

A Shore Thing

Flipping the Coast



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A 120-Point Thesis submitted to the Victoria University of Wellington in partial fulfilment of the requirements for the degree of Master of Landscape Architecture

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Acknowledgements

Firstly, I would like to dedicate this thesis to my wonderful parents, Donna and Bruce, for their dedication, love and support over the last 5 years, it means everything to me.

I would also like to thank their partners, Craig and Jenny for everything they do.

To my brother George, cheers.

I would like to extend my gratitude to my supervisors, Martin Bryant and Penny Allan. In particular, Martin, your direct and positive approach helped me get over the finish line.

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To my 'non-architecture' friends and flatmates, you've made the past five years an unforgettable time in my life. The friendships made throughout my time in Wellington will be cherished.

To my 'architecture' friends, thank you all for being a part of this journey. Olive, Customs, Les Mills and Scopa provided the best distractions.

#streetwizards2014

Figure 1.3 // View from the Paekakariki Hill Lookout

Settlement – noun

A place, typically one which has previously been uninhabited, where people establish a community.

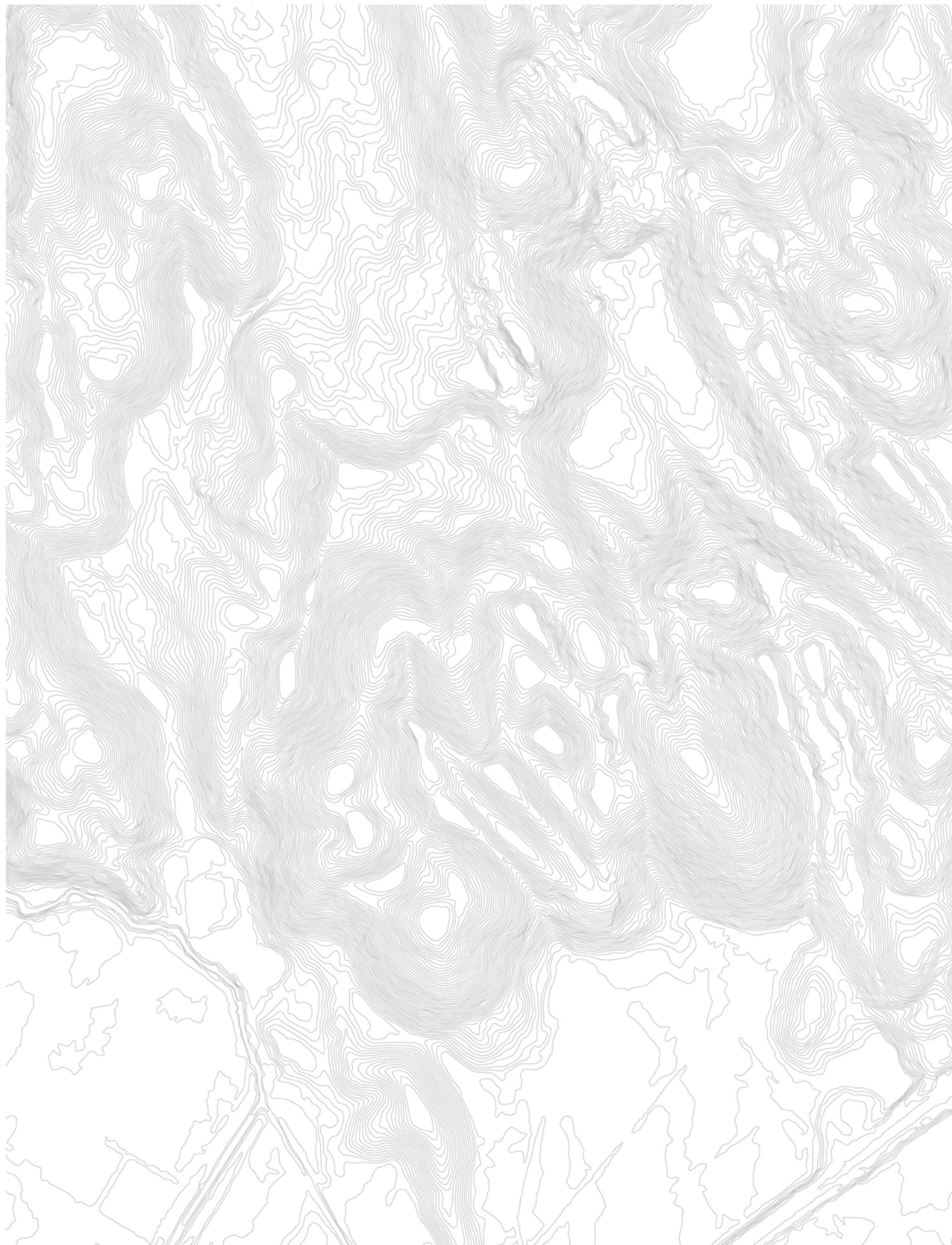


Abstract

A Shore Thing explores an alternative approach to the way future development can occur within New Zealand's coastal hinterland regions.

As global cities continue to expand in size and population, the desire and necessity to move 'away' is becoming increasingly prevalent. Wellington is a city that is densifying, yet due to its natural topography, it cannot expand. Townships within the Greater Wellington region are already growing and developing with a lack of developmental strategies to deal with more permanent residents. As part of this growth, Transmission Gully motorway is a major infrastructural development occurring within the region to improve the connection between the Kapiti Coast and Wellington. Questions are raised...How will this infrastructure affect the townships? Can they withstand an influx of residents? What will happen to the natural process within this landscape?

The main intention of this thesis is to develop a scheme for how people could settle within hinterland regions, specifically Paekakariki on the Kapiti Coast. The implementation of Transmission Gully stimulates Kapiti's potential as a satellite region to Wellington city. This thesis will explore how infrastructure and landscape urbanism can be employed within a rural landscape to achieve a considered strategy that mitigates future pressures on a growing region. The role of landscape architecture plays an important role when exploring and understanding the varying scales within the scheme to ensure a legible framework is generated that integrates ecology, infrastructure, housing and public life.



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Introduction

A vibrant city (place) need three things, good social interaction, good infrastructure, and nature. (Geuze & Skjonsberg, 24)

Paekakariki and the Kapiti Coast have nature in abundance. The short transect cuts through an array of landscape typologies, from the ocean through the parabolic sand dunes, dissecting through wetlands to the mountain ranges that confine the region. Developing towns and cities within this area are currently sprawling throughout the flat expanses with a form of low density housing. These developments segregate the natural processes and due to poor planning they create urban spaces with little character that adversely affect the public life throughout. Infrastructure is still developing but the introduction of Transmission Gully goes a long way to realise Kapiti's potential as a satellite region through a strong physical connection.

The study area for this research is Paekakariki. Paekakariki is the southern-most township along the Kapiti Coast and where Transmission Gully terminates. Transportation infrastructure not only creates a stronger connection but it provides opportunity for the place to grow via recreational, ecological, industrial and economical avenues.

This unique intersection of existing settlement, established and proposed infrastructure within the setting of this hinterland landscape creates an opportunity for a design response to inform how we may densify in the future.

Research Intention

The aim for this research is to investigate an alternative approach to develop settlement throughout Wellington's hinterland.

More specifically, the design-led research seeks to generate a scheme that becomes a framework for settlement while understanding and mitigating the threats from the natural environment. The design looks for a responsive, site specific solution to settlement within the hinterlands.

Scope of Design Research

The scope of this research relates to the physical context of site in Paekakariki, the unique opportunities and restraints have presented themselves and informed a site-specific response. The framework created within the scheme aims to 'flip' the normal development model for how we currently settle along the rural coastlines of New Zealand to a more responsive outcome for the future. The scheme is a landscape architectural response that seeks to shape place through a variety of fields. The discipline has the ability to experiment with ideas and research in ecological, recreational, infrastructural as well as social and cultural parameters. Landscape Architecture plays an integral role within developments as it can work between scales allowing for an interesting and legible response. The design principles uncovered may become applicable and applied elsewhere but this is an endeavour that primarily finds answers in the landscape and responds to the pressures of densification in unique ways. A limitation to this research is that there is no economic restraints, resource consents nor consultation regarding property ownership.

Research Question

What if, the integration of infrastructure and landscape informed an alternative, site-specific response to settlement?



Methodology

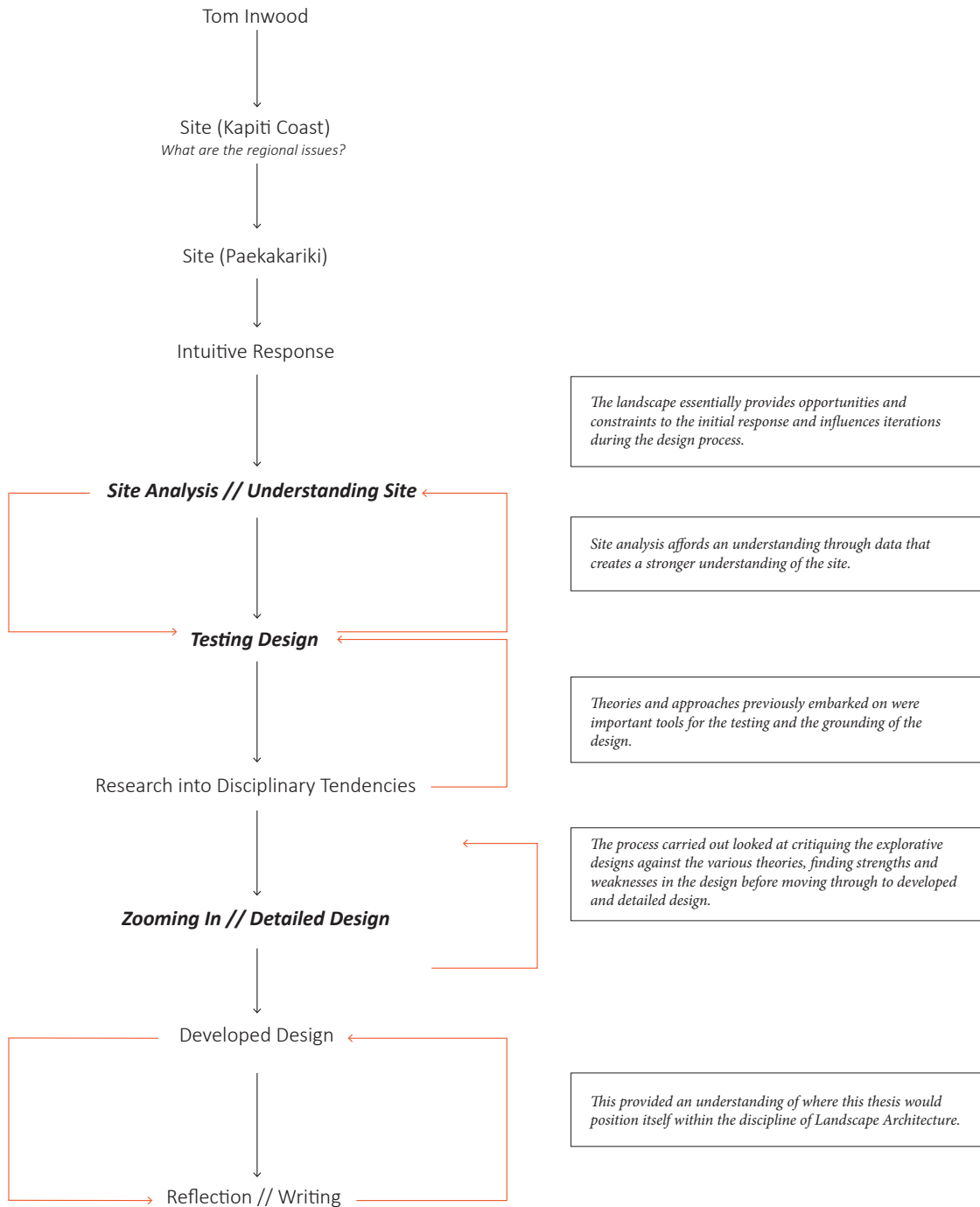


Figure 1.4 // Opposite Page // Photograph looking south along the Paekakariki coastline
Figure 1.5 // Above // Methodology diagram highlighting the process throughout the thesis.

Preamble

1. Heritage and cultural significance plays an important role in New Zealand – it has a direct impact on the region; its economy, tourism and the identity of place.
2. Accessibility allows people to experience, recreate and have the opportunity to appreciate the diversity along the coastline.
3. Nature and natural systems are intensified along the coastal alignment.
4. Coastal settlements aim for close proximity to the beachfront, this has adverse effects on the coastal value.

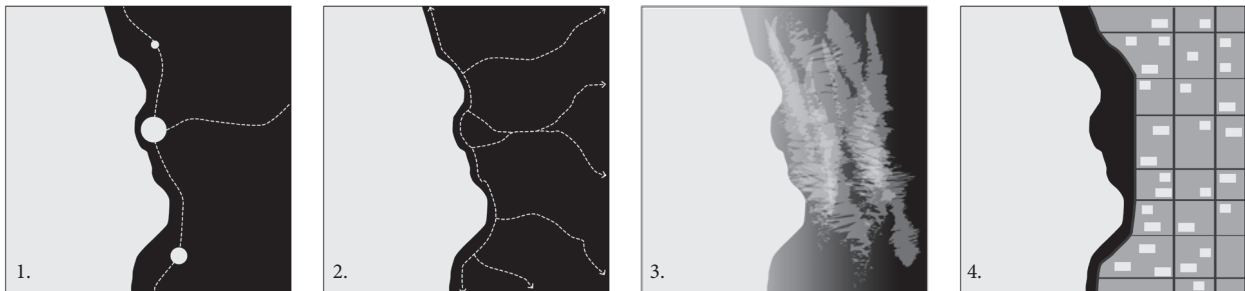


Figure 2.1 // Simplified diagrams setting up the initial principles to be investigated throughout the site analysis chapter of the research.


The background of the entire page is a detailed topographic map. It features a complex network of thin, grey contour lines that represent elevation changes. The lines are more densely packed in some areas, indicating steeper slopes, and more spread out in others, indicating flatter terrain. The overall pattern is organic and flowing, typical of natural landscape features.

SITE ANALYSIS + ISSUES

01

The Context



 **Figure 2.2** // The Kapiti-Horowhenua region is situated along the south-west coast of the North Island. It is a short distance from the capital city, Wellington.

The Region

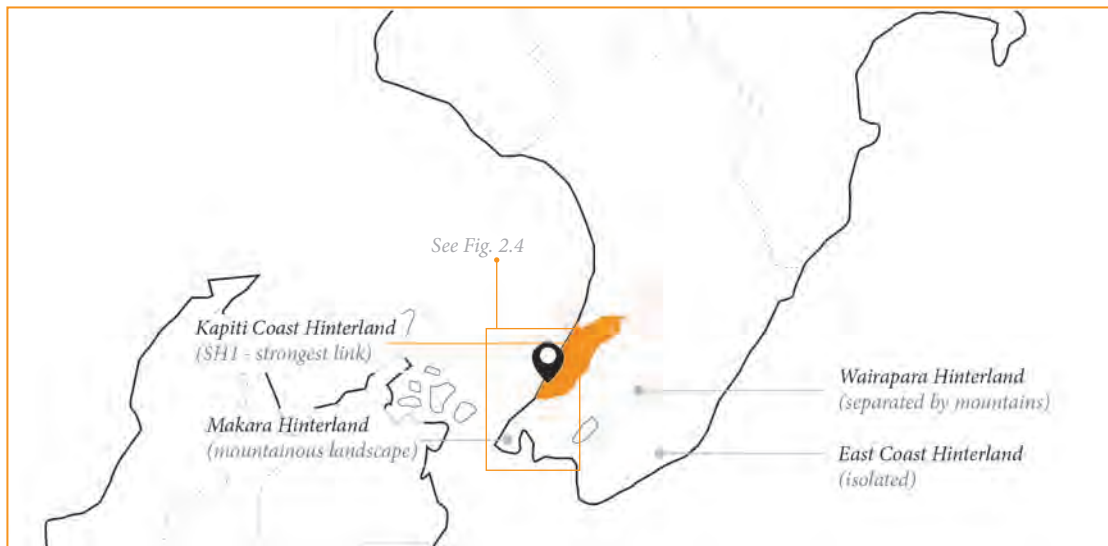


Figure 2.3 // Highlighting the various Hinterland regions around the bottom half of the North Island. Paekakariki is situated at the southern-most point on the Kapiti Coast District.



Figure 2.4 // A closer scale showing the arterial routes from Wellington city as well as various cities and townships along the way. Note the inclusion of the proposed Transmission Gully highway.

Paekakariki

40.9833° S, 174.9500° E



Figure 2.5 // The site of Paekakariki - this image gives an immediate understanding of the context and the narrow strip of land in which the township occupies. This highlights the overall site of Paekakariki and the specific study area in which this thesis will be focussed on.

Paekakariki is a small coastal township of 1,600 people which is situated at the southern end of the Kapiti Coast. The township is sandwiched topographically between the Tasman Sea and the Akatarawa Ranges.

The landscape has forced housing and infrastructure to squeeze itself between the ocean and mountains, this has created a transportation node that becomes accessible from both Wellington to the south and numerous towns and cities to the North. State Highway One and the North Island Main Trunk Railway run between the township and the hills, this convergence of 'parts' presents Paekakariki with a lot of its identity.

Paekakariki, although small, has a strong and rich identity which is defined through the natural environment. The township is contained by the definitive natural edges of an ocean, a steep cliff and the protected and valuable, Queen Elizabeth Park. The park is the last area of natural dunes along Kapiti's coastline; this is a reminder of how the landscape was before human settlement. These dunes made their way from Paekakariki to Foxton and covered most of the flatlands between the sea and the mountains. The park has a cultural history that includes two Maori Pa sites, evidence of a US marine camp from World War II and a historic tramway.

The housing throughout the township is built on and around the rolling dunes, the streets have a simplistic and legible geometric pattern that either responds to the dune form or dissects through. Characteristics such as these define the small township that has needed to be responsive to the natural environment in which it sits.



Figure 2.6 Top Image // Highlighting the picturesque coastal setting of Paekakariki with Kapiti Island in the background.

Figure 2.7 Bottom Image // Photograph showing the relationship between the local shops, the main rail line, State Highway 1 and steep topographical landscape.



Figure 2.8 // Top Left // Sand track connecting pedestrians to the coast.

Figure 2.9 // Top Right // Is this the best way to settle along a coastline?

Figure 2.10 // Bottom Left // The natural landscape is always visually prominent throughout the township.

Figure 2.11 // Bottom Right // A significant characteristic of Paekakariki; the dunes.



Figure 2.12 // Diagram looking into the layout and nodes that make up the township of Paekakariki.

The township is reliant on the local shops, coastal beach and Queen Elizabeth for visitors. Paekakariki provides strong accessibility for vehicles and through public transport but it currently struggles to appeal as a destination.

Existing Town Fabric

Beach Road is the main entrance into Paekakariki off State Highway One where people immediately arrival at the town centre. The town centre contains a dairy, cafes, accommodation facilities, the village hall and a church which is all contained within a block of each other. The Paekakariki Railway Station is a short walk from the town centre, the physical station and surrounding yard are protected heritage sites with various historical buildings scattered around the vicinity.

Two main roads orientate themselves parallel to the coast, The Parade runs along the whole length of the township which terminates at the surf club, this communal focal point encapsulates the essence of the beachside community. The second is Wellington Road which is the arterial route, this slices through the middle of the township and connects all secondary roads, this has the school and the major park situated along it.

At the northern end of Paekakariki is Queen Elizabeth Park which as previously mentioned has high cultural, historical and recreational significance to the area. The park forms a boundary to the North but encourages visitors to make their way through the township. If the park is not the desired destination it creates a dead-end.

The Township

Paekakariki is a picturesque, small New Zealand coastal township. As a resident, it provides the necessary foundations for a particular lifestyle, close to amenities, proximity to the beach whilst providing a tranquil setting in which to live. However, due to where and how the township is located it has little chance to grow and develop, opportunity to grow does not seem to an option for the area. The population in recent times has been dwindling and with no new buildings or projects developing it seems as if this special part of Kapiti is stagnating.

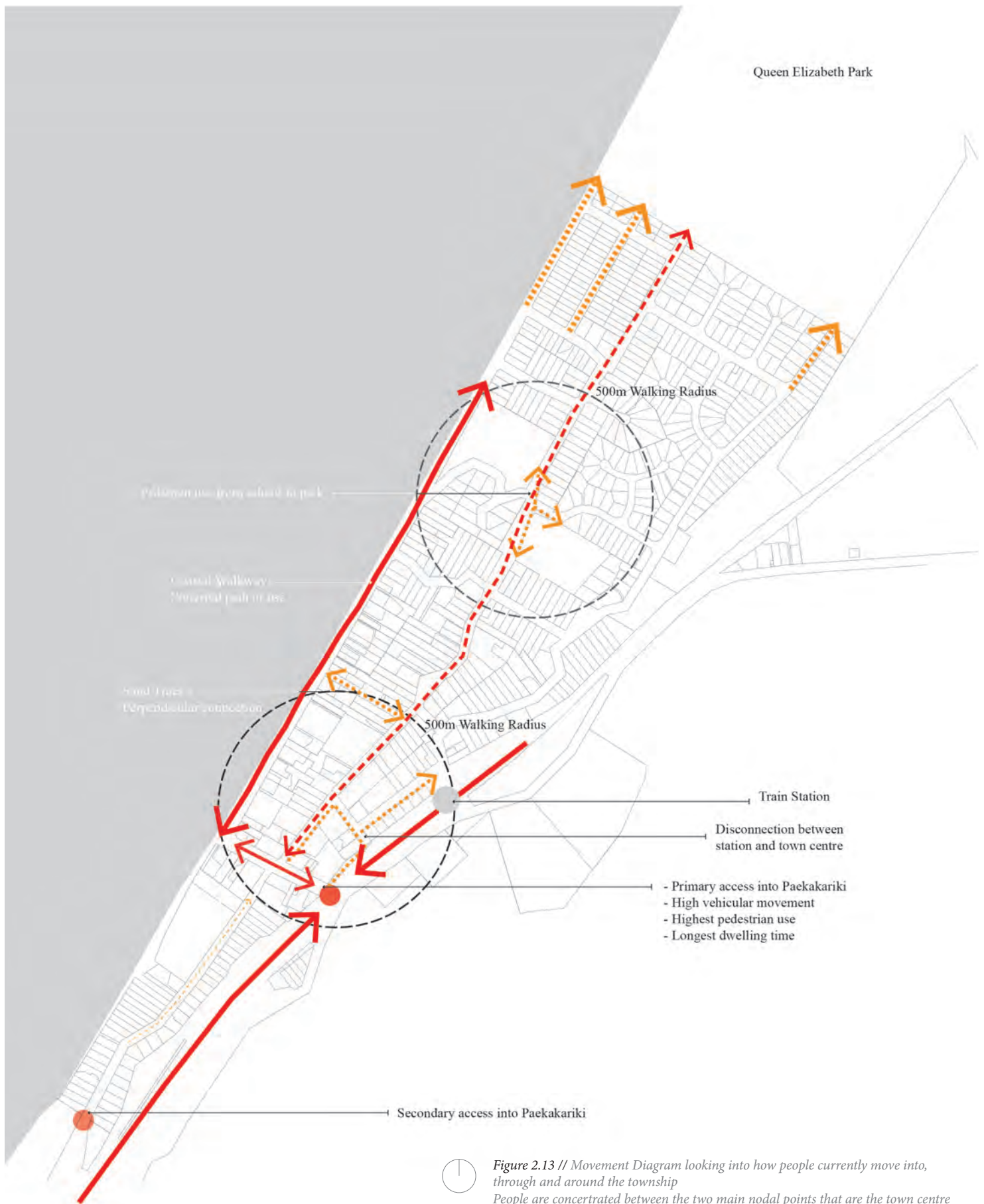


Figure 2.13 // Movement Diagram looking into how people currently move into, through and around the township
 People are concentrated between the two main nodal points that are the town centre and the school/town park.

Transport and Access

Transport was the primary stimulant in the establishment of Paekakariki, initially through the main trunk train line that runs along the township. Since then, the car has been the primary mode of transport. With its proximity to State Highway One and Wellington, the township has developed with that in mind, there is vehicular priority over pedestrians and rightly so. This however, has a negative impact on the way we experience and occupy the township.

The future for Paekakariki is likely to change with the construction of Transmission Gully Motorway; a large infrastructural development which is currently underway. The highway creates a potential within this part of the region to catalyse development and encourage population growth. The incumbent motorway also has the ability to create future issues and demands on the region through housing development, infrastructure and the impact this could have on the local flora and fauna.

The challenge for future Paekakariki is to maintain the values of the distinctive natural environment and extensive cultural heritage, all of which contribute to its character and identity.

Paekakariki has the ability to be a walkable community due to the proximity of its transect. At its widest point, the township stands at 570m from road to beach and a maximum walking time of 10 minutes to the beach.

On review, Paekakariki lacks priority to pedestrians throughout the township, various moments were experienced where pedestrians have not been considered. There is a lack of connectivity between streets, parks and the wider context, at times it becomes awkward and potentially dangerous.

The images on the following page highlight these moments. The walkability of Paekakariki could be developed through changing the hierarchy of the streetscape, this could be achieved through the narrowing of roads, widening the footpaths, reordering of the streetscape and providing connecting trails or paths.

Site Observations



1. *Pastoral land severs any connection to the mountains, which are visually appealing and provide great recreational amenity.*
2. *Although one of the main roads, it seems unnecessarily wide. A footpath on beachside could provide a better experiential opportunity for pedestrians.*
3. *The footpath terminates into grass.*
4. *No footpath, nor bike lane. Creates a dangerous moment in the road.*
5. *The town centre – Best example of pedestrian friendly footpaths.*
6. *The untouched dunes are a highlight of Queen Elizabeth Park.*
7. *The existing State Highway 1 – provides connection but also segregates ecologies.*



Figure 2.14 // Various photos of features and aspects observed during a series of site visits to Paekakariki in March, June and September 2014.

Tracks and Trails

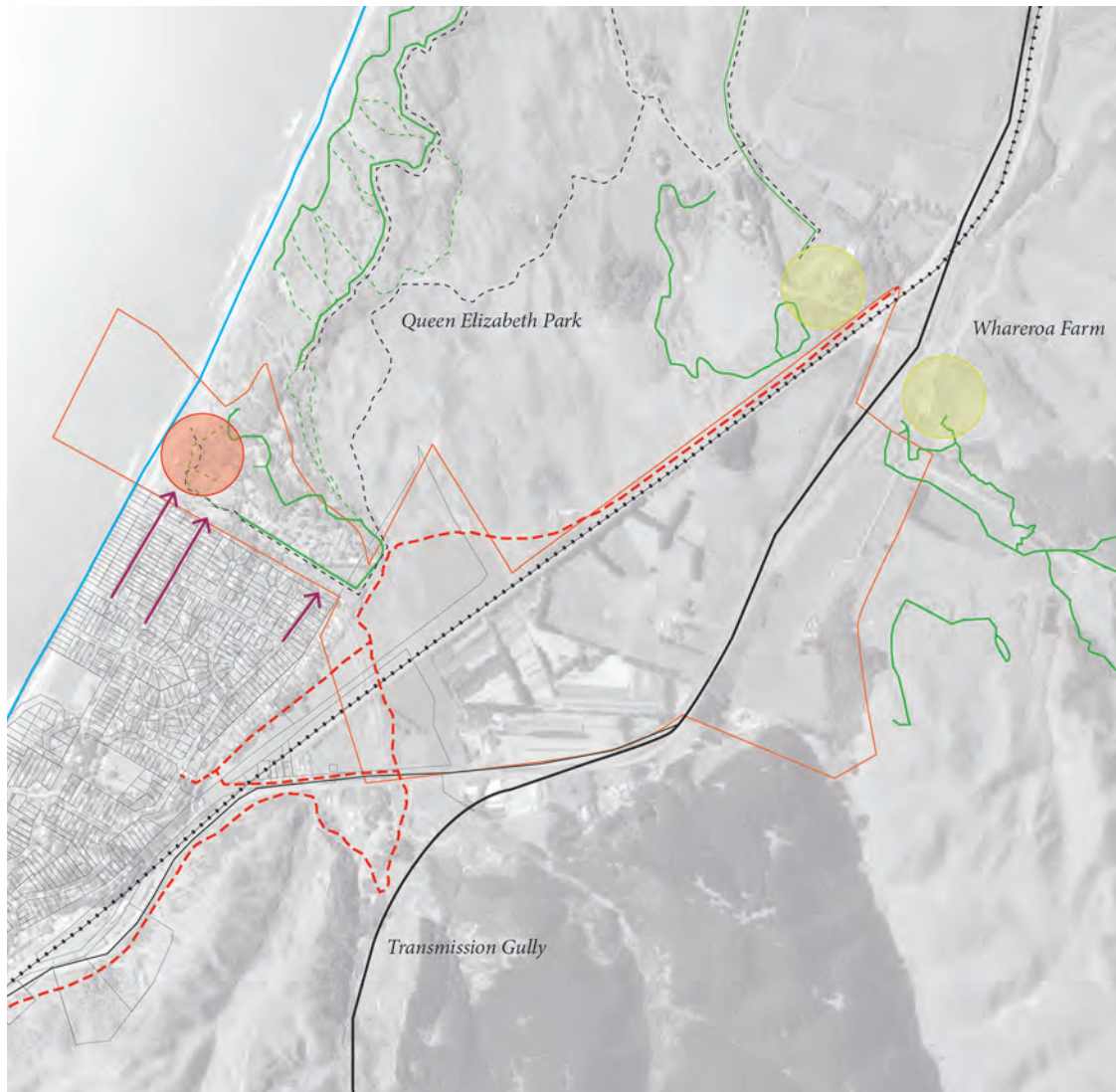


Figure 2.15 // Diagram looking at the various recreational tracks and trails in the surrounding area. Two main entry points to Queen Elizabeth Park, both difficult to get to off the motorway.

Note:

- Poor pedestrian permeability from the existing residential fabric to the study area.
- Rail line and motorway create a physical barrier within the landscape.

Site-specific housing responses

The housing in Paekakariki is characterised by how it conforms to the landscape, the land parcels from the cadastral survey do not take into consideration the varied and undulating landform so houses have a site specific architecture of its own. The dunes begin from The Parade and ripple their way to the hills behind. The north-eastern section of the township (see Photo 4) and the pastoral land are the only flat areas. Housing is scattered amongst the dune peaks with roads generally making up the lower extents. Most of the houses look to situate themselves with the best vantage point (see Photo 3) to make the most of the views. The flipside of this is the access to these from the road can be steep and treacherous. The site specific responses requires vegetation to play an important role with how it is integrated, generally it provides a barrier from the coastal conditions (see photos 1 & 2).

These photograph are snippets of the existing to inform the approach taken when housing development occurs for future Paekakariki.



Figure 2.16 // Photographs taken during a site visit in March and June 2014 bringing to attention the various housing responses in Paekakariki.

Ecological Context



Figure 2.17 // Existing or remnant ecological areas for the Kapiti region.



Figure 2.18 // Recommended ecological corridors.



Figure 2.19 // Highest priority to address ecological gap.

