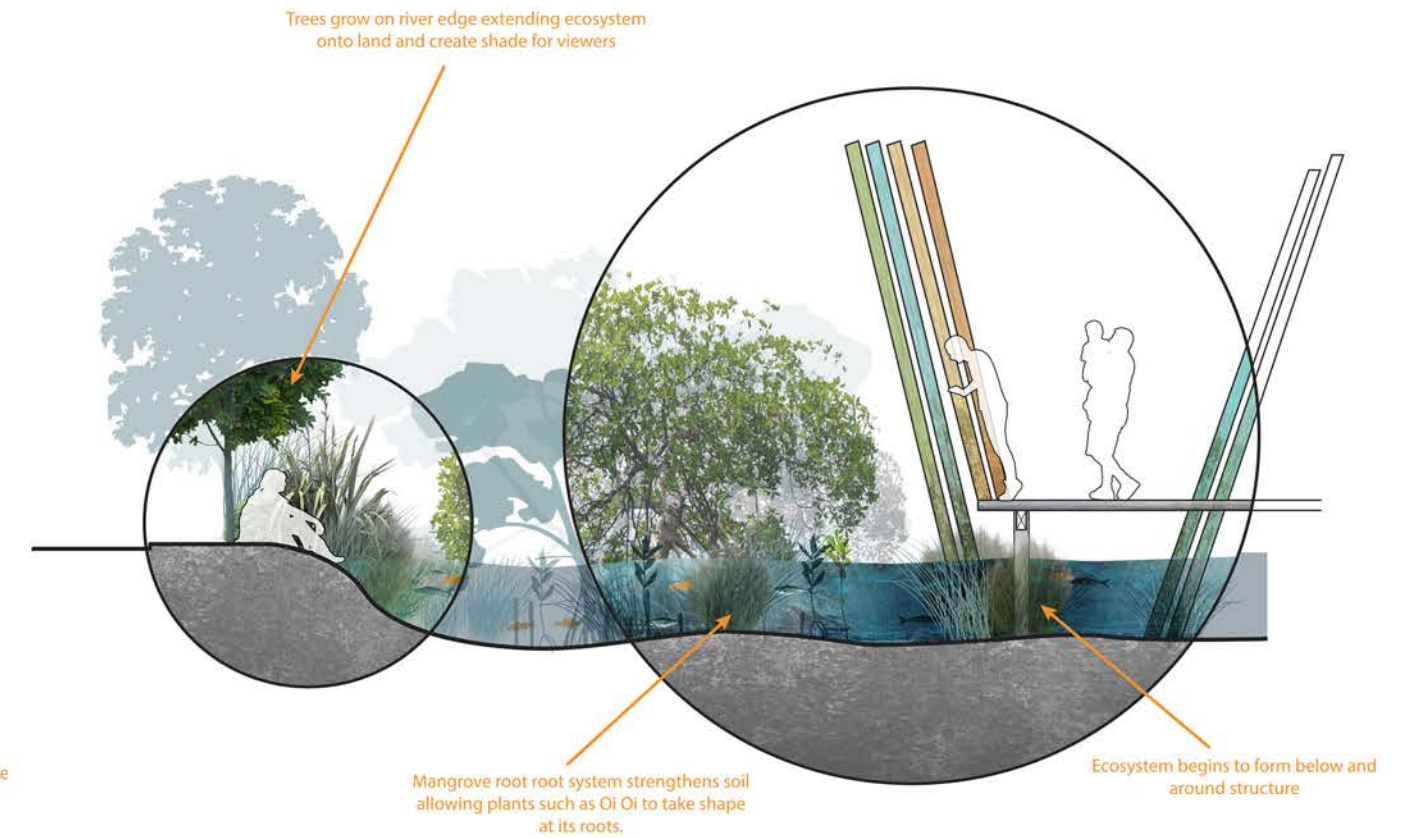




**Figure 6.8 (above)**  
Ecology will be established through riparian planting on the river edge.



**Figure 6.9 (above)**  
The mangrove ecology will begin to take shape and edge planting will also be more established.



**Figure 6.10 (above)**  
Established mangrove ecology bringing life to the design as well as mitigate certain ecological issues.



## 6.2

### *Social*

**Figure 6.11** (next page)

The Design has space which encourages different levels of social interaction.



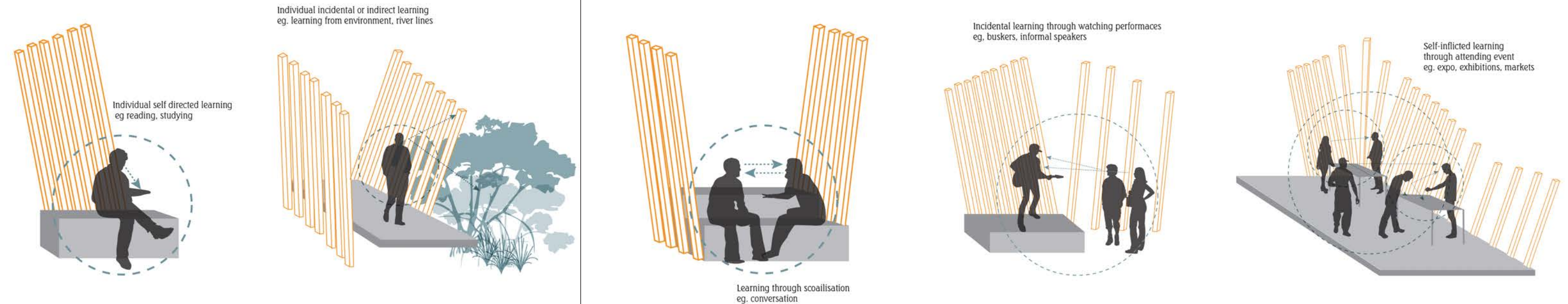


Social deprivation is an identified issue which affects Whangarei. The key opportunities to mitigate this are education and employment.

This design has an impact through the creation of informal learning spaces which provide the opportunity for three types of informal learning – self-directed (expos, exhibitions), incidental learning (performance, buskers, informal speakers) and socialisation (meetings and space for socialisation) (Schugurensky). Within the space informal learning will occur with individuals and small groups through interaction between people which is both social and educational in nature such as performance, conversation and activities. The informal learning can also take place through purpose driven events with larger groups such as expos and shows highlighting topics such as education, careers, industries and special interest areas.

The design will also provide for indirect learning from the surrounding environment through growing awareness, restoring ecosystems, the environment changing over time within the day or over decades. Another aspect of indirect learning will be about the culture and heritage of Whangarei through river line extrusions and celebrating history.

The space created in the design is adaptable and able to be deployed to multiple uses. It will be a centre of activity, a gathering place, a space for social interaction and entertainment. This fits the needs of Whangarei with its limited population and varied needs.