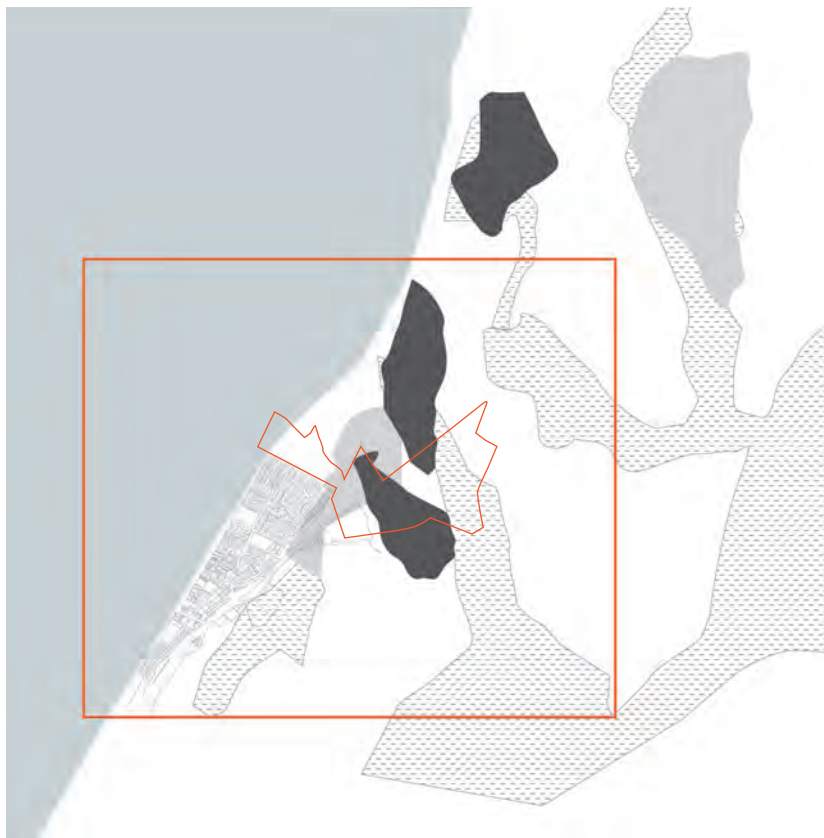
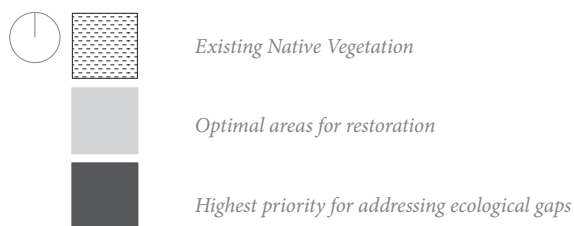


Figure 2.20 // A close up of the study highlighting how this sits in relation to Paekakariki and the study area.

The first in the series of diagrams allows the reader to see how the existing and remnant ecological areas within the wider context of Kapiti are currently situated. The second brings the idea of restoration (renewing degraded or damaged habitats) through connecting the various ecodomains. The third reiterates this idea but highlights the areas of highest priority. The fourth diagram, shows the recommendations within a closer context of the study area which features an optimal area for restoration to the north of the township as well as two high priority areas for addressing habitat gaps.



All maps on this spread have been redrawn by author. The original drawings are from the Open Space Strategy Report undertaken by Isobel Gabites and the Kapiti Coast District Council. (Gabites, 19-20)

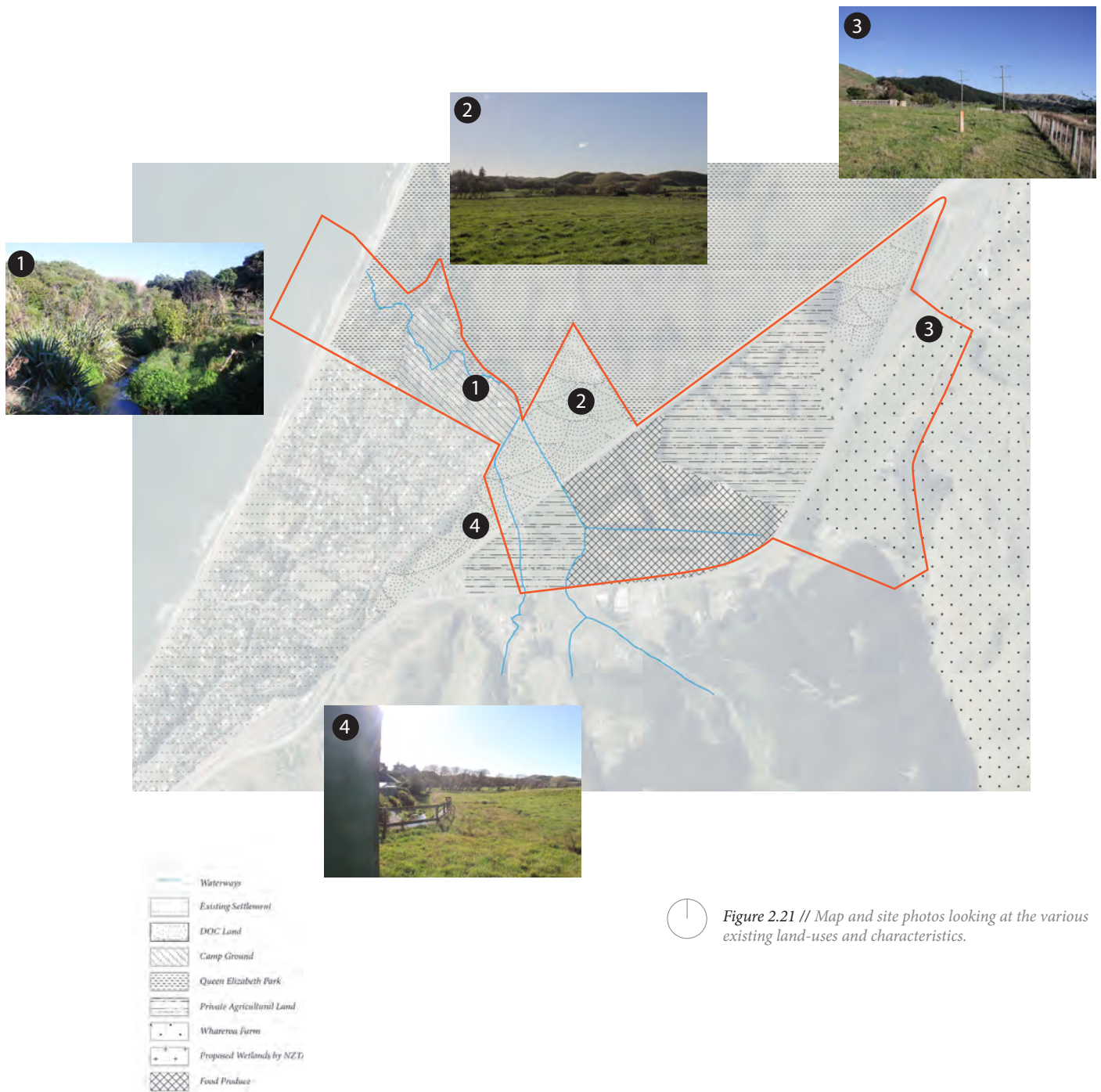


Figure 2.21 // Map and site photos looking at the various existing land-uses and characteristics.

Queen Elizabeth Park

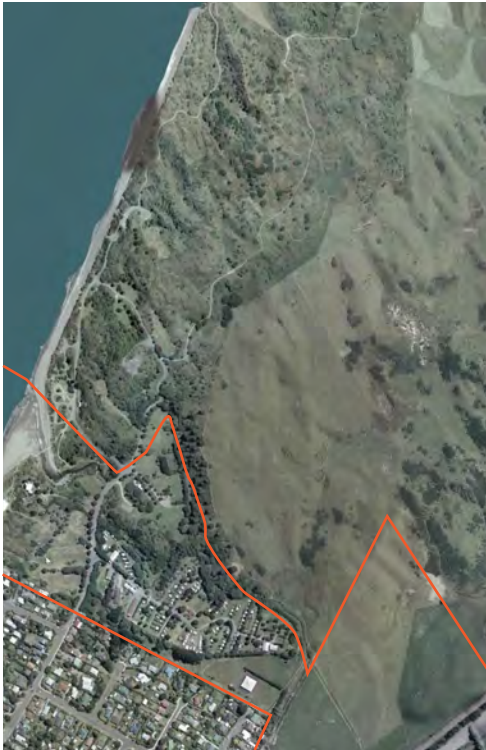


Figure 2.22 // Aerial of the entrance and Paekakariki end of Queen Elizabeth Park.



Figure 2.25 // Open areas allows people and families to create their own spaces.



Figure 2.26 // Wayfinding signage to various features scattered throughout the park.



Figure 2.23 // Flexible open space with a view of the ocean.

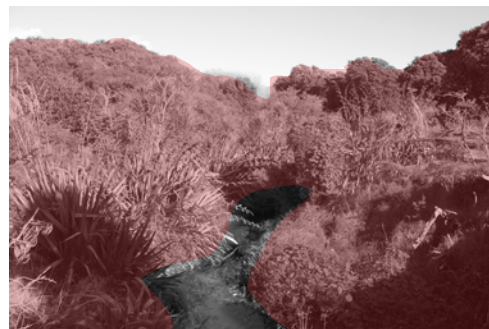


Figure 2.27 // Native vegetation is a feature of Queen Elizabeth Park.

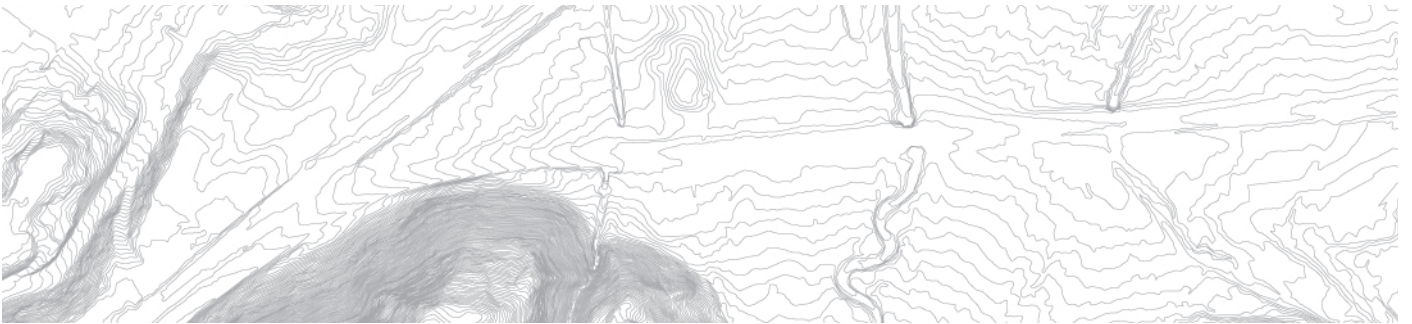


Figure 2.24 // Fencing creates a specific area for the public to occupy while leaving the dunes to remain as untouched as possible.



Figure 2.28 // Areas for sporting and play activities in a contained space.

The Issues



Transmission Gully

“Improving Wellington City’s northern access and egress is a vital key to the future economic performance and prosperity of the whole region, and the Transmission Gully highway is a vital link in that chain.”

Peter Dunne MP

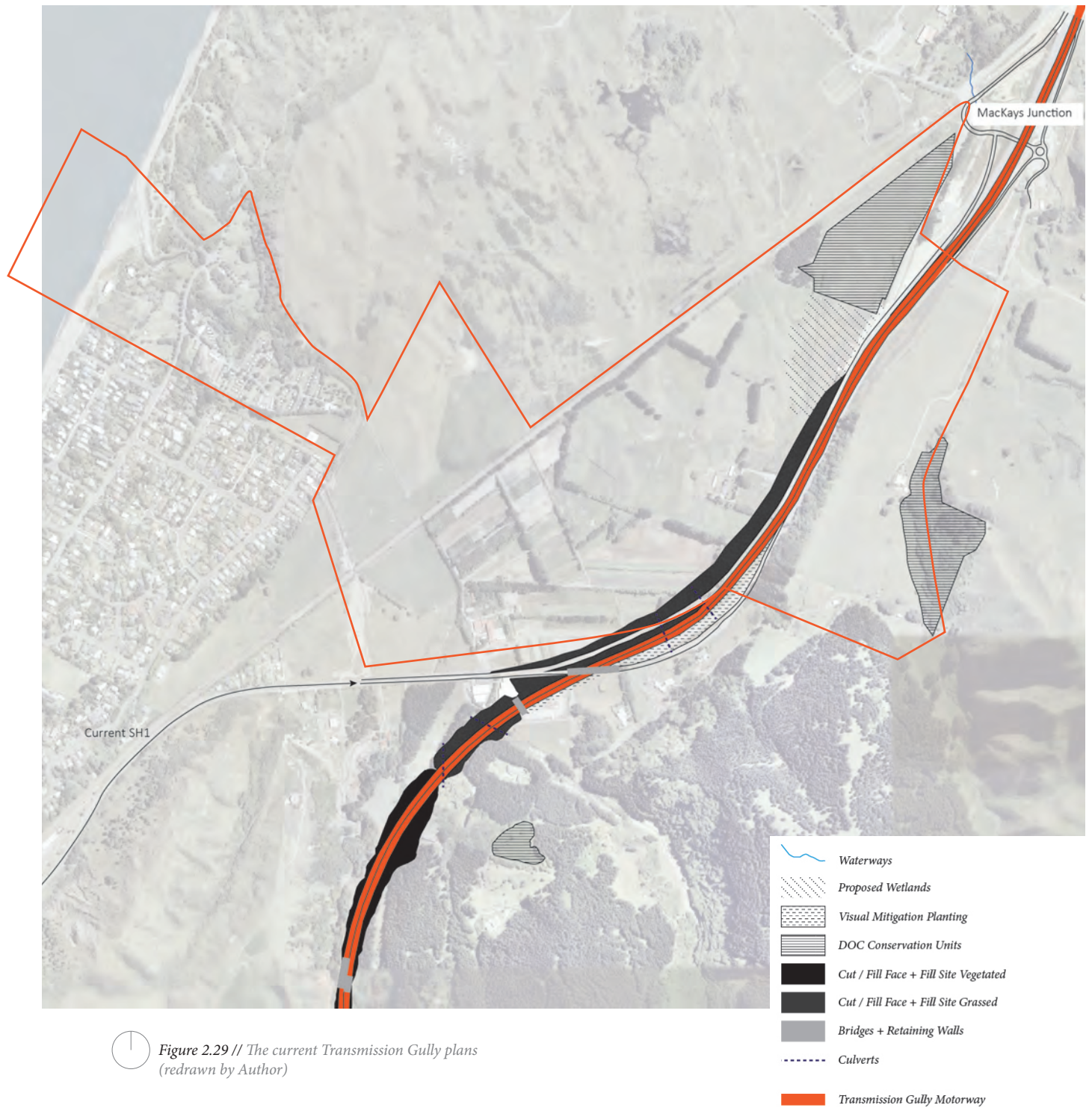
Transmission Gully is an infrastructure project due for completion in 2020, it is a four-lane, 27km motorway connection from the terrace tunnel in Wellington to its termination to the north of Otaki on the Kapiti Coast. The contentious highway will increase public safety, significantly cut-down on journey times, enhance the day-by-day reliability as well as providing a strong and resilient link between the capital and lower North Island in the event of a natural disaster. (Chapman)

It would be difficult to build roads in the North Island without crossing fault lines, but Transmission Gully would be built to the highest standard, able to withstand a “one in 2500 year” event. In a natural disaster the existing coast would likely be cut off for up to 120 days, whereas access to Transmission Gully could be restored after 30 days. (Chapman)

Earlier in 2015 during a flooding event, State Highway 1 was closed due to landslips on the road between Pukerua Bay and Paekakariki, this cut off about 30,000 people needing to travel north, leaving them stranded in the city.

Transmission Gully has a termination point at MacKay’s Junction which is to the north of Paekakariki, bypassing the township. The argument is raised, will this infrastructure have a positive or negative effect on Paekakariki as a township. In the wider scheme, Transmission Gully is an expensive exercise but one that is essential to the country and region, the benefits have been researched and quantified and outweigh the negatives.

Currently the State Highway runs past Paekakariki’s main entrance, once Transmission Gully is completed, this becomes a secondary road with considerably less traffic passing. Paekakariki then must rely on itself as a destination to attract motorists to turn back. This could have a detrimental effect on the local businesses as 41% of employed people within Paekakariki are involved in the accommodation and food services that directly depend on visitors and people passing by or having immediate access to generate the majority of their revenue.



 **Figure 2.29** // The current Transmission Gully plans
(redrawn by Author)

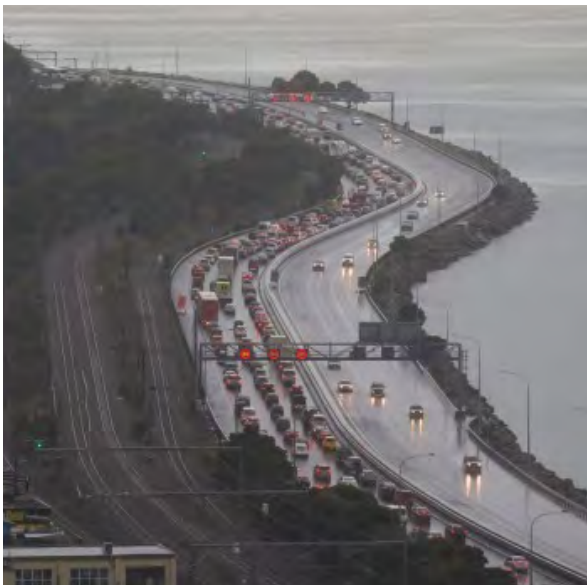


Figure 2.30 // Top // State Highway 1 in a storm event. Landslip closed the highway.

Figure 2.31 // Bottom // Image reiterates the narrow highway is easily effected by poor weather and extra vehicles on the road.



Figure 2.32 // The proposed Transmission Gully that cuts, dissects and bridges its way through the landscape.

Flooding

A flood event on the 3rd of October in 2003 affected the township of Paekakariki and severed access between the Kapiti Coast and Wellington city. The event itself is regarded as an 'extreme event' (estimated as a 125-year event) which saw 75mm of rainfall in 3 hours. The Tararua ranges received approximately 345mm of rain over a 24-hour period, while the total rainfall in Paekakariki fell well in excess of 100mm over the same period. (Schalkwyk)

With the large amount of rain that fell in Paekakariki and the ranges it triggered a number of landslips which in turn washed away or blocked culverts and allowed water, silt and gravel to pour across State Highway One.

Two main streams that have their sources high into the hilltops and meander through the low-lying areas of the landscape played a role in the extreme event by the flooding across various parts of Paekakariki. Although the streams have deep channels, the banks were easily eroded causing blockages.

The majority of the flooding occurred to predominantly farmland to the north, the Wainui and Te Puke streams added to the damage that occurred to the northern properties. There was also flooding further south where the motel, Paekakariki's main street and certain homes became inundated with water.

In total, thirty-seven properties were affected by the flooding, (25 homes and 12 businesses), this combined with damage to the surrounding infrastructure totalled more the \$3 million dollars. \$2.9 million was primarily due to the housing and businesses that were damaged and \$400,000 on roading costs. (ICNZ)



Figure 2.33 // Top // Photograph showing the community getting involved in the clean up process

Figure 2.34 // Bottom // Photograph highlighting how the flooding impacted the town centre and cut off entrance into the township.

The township was not able to be accessed from the south by road, rail, sea or air due to landslides, water damage and the extreme weather conditions encountered during the natural event. Since then, the development for Transmission Gully motorway to connect Kapiti to Wellington has gained significant momentum and recently started construction. This, as previously stated, will create a more resilient connection through to the capital and vice-versa.



Figure 2.35 // Top Right // Slips from the heavy rainfall spilled across State Highway One.

Figure 2.36 // Bottom Right // Houses, hotels and businesses were all effected.

Figure 2.37 // Bottom Left // The clean-up process.



Figure 2.38 // Flooding throughout the township and across State highway One mapped out during the 2003 event.

Population Growth

From the census in 2006 to the latest results in 2013, there has been 6.3% increase in the population on the Kapiti Coast with a rise from 46,197 to 49,104 residents.

Similarly with the Wellington region increasing by 5%, Porirua City had an increase of 6.5% and Wellington City with 6.4%.

Paekakariki makes up 3.4% of Kapiti, also had an increase of 4.1 percent which is equivalent to 66 people. Paekakariki current population is 1,665, an increase since the 2006 census but still down from 2001 which showed 1731 people residing. The amount of space available limits the appeal and the growth of Paekakariki. The potential new development in Waikanae North is likely to take most of the population increase.

The benefit of Paekakariki and the Kapiti Coast is the established rail line that connects the region to Wellington. Transport infrastructure can be and has been advantageous for economic development through the ideas of mobility, proximity and opportunity. The introduction of Transmission Gully Motorway will decrease the time it takes to access the Kapiti Coast from Wellington city through infrastructure that deals with the current capacity problems faced along the existing SH1 as well as creating a shorter travel distance/time. This development increases the appeal for people, families and businesses wanting to live and or work on the coast through the ability to provide a more efficient and desirable connection that generates opportunity and paints Paekakariki in a different light.→ The infrastructure is establishing itself within the Kapiti region, Paekakariki therefore should look at being able to cater for this demand.

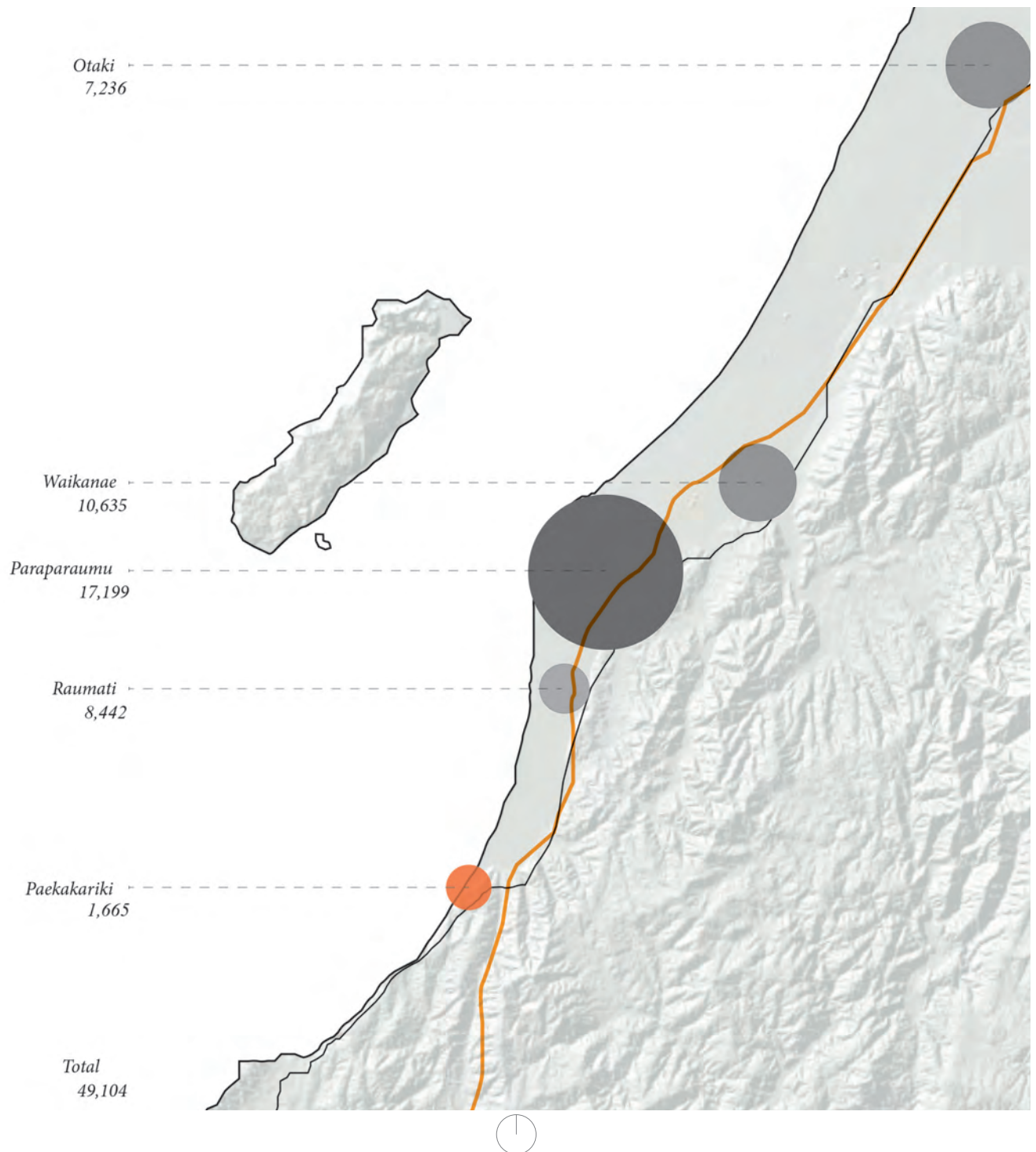


Figure 2.39 // The populations of the townships along the Kapiti Coast and the inclusion of Transmission Gully highway dissecting through the region.

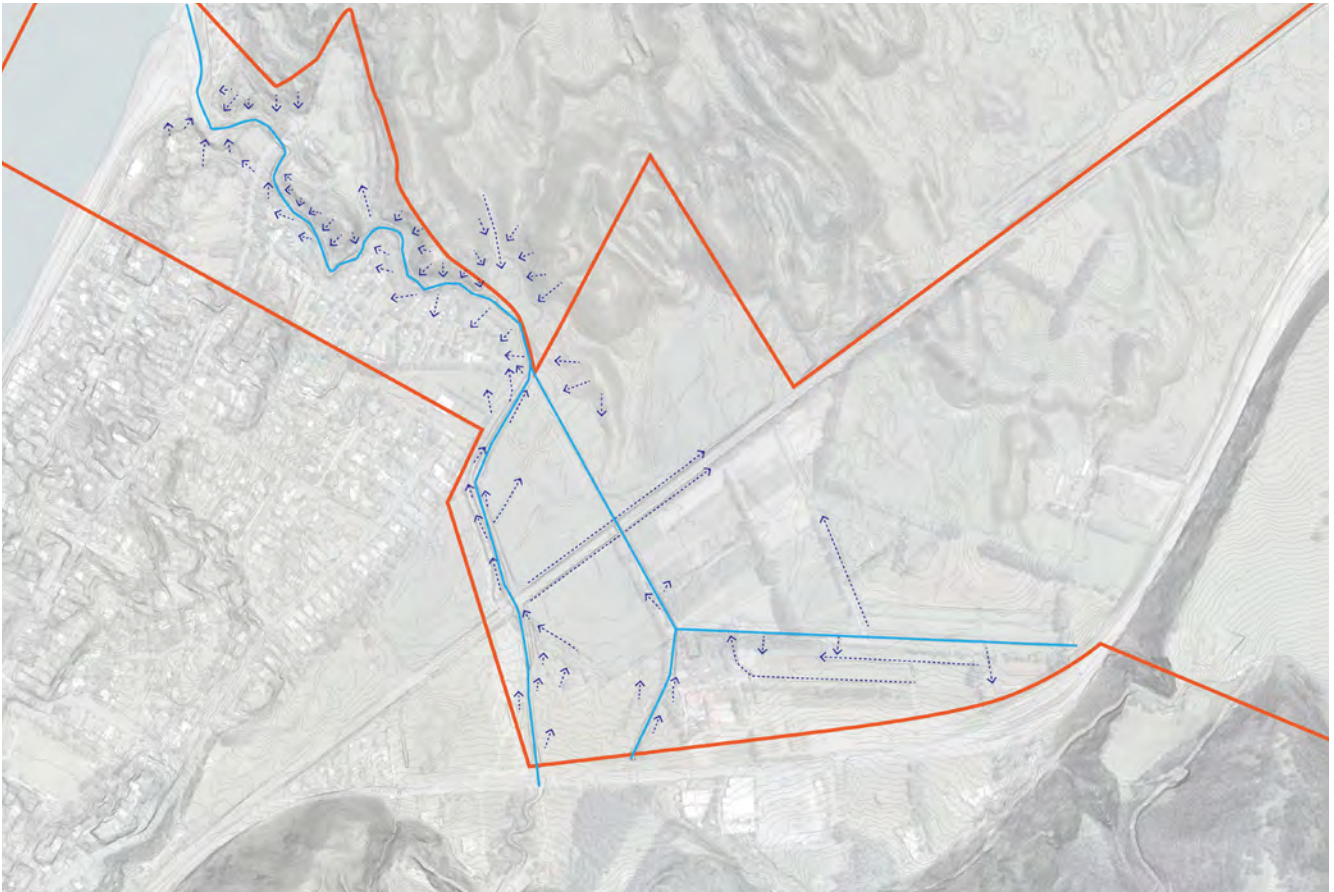
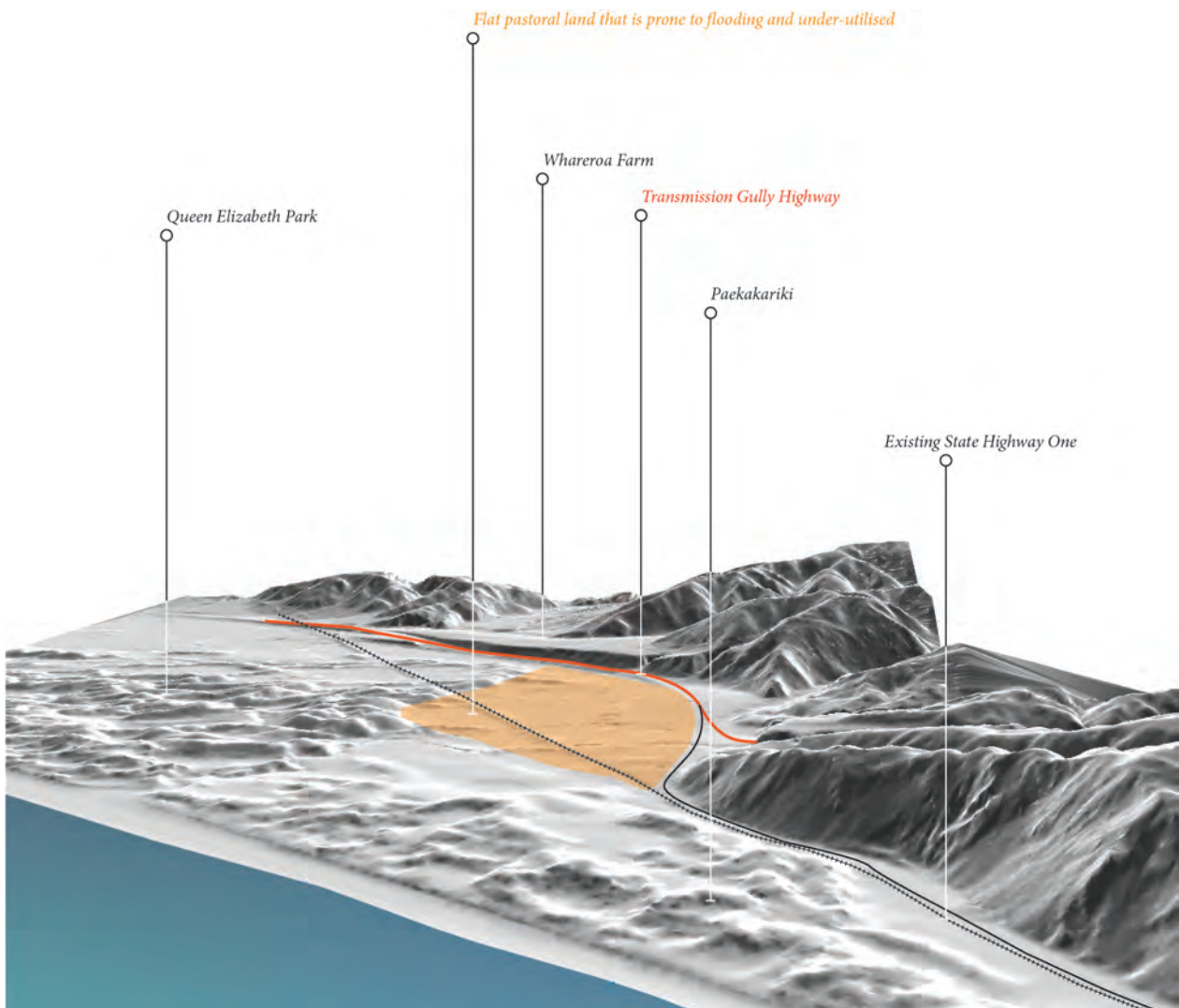


Figure 2.40 // Diagram with the contours on site that showcase the natural landscape and the relatively flat land within the study area. Corresponding water flow also describes how the site is currently working from a water perspective.