**Figure 6.12** (full spread)  
Diagrams showing the types of informal learning that can be conducted within the space

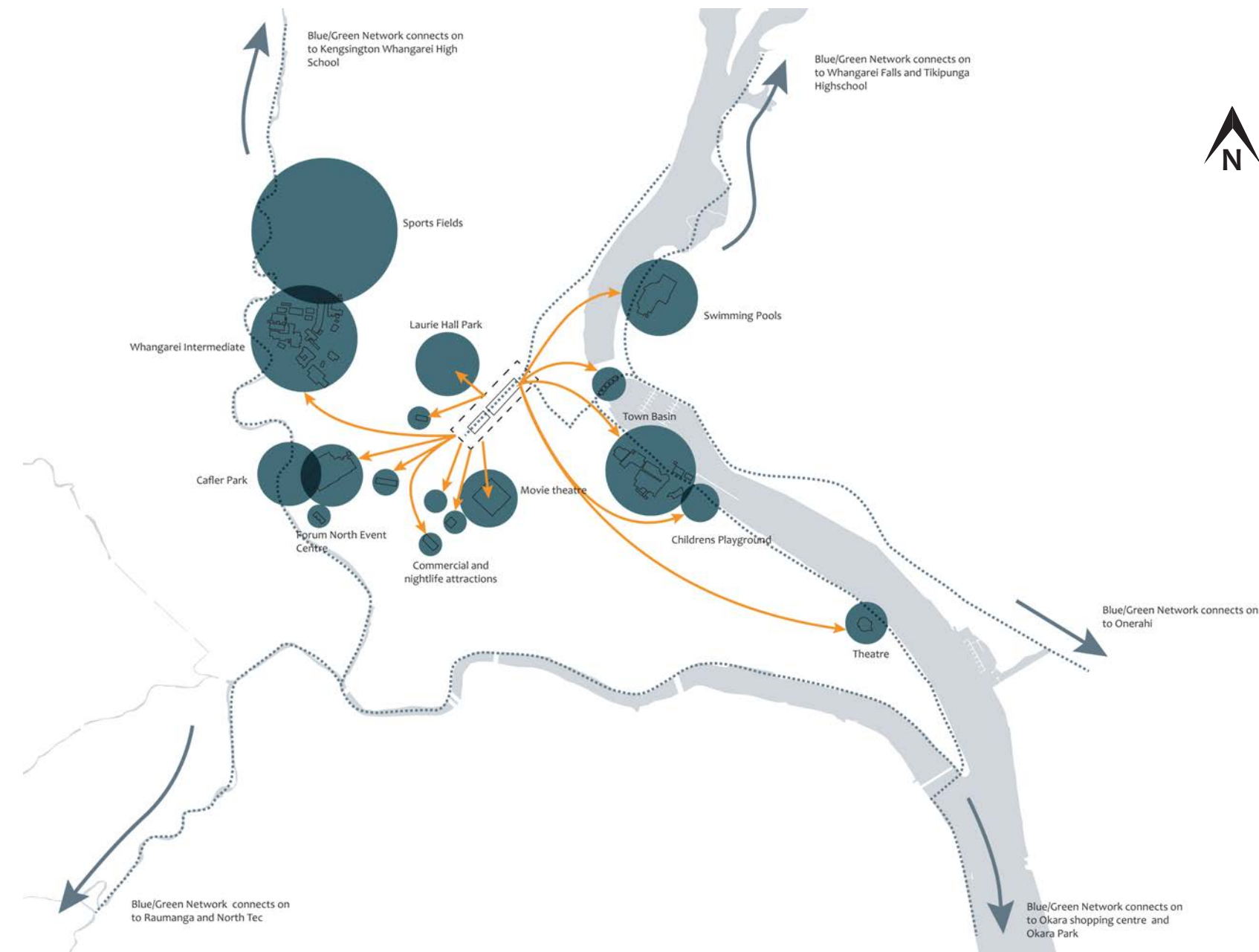




**Figure 6.13 (above)**  
The spaces height, colour and light encourage interaction, play and creativity amongst children.

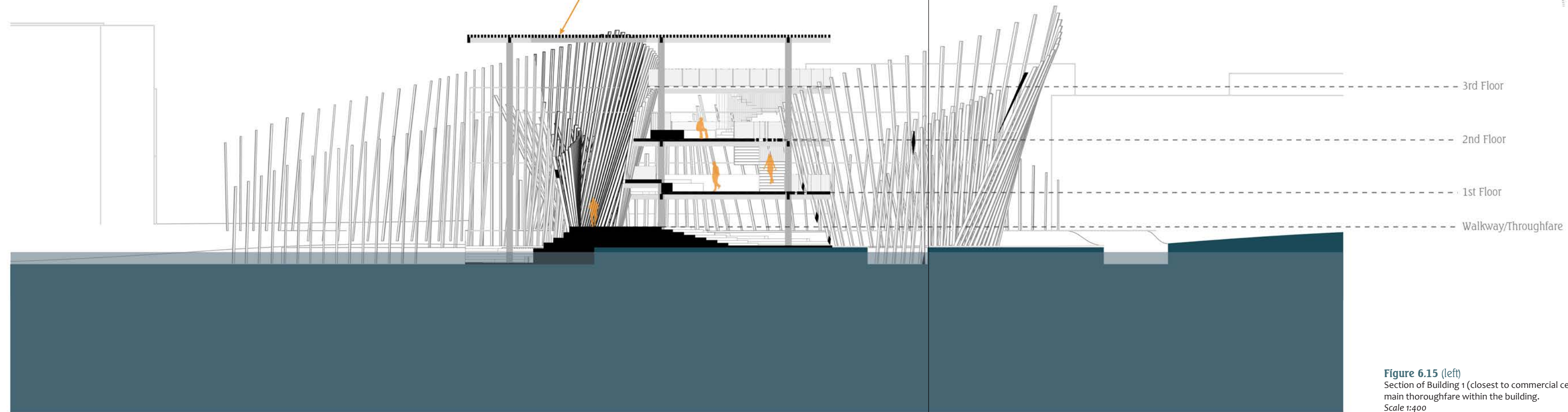
The design also creates a thoroughfare. This thoroughfare will create foot traffic in two ways: It will be an attractive link between the Town Basin and the Commercial Centre, which are the two most important destinations within the CBD as well as an extension of the recreational focal point of the Hatea Loop Walkway as part of the Blue/Green Network. Pedestrian traffic will create significant opportunity for social interaction and uptake of the informal educational activities on offer.

Engaging youth is also a key social opportunity due to the fact that it is the norm for young school leavers to move from the district seeking better social and employment outcomes. The design gives children a space to play and interact. Colours, environment, height, light and objects stimulate imagination and sense of adventure. Schools can use this design to learn about history and the local ecology of the area.



**Figure 6.14 (next page)**  
Map showing the connection between different youth related amenities; including the future Blue/Green Networks connection to schools beyond the CBD.  
Scale 1:10000



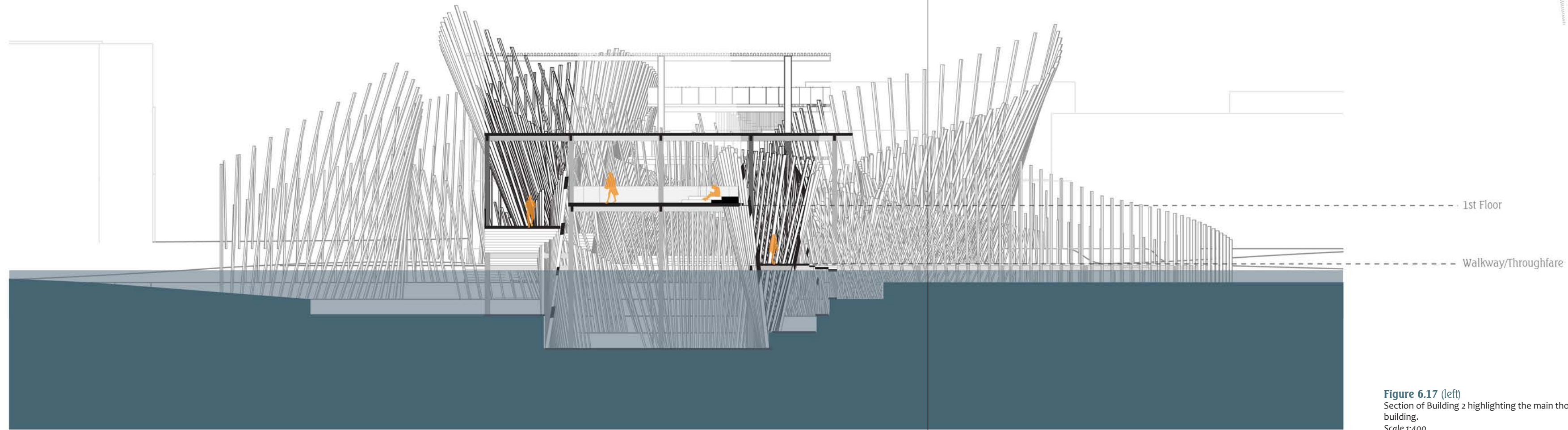


**Figure 6.15 (left)**  
Section of Building 1 (closest to commercial centre) highlighting the main thoroughfare within the building.  
Scale 1:400