Evaluation

The purpose of the site analysis was to gain a knowledge about the site to inform a design response moving forward. The various natural and man-made influences on Paekakariki make it a contentious and complex site. The process of the analysis has covered a wide range of different facts, figures and findings that has now set a platform for this thesis.

The mapping and diagram process has highlighted various issues and opportunities that impact the settlement currently and also how it can improve. The study area has encourage an investigation over a larger area to determine the optimal site to intervene. A landscape architectural response offers a perspective where the mitigation of flooding, the impact of infrastructure, the enhancement of the ecology and a framework for development could be explored.



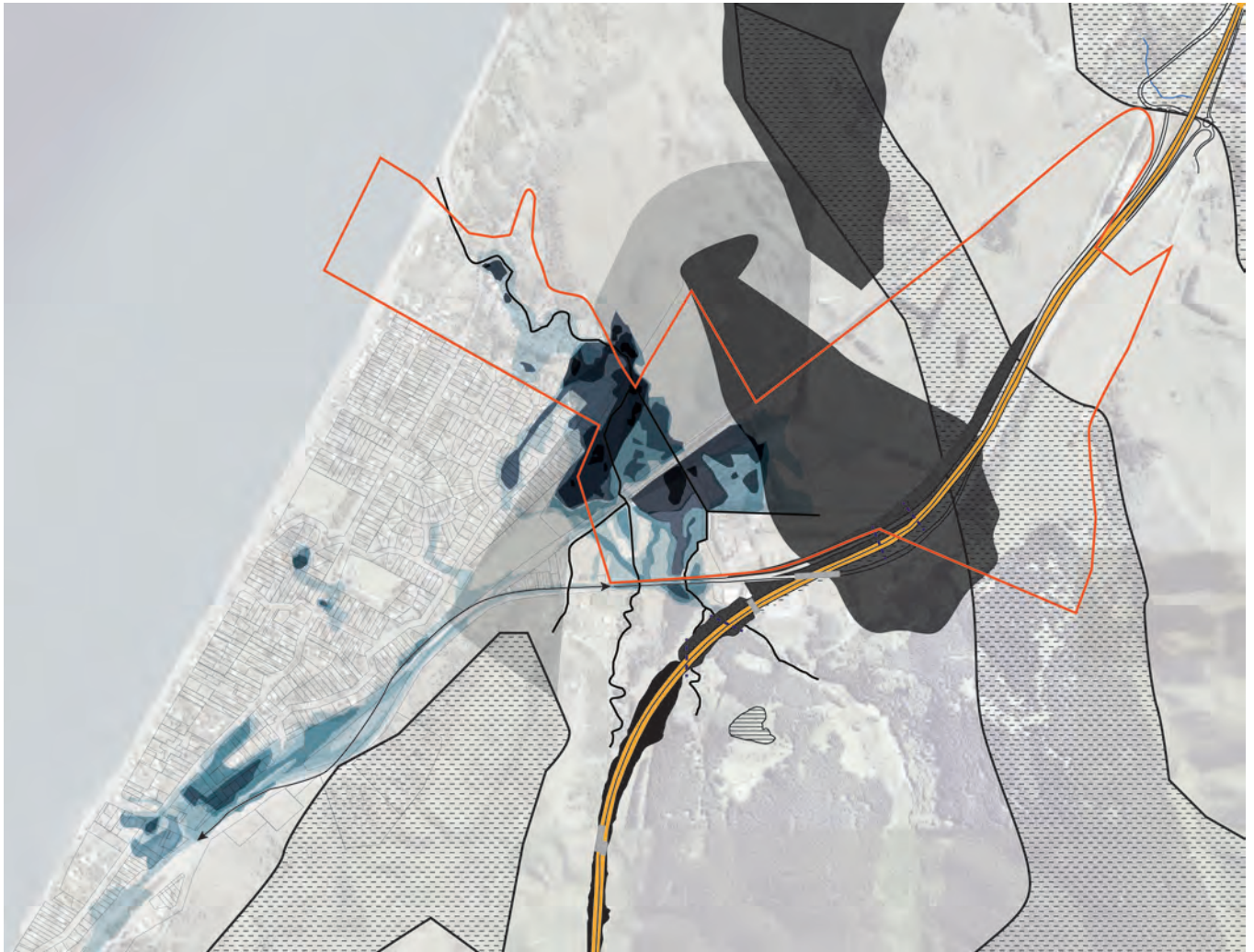


Figure 2.41 // Previous Page // 3D model reiterating the topographical landscape and its various features within the wider context.

Figure 2.42 // Overlaying the various layers of ecological open space, flooding and Transmission Gully from the site analysis to understand how they work in relation to one another and what opportunity may develop from this.

The background of the entire page is a detailed topographic map with intricate contour lines in a light gray color. The lines vary in density and spacing, creating a complex, organic pattern that suggests a rugged terrain. The map is oriented vertically, with the top of the page showing more densely packed contour lines, possibly indicating a steeper slope or a peak.

INITIAL CONCEPTS

02



Extension



Mitigation

The initial concepts were carried out when the thesis was relatively infant and in correlation with the site analysis findings and developments. The thesis supervision stream was under the title, 'Settling in Paradise' where we would investigate development scenarios and opportunities for Wellington's hinterland. The design framework therefore had the design criteria for creating settlement. Settlement provides a basis that could develop into generating an alternative design outcomes for settling along coastlines. The overarching principles evolved into providing for an increase population, increased biodiversity and improved infrastructure. The concept process was predominantly through hand drawn master plans and sections that aim to explore the overall configuration whilst being aware of the relationships and experiences at ground level.

Initial Criteria

- Accommodate for population growth with medium/high density housing
- Develop an approach to mitigate the threat of flooding
- Ensure for natural systems to continue and develop, accommodate potential connections of these habitats
- Develop and recognise the existing and how to integrate the two.
- Ensure the 'value' of the coast is not compromised



Natural Systems



Growth



Integration

Figure 2.43 // Initial sketches based on the criteria set out and information understood from site analysis.

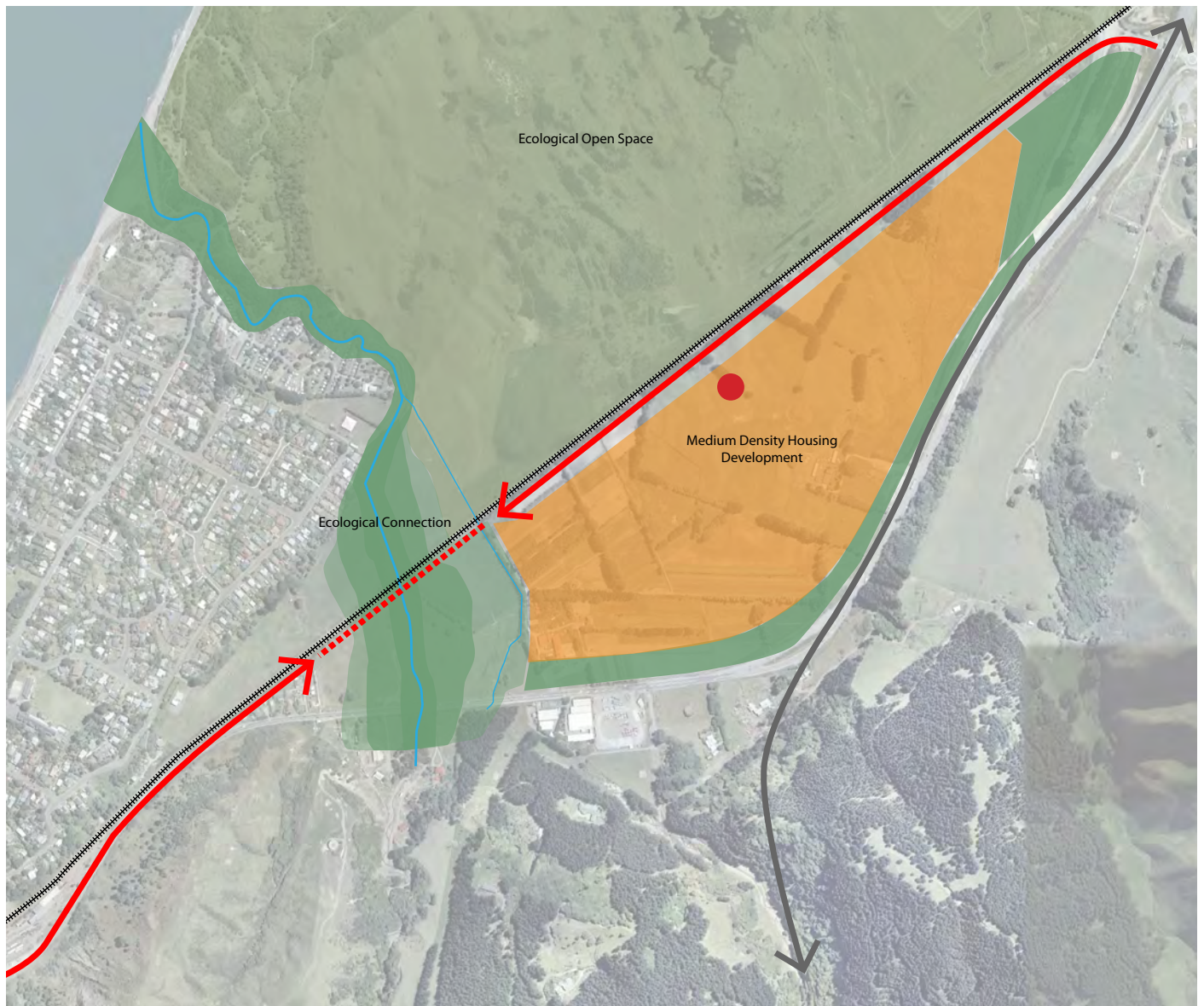


Figure 2.44 // Option One - Looking at maximising space for population growth while mitigating flooding threat.



Option One

Option one is based around the initial move of re-routing the connecting road to allow for open space and vegetation, this will mitigate noise along the edges of the site, creating a 'green' border. The next design move is land manipulation to mitigate the threat of flooding, this in turn would develop into a natural corridor for flora and fauna. To meet the design criteria, medium/high density housing has been used throughout. Mixed-use buildings are preferred as integrating commercial and residential typologies generate a vibrant and diverse place. The building interface on ground level needs to be considered as this becomes important when determining liveability, identity and character of place.

Positive

- Large development area for a large number of dwellings,
- Expansive flooding/eco corridor,
- Re-routing of road

Negative

- Not a strong physical connection with the existing settlement,
- Wary of extending to far North into harsher terrain and ecological open space.
- Town Centre is segregated



Figure 2.45 // Exploring Option One framework in more detail.

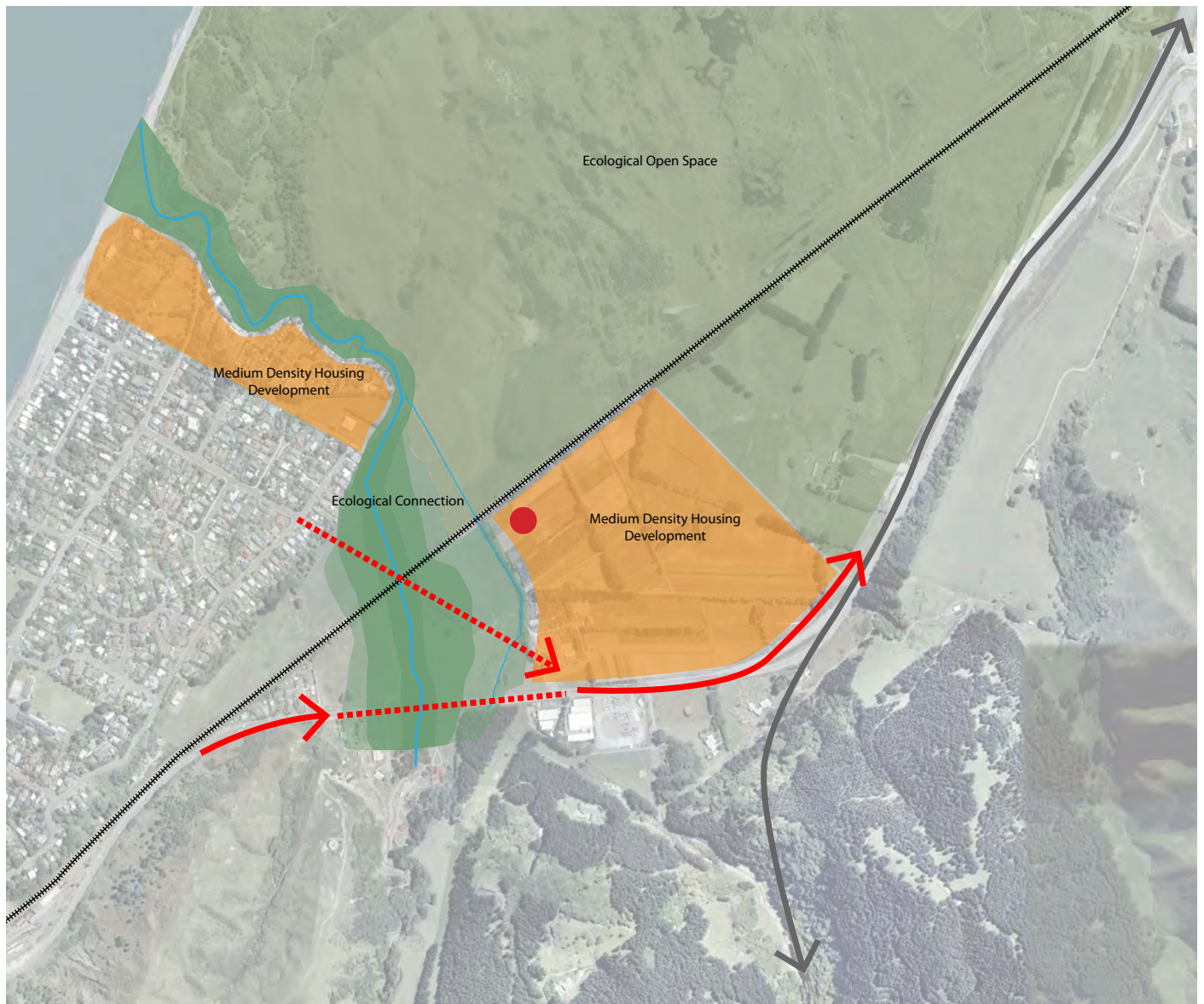


Figure 2.46 // Option Two - Tighter development area, stronger connection to Paekakariki.



Option Two

Option Two has kept the soon-to-be former state highway one as it is currently configured and created a connective road from the existing township. This iteration looks to create a 'tighter' extension, minimising the amount of land used for development. The extension between the existing township and Queen Elizabeth Park is stimulating as it creates an interface with the flooding corridor which could become a public space. Depending on the uses of the built environment it could generate an appealing edge condition to the township with shops, amenities and open space.

The extension to the east has retained the land manipulation and vegetated corridor. To minimise the loss of connection a new road is created and the existing rail tracks will bridge over the corridor. The bridging of the road produces a stronger physical connection to the existing settlement and creates a legible entry into the development. The town fabric has the opportunity to extend North through development stages if required. Although extensive built work will be required to achieve this connection, the benefits of this would be vast in terms of walkability, recreational activities and the general liveability and experience of place.

Positive

- Less infrastructural changes,
- Less land occupied, better connection to the existing,
- Tighter community,
- Value of the coast has not been compromised.

Negative

- Could create denser dwellings,
- Complex train/road/bridge intersection,
- Flooding/eco corridor might not be as expansive as needed.
- Town Centre is segregated



Figure 2.47 // The line of thinking in creating a 'tighter' extension is explored through sketching at the master plan scale.

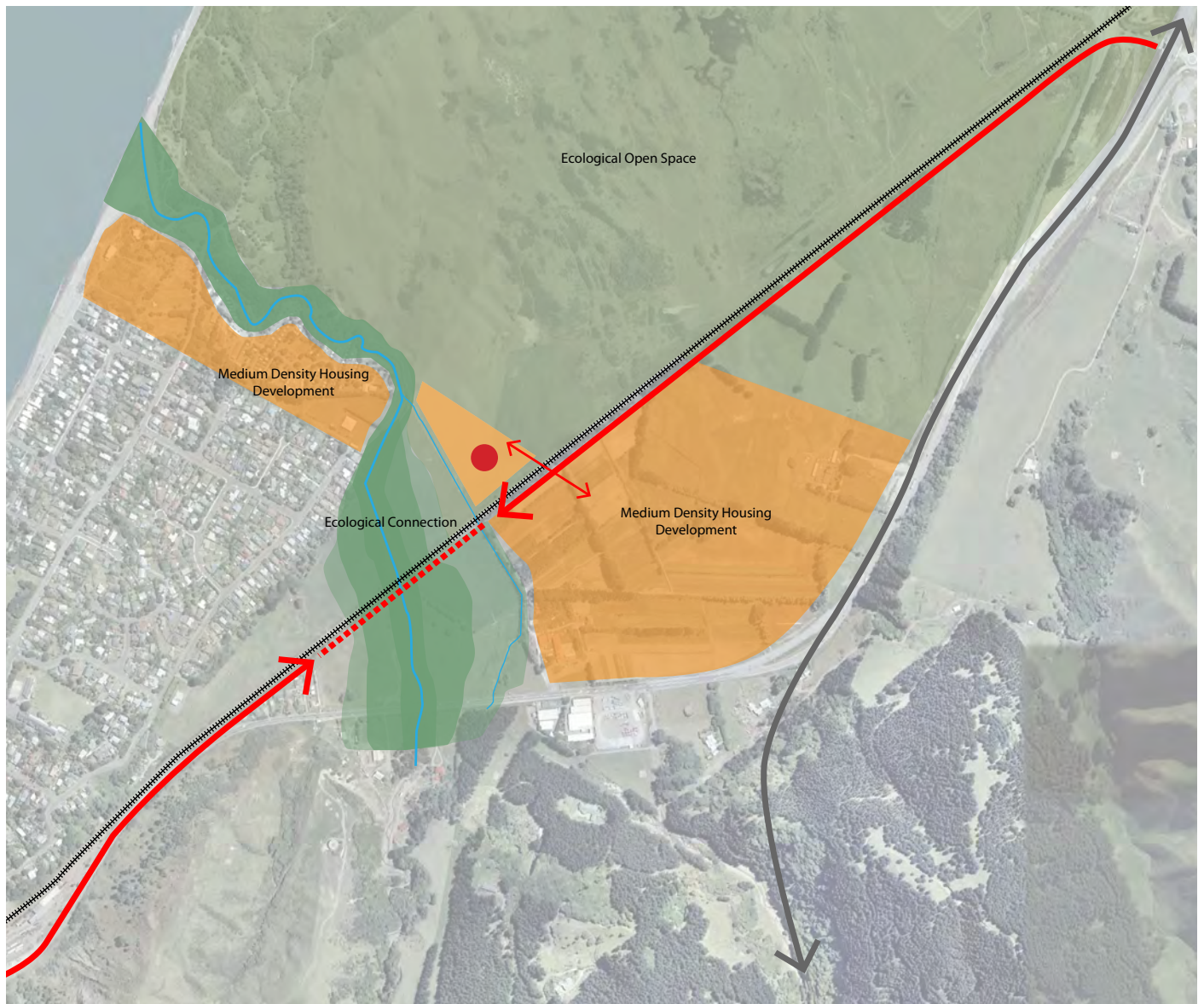


Figure 2.48 // Option Three- overall diagram with the basis for more housing and integration with the existing.

| Legend: | |
|---------------------------------------|--|
| ● | Development Area |
| ● | Green Open Space / Ecological Corridor |
| ● | Ecological Open Space |
| ↗ | Connective Road/Connection |
| ⋯ | Bridge |
| ● | Town Centre |

Concept Three

This option takes the linearity of the township extension and pushes it east through to the Transmission Gully boundary. Integration of the existing and future becomes the main design driver behind this concept. The question is raised how to best provide amenities and infrastructure to the future development while crafting a strong connection to the existing township. Initial inspiration is taken from the criteria sketches where the town centre is this connective node that can be accessed from all angles (see Fig 2.41). The town centre will be situated on relatively flat ground between the large piece of pastoral land and the edge of the township. The extension lends itself to a linear design to best connect the communities.

The planted corridor uses land manipulation to contain the water but it also creates ephemeral areas where it absorbs and retains extra water in times of flood. As shown in the explorative sketches section, manipulated contours aid in funnelling water through to these deeper areas where water can pool and be stored before being distributed at a significantly slower rate. This in principle will reduce the risks of flooding and minimise the triggering of landslips and erosion.

The linearity of the current concept also raises the potential of creating a connection from the water to ranges above Transmission Gully. This however will need to address the issues of traversing the terrain and various infrastructural elements.

Positive

- More housing,
- Town centre may provide the ability to develop big box/commercial ventures,
- Expansive flooding/eco corridor that deal with water management,
- Stronger connection between the design and existing.

Negative

- Physically creating a connection, complex train/road/bridge intersection,
- Potentially this extends too far to the north and into the optimal ecological open space.



Figure 2.49 // Developing ways to extend and connect through sketching at the larger scale.



Figure 2.50 // Investigating the idea of flipping the coast to change the emphasis of how we might begin to settle. This brings the site-specific focus on the natural landscape and proposed vegetated eco-corridor as the driver for change .

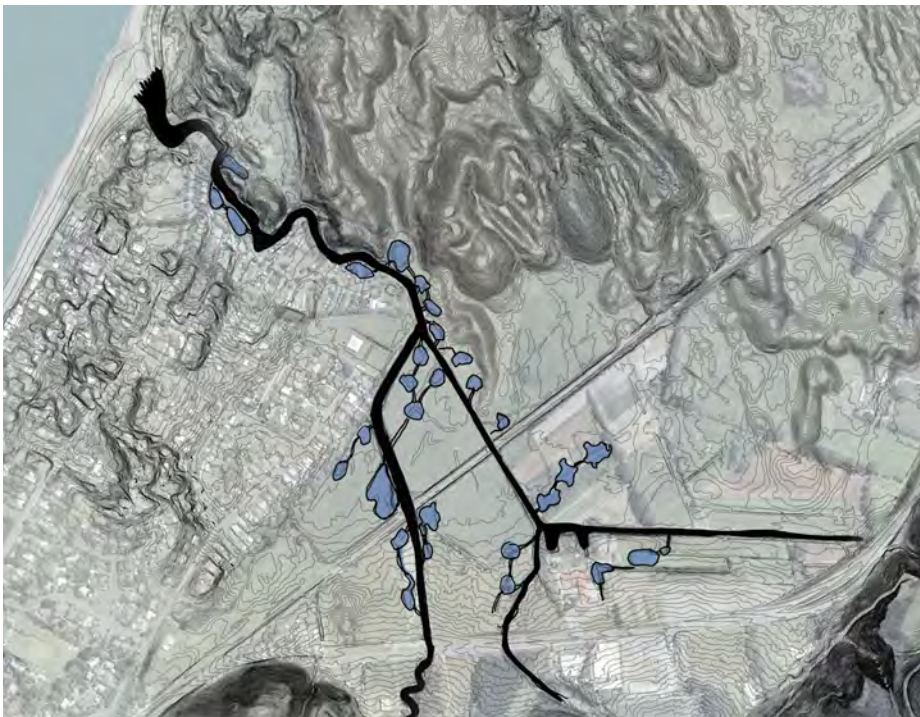


Figure 2.51 // Development of the water management concept within the corridor, using existing contours and low points to attract and retain water in the event of a flood. These ephemeral areas can be vegetated when not in flood.

Evaluation

Due to the study area becoming defined throughout the site analysis component of the thesis, the concepts took on a more iterative approach rather than creating variations. The concept bounced forward rather than from side to side and fluctuated between a spread out development design to a more restrained, each with its own positives and negatives. The linking thread between the three designs was creating a legible design that had a relationship with the existing township. This linearity and direct accessibility to the coastline aimed at becoming a connective piece that ties the existing and 'future' settlements together.

The designs manifested through the process of layering the ecology, flooding, the initial extension move and population growth as shown in the initial criteria sketches.

Option Three is the preferred design moving forward as it provokes an interesting connection to the existing and could provide an exciting system to mitigate and manage water. This could offer seasonal public spaces and minimise extensive land manipulation, it also becomes the basis for the natural systems corridor where flora and fauna can develop. The concept meets the criteria by allowing a large amount of medium/high density housing to occur through a significant development area.

One criteria that was hard to evaluate was the 'value' of the coast. My interpretation of this criteria through the design process developed into:

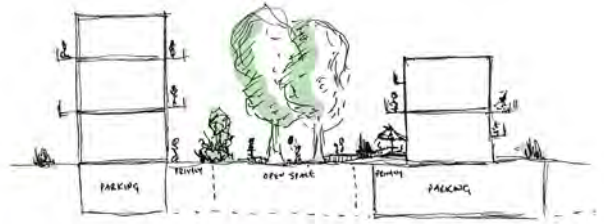
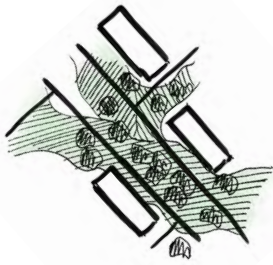
Trying to minimise any negative effects that this settlement will have on the existing landscape

By creating a new development in the region could this change people's perception and use of the landscape within Kapiti.

The strongest asset to the concept is how the design integrates back into the existing community and how the opportunities develop going forward.

Some initial thoughts are:

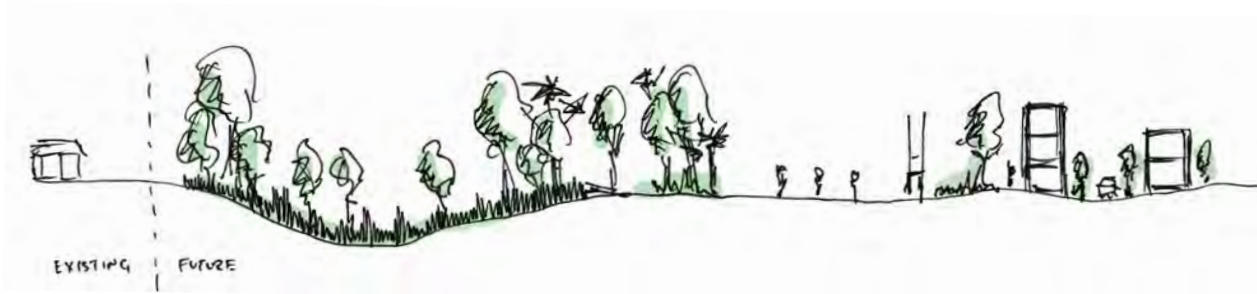
- What is the extending housing relationship with the public space/stream/Queen Elizabeth Park interface?
- How does the public space connection navigate through the natural topography and existing/proposed infrastructural components?
- What happens to the optimal ecological habitat area?
- How does the layout of the housing effect the community?
- How do people traverse over the rail and road?



Streetscape.

Explorative Sketches

Green integration.



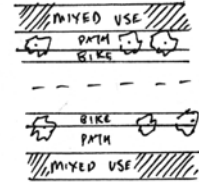
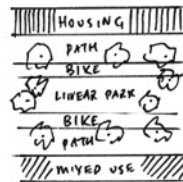
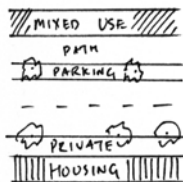
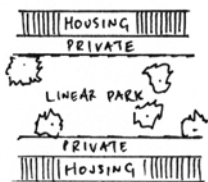
Development relationship to corridor



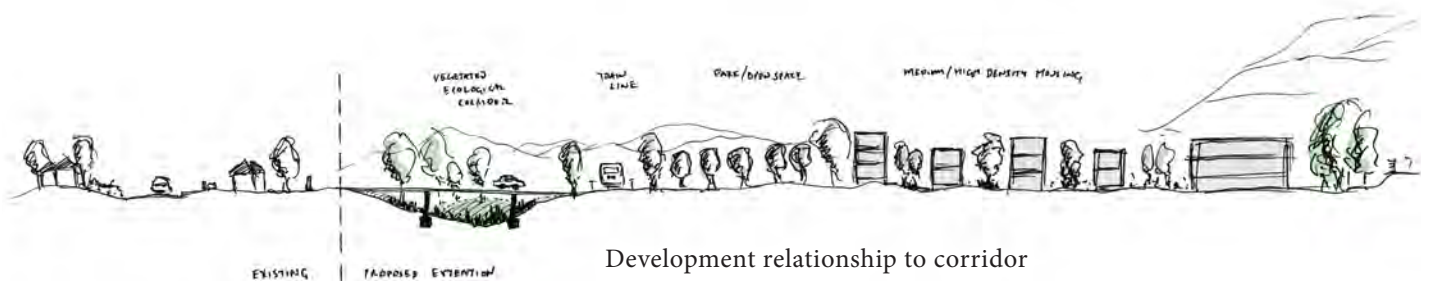
Water/streetscape management



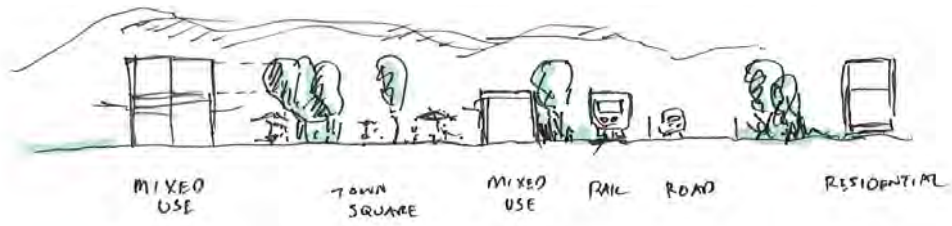
Typical public walkway/stream/wetland relationship.



Street configurations



Development relationship to corridor



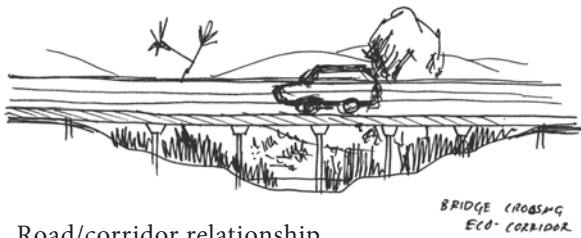
Option 3 Town Centre sketch



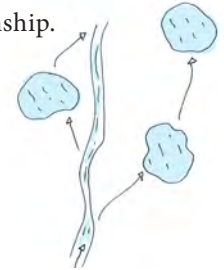
Housing/public walkway/stream/wetland relationship.



Housing/Highway relationship.



Road/corridor relationship.



Water manipulation.



Crossing infrastructure.



Accessways and lookout opportunities.



Figure 2.52 // Series of explorative sketches to understand the design moves and thinking throughout the process.

The background of the entire page is a detailed topographic map. It features a complex network of thin, grey contour lines that form various loops and elongated shapes, representing different elevations and geographical features. The lines are more densely packed in some areas, indicating steeper slopes, and more spread out in others.

TENDENCIES OF THE DISCIPLINE

03

This thesis is based on the notion of settling in paradise. As cities expand, the need for space has become paramount, people are looking to the hinterland regions as an opportunity to acquire their piece of paradise. The theories and literature address a number of approaches to the relationship between urban form and landscape. The literature begins at the larger-scale and while also looking to address the smaller, more refined scale. This thinking has been used throughout the initial concepts chapter as an approach to design.

With population and cities constantly growing and developing rapidly under complex social and economic pressures, the role of landscape in the city needs to be reconceived through integration into the urban fabric of built form and infrastructure, rather than seeing it as something separate.

The study area at Paekakariki is essentially a field with the need for essential civil infrastructural elements to occur in order for a liveable community. How these infrastructural elements are integrated and developed with the landscape will determine how successful the outcome is. The importance of landscape infrastructural design is related to how the built can interact with the field and its ecological processes. Infrastructure, such as access-ways, do not need to be a mono-functional realm but can be engaged to integrate with urban and rural areas. 'Building urban highways to provide efficient auto-mobile circulation in cities may be considered an urbanistic opportunity rather than a planning liability.' (Tatom, 193)

Integration of these large infrastructural elements within the landscape and cities were championed by Baron Haussman who developed large Parisian boulevards that looked at function and opportunity to 'renovate' and 'modernise'. Haussman, improved the quality of life through these 'new landscapes' that

provided a hybrid between natural and man-made systems. A recent example of this would be Parc Trinitat in Barcelona, which is sandwiched between heavy traffic infrastructures, this park provides relief and reiterates that large infrastructure does not need to segregate public life. The park allows for a variety of users and recognised for its flexibility.

Frederick Law Olmsted's realisation of the Emerald Necklace in Boston created a topographical and hydrological reconfiguration that had a positive effect at a local and metropolitan scale. The park serves as a diverse urban public space that allows ecology and the natural processes of the specific site to succeed.

While the style of both these visionary designers contrasted, Olmsted's naturalistic aesthetic and responsive flair against the formalism and rigidity of Haussman, the common goal achieved was place-making through infrastructure and nature that benefited the public.

Stan Allen discusses how the design of infrastructure offers a pathway into the complexity of the urban system and how this is designed in the future. He suggests a new mind-set to take place where we look to infrastructure to provide more than the minimum standards and requirements, where we see infrastructure as being able to withstand 'complex and unpredictable urban effects in excess of its design capacity'. (Allen 38-39) He mentioned three strategies of connectivity, architectural specificity/programmatic indeterminacy and anticipatory design when discussing with infrastructural urbanism. Infrastructures primary mode of operation is connection – to facilitate movement of various goods, people etc. Generally these are linear systems, Allen talks about the idea of these becoming surfaces, where the surfaces are a continuous matrix of movement,

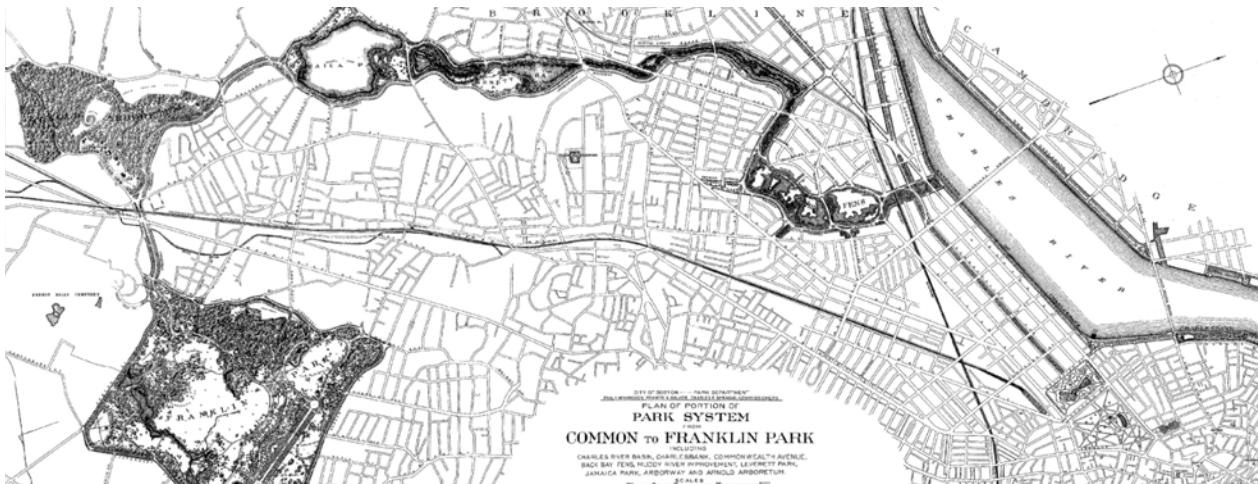
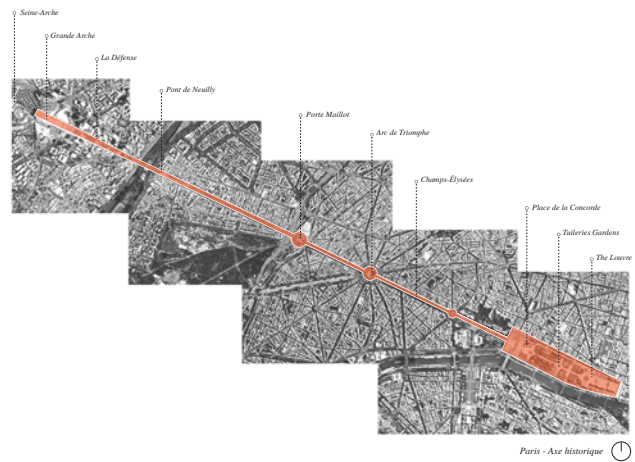


Figure 3.1 // Parc Trinitat in Barcelona is an example of the landscape becoming integrated with large infrastructure creating an opportunity for public life to occur.

Figure 3.2 // The Historic Axis in Paris, the linearity and regularity of important nodes.

Figure 3.3 // The Emerald Necklace in Boston, this plan shows the rigid street patterns of the urban and against the informal, meandering shape of the natural wetlands.

building, infrastructure and open space as a whole entity. Programmatic indeterminacy when discussing field (landscape and site), must be irrigated with potential, this field relies on infrastructure to create concentrations of density that then in turn create concentration of activity. Program cannot be scripted but the design needs to contain the necessary factors to loosely steer and activate any number of formal/informal uses. Anticipatory design is establishing a balance with what could be designed with what is needed to be left open to change. It is essentially working out what is necessary to design with a certain specificity and to work out what can be established intermittently over a period of time. Allen's three strategies serve as a series of ways in which we can shape and design our infrastructure to enhance our urban realm and quality of spaces.

Modern approaches to the landscape-as-infrastructure movement's highlight the potential of 'second nature' as a promising approach to design for the future. Second nature is an important technique used in infrastructure design where the landscape is designed and manipulated before the city's built form.

'...second nature specifically describes a designed nature created in adjacency to existing urbanisation, capable of absorbing future city growth into itself while maintaining the continuity of ecological systems.' (Geuze & Skjonsberg, 29)

This idea put forth is an ambition to reformulate

the way we as people currently treat the relationship between the built and the landscape. To have an open-ended and more responsive design approach based on the performance of nature itself. This thinking lends itself to Paekakariki and the future of the Kapiti region moving forward. We have an opportunity with this study area to build around the landscape, protecting and enhancing certain significant features while developing controlled growth areas.

In the process of designing neighbourhoods, cities and regions, Peter Calthorpe has four specific design principles that play a formative role in shaping his approach to urban design: questioning human scale, diversity, conservation and regionalism. (Calthorpe, Lerup, & Fishman, 17)

'The focus on human scale represents a shift away from the top-down approach...' Human scale in community design means a walkable neighbourhood focus and an environment that encourages face-to-face interaction. (Calthorpe, 53) This approach looks to the details, the density and character of the place over the creation of the universal response.

Diversity has multiple meanings when designing. In nature, it is key to resilience and adaptive capacities within any ecosystem. In community design, it has overlapping layers of physical, economic and social meanings. Physical diversity results in maximising the mix of activities, building types and civic places within a community. Economic diversity leads to a place that

can support a range of businesses at differing scales. Social diversity are places that are integrated and inclusive. (Calthorpe, 2010)

Conservation looks at harnessing and protecting the natural resources while preserving and restoring the cultural identity and historical assets of a place.

Regionalism looks at changing our thinking to ‘look at the bigger picture., our lives are lived at a metropolitan scale, we no longer live our lives in isolated villages, neighbourhoods or even singular cities.’ (Calthorpe et al., 19)

The neighbourhood and region need to be seen as a whole system, the interconnectedness between the two scales which have a co-dependency and parallel features that reinforce and benefit each other.

Calthorpe also identified corridors as a key technique for framing the design of infrastructure to embrace landscape. ‘Corridors are the skeletal structure of regional form, its connections; they form the defining framework for its future.’ (Calthorpe, 71)

Corridors always constitute flow, they create a boundary or unify pieces of common ground within a community, and corridors create significant destinations and passageways. Natural corridors can include specific habitats, where the integration of ecologies, habitats and water determine the viability and efficacy. The interconnectedness between the

urban corridor and the natural corridor can become a way of creating an inseparable asset for an area and region.

Upon reflection of the literature explored, it became apparent that through landscape architecture we can no longer afford to perceive architecture, infrastructure and landscape as singular, individual entities. For example, the Transmission Gully motorway must be seen as an urbanistic opportunity for the region. The eventual development and construction of the motorway should carry forward a series of beneficial and catalytic projects that become an iconic or influential feature of Paekakariki and the Kapiti region.

Landscape infrastructure adds multiple benefits to traditional infrastructure through the ability to add vegetation/re-vegetation, water retention, water management, storm water management, public spaces into projects of varying scales.

The theories become transferable to the site and concepts developed at Paekakariki. They become the benchmark and set up a framework in which to deal with infrastructure, the natural landscape and developing a strong, liveable design at a variety of scales.

Tudela-Culip Restoration Project

EMF Landscape Architecture
Cadaqués, Girona, Spain // 2010



This project is a landscape driven design outcome where the approach allowed for a nature focussed basis that developed into a creative and minimalist design. In the 1960's the site was transformed into a Club Med, the private holiday village was design to be intentionally primitive to foster a direct relationship with nature. The site has outstanding geological and botanical significance. With the rise of democracy and ecological conservation, the site was declared a Natural Park in 1998.

'The projects goals was not to build or un-build a landscape but to conceive the conditions for it's experiencing'. The minimalistic approach was to orchestrate people's movement, frame views and stimulate an experience with nature and planting.

What is so successful about this project is how sensitive it is to the landscape and how carefully considered the materiality was used and implemented as well as the purpose of the intervention pieces. The materiality is from site with corten steel being added as it withstands the erosive coastal conditions and has a strong visual connection between sites. They do not take anything away from the landscape, they highlight and give people a higher appreciation for where they are.

As part of the ongoing and developing criteria throughout the thesis, there is the underlying objective to not compromise the 'value' of the coast on site. This project, although there is no need of deconstruction at Paekakariki, the ideas of using interventions and materiality to aid in identifying and unveiling particular aspects of the landscape in Kapiti generates a strong design driver going forward.

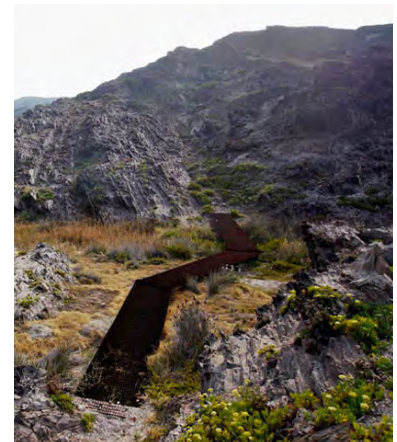


Figure 3.4 // Opposite Page // Top // Natural rock enroaching into the man-made built concrete path.

Figure 3.5 // Opposite Page // Bottom // The simplicity of a corten steel handrail do not deter from the landscape.

Figure 3.6 // Above // Left // Rigid yet simple forms follow the natural topograohy.

Figure 3.7 // Above // Right // Perforated steel path spanning a vegetated section of the site.

The High Line

Field Operations
Manhattan, New York City, USA // 2006-14



Figure 3.8 // Above // A typical section of the High Line, industrail rail elements, seating elements and feature planting.

Figure 3.9 // Opposite Page // Top // Various paths and immediate context provide a different experience.

Figure 3.10 // Opposite Page // Bottom // Areas where people can choose their own journey. Viewpoint looking along a street below.

The High Line is a linear park on an elevated and disused section of railroad in New York City. It is a highly successful and revered piece of Landscape Architecture. The design is based around the experience encountered by pedestrians and how they can now connect to the city in a different manner. The promenade is purely for pedestrians with various insertions of seating elements and viewpoints that allows for both a collective and personal experience. It can also be defined by its planting throughout the 2.3km walk, various schemes based around the seasonal characteristics of plants give a sense of place and define various areas along the way.

The High Line becomes applicable to Paekakariki in the sense of it acting as a catalyst, integrating places, connecting people as well keeping the value of the coast. Since the High Lines completion, NYC has seen a spur in real estate prices and developments within the adjacent neighbourhoods. This has provided an amenity to the area and a respite from the street below. By elevating in certain parts of Paekakariki, there are opportunities to connect and integrate as well as creating ways to have a 'light touch' on the landscape beneath and give the natural process respite where it is needed.



Birrarung Marr

Taylor Cullity Lethlean (TCL)
Melbourne, VIC, Australia // 2002



Figure 3.11 // Above // Overall photograph from 2002 upon completion.

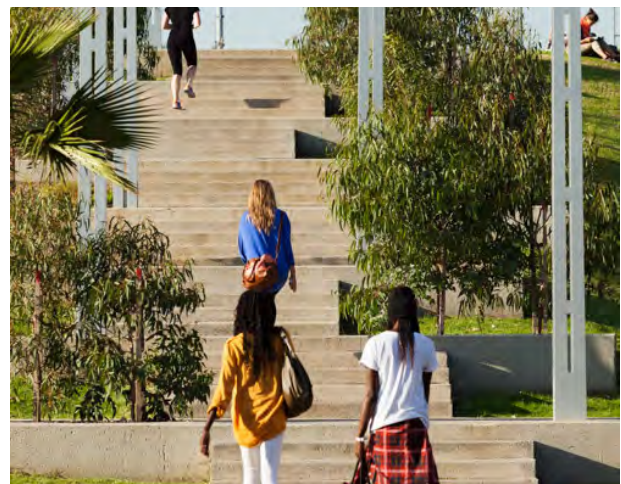
Figure 3.12 // Opposite Page // Top // The terraced turf bank provides places to relax with views of the city.

Figure 3.13 // Opposite Page // Bottom // Feature stair allowing for pedestrians accessibility throughout the park.

Birrarung Marr was one of the first new parks developed near the Melbourne CBD. It was designed to be more of an urban place rather than the traditional use of a park. Designed by Taylor Cullity Lethlean and situated on the CBD's doorstep, the urban park is a short walk from Flinders Railway Station and has become a dynamic, well-used and important cog along the Yarra River.

The park facilitates movement through a series of paths and bridges that aid in negotiating a busy motorway and connecting various public nodal spaces. Large expansive spaces have allowed the urban park to host and become a forever changing space with temporary art installations, weekly pop-ups events, seasonal events and larger marquee event that bring in people from all over Melbourne. Using the natural topography on site, a large turfed terraced provides strong visual links to the city and further south. The designers aimed to create an urban park with a simple material palette and structure to allow for flexible spaces to be experienced by all.

In terms of relating back Paekakariki, looking at ways in which residents and the public can experience the visual links, strong pedestrian and bicycle traffic connection and the variety of scaled spaces that cater for an array of activities and users would translate well.



Rockaway Rising - For A Resilient Rockaway

Lateral Office

Arverne East, Queens, New York // 2013

Rockaway Rising is a competition set in a New York in an area that has faced economic, social and environmental issues yet has a unique identity as a resort destination near Manhattan. The design looks to increase the relationship between landscape and building through the fabric and how this interacts with the natural environment. The design address flood management, stormwater management and energy generation and has created a model that could be easily applied to other site that face similar issues.

This proposal by Lateral Office looks at three drivers to develop a design where these can be integrate to provide for a resilient coastal settlement. A series of interconnected basins help retain and manipulate water in the event of a flood or a storm, this also aids in create habitats and improving the local ecology. What is successful with this design is how the residents and public are integrated within this site through open spaces and series of boardwalks that connect spaces throughout. The ephemeral nature of these basins will also give people an immediate appreciation and awareness of water and ecology.

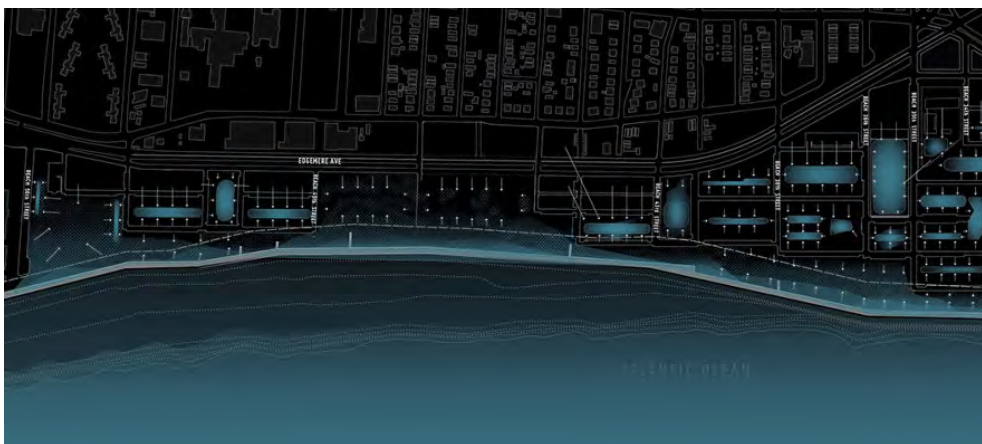
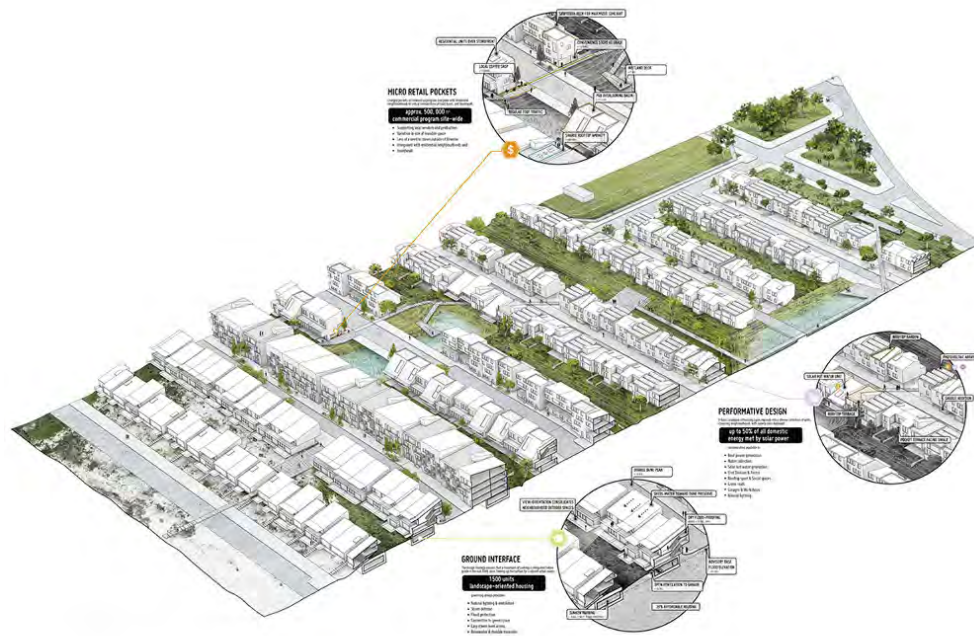
When looking to increase population density throughout the flooding areas of Paekakariki a design model such as this generates thinking about how we can safely integrate water with residential housing. The medium density housing and responding fabric is has a green linearity to it while being perforated by water management areas and open space areas that look to cater for the residents while integrating the public.



Figure 3.14 // Above // Perspective showing how the manipulation of water can be used to enhance public life throughout a settlement.

Figure 3.15 // Opposite Page // Top // A drawing to highlight that density can occur when infrastructure is in place to mitigate the threats.

Figure 3.16 // Opposite Page // Bottom // Diagram showing areas where water can be absorbed throughout the settlement.

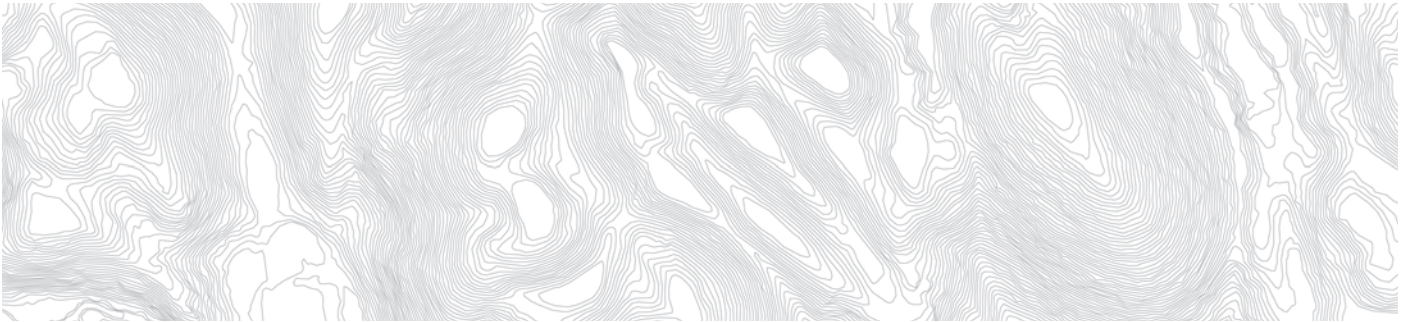


The background of the entire page is a detailed topographic map. It features a complex network of thin, grey contour lines that swirl and loop across the landscape, representing different elevations. The map is oriented horizontally, with a river or stream visible in the lower-left corner, flowing towards the bottom edge. The overall tone is light and technical.

THE DESIGN

04

The Design



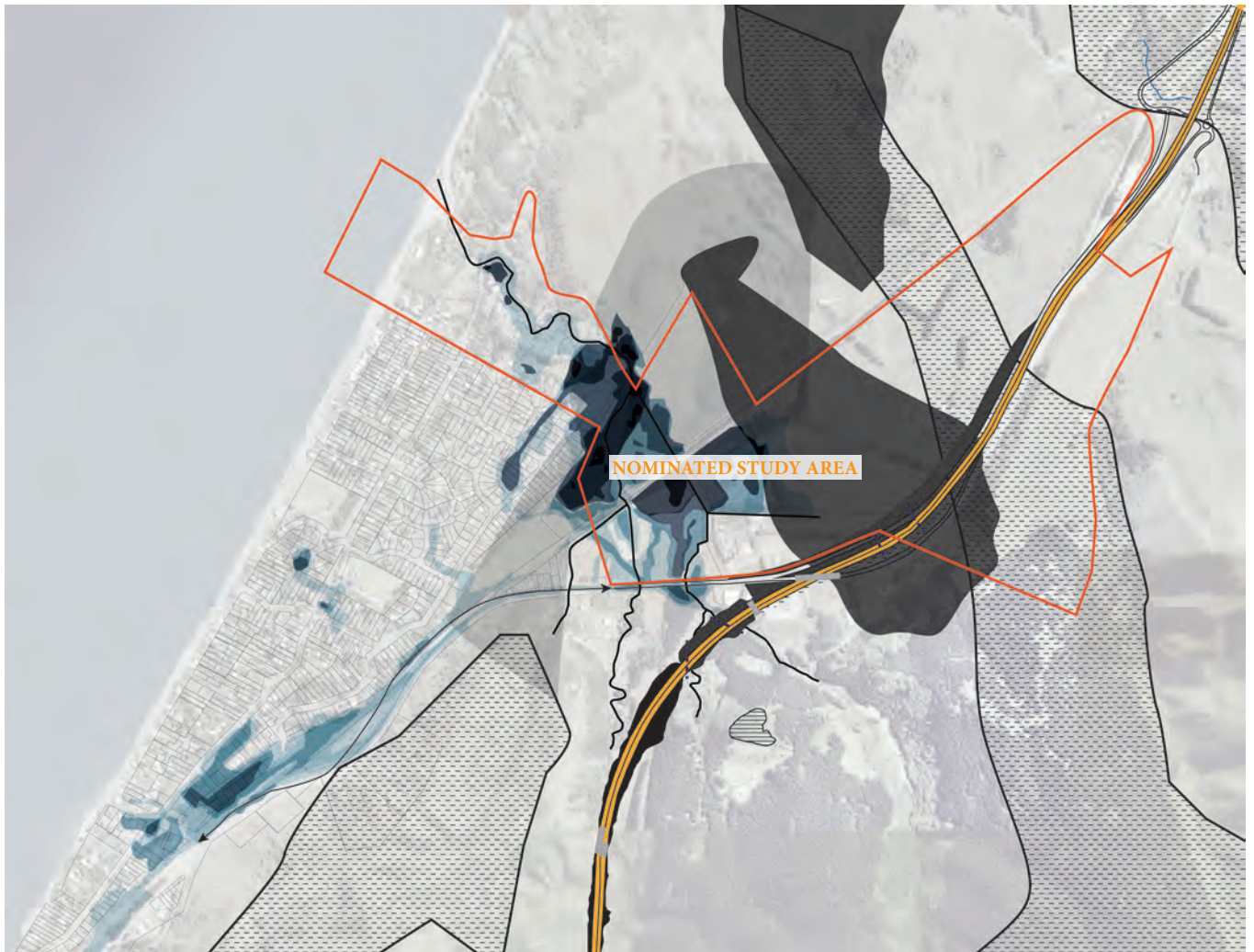


Figure 4.1 // Combined Site Analysis diagrams establishing parameters and generating opportunities to design with and around.

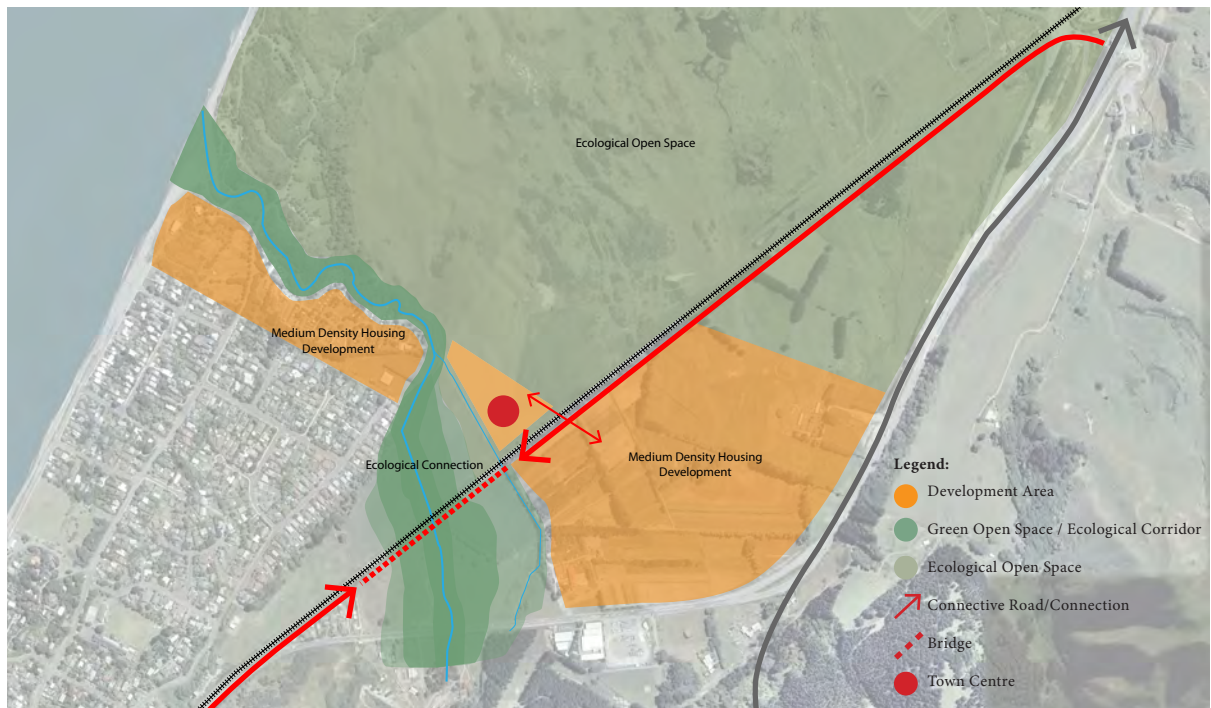


Figure 4.2 // Top // Initial concept diagram to develop further

Figure 4.3 // Left // Flipping the coast diagram

Figure 4.4 // Right // Masterplan scale sketch generating a possible way of settling.