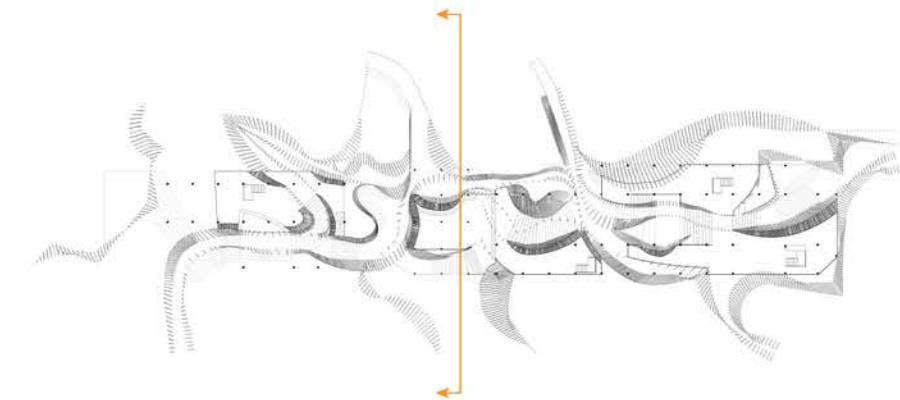


**Figure 6.16 (above)**  
Plan showing section cut through building  
Scale 1:1000



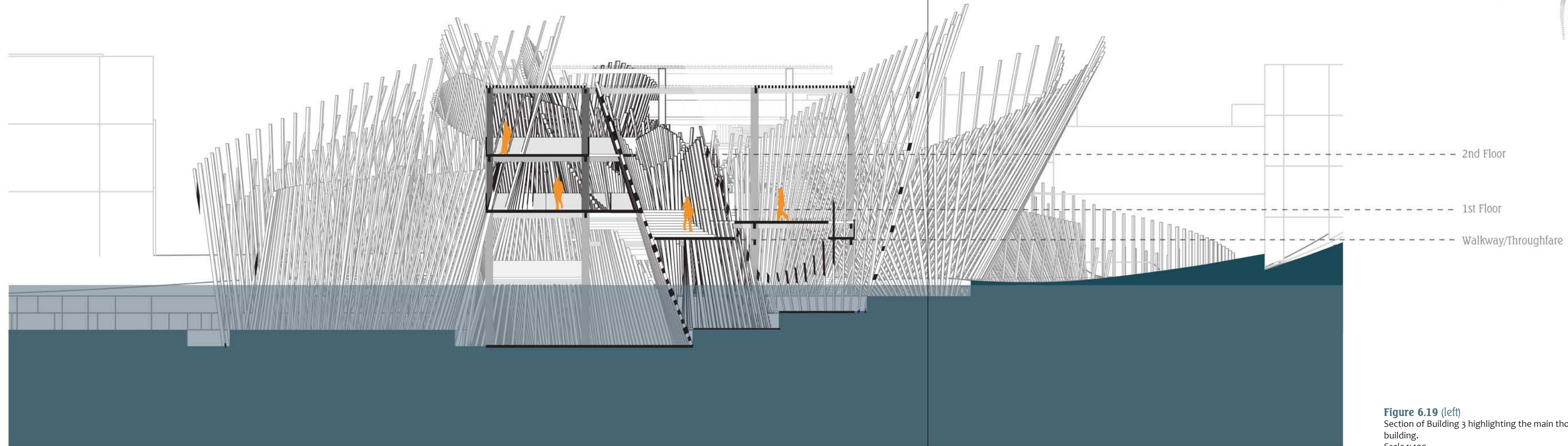


**Figure 6.17 (left)**  
Section of Building 2 highlighting the main thoroughfares within the building.  
Scale 1:400

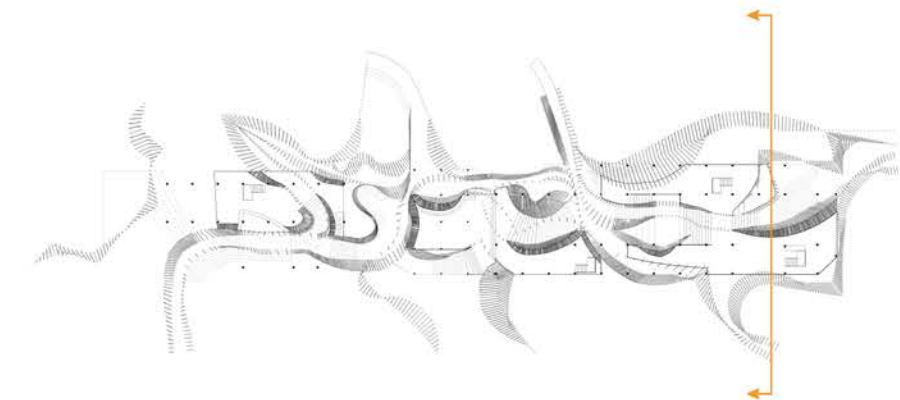


**Figure 6.18 (above)**  
Plan showing section cut through building  
Scale 1:1000





**Figure 6.19 (left)**  
Section of Building 3 highlighting the main thoroughfare within the building.  
Scale 1:400



**Figure 6.20 (above)**  
Plan showing section cut through building  
Scale 1:1000



The design makes the public space of Laurie Hall Park more accessible and visible and this brings opportunity for its use conducting larger events. Uses for the natural amphitheatre it forms could include concerts, performances, public presentations as well as existing events such as ANZAC commemorations. The removal of the open car park ensures more room for such events.

**Figure 6.21** (next page)  
Whangarei's Laurie Hall Park and its natural amphitheatre form.

**Figure 6.22** (following spread)  
Events held within Laurie Hall Park due to design intervention.









## 6.3

### Economic

**Figure 6.23** (next page)

View of the reconnected Commercial Centre from structure.







The re-connection of the main centres provides for economic growth. Bringing more people into the area and between the areas will improve uptake of retail and service offers that currently exist and as demand grows will create a market driven desire for more businesses and in turn greater employment opportunity.

One feature of urban sprawl is the establishment of many shops and service providers over a wide area and this change may begin to reverse this trend in Whangarei bringing these providers back to the place where the people are.

The design may also assist in addressing the low density within the CBD of Whangarei enabling greater numbers of people and businesses to the immediate area. The designed space and also the enhanced Laurie Hall Park will become a venue for markets and pop up retail events which have proven popular with residents in the district in the form of craft and farmers markets.

**Figure 6.24** (left)  
Artisan Market held Saturday's on the Canopy Bridge.

**Figure 6.25** (next page)  
Design intervention as seen at night.

The space and wider CBD will be safer and better used than in the current situation, which will in turn attract more people for longer periods which should enable nightlife opportunities and central high density residential development.

A further driver of economic development in New Zealand is tourism. Tourists respond to destinations with unique features that they are able to interact with.

This interaction needs to have some profound impact on their knowledge or experience set changing them in some way for life. The design is innovative and an experience in itself. It links areas which offer differing amenity and should go some way toward transforming Whangarei into a destination which is attractive to both domestic and international tourists.





## 6.4

### Cultural

**Figure 6.26** (next page)

People reacting to and interacting with the river lines, or 'history.'





One of the issues with the Whangarei CBD and in particular the Commercial Centre, is the lack of a heart and the impact that has on a sense of community for locals. Bringing people together in this location will inevitably establish a centre, which people will see as representative of the community. Gatherings that are community focussed such as public meetings, consultation, electioneering, unique experiences such as the Fritter Fest, Whangarei Marathon, Beach to Basin Fun Run or Rally of Whangarei could interact with this design and see improved cultural impacts.

The design also references the cultural history of the area, both Maori and European. Celebration of the river, its history and original form will educate the public and enhance their understanding of history and culture. The building will enhance character and will be an important backdrop to cultural events which take place in the vicinity.

The promotion of Maori traditions around the importance of the river and the wetland environment and education of public in this area will improve cultural understanding and help strengthen the history and identity of local iwi.



**Figure 6.27**  
Map Showing the design at the centre of all primary amenities.  
Scale 1:8000



**Figure 6.28**  
Building acts as a backdrop for performance.







## Chapter Seven

### Conclusion



Whangarei’s dying Commercial Centre can be revitalised through an architectural design intervention that integrates the historic river edge and key activities from the Town Basin area within the CBD. This successfully addresses the Research Question within the defined scope.

The comprehensive architectural study has also identified significant issues which are more social and economic in nature that contribute to the problem. These by nature are unable to be resolved by a single solution.

■ **Fíndings**

The investigation has resulted in a range of insights:

- The issues that exist in Whangarei with a decline of the Commercial Centre are not uncommon in cities of all sizes in the latter part of the 20th and early 21st century.
- The impact of high density mixed use and large-scale change of the natural environment have resulted in unattractive city centres all over the world.
- Declining urban populations and urban sprawl diffusing the Commercial Centre has driven the

decline.