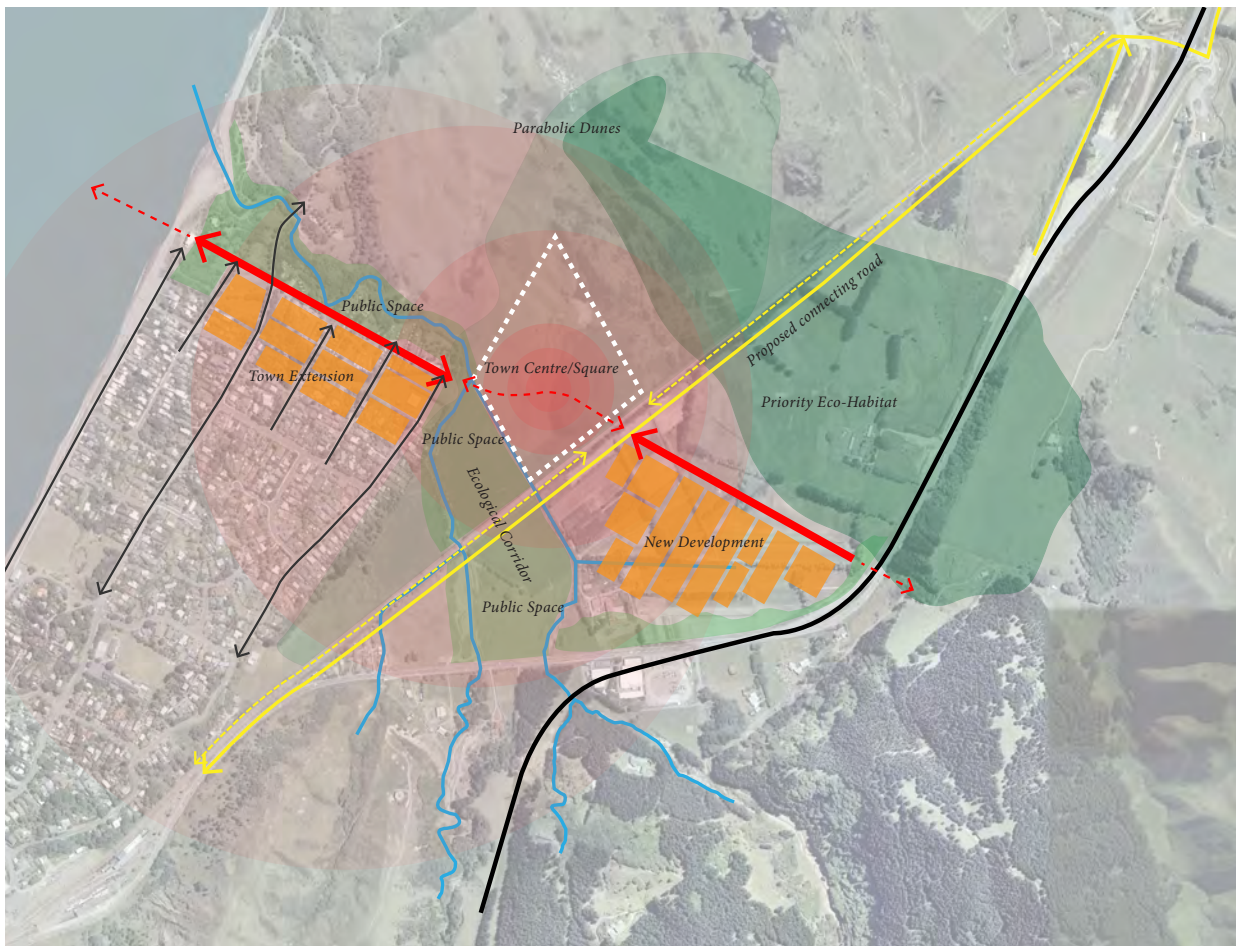


Figure 4.5 // Developed diagram that promotes the idea of a connective linear framework in which housing, infrastructure, recreation and ecology can 'attach' to. It aims to allow for accessibility and public spaces throughout the landscape.

The Formation of the Line

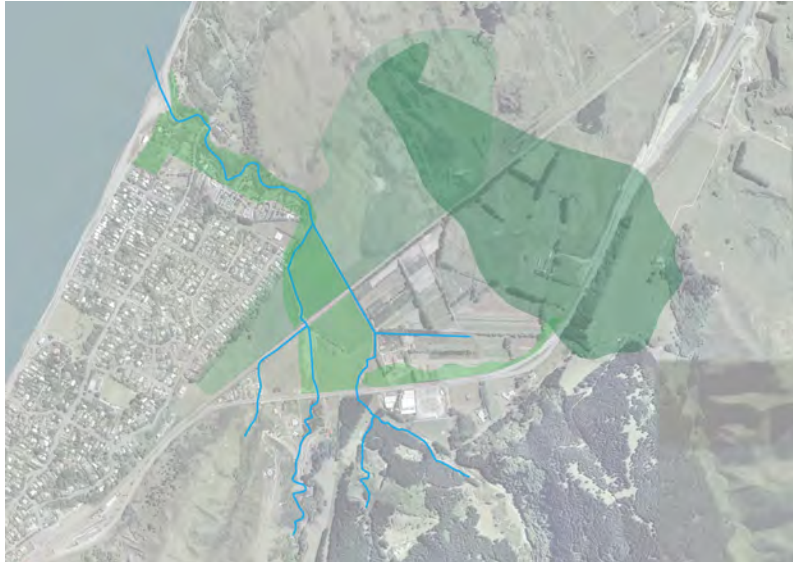


Figure 4.6 // Ecological Priority Areas and Corridor to mitigate and enhance the natural landscape. This sets the basis for the design process.

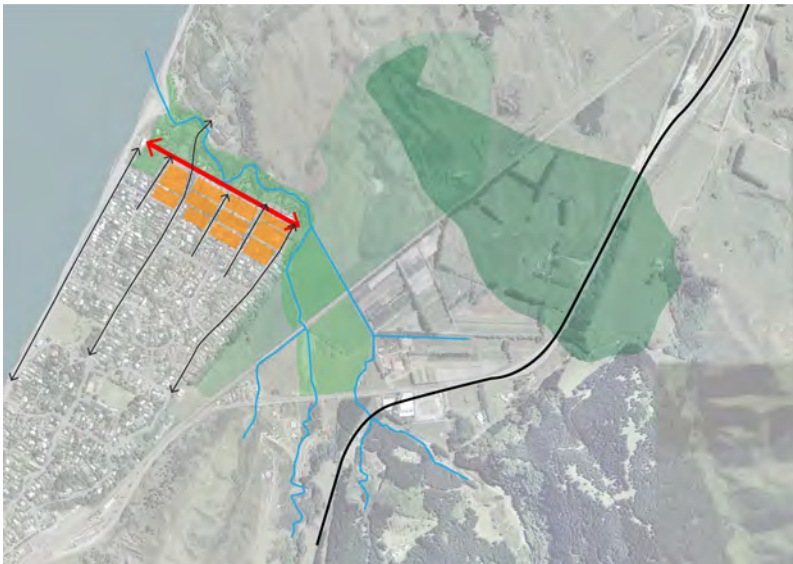


Figure 4.7 // Initial design move is to utilise the land between the exiting township and Queen Elizabeth Park. Through extending the township - this will aim to turn the dead-end into an activated destination node.

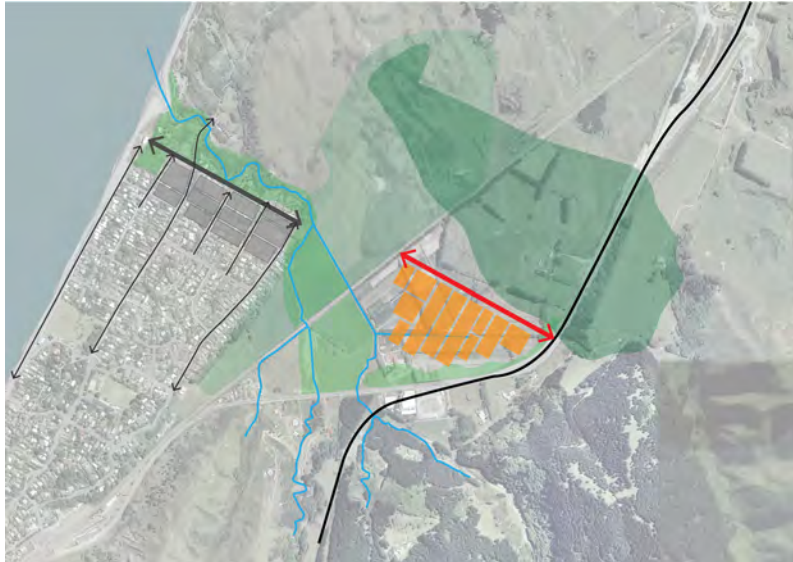


Figure 4.8 // Utilising the flat pastoral land to seize the opportunity to develop a holistic settlement within the landscape.

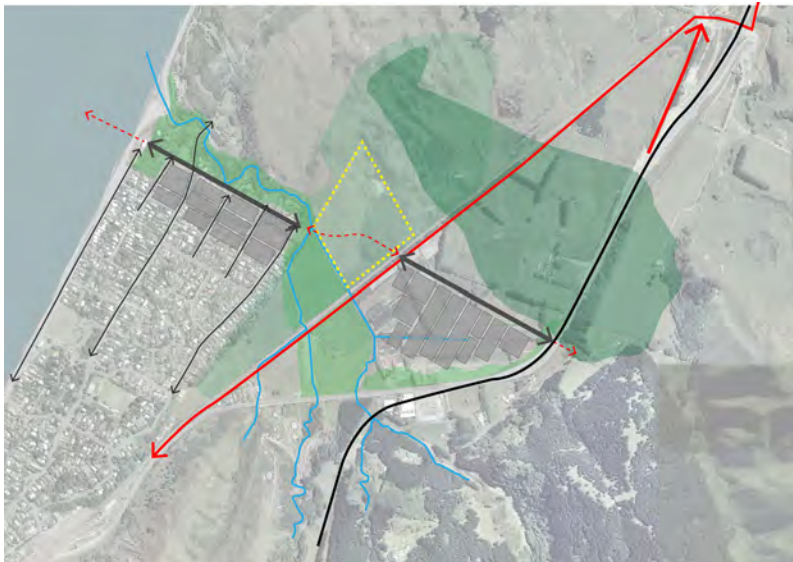


Figure 4.9 // Re-routing the road to be parallel with the existing train track generates a direct connection to the existing township. This generates a strong linear connection between both development extensions creating an opportunity for a town centre/transportation node to be established.

The Fabric

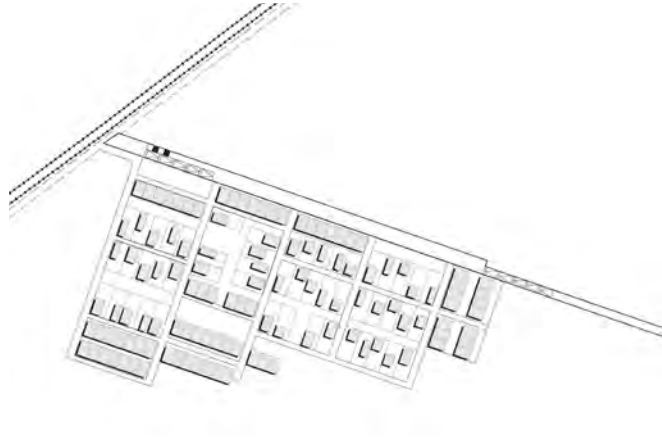


Figure 4.10 // This iteration keeps the plot sizes similar to the existing Paekakariki settlement. Roding layout focussed on perpendicular hierarchy for cars and pedestrians.

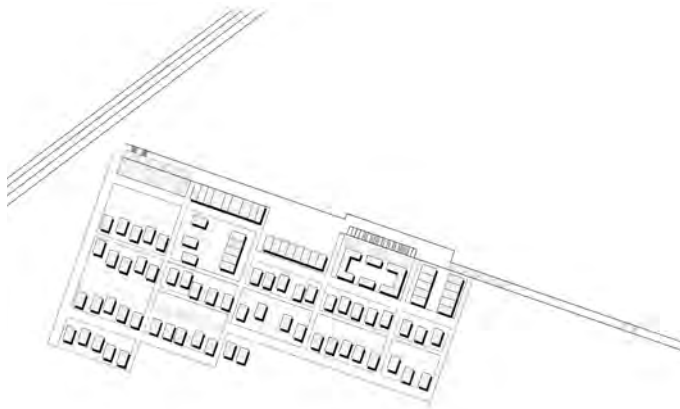


Figure 4.11 // This iteration develops less housing but a stronger focus on pedestrian connection through laneways that run perpendicular and vehicle access roads parallel to the public space.

Aim and Objectives

Initial Criteria

- *To accommodate for population growth with medium/high density housing*
- *To develop an approach to mitigate the threat of flooding*
- *To ensure natural systems continue and develop and to accommodate potential connections of these habitats*
- *To develop and recognise the existing and how to integrate the two.*
- *To ensure the 'value' of the coast is not compromised*



Developed Criteria

- *To provide a framework that encourages a higher density of housing*
- *To develop an approach to mitigate the threat of flooding*
- *To develop and improve the natural systems and environments within the immediate context*
- *To revitalise natural amenity and promote community*
- *To realise the potential for Paekakariki as a satellite city for Wellington*

Concept Design

Flipping the Coast

Through the initial concepts, a linearity presented itself as an idea to order and configure a new way of settling. The essence of the idea behind flipping the coastline generates a physical line which would be just over 1700 metres in length to create accessibility and provide a strong legibility to the development scheme. This 'line' would span the distance from the sea to the mountains.

By having the coast flipped in a perpendicular manner is to investigate the way we could settle and configure settlements along coastal landscapes. The typical housing response for coastal expansion is to find a plot of land with a view of the ocean and build; or it is to develop a sprawling subdivision, both tend to be not responsive to the immediate context. Through flipping the coast, the line would generate a series of linear public spaces along it that would create nodes, these would be implemented to create public life, encourage businesses/local economy and allow accessibility/recreation throughout the landscape.

To avoid being a typical development, the line will act as a device where a defined boundary is set in which sprawl can be contained and concentrated. To ensure the expansion will be contained, nothing will be built to the north of the line creating a boundary where the focus will change from the ocean to the picturesque Tararua Ranges and the parabolic dunes in Queen Elizabeth Park. The driver behind was uncovered during the site analysis where the high priority ecological habitat area was situated within the study area.

Paekakariki has its own unique identity, the line is an extension of this. The Line is a device that is designed to prepare for future densification and for this to occur over many phases, it looks at the community and various aspects that make up a small rural township to be reordered and composed within this linear framework.

The Line

The Line is a design move that first and foremost creates a physical connection from the sea to the mountains through the undulating landscape. The formal move of flipping the coastline also sees itself as an extension of the perpendicular streets in Paekakariki, creating a legibility through the existing and future.

The design demands a site responsive and site specific design that augments at ground level. The design was dictated by the varying landscape conditions throughout the transect at Paekakariki. The transect cuts through coastal dunes, wetlands, pastoral land as well as infrastructural elements such as, Transmission Gully.

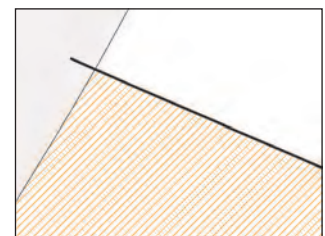
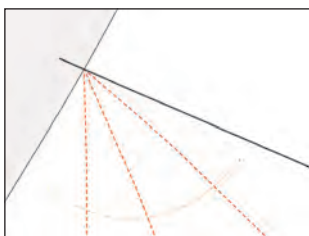


Figure 4.12 // Left // Flipping the Coast diagram

Figure 4.13 // Middle // The idea of connecting the mountains to the sea.

Figure 4.14 // Right // Due to the ecology, looking at creating a physical boundary which contains sprawl.

Ecological Line

One of the pressing issues that has devastated Paekakariki in recent times is flooding, this is due to heavy rainfall and close proximity to the ranges which creates a large quantity of water that flood the flat land between and around the northern end of the township.

Mitigation of the flooding area created a linear body of vegetation that begins from underneath the mountains and continued to the existing wetlands and streams. For densification to occur within the viable flat land, water management of this area plays an integral role.

The ecological corridor develops methods in which water can be manipulated to benefit and enhance Paekakariki and the wider region. This is to be achieved through the development of water retention and storage areas incorporated with wetlands and public access; it will mitigate the threat of flooding and enrich the biodiversity within the area.

Intensity

With the Line stretching from the Tasman Sea to Whareroa farm this linear framework is a sequence of spaces and nodes that look to cater for the needs and wants for the existing and future residents of Paekakariki. This will create opportunities throughout the design that are diverse and programmatically flexible. Its aims to create a linear public space to catalyse development and synergise the community through the incorporation of leisure, ecology, recreation and education. These aims look at the existing township of Paekakariki and how it currently facilities these aspects to then enhance them throughout the Line.

The Breakdown

The Line is broken down into four section that are either defined by its primary function or the distinctive landscape in which it is placed. By breaking down the line into fragments it allows a more rigorous exploration and encouraged a higher level of design detail. The four areas have essentially been designed and informed by the immediate context and the aims and objectives that were set out. The design morphs with each landscape condition and ties together at the junction where the areas connect.

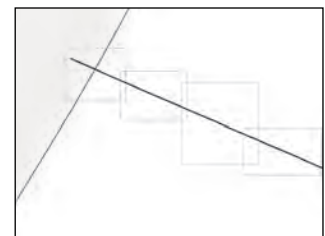
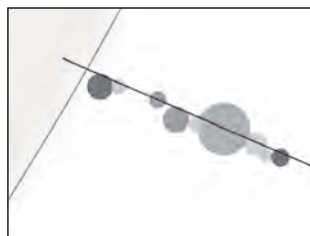
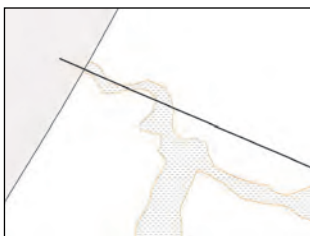


Figure 4.15 // Left // Concept of the ecological corridor through site analysis and understanding of water on the site.

Figure 4.16 // Middle // The idea of intensities along a linear progression providing a variation of nodes and destinations.

Figure 4.17 // Right // Breaking down the design into four distinct area that are defined by the landscape condition.





Scale 1:5000

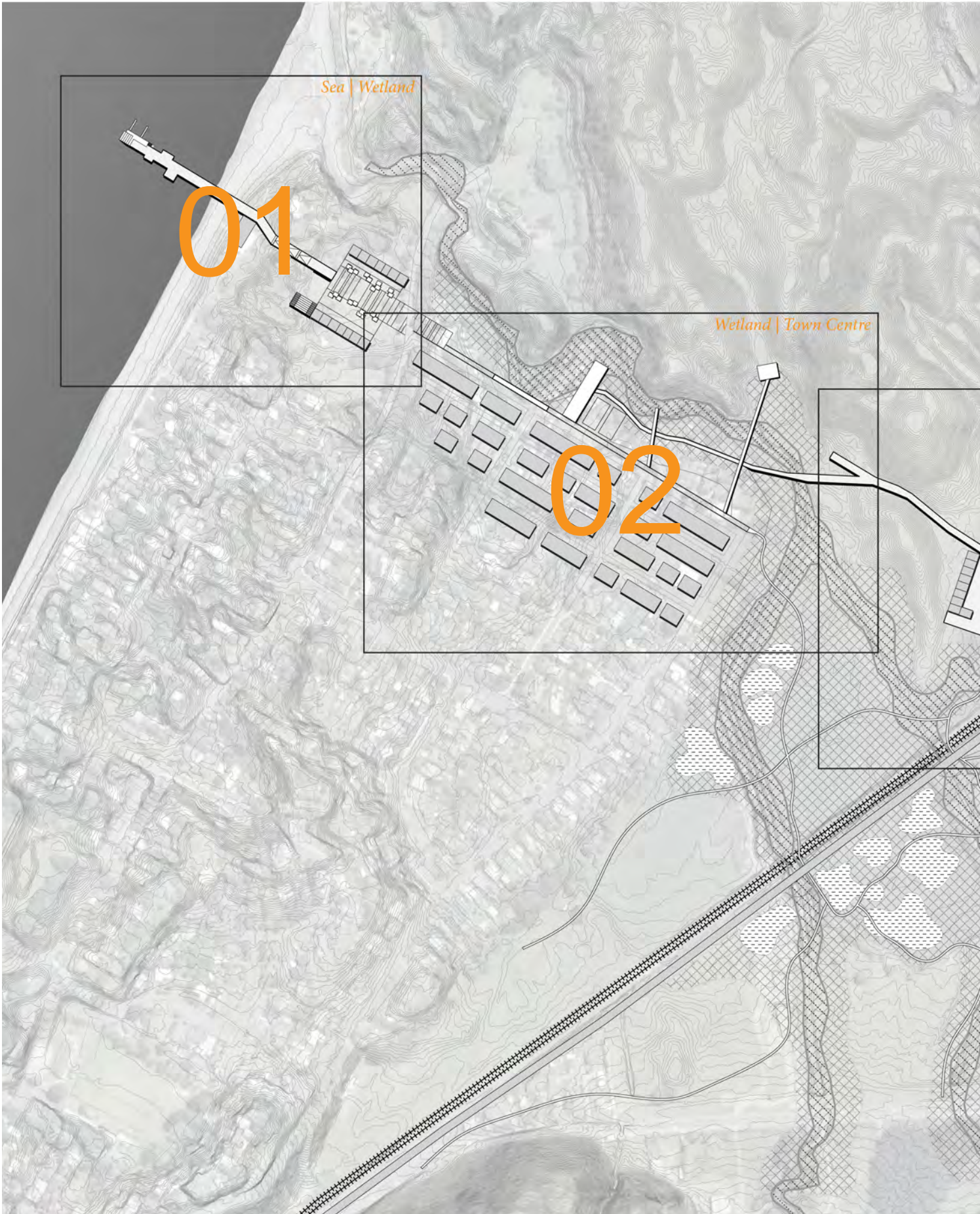
Figure 4.18 // Overall plan showing the design as a sequences of spaces along a linear framework.





Figure 4.19 // Programmatic plan of the Overall Design - showing the range of activities and nodes along the sequence of spaces.





Sea | Wetland

01

Wetland | Town Centre

02



Scale 1:5000

Figure 4.20 // The breakdown of the four primary design areas.

Sea | Wetlands

01



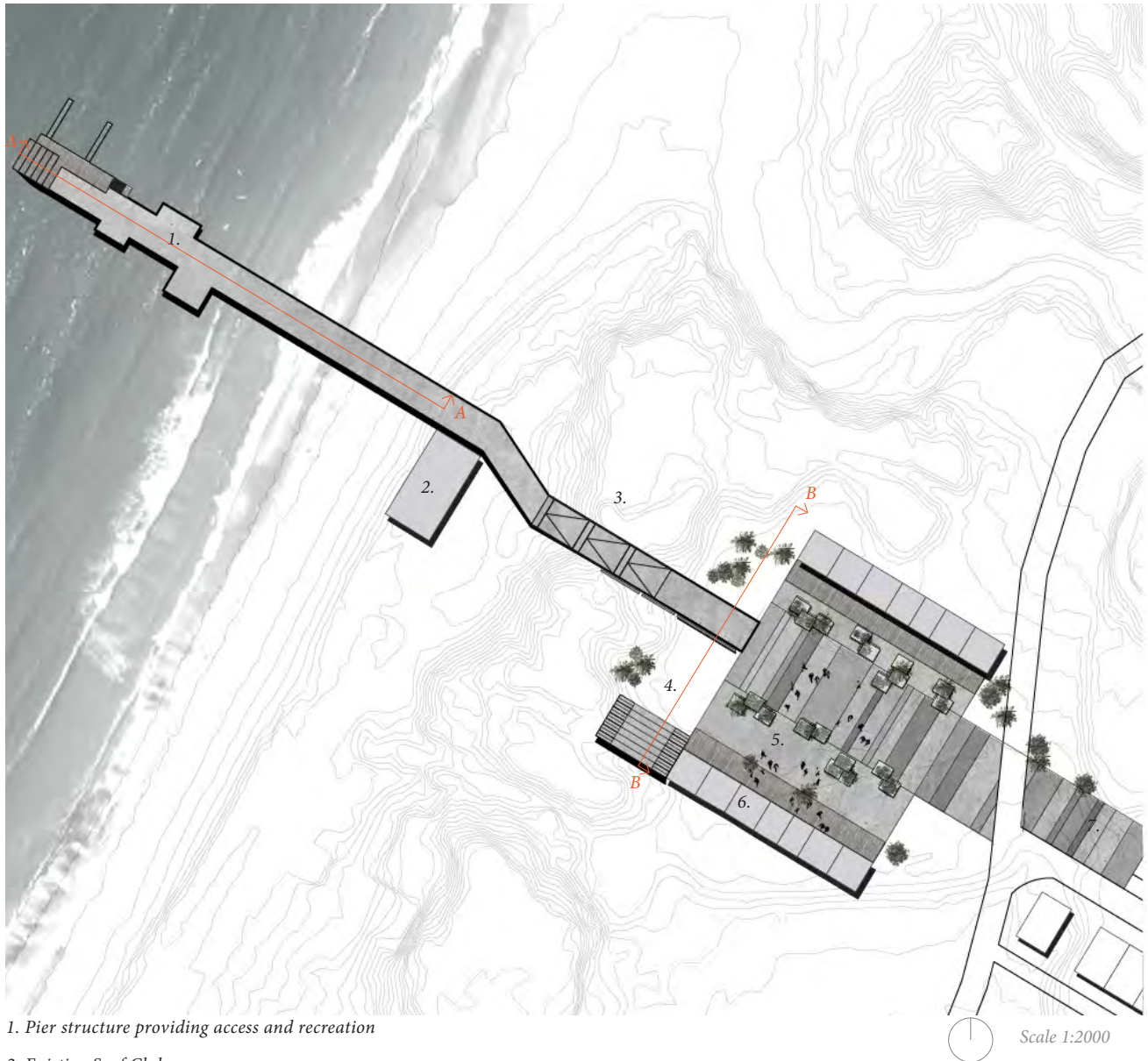


Figure 4.21 // Rendered Plan of the pier and public square, creating a new node along the coast.

Detailed Design

The coast is an important asset for Paekakariki, the beach is a destination for locals and tourists alike while the surf club is part of the townships cultural and recreational identity and history. Recreation manifests itself as a main driver behind the design process through the location of site and range of established activities within this part of the Kapiti Coast.

A pier structure elongates 120m into the Tasman Sea that extends past the sea break generating access to a wide range of activities from surfing to swimming, fishing to kayaking. This recreational node will benefit and revitalise the surf club at this northern end of the township.

The detailed design looks at how this pier interacts with the water's edge: staggered steps down create areas to sit and relax or jump off and fish from, forming a destination point at the end of the structure, this will also allow small boats and kayaks to moor. The scale of proximity between spaces will be diverse, some will encourage and promote closer interactions between people using them, and at stages along the structure there will be opportunities for small cultural and hospitality ventures to operate, this will reiterate the structure as a destination node for all demographics.

The idea of the line now transforms into a sequential series of spaces along a linear axis. A raised connecting walkway dissects through the foredunes to an area which is currently an under-utilised park, the landscape provided an opportunity through its

intricacies. The foredunes create a sheltered, flat area where a community public space with mixed-use, small scale businesses that look to activate this area of Paekakariki. The public space is a square that nestles between the surrounding dunes and the access road to Queen Elizabeth Park. The square is surrounded enclosed by buildings for various businesses that will cater for the needs of the community. These peripheral sections within the square will encourage movement to slow and the focus on spending an extended periods of time within the spaces, this is done through formal moves to segregate and create intimate areas. The addition of an outdoor cinema that can also be used as an events space enforces versatility and flexibility of the area.

The existing fabric and lack of opportunities in the northern extent of Paekakariki has isolated this part of the township. The public space looks to act as a catalyst that blends the boundary between the township and Queen Elizabeth Park through an exciting and adaptable area where a range of activities and events can occur.

This connection which extends and dissects the various landscape typologies looks to motivate development and promote growth to an area of Paekakariki which is regarded as a dead-end.



Figure 4.22 // Perspective of the square. Demonstrating varying areas for the public to interact.

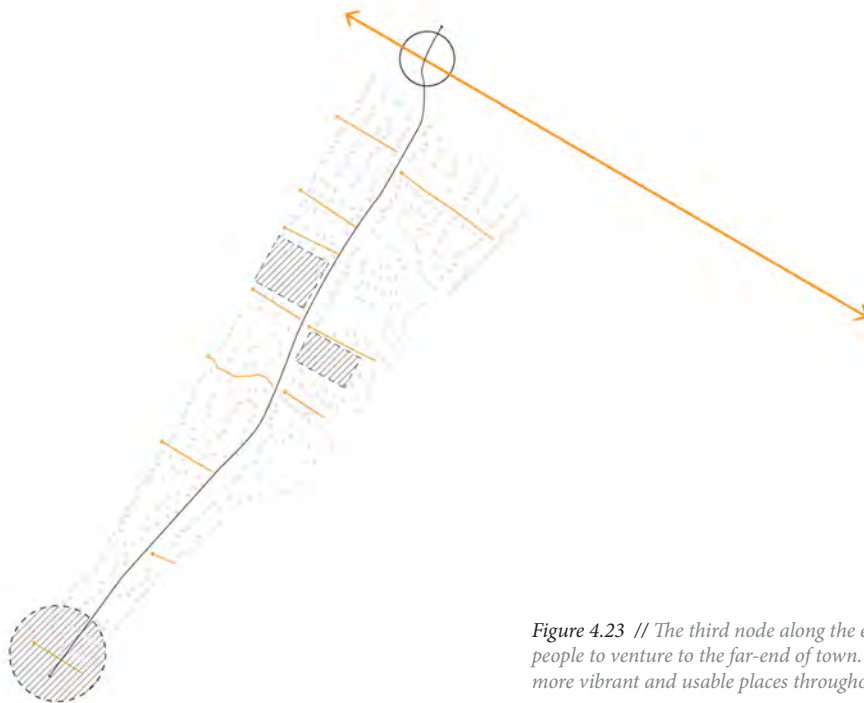


Figure 4.23 // The third node along the existing township will encourage people to venture to the far-end of town. The aim of this is to create a more vibrant and usable places throughout the whole settlement.

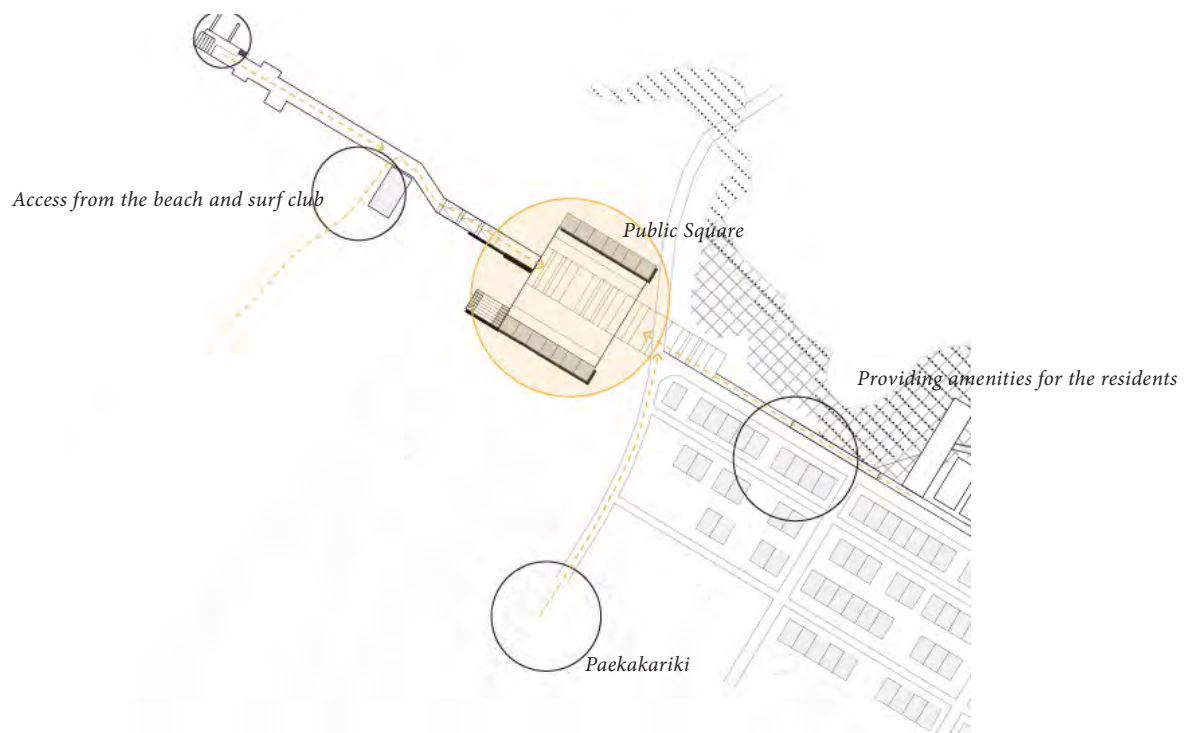


Figure 4.24 // Connection diagram, showing how this node extends through to the existing housing, the new housing and the coast.

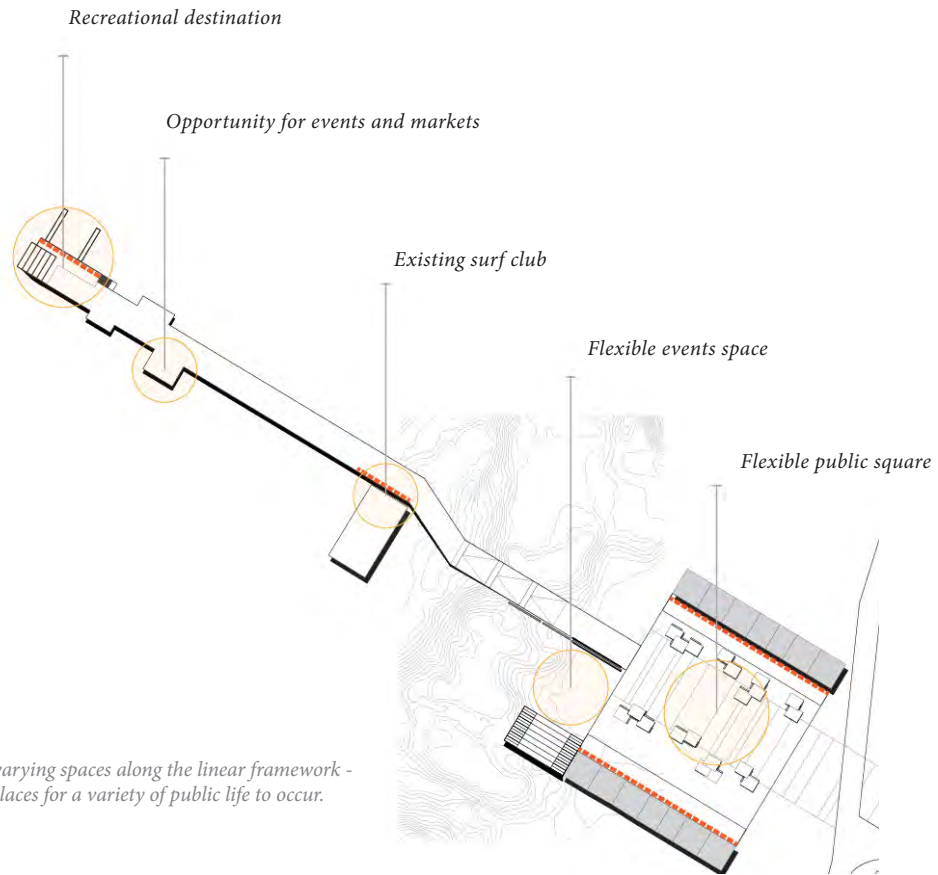


Figure 4.25 // Sequence of varying spaces along the linear framework - the aim is to create flexible places for a variety of public life to occur.

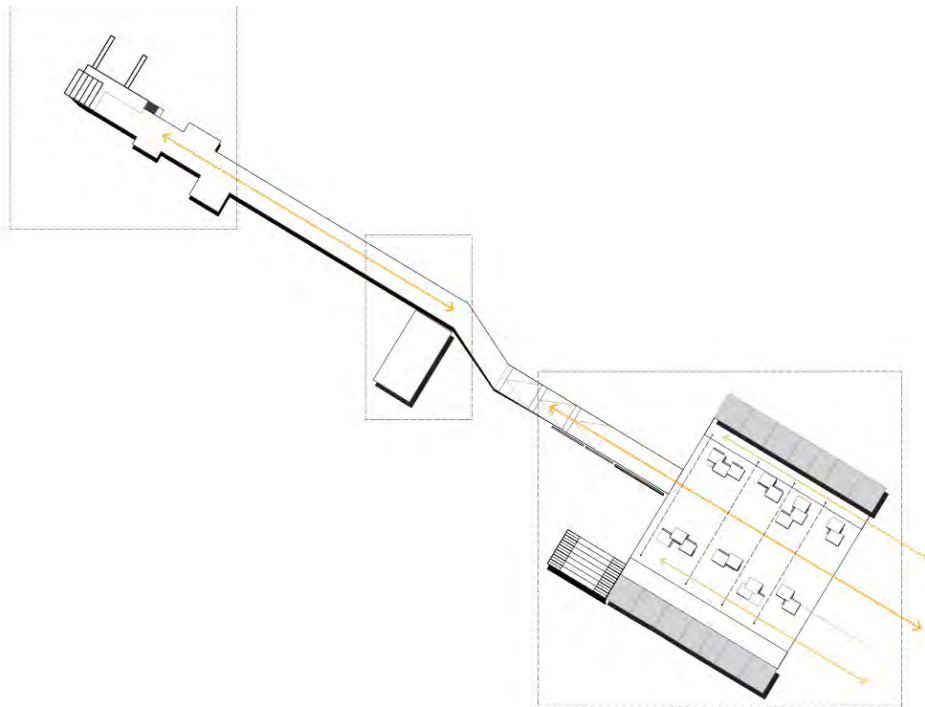
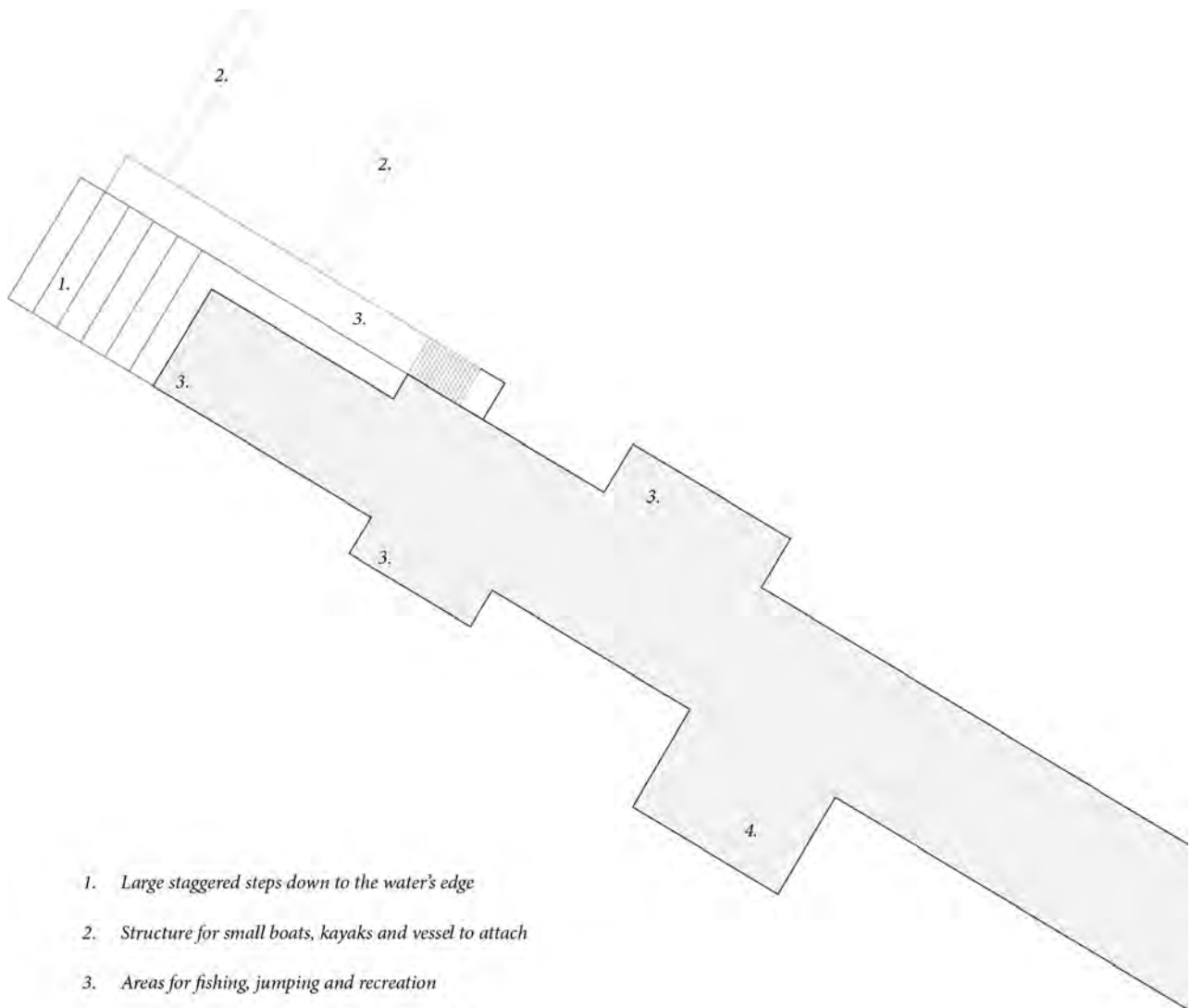


Figure 4.26 // Movement diagram, strong linear movement that passes through the square, making this a destination point along the line.



1. Large staggered steps down to the water's edge
2. Structure for small boats, kayaks and vessel to attach
3. Areas for fishing, jumping and recreation
4. Larger areas for temporary food/market stalls

Scale 1:500



Figure 4.27 // Top // Plan showing the various areas along the pier.

Figure 4.28 // Above // Diagrammatic section of the pier structure and the various activities that may occur along it.

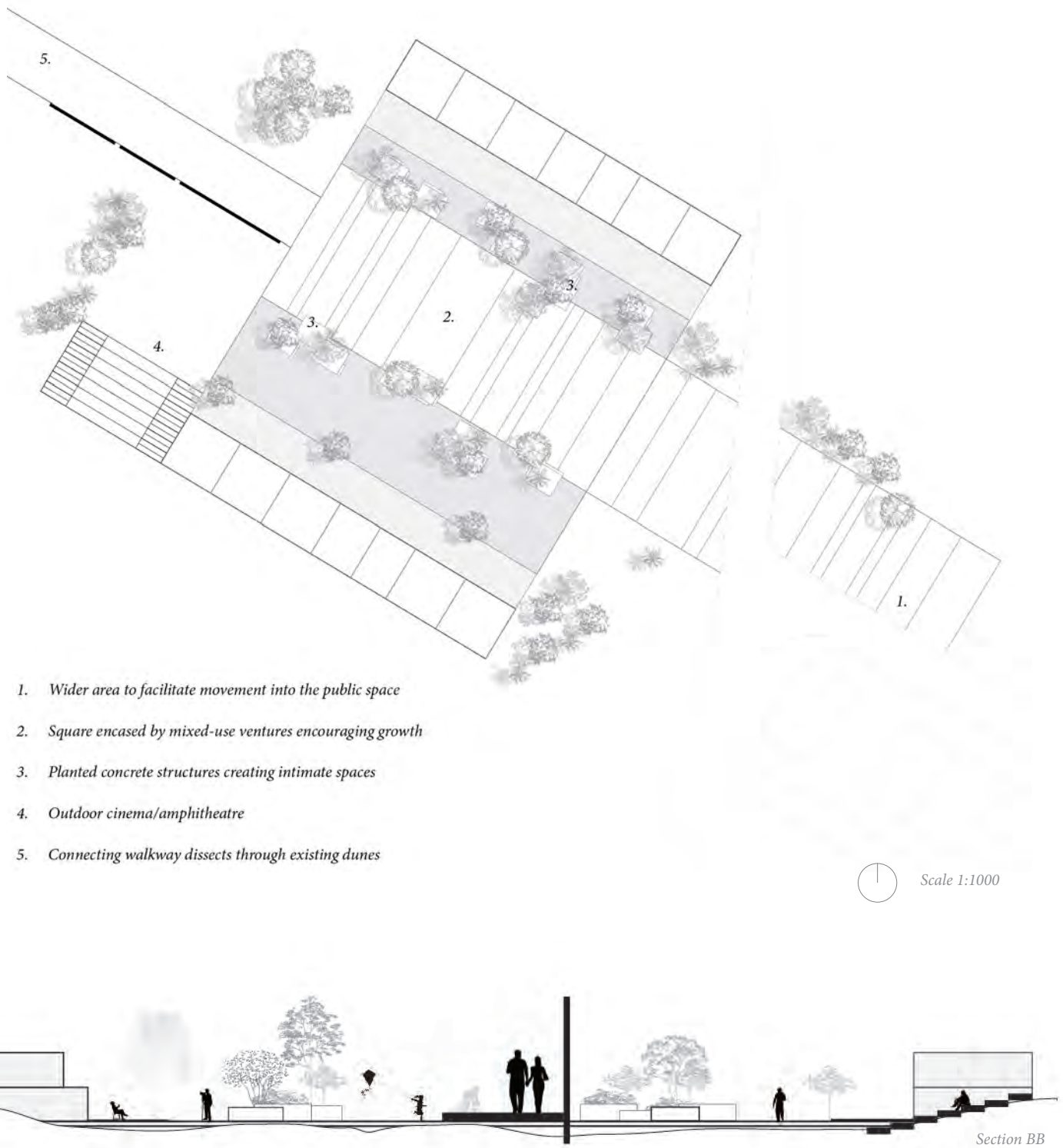


Figure 4.29 // Top // Plan showing the various spaces within the square.

Figure 4.30 // Above // Diagrammatic section through the square highlighting the forms and spaces.



Figure 4.31 // Perspective of the end of the pier.



Figure 4.32 // Perspective of the outdoor cinema in use at night.

Wetlands | Town Centre

A horizontal rectangular banner featuring a detailed topographic map. The map is rendered in shades of gray, showing intricate contour lines and irregular shapes that represent geographical features like hills, valleys, and water bodies. The lines are more densely packed in some areas, indicating steeper slopes.

02

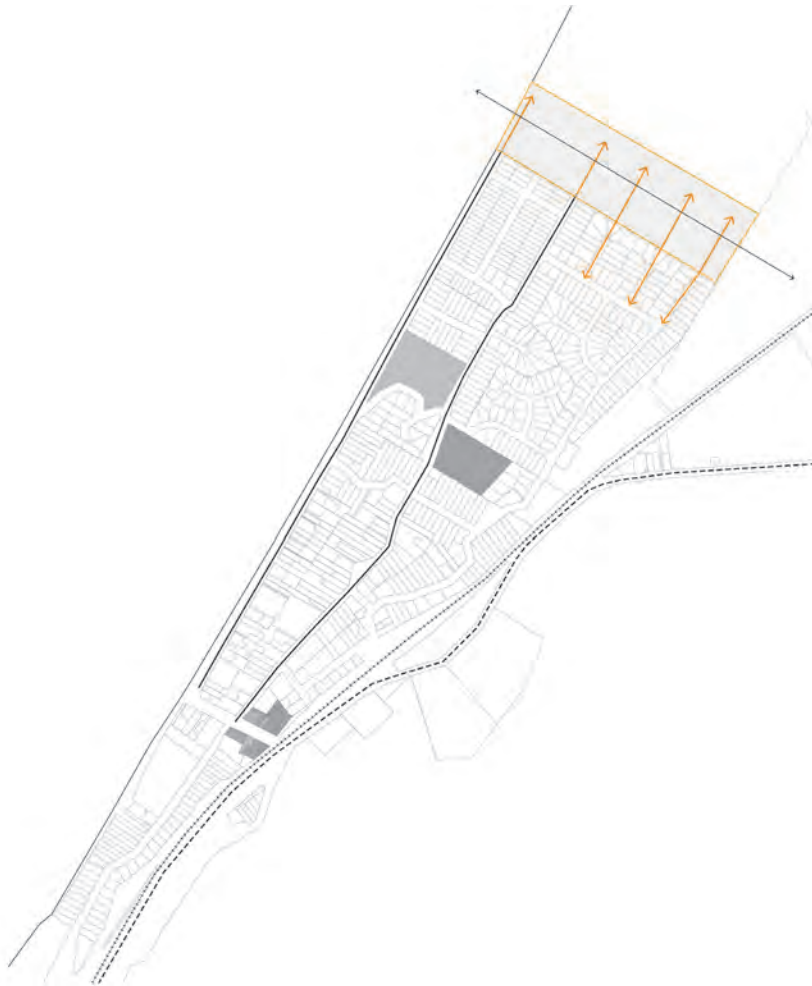


Figure 4.33 // Diagram highlighting the extension of the existing settlement.

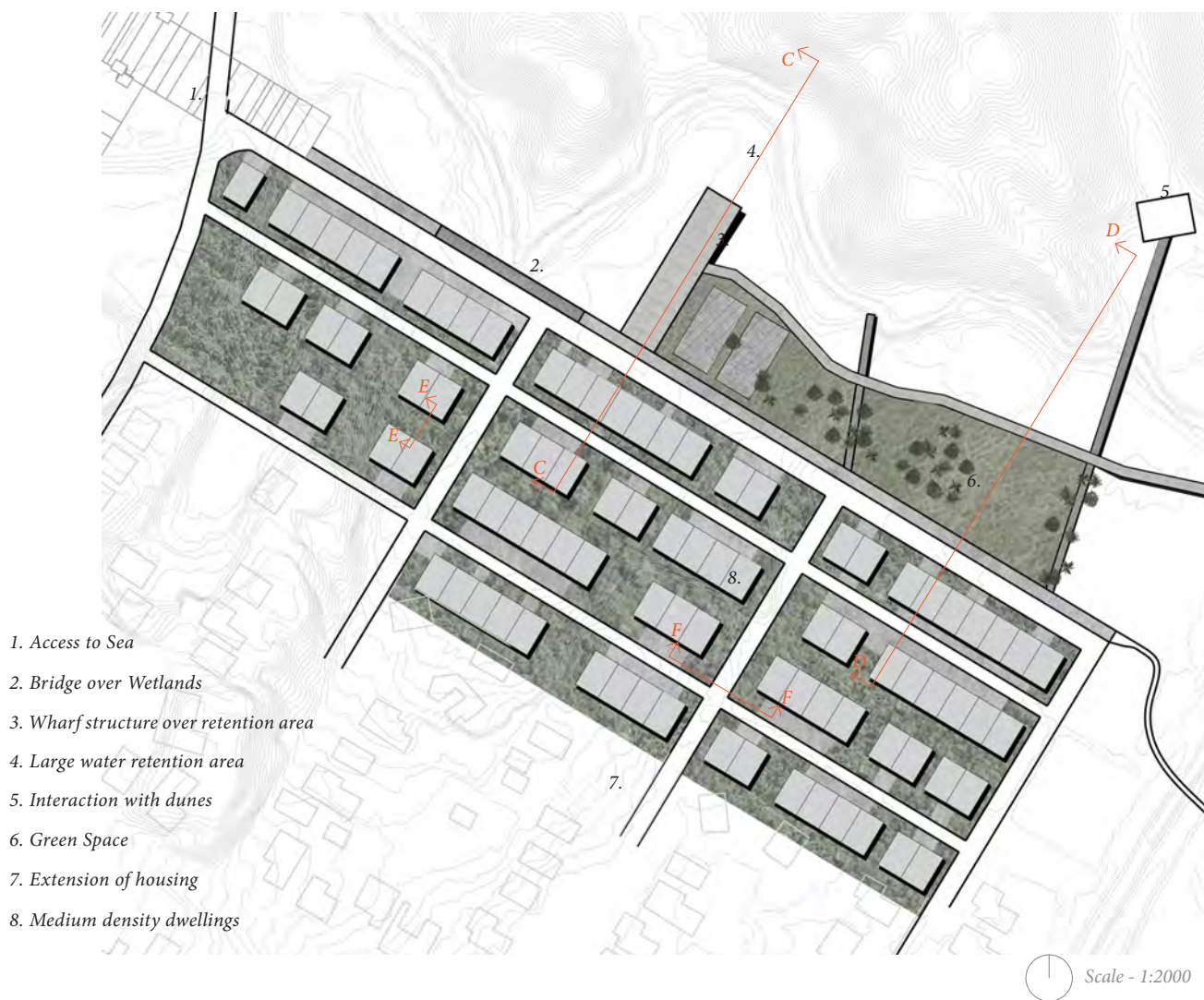


Figure 4.34 // Rendered Plan of the extension of Paekakariki with the new public space integrating with the wetlands.

Detailed Design

Over the foredunes and beside the established parabolic dunes is a stream with a rich and diverse wetland area. The design will look to increase the area of the wetland and place a higher public focus on this asset, it will extend the existing building fabric through housing that becomes an augmentation of the township. An integrated public space throughout the housing and adjacent wetland will activate the northern of Paekakariki while creating water retention areas to mitigate the threat of flooding.

In order to densify Paekakariki the existing fabric is to be extended allowing for medium density housing to occur. The layout of the housing looks to respond to the landscape and the threat that it could be under from flooding. The design raises the land and creates deep swales where water will be channelled through thin green corridors between the houses. The swales will deal with day-to-day greywater and heavy rainfall as well as becoming a part of the ecological corridor for the local flora and fauna to flourish.

By utilising the land between the township and park it opens up the possibility to increase the population of Paekakariki catering for 240 additional apartments and a developed public space to entice community interaction while providing connection through the transect. The integration of housing, public space and ecology creates a diverse, vibrant and beneficial node of the line and for the area.

The public space that integrates with the wetland will provide the community with an area to dwell and play. The space spans the width between the housing and the parabolic dunes and consists of areas that encourage people to interact. Walkways, boardwalks, sports courts and a large wharf structure that extends over a large retention area will offer residents and visitors a destination where they can gather, relax, exercise or appreciate the natural landscape.

Water management becomes an important aspects to the design, controlling and having the ability to mitigate the threat will then permit housing and public spaces to occur. Wetlands will promote a strong and diverse ecology while the retention areas respond to the natural contours and allowing for large quantities of water form at the base of the dunes in the event of a flood.

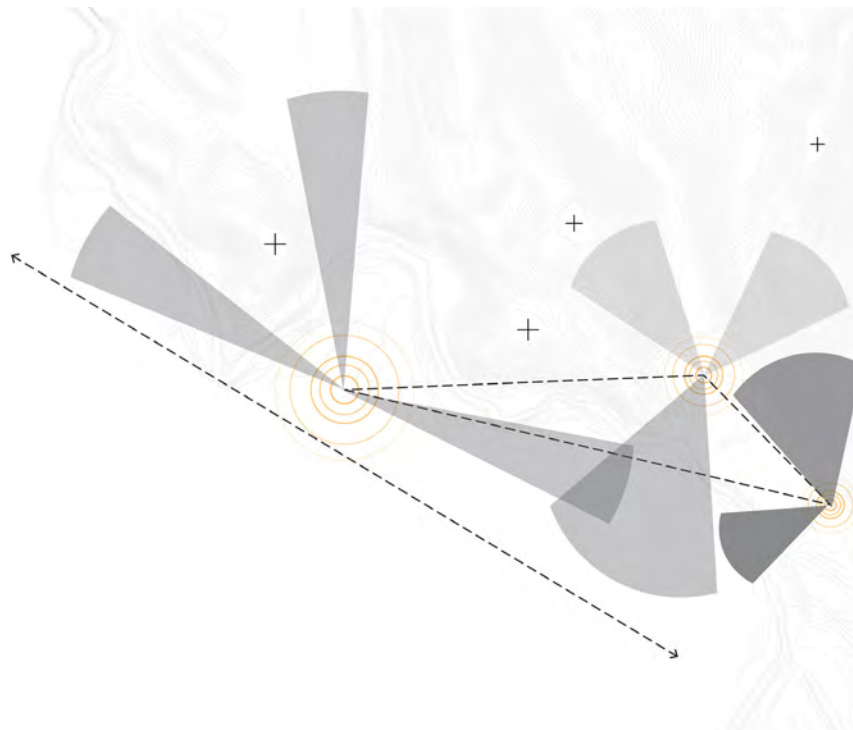


Figure 4.35 // Top // Initial design move was to open up the dead end streets through to the wetlands and make for smaller, more permeable blocks for pedestrian connection.

Figure 4.36 // Bottom // Initial areas of interest - high area with viewpoints as well as sheltered and expansive areas that would be suits for public spaces to develop.



Figure 4.37 // Ideas on programme within the site.



Figure 4.38 // Dunes vs. Vegetation relationship with housing and accessibility.



Figure 4.39 // Swales to deal with the greywater from housing.

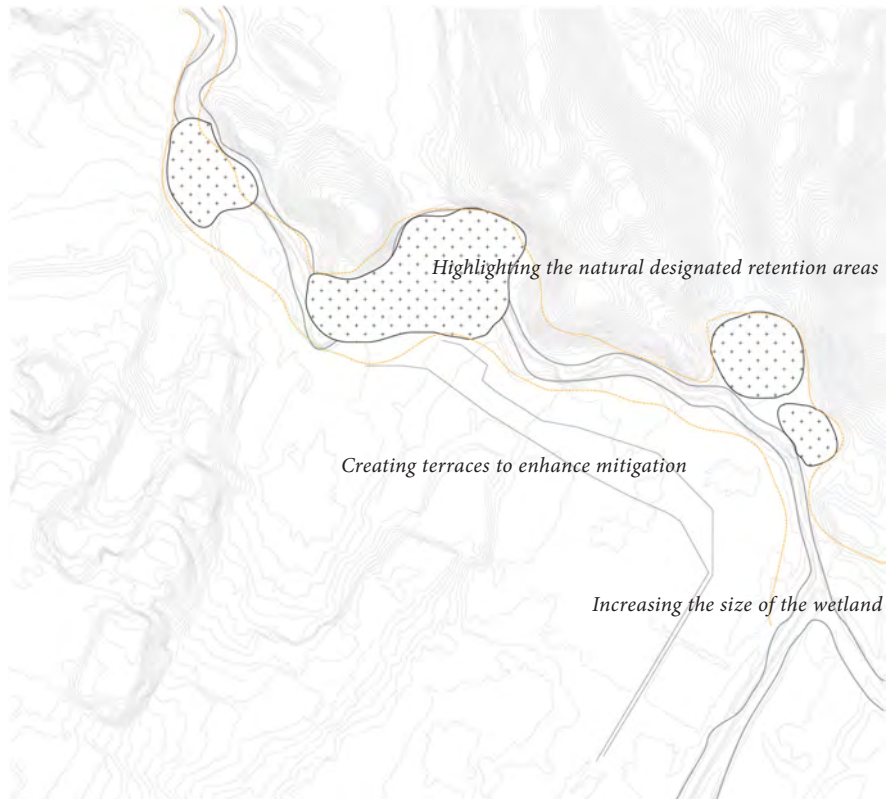
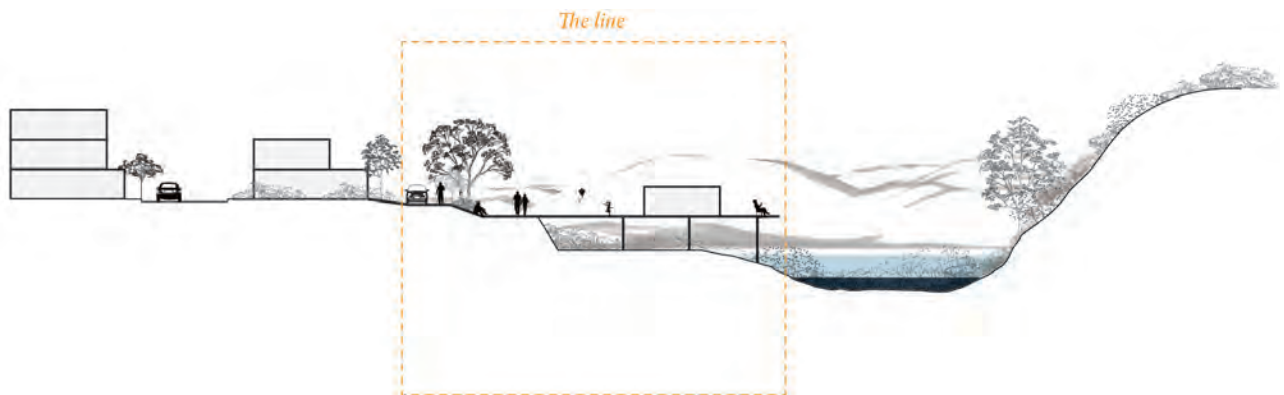


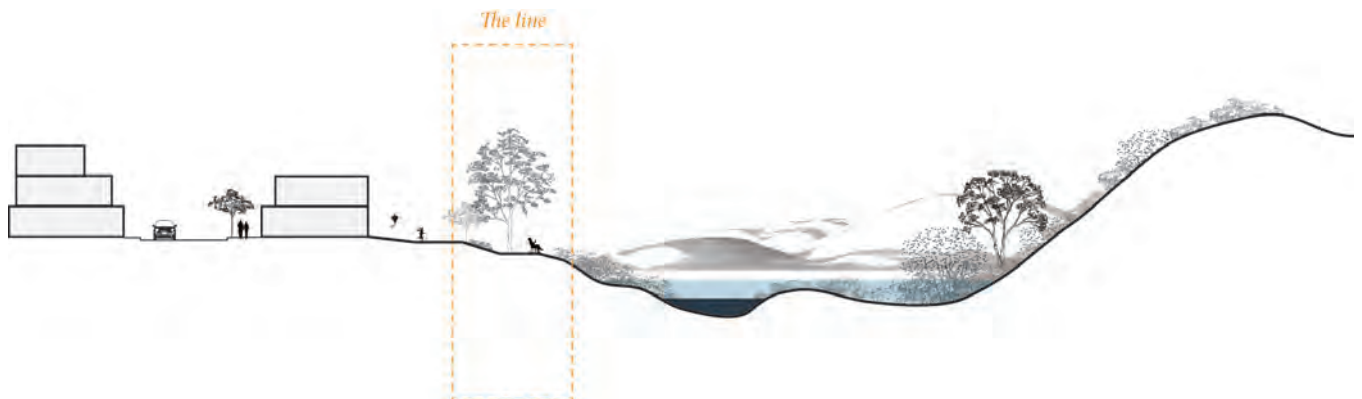
Figure 4.40 // Highlighting the land manipulation design moves to allow for housing through mitigation and retention.



Figure 4.41 // How the flooding is mitigated through retention, terracing and a wider wetland.