- Population analysis demonstrates the urban regions of Whangarei are mostly considered deprived and Whangarei has employment and educational disadvantages when compared to New Zealand as a whole.
- Deprivation has contributed strongly to the working and reproductive age groups leaving the urban regions in search of employment and tertiary educational opportunities.
- Education needs to be further developed within the Whangarei District. Design intervention should be the beginning of the discussion highlighting this issue.
- Population research shows that the factor most likely to attract and retain people within Whangarei is its environment.
- Any solution designed to address the dying Commercial Centre of Whangarei must contribute to the improvement of education, employment and the environment.
- Evolution of Whangarei around a complex tidal river without a comprehensive plan has created a wide range of issues

- Development of the Town Basin and recently the Hatea Loop Walkway have been extremely successful for the culture and recreation in Whangarei
- Ecology and form of the Hatea River has been negatively transformed over time.
- Dying urban areas have been improved elsewhere through re-establishment of natural environment, repurposing of existing underutilised structures and creation of spaces that engage people through recreation, education and socialisation.
- Opportunities exist in Whangarei for improvement through restoration of aspects of the natural ecology and existing council strategies in the form of the Blue/Green Network
- Through the tracing of historic river lines a potential site for design intervention within the ‘no mans land’ was identified.

■ **Límitations**

The investigation sets out to achieve a single design solution within a single site that mitigates and improves the issues affecting the dying Commercial Centre. In reality a comprehensive and multidimensional strategy would be required. This investigation is limited to repurposing an existing structure as a design solution. It is also limited to generally accessible public knowledge

and data. All aspects of practical implementation remain to be investigated and form a limitation.

■ **Further Research**

Further expertise would make the development and practical implementation of the design solution possible. Addition of landscape architecture, structural engineering and planning inputs would improve the ability to implement this solution. Advice and input in the areas of cost estimation, capital effectiveness, planning, consenting and public consultation would also assist in the practical development of a robust solution.

The design only identifies a single site within the Whangarei CBD; similar approaches could be applied in other parts of Whangarei CBD and further down the Hatea River. This would further anchor the Commercial Centre and the waterways to form a denser and more connected city.

The research process carried out in this investigation could be applied to other situations and places. The research revealed that this set of urban issues is not unique to Whangarei and therefore the approach is applicable to other towns and cities in a similar situation.







## Chapter Eight

Bibliography & List of Figures



8.1

Bibliography

Alexander, Ian C. *The City Centre: Patterns and Problems*. Nedlands: Melbourne University Press, 1974. Print. 18 January 2016.

Arbury, Joshua. “From Urban Sprawl to Compact City – An analysis of urban growth management in Auckland.” 2005. *Transport Blog*. Web. 16 February 2016. <<http://transportblog.co.nz/wp-content/uploads/2009/06/thesis.pdf>>.

Arcspace. “Fawood Children’s Centre.” 6 June 2005. *Arcspace*. Web. 4 April 2016. <<http://www.arcspace.com/features/alsop-architects/fawood-childrens-centre/>>.

Belogolovsky, Vladimir. “One-on-One: Putting Colors Together: An Interview with Will Alsop.” 30 November 2010. *Arch News Now*. Web. 14 November 2015. <<http://www.archnewsnow.com/features/Feature346.htm>>.

Brisbane City Council. “The making of a New World City, 1991-2012.” 2012. *Yumpu*. Web. 16 March 2015. <<https://www.yumpu.com/en/document/view/31057455/the-making-of-a-new-world-city-1991-aaeura-2012-american-planning>>.

Burton, Elizabeth. “The Compact City: Just or Just Compact?” October 1999. *Sage Journals*. Web. 28 March 2016. <<http://usj.sagepub.com/content/37/11/1969.full.pdf>>.

Carmona, Matthew, et al. *Public Places, Urban Spaces: The Dimensions of Urban Design*. New York: Elsevier Ltd,

2010. Print. 18 January 2016.

Das, P.K. “Integrating the waterfronts.” 2015. *The Nature of Cities*. Web. 31 January 2016. <<http://www.thenatureofcities.com/2015/01/06/urban-water-fronts-have-typically-been-sites-of-heavy-development-and-often-are-sites-of-pollution-or-exclusive-access-but-they-have-enormous-potential-benefits-how-can-we-unlock-these-benefits-for/#Das>>.

Northern Advocate. “Dredging Whangarei River.” 16 March 1914. *Papers Past*. Web. 17 April 2016. <<http://paperspast.natlib.govt.nz/cgi-bin/paperspast?a=d&d=NA19140316.2.21>>.

Friends of the Highline. “About the Highline.” n.d. *Friends of the Highline*. Web. 3 April 2016. <<http://www.thehighline.org/about>>.

Gillham, Oliver. *The Limitless City: A Primer on the Urban Sprawl Debate*. London: Island Press, 2002. Print.