Section CC



Section DD

Figure 4.42 // Top // Diagrammatic section showing the public space and the relationship with the surrounding landform. The terracing becomes a mitigation technique within the public spaces.

Figure 4.43 // Bottom // Diagrammatic section highlighting the relationship between the water and the housing.

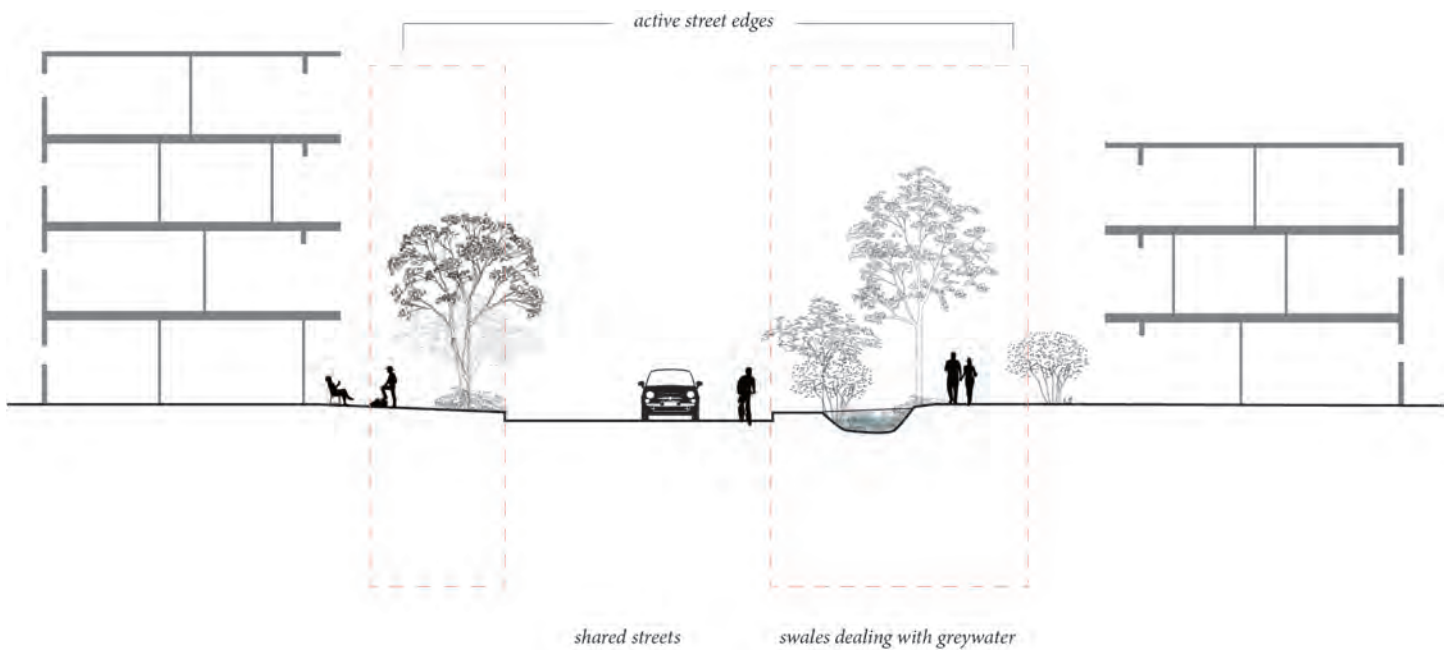
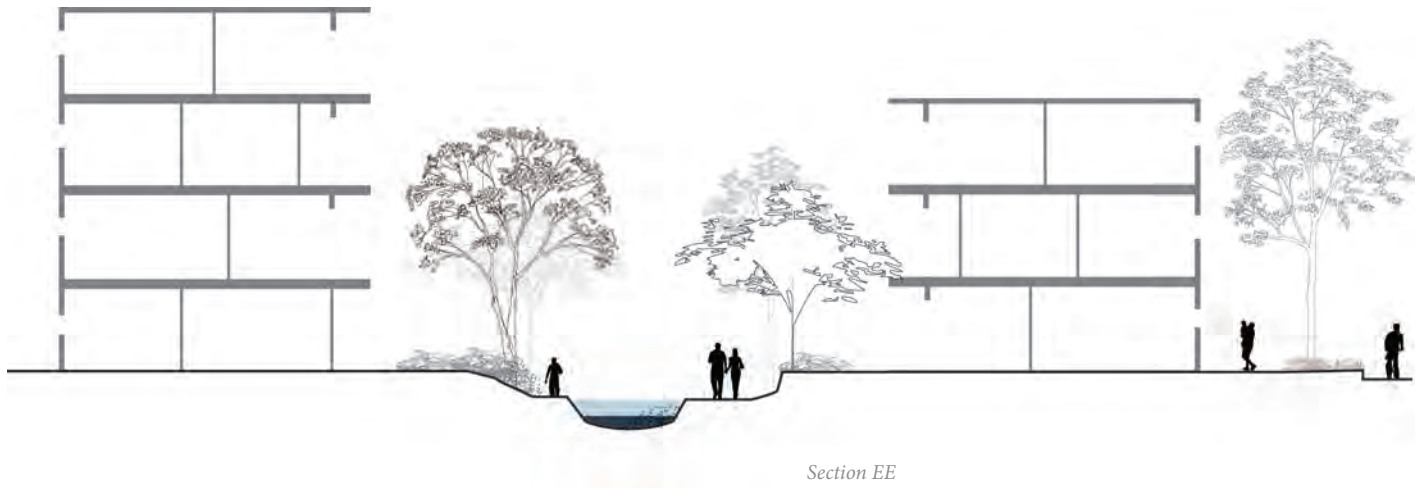


Figure 4.44 // Top // Diagrammatic section that shows the swales that meander through and add a public walkway through the extension.
 Figure 4.45 // Bottom // Diagrammatic section that shows the swales and the roading typology throughout the settlement.



Figure 4.46 // Perspective of the active street edges through the settlement and the integration of nature.



Figure 4.47 // Perspective demonstrating the defined edge - highlighting the relationship between the housing, wetlands and parabolic dunes.

Town Centre | Settlement

03



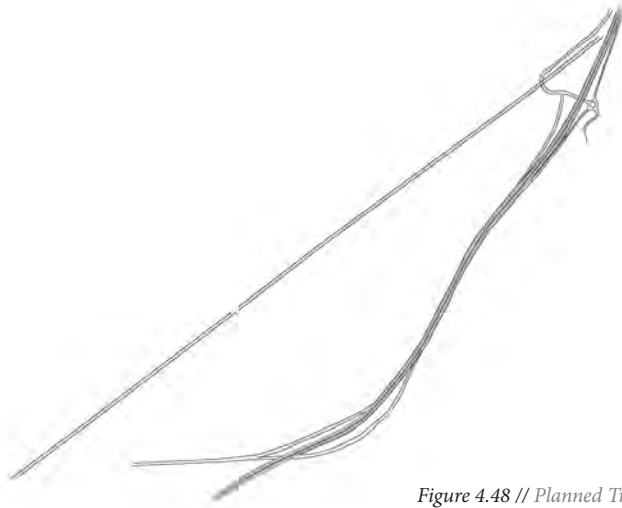


Figure 4.48 // Planned Transmission Gully Motorway with off ramps onto the existing State Highway 1.

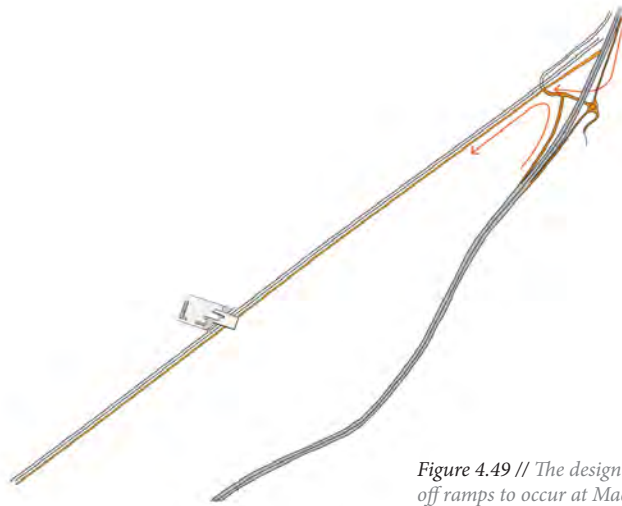


Figure 4.49 // The design proposed new roading along the railway lines and off ramps to occur at MacKay's Junction intersection where the Motorway terminates.

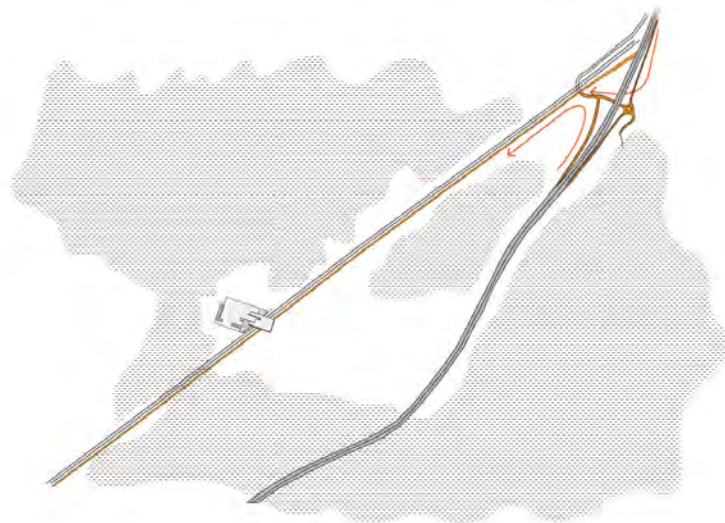


Figure 4.50 // This allows for the traffic to come via the new town centre and allow for the highly important ecological corridor to occur uninterrupted underneath the motorway.

With the prospect of making Paekakariki a feasible satellite city for Wellington; transport infrastructure, important amenities and facilities would need to be implemented to allow for the future growth. With Transmission Gully underway and the highway terminating past Paekakariki, the need for re-routing the road makes for a strong argument as accessibility becomes important to the appeal of living on the coast. A road built parallel to the existing train tracks would create an efficient route connecting the existing State Highway One through to McKay's Junction, this would dissect through the design and create a junction where various infrastructures intersect.

The point of intersection is between three main elements; the proposed new road, the railway tracks and the line, this generates a proposal for a new town centre designed for the extension of Paekakariki. This town centre would be a public transport hub with a train and bus station, as well as a car park that will allow for commuters to park their vehicles and train into the city.

The public square would be a flexible space where there would be a range of businesses and amenities to cater for the needs of the township. This is the proposed new town centre for the Paekakariki region, it will look to stitch together the existing and proposed settlements. It is a space in which scale plays an important role within the area, creating spaces for a range of people to dwell and experience Paekakariki. The square is set between train tracks and large parabolic dunes, the connecting elements are raised; one to span over the road and rail tracks, the other to dissect through a set of dunes; this is to create a seamless connection from the mountains to the sea.

Once on ground level, the square consists of hard and softscape elements to produce a space that is adaptable and dynamic. The softscape is a green space in the centre of the square; lawn, vegetation and seating elements will allow for individuals and groups to take part in informal daily activities whilst providing an event space. There is also a informal green space scattered with seating and trees which is situated at the top end of the square.

The surrounding elements make up the hardscape within the square; activated areas outside the buildings will cater for the needs of the businesses while major thoroughfare areas are developed throughout the interstitial spaces.

The raised plaza generates another public space and connective node where markets and events can be held for the local and wider community. The space bases itself on flexibility by being able to host a range temporary and permanent exhibitions and events to bring in people that will benefit the region and economy.

The town centre aims to create a malleable space that can stimulate the community and region by providing a destination along the Kapiti Coast. The transport infrastructure adds appeal for various demographics e.g. families, commuters and retirees etc.

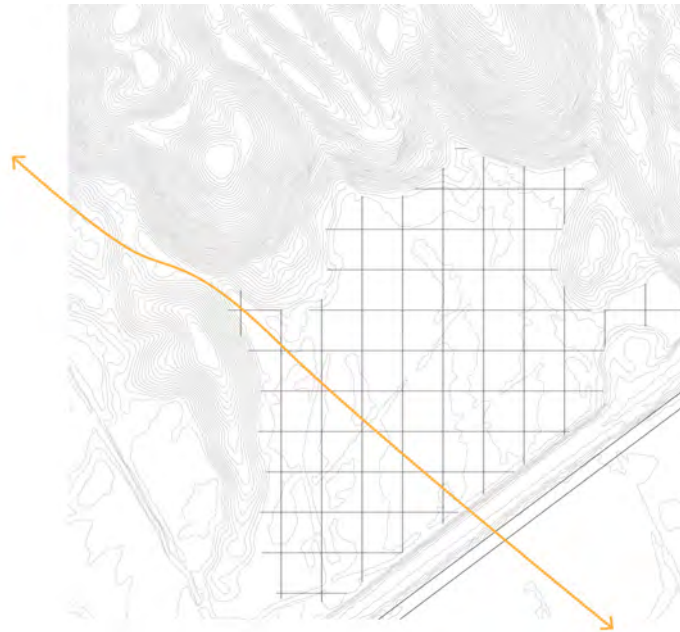


Figure 4.51 // Initial move was to create an uninterrupted access from the sea to the mountains. The site for the town centre provided a relatively flat and picturesque setting between the dunes and the wetlands.

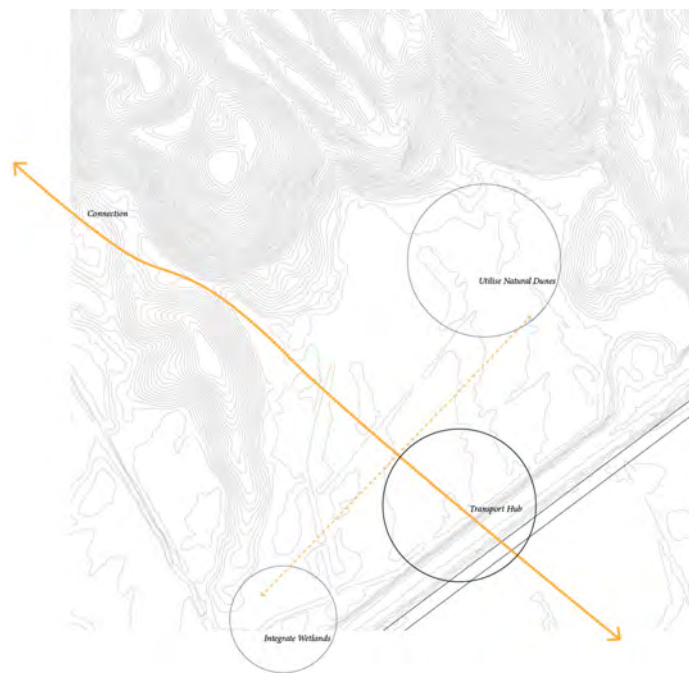


Figure 4.52 // Realising the potential to utilise and integrate nature into the built town centre.



Figure 4.53 // Programme that could be applied to configure the town centre.

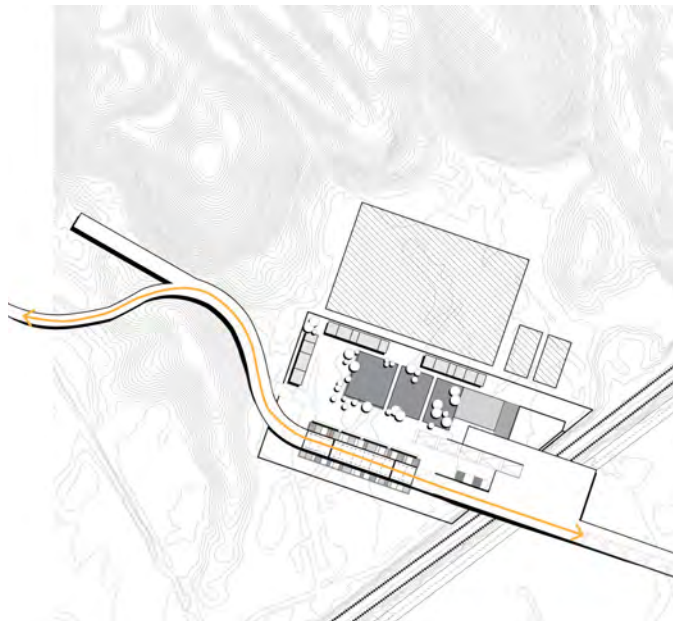


Figure 4.54 // October Review iteration developed a raised plaza that spans the space available as well as being surrounded by mixed use buildings.

1. Sports Fields/Courts
2. Green space / Sitting areas
3. Raised Plaza
4. Plaza
5. Train/Bus Station
6. Green Square
7. Parabolic Dunes enclose area
8. Access to Sea
9. Access to Mountains
10. Local Businesses

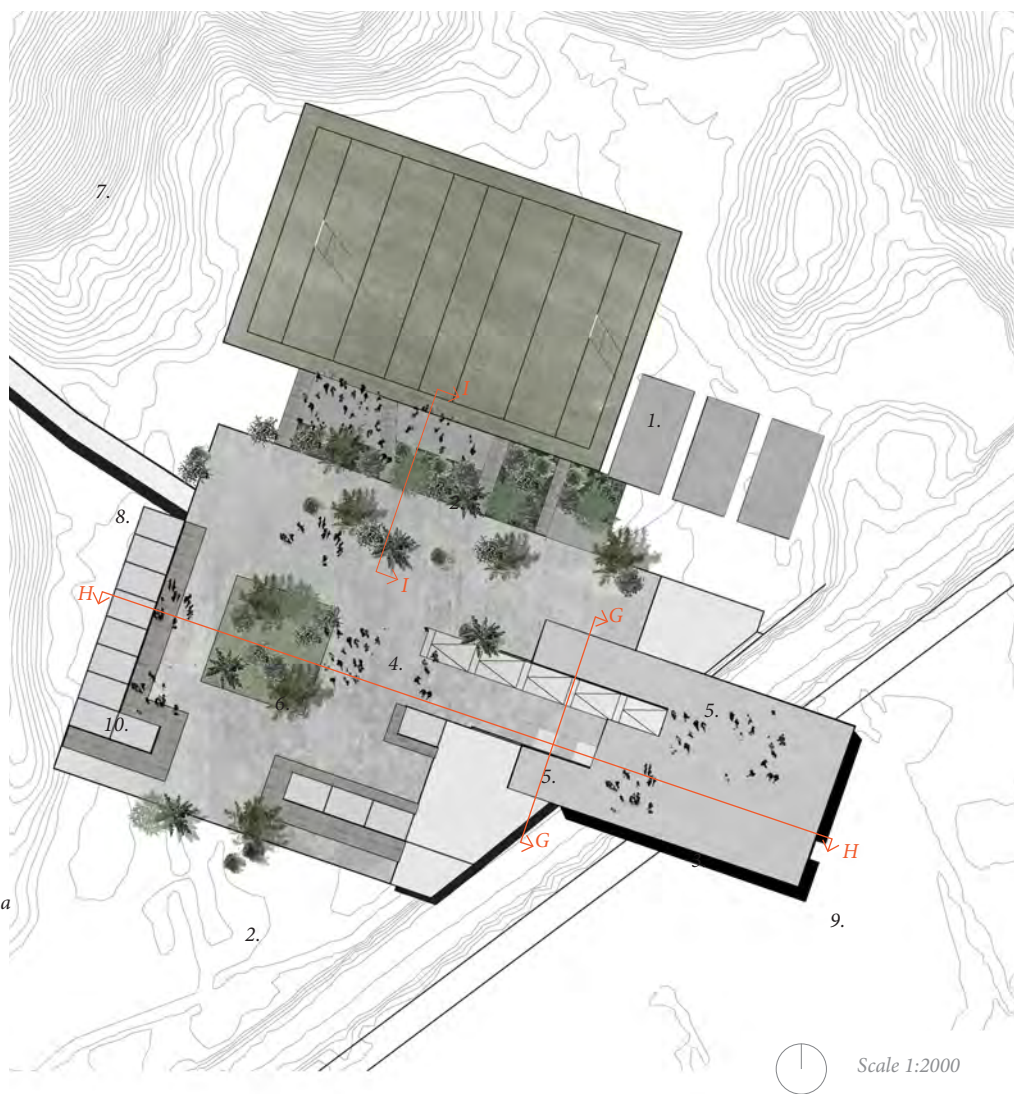


Figure 4.55 // Rendered plan of the town centre.

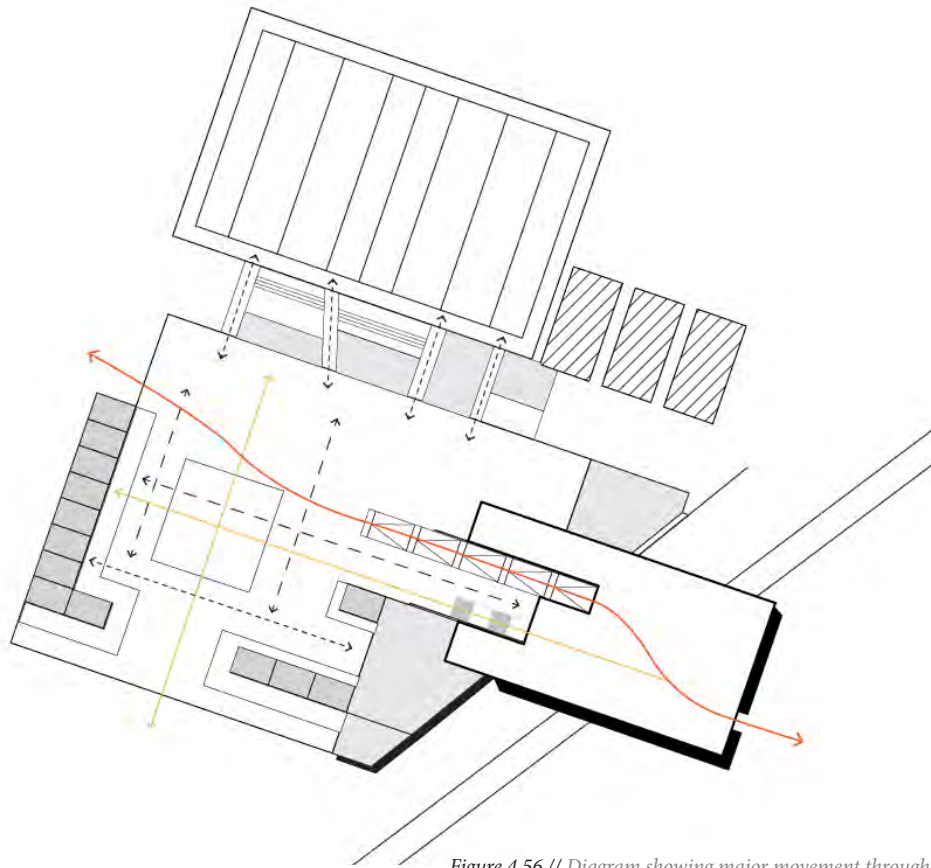


Figure 4.56 // Diagram showing major movement throughout the town centre, the green space will be the main dwelling spot within the square. The shops will provide active edges.

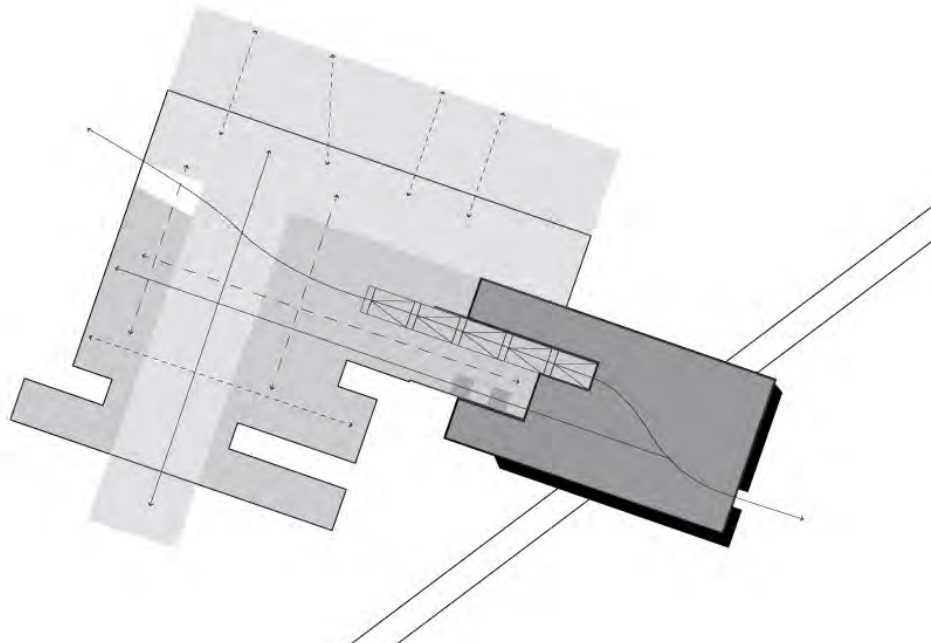


Figure 4.57 // Highlighting areas of use within the town centre.

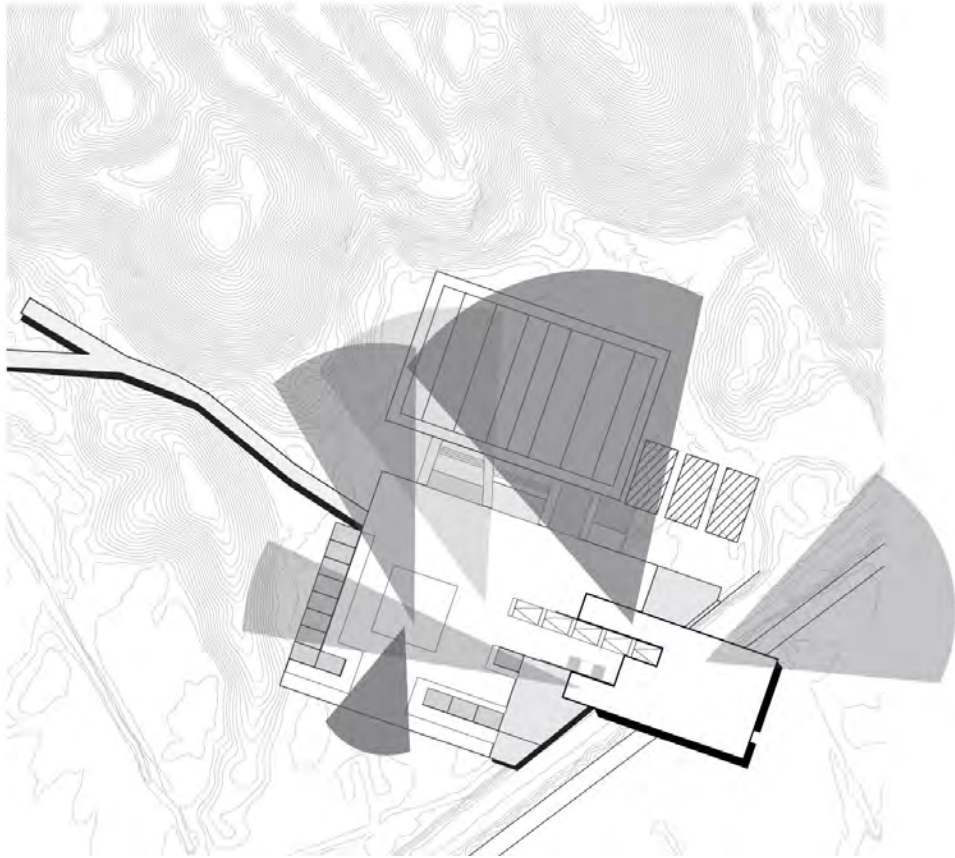
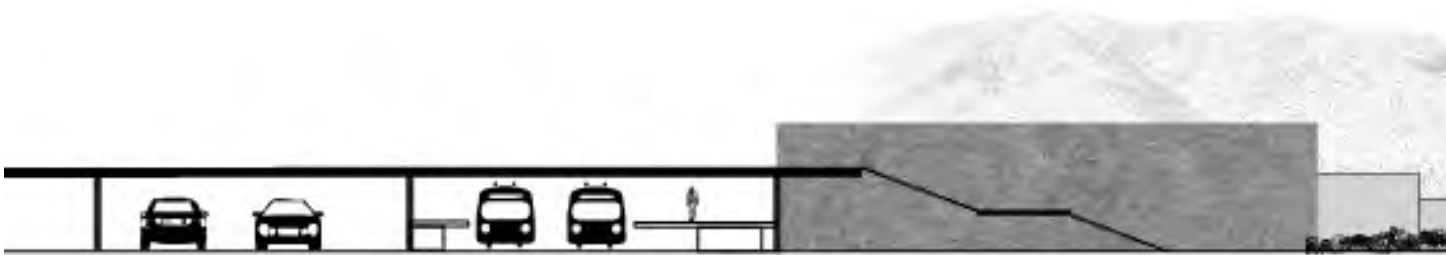
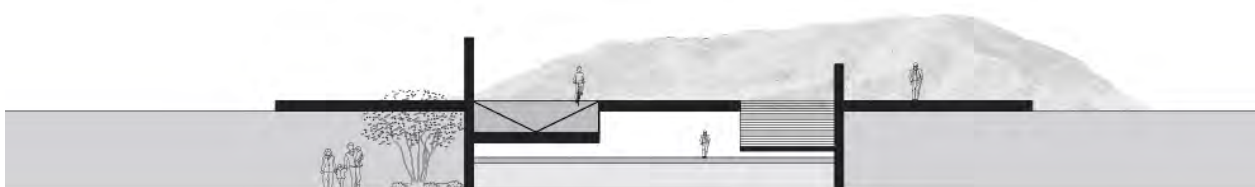


Figure 4.58 // Due to the height of the structures and the setting in which the town centre sits - viewpoints become important. This diagram looks at the features of the nearby landscape.





Section GG

Scale 1:100

Figure 4.59 // Section showing the level changes throughout the raised plaza.



Section HH

Scale 1:50

Figure 4.60 // Section shows the uninterrupted connection from the mountains to sea through the raised plaza over the traffic infrastructure.