Grant, Andrew. “We touch the waterfront—We touch the world.” 2015. *The Nature of Cities*. Web. 2016 January 31. <<http://www.thenatureofcities.com/2015/01/06/urban-water-fronts-have-typically-been-sites-of-heavy-development-and-often-are-sites-of-pollution-or-exclusive-access-but-they-have-enormous-potential-benefits-how-can-we-unlock-these-benefits-for/#Grant>>.

Hochhalter, Anna L. “Waterfront Spectacular.” 2013. *Ideals*. Web. February 15 2016.



<<https://www.ideals.illinois.edu>>.

Investopedia. *Gross Domestic Product - GDP*. n.d. Web. 14 March 2016.  
<<http://www.investopedia.com/terms/g/gdp.asp>>.

JMD Design. “Paddington Reservoir.” 2009. *JMD Design*. Web. 4 April 2016.  
<<http://www.jmddesign.com.au/paddington-reservoir/>>.

Landscape Architecture Foundation. “Cheonggyecheon Stream Restoration Project.” n.d. *Landscape Performance Series*. Web. 3 April 2016.  
<<http://landscapeperformance.org/case-study-briefs/cheonggyecheon-stream-restoration>>.

Liang, Annejo. “Sense of Place: Urban Design, Amenity, Local Character and Heritage.” January 2010. *Whangarei District Council*. Web. 20 January 2016. <<http://www.wdc.govt.nz/PlansPoliciesandBylaws/Plans/SustainableFutures/Documents/Sustainable%20Society%20and%20Culture/30-50-Urban-Design-Amenity-Local-Character-and-Heritage.pdf>>.

Liang, Annejo. “Whangarei District Historic Heritage Report.” September 2009. *Whangarei District Council*. Web. 22 May 2015.  
<<http://www.wdc.govt.nz/PlansPoliciesandBylaws/Plans/SustainableFutures/Documents/Sustainable%20Society%20and%20Culture/Heritage-Report.pdf>>.

Maclean, Chris. “Wellington region - Arts and culture.” 17 July 2015. *Te Ara - the Encyclopedia of New Zealand*. Web. 3 April 2016.

<<http://www.teara.govt.nz/en/photograph/13394/civic-square>>.

Northland Regional Council. “Mangroves.” May 2007. *Northland Regional Council*. Web. 14 November 2015.  
<<http://www.nrc.govt.nz/for-schools/school-information-packs/mangroves/>>.

Otto, Betsy, Kathleen McCormick and Michael Lecces. *Ecological Riverfront Design: Restoring Rivers, Connecting Communities*. Chicago: American Planning Association, 2004. Web. 29 January 2016.  
<<https://www.csu.edu/cerc/documents/EcologicalRiverfrontDesign.pdf>>.

Schugurensky, Daniel. “The Forms of Informal Learning: Towards a Conceptualization of the Field.” 2000. *University of Toronto*. Web. 21 October 2015.  
<<https://tspace.library.utoronto.ca/bitstream/1807/2733/2/19formssofinformal.pdf>>.

Seutter, Sonya. “Demographic Profile for the Whangarei District June 2013.” May 2015. *Whangarei District Council*. Web. 24 January 2016.  
<<http://www.wdc.govt.nz/PlansPoliciesandBylaws/Plans/SustainableFutures/Documents/Sustainable%20Society%20and%20Culture/Demographic-Profile-of-the-Whangarei-District.pdf>>.

Seutter, Sonya. “Socio Economic Profile of the.” 9 September 2015. *Whangarei District Council*. Web. 20 January 2016.  
<<http://www.wdc.govt.nz/PlansPoliciesandBylaws/Plans/>

*SustainableFutures/Documents/Sustainable%20Society%20and%20Culture/Socio-Economic-Profile-of-the-Whangarei-District.pdf*>.

Stqry. “Wellington Waterfront.” n.d. *Stqry*. Web. 19 March 2015.  
<<https://discover.stqry.com/v/wellington-waterfront/o/94c1a26c2d467c4cb4b5d734fea9ab74>>.

Stuthridge, Donna. “Health, Education and Safety Report for the Whangarei District.” n.d. *Whangarei District Council*. Web. 16 July 2015.  
<<http://www.wdc.govt.nz/PlansPoliciesandBylaws/Plans/SustainableFutures/Documents/Sustainable%20Society%20and%20Culture/30-50-Health-education.pdf>>.

Taonui, Rāwiri. “Whāngārei tribes - Naming Whāngārei Harbour.” 22 September 2012. *Te Ara - the Encyclopedia of New Zealand*. Web. 17 April 2016.  
<<http://www.teara.govt.nz/en/whangarei-tribes/page-3>>.

Thomas, Louise and Will Cousins. “The Compact City: A successful, Desirable, and Achievable Urban Form?” Burton, Elizabeth, Mike Jenks and Katie Williams. *The Compact City: A Sustainable Urban Form?* New York: Routledge, 2003. 44-52. Print.

Thomson, Ngaire. *Whangarei City History - Draft*. Whangarei, 2005. Document. 27 May 2015.

Timur, Umut Pekin. “Urban Waterfront Regenerations.” 2013. *Intech*. Web. 16 February 2016.  
<<http://cdn.intechopen.com/pdfs-wm/45422.pdf>>.

Wang, Lucy. “The Wave: an abandoned urban lot is revived as a thriving performance arts space.” 1 January 2016. *Inhabitat*. Web. 2 April 2016.  
<<http://inhabitat.com/the-wave-an-abandoned-urban-lot-is-revived-as-a-thriving-performance-arts-space/>>.

Wellington City Council. “The Harbour City - Wellington Waterfront.” n.d. *Waterfront Auckland*. Web. 18 March 2015.  
<<http://www.waterfrontauckland.co.nz/getmedia/2855ef4e-1e66-4e52-b10b-4ac97790a0c6/Wellington-Waterfront-Dossier.pdf?ext=.pdf>>.

Wellington City Council. “The Wellington Waterfront Framework.” April 2001. *Wellington City Council*. Web. 18 March 2015.  
<<http://wellington.govt.nz/~media/your-council/plans-policies-and-bylaws/plans-and-policies/a-to-z/waterfrontframewk/files/framework.pdf>>.

Whangarei District Council. “Environmental Rules - Town Basin Environment.” 2016. *Whangarei District Council*. Web. 22 January 2016.  
<<http://www.wdc.govt.nz/PlansPoliciesandBylaws/Plans/DistrictPlan/Documents/District%20Plan%20Part%20D%20-%20Environment%20Rules/43-Town-Basin-Environment-Rules.pdf>>.

Whangarei District Council. “Heritage Trail Signs - Pakeha Panels.” n.d. *Whangarei District Council*. Web. 18 November 2015.  
<<http://www.wdc.govt.nz/FacilitiesandRecreation/Town-Basin/Documents/Heritage-trail-signs-pakeha-panels.pdf>>.



Whangarei District Council. Jewel of the City Report: Hatea Loop. Report. Whangarei: Whangarei District Council, 2015.

Whangarei District Council. “Making Great Places to Shape our Future: An Urban Deisgn Strategy for Whangarei District.” 9 March 2011. *Whangarei District Council*. Web. 29 February 2015. <<http://www.wdc.govt.nz/PlansPoliciesandBylaws/Plans/UrbanDesign/Documents/Urban-Design-Strategy.pdf>>.

Whangarei District Council. “Other Projects.” n.d. *Whangarei 20/20 Momentum*. Web. 14 March 2016. <<http://whangareimomentum.co.nz/project-category/other-projects/#project-29>>.

Whangarei District Council. “Walking and Cycling Strategy for Whangarei District.” 4 March 2012. *Whangarei District Council*. Web. 6 March 2016. <<http://www.wdc.govt.nz/TrafficandTransport/PublicTransport/Cycling/Documents/Walking-and-Cycling-Strategy.pdf>>.

Whangarei District Council. “Waterfront Precinct Projects.” n.d. *Whangarei 20/20 Momentum*. Web. 14 March 2016. <<http://whangareimomentum.co.nz/project-category/waterfront-projects/#project-96>>.

Whangarei District Council. “Whangarei 20/20 Plus: Living the Vision.” June 2006. *Whangarei District Council*. Web. 9 March 2015. <<http://www.wdc.govt.nz/PlansPoliciesandBylaws/Plans/UrbanPlanning/Pages/CentralCityDevelopment.aspx#Expand>>.

Whangarei District Council. “Whangarei Growth Strategy.” 2011. *Whangarei District Council*. Web. 7 March 2015. <<http://www.wdc.govt.nz/PlansPoliciesandBylaws/Plans/SustainableFutures/Final-Strategy/Pages/default.aspx#Expand>>.

Wraight + Associates. “Waitangi Park.” n.d. *Wraight + Associates*. Web. 3 April 2016. <<http://www.waal.co.nz/our-projects/urban/waitangi-park/>>.



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<<http://sustainability.owu.edu/?p=414>>

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<<http://www.archdaily.com/779261/the-wave-public-performance-space-the-scarcity-and-creativity-studio/567959f8e58eceb1aa00018c-the-wave-public-performance-space-the-scarcity-and-creativity-studio-image>>

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<<http://inhabitat.com/the-wave-an-abandoned-urban-lot-is-revived-as-a-thriving-performance-arts-space/ecuador-428-by-sitio-eriazio-and-scarcity-and-creativity-studio-4/>>

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<<http://lovingnewyork.co.uk/the-high-line-park-in-new-york-city/>>

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<<http://admagazin.sk/green/12-19-6-2015-praha-festival-resite-sdilene-mesto/>>

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<http://www.panoramio.com/photo/12196193>  
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<<http://inhabitat.com/how-the-cheonggyecheon-river-urban-design-restored-the-green-heart-of-seoul/>>

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<<http://imgur.com/a/FlvRo>>

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<<http://photographyhotspots.com.au/photography-location/paddington-reservoir-gardens/>>

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