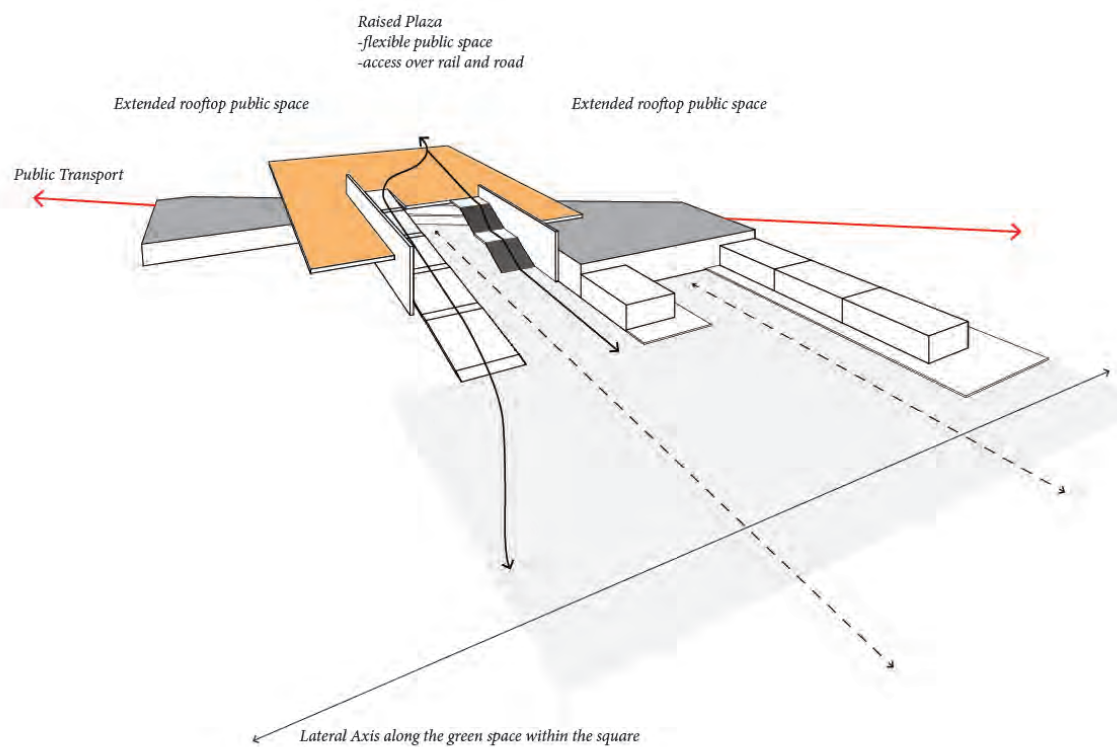
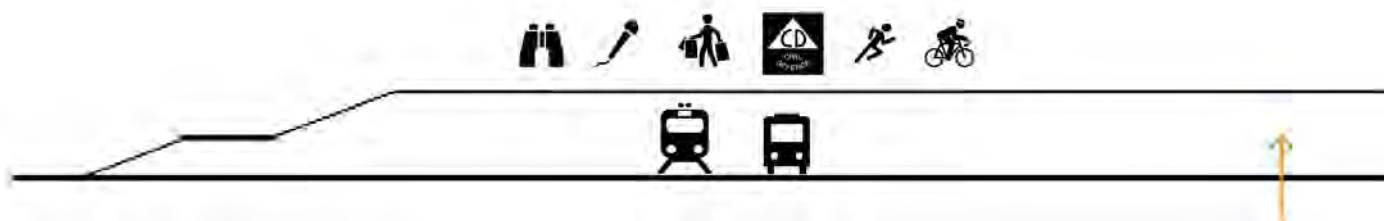
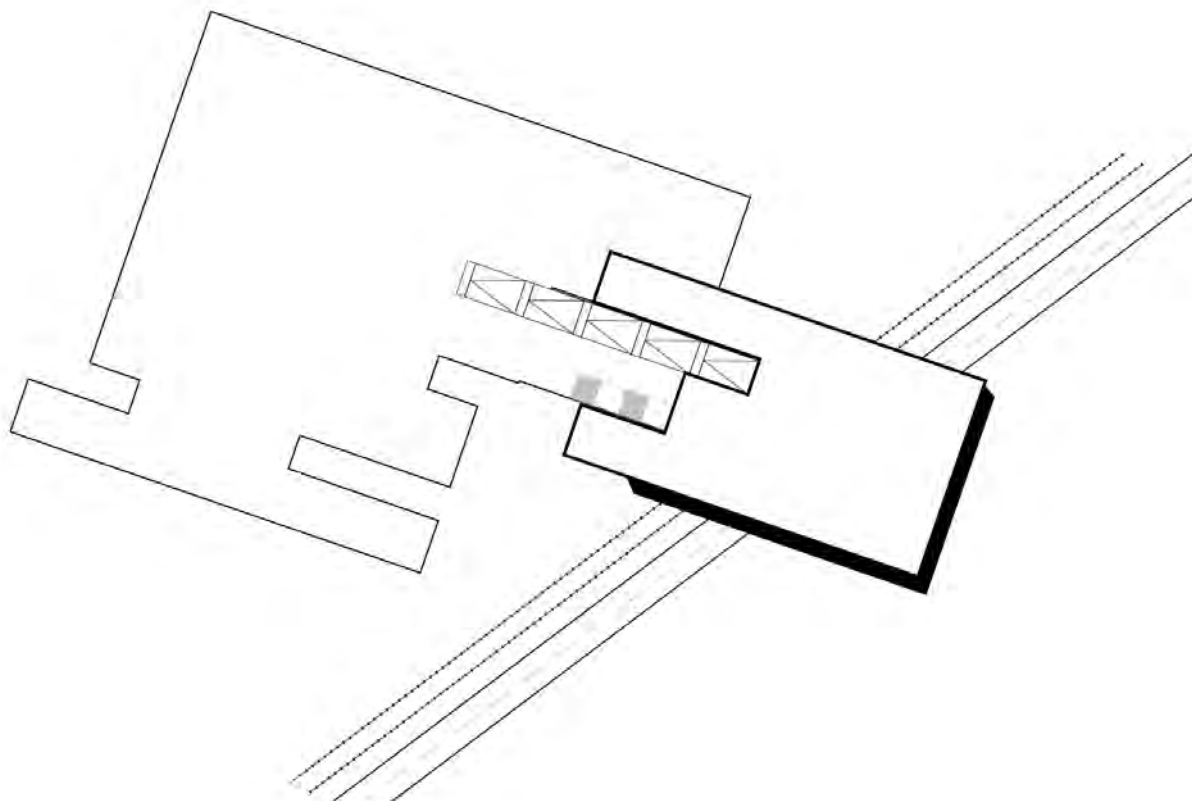


Figure 4.61 // 3D model looking at movement and the level change with the raised plaza.



Figure 4.62 // Perspective of the raised plaza and town centre in relation to the mountains.



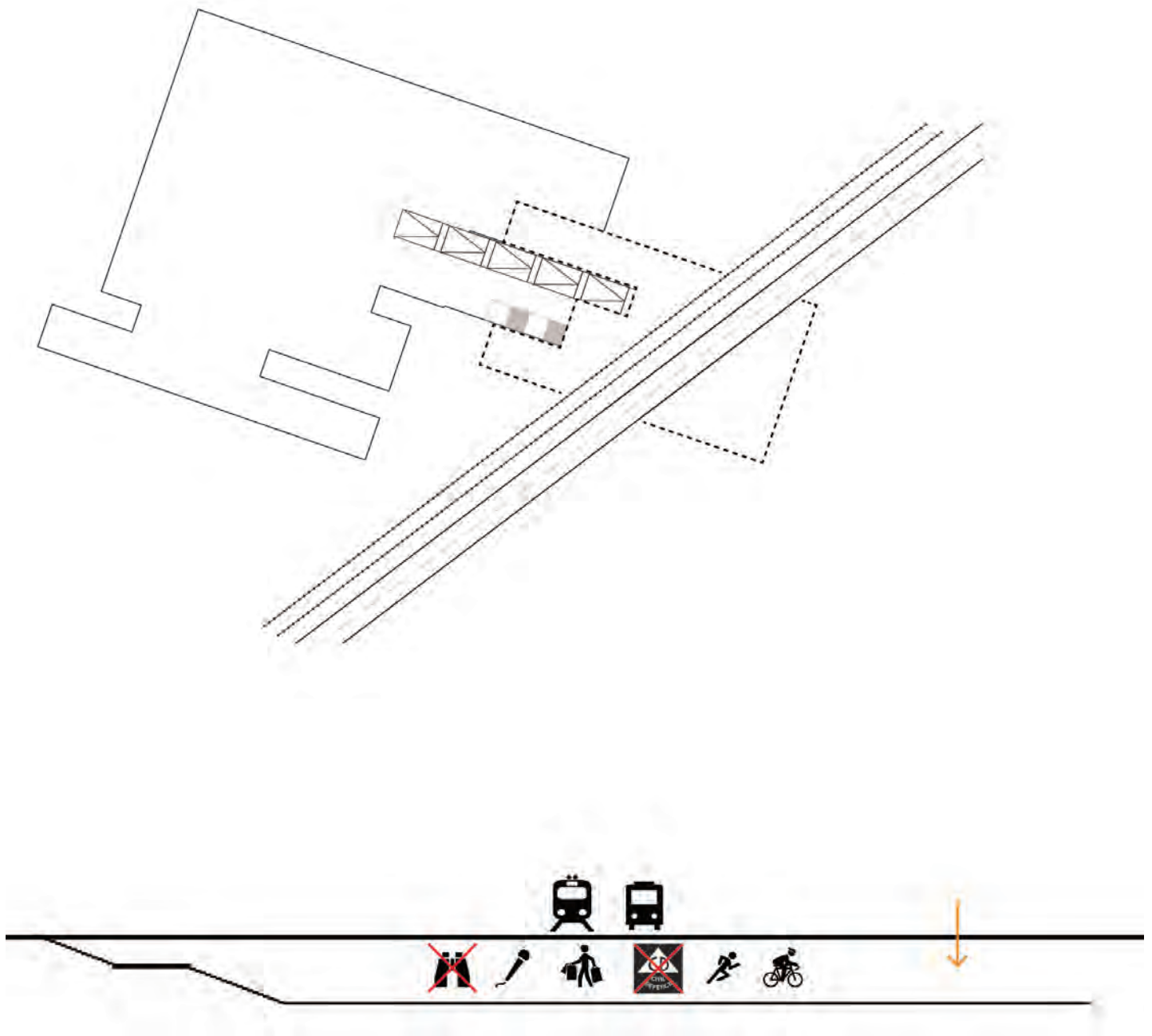
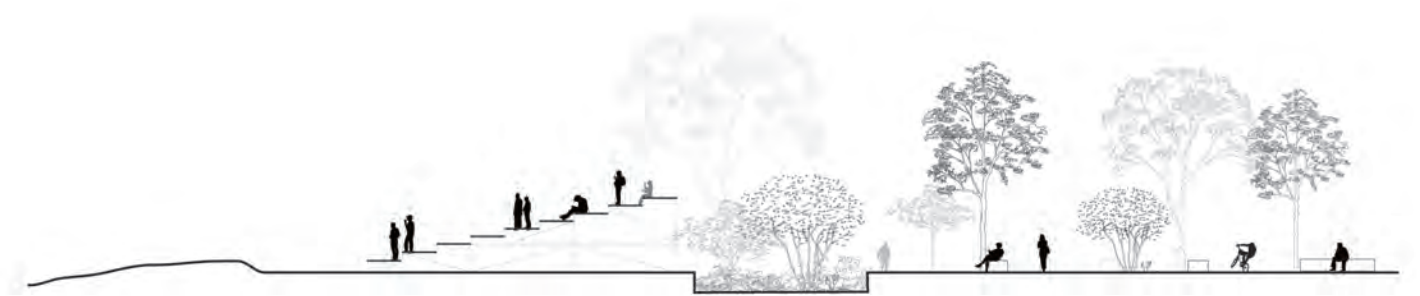


Figure 4.63 // This image looks at the options of a raised plaza and an underground plaza in both plan and section - highlighting the pro's and con's.



Section II

Figure 4.64 // Diagrammatic section showing the relationship between the sports fields, the planting and the informal green space at the edge of the town centre.



Figure 4.65 // Perspective of a block of shops within the town centre, the natural topography of the site is always exposed to the public.

Settlement | Mountains





Figure 4.66 // Rendered plan of the settlement and connection through to the mountains.

Detailed Design

The intensity in topography along the lower part of the Kapiti Coast leaves little options for the area to develop although the pinch in landscape at Paekakariki affords a small area to densify. The majority of the densification will occur in this part of the landscape between transmission gully and the train tracks, which is currently pastoral land.

The layout of the settlement will be limited to the south as sprawl is to be contained and concentrated, this is encourage a more considered approach to alter the way in which we settle in the rural, hinterland environments. By containing development we allow the natural environment and its processes within the high-priority ecological area to thrive.

The infrastructure within the settlements looks to the existing character of Paekakariki for stimulus. The plot sizes are derived from the current fabric as well as a simplified grid structure which manages to work within the constraints between the ecological corridor and the line. The layout consists of 10 metre wide streets that are parallel to the line to support accessibility for vehicles. Thinner laneway streets spanning 5 metres run in a perpendicular manner that will allow vehicles access but they have a predominant focus on facilitating pedestrian traffic towards the public infrastructure.

Ecology and water management techniques are integrated into the settlement to minimise the impact on the natural environment and to mitigate the

threat of flooding. Large swales meander through the settlement dealing with greywater from the housing and providing concentrated green space throughout. Market gardens have become a part of the existing Paekakariki, by extending this into the new development greater legibility and encouraged community interaction will be achieved at the human scale.

To be able to achieve a seamless connection from the sea to the mountains the infrastructure intervention must cross transmission gully. A 9 storey viewing tower is designed to provide the vertical requirements to connect up and over the highway. This will benefit the design as it generates a visual landmark, this put an emphasis on the views over the region as well as creating a gateway into the Kapiti Coast from road, bike and foot.



Figure 4.67 // Community garden/space at the end of each perpendicular street - to encourage a community-focused environment and draw the idea from the current community.

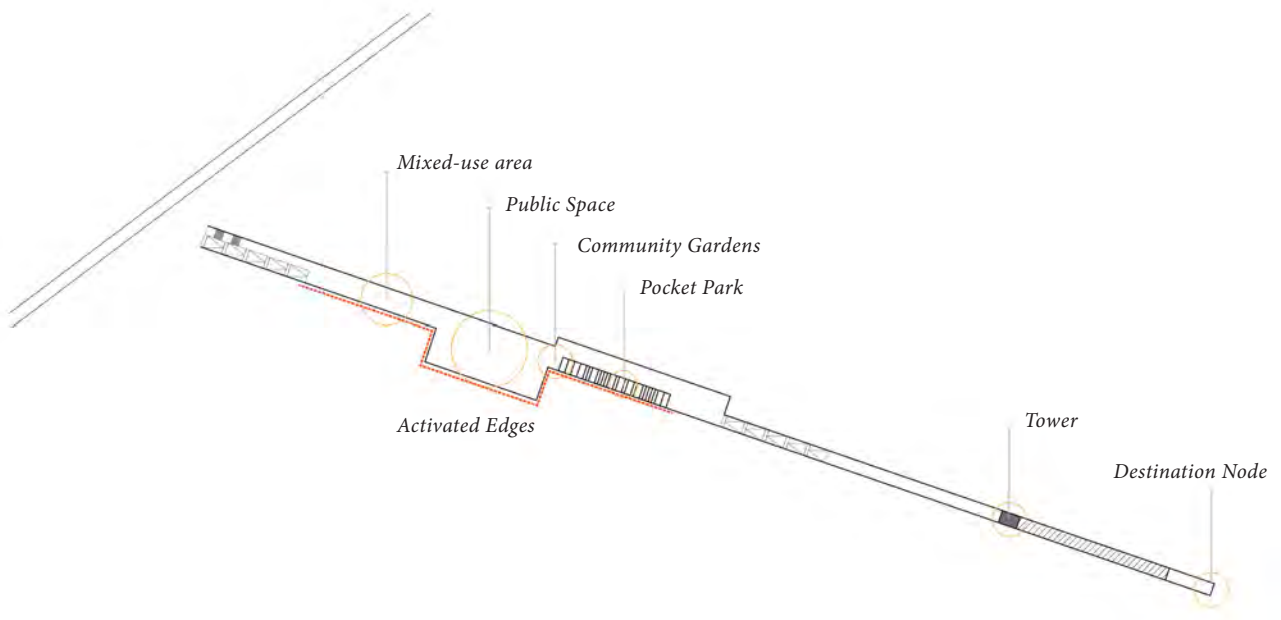
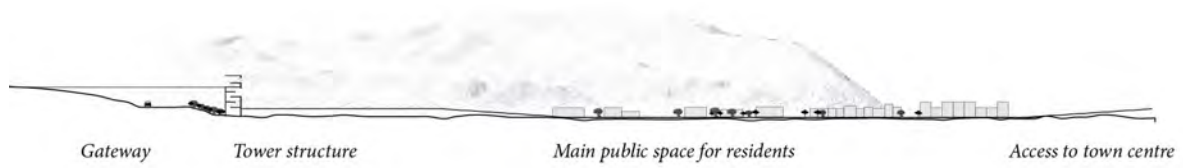
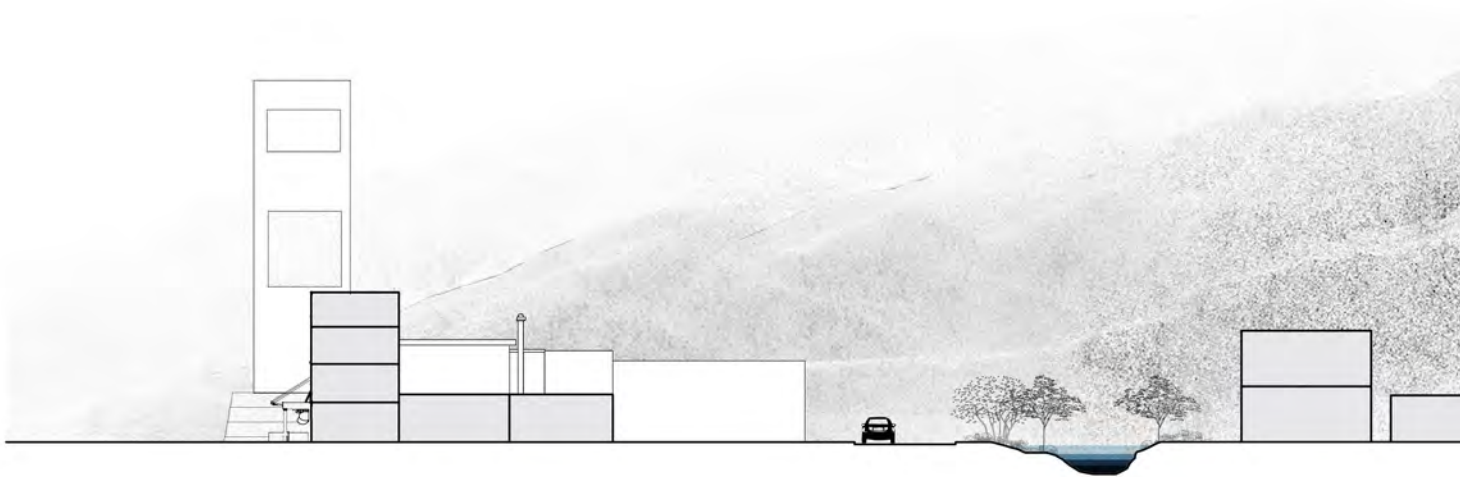


Figure 4.68 // A series of spaces and nodes along a linear framework.



Section JJ

Figure 4.69 // Diagrammatic longitudinal section showing the configuration of the built and the height change the tower provides over the highway and Whareroa Farm.



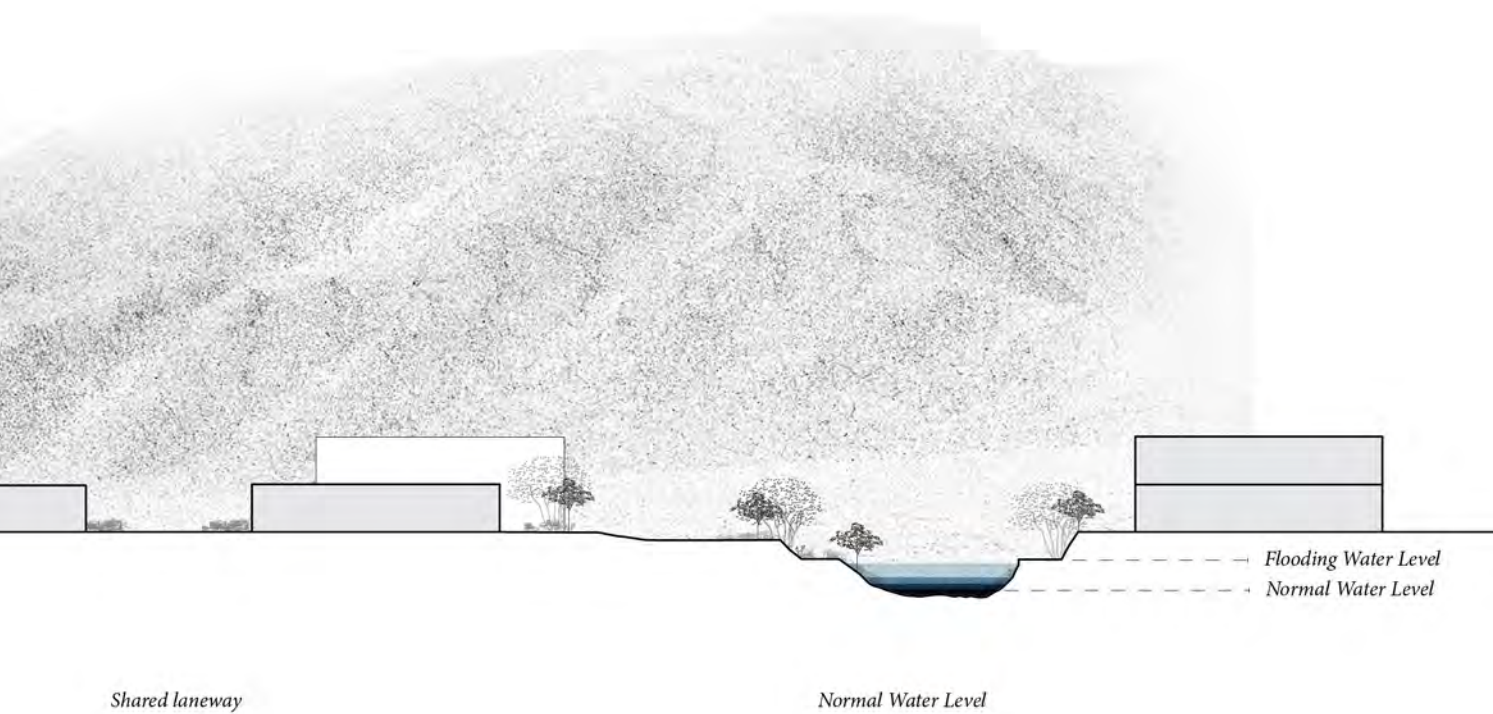
Main public space

Main Road with flooding/greywater swale



Section KK

Figure 4.70 // Diagrammatic section showing the configuration of the housing in relation to the swales and streets.



Section LL

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Figure 4.72 // Movement diagram for both pedestrians and vehicles.



Figure 4.73 // Perspective of a cyclist heading up a laneway to the main public space.

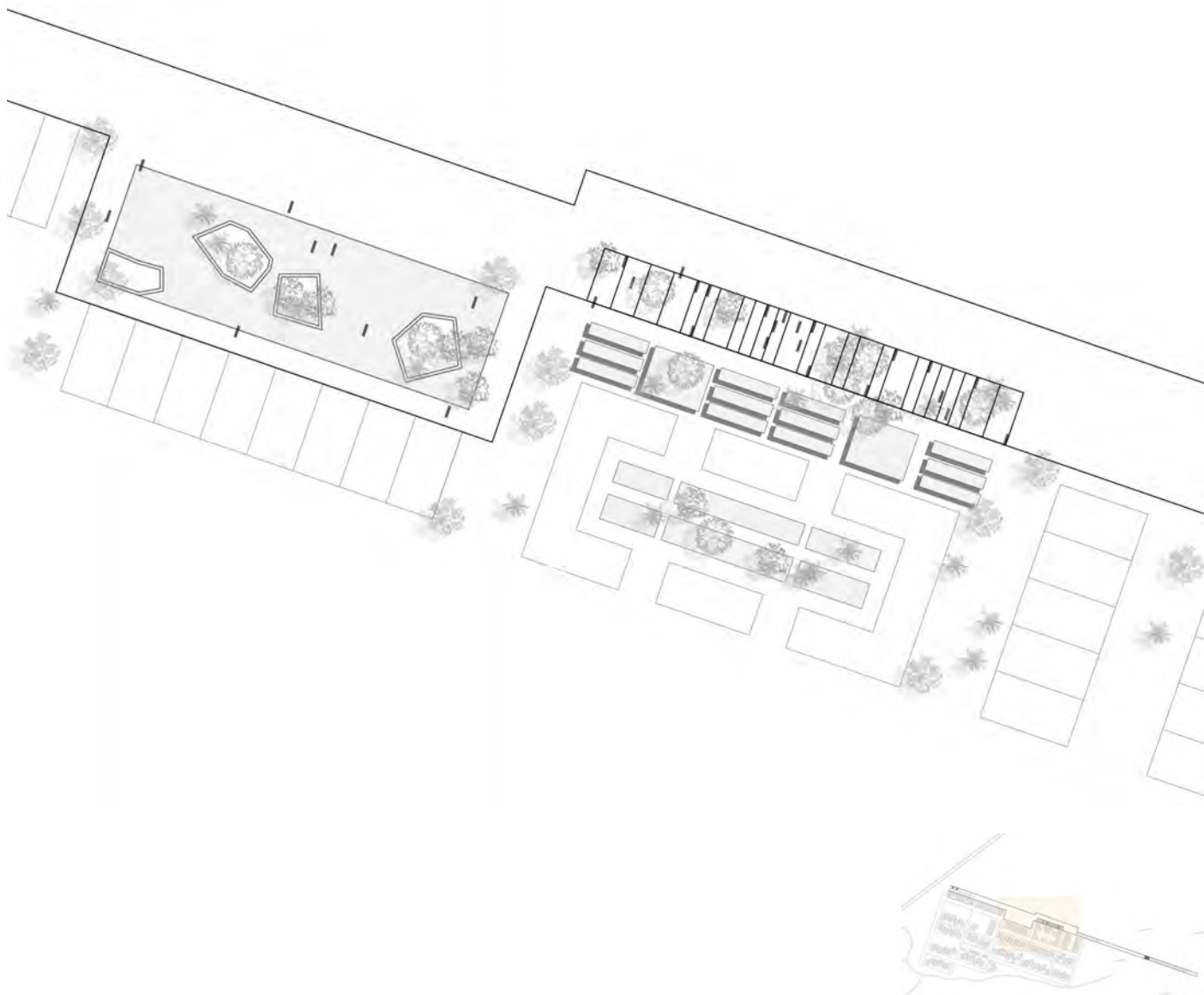


Figure 4.74 // Detailed plan of the green space, community gardens and housings relationship with the linear public space.



Figure 4.75 // Perspective showing the community garden.



Figure 4.76 // Perspective of the public space and the defined edge that is created.

Ecological Corridor



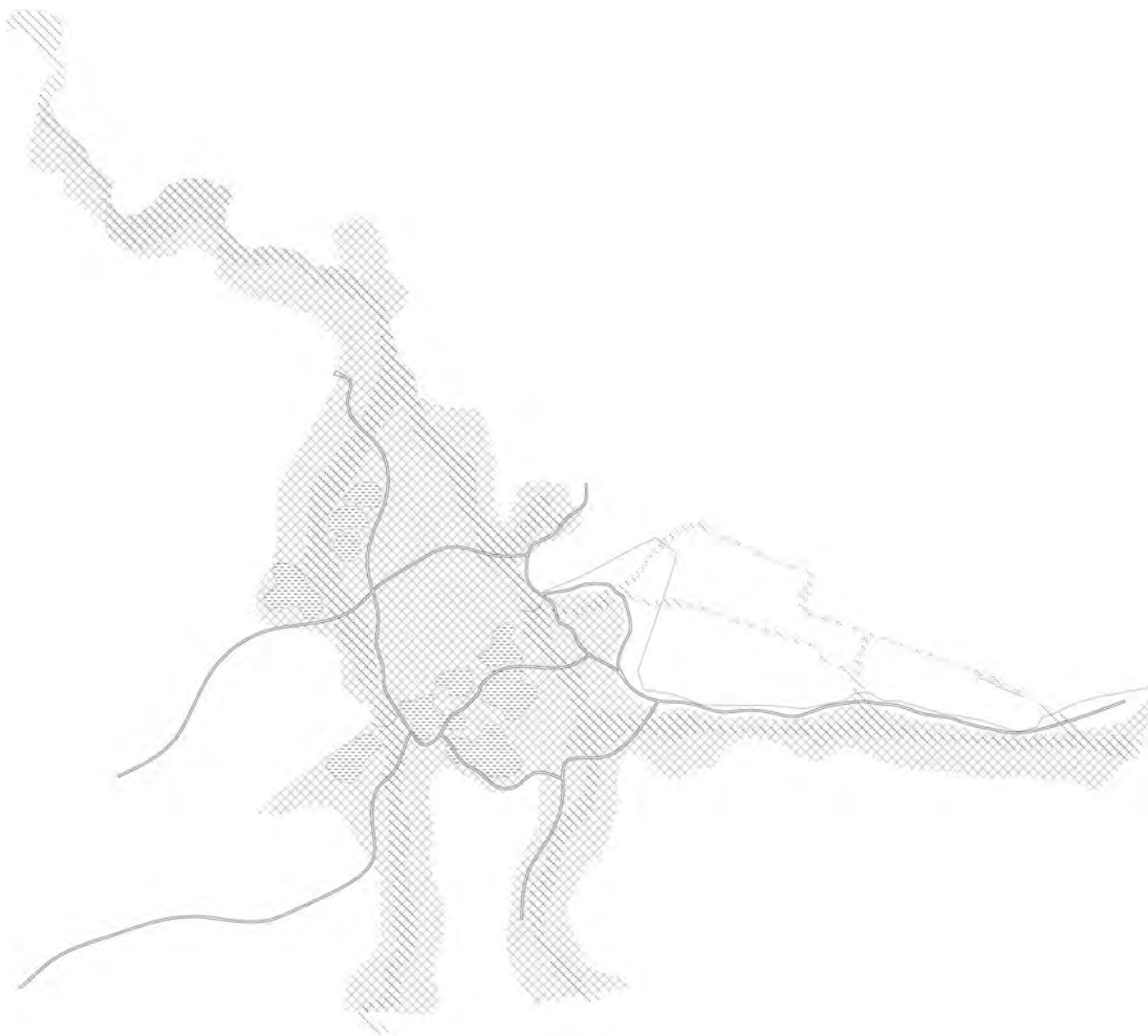


Figure 4.77 // Overall Ecological Corridor

Detailed Design

For densification to occur, threats from natural hazards must be mitigated; as well as provide adequate public and recreational space for the influx of residents. The ecological corridor will establish wetlands that create a diverse ecology for the local flora and fauna, it will also develop a strategy to manipulate water. By developing a series of ephemeral retention and storage areas that become beneficial in a flood event or times when water shortages effect the region. Ephemeral lakes are situated in areas that are effected most during a flooding event. The management of water will be created predominantly through land manipulation and secondly through a series of canals and culverts that aid in mitigating. This corridor would be always fluctuating, whether it be through seasonal vegetation or the amount of water within the emphermal areas. The public life will benefit from this dynamic space year round. It could also be seen as an extension of Queen Elizabeth park that provides a destination node along the coast.

Public walkways and tracks will create connections throughout the corridor, these paths will lead to an array of spaces that join up with the various established tracks that are separated by the existing transport infrastructure.

This ecological area will enhance the existing pockets of ecology by connecting up and creating an uninterrupted corridor of biodiversity and rich habitats.



Figure 4.78 // Overall Plan of the Ecological Corridor.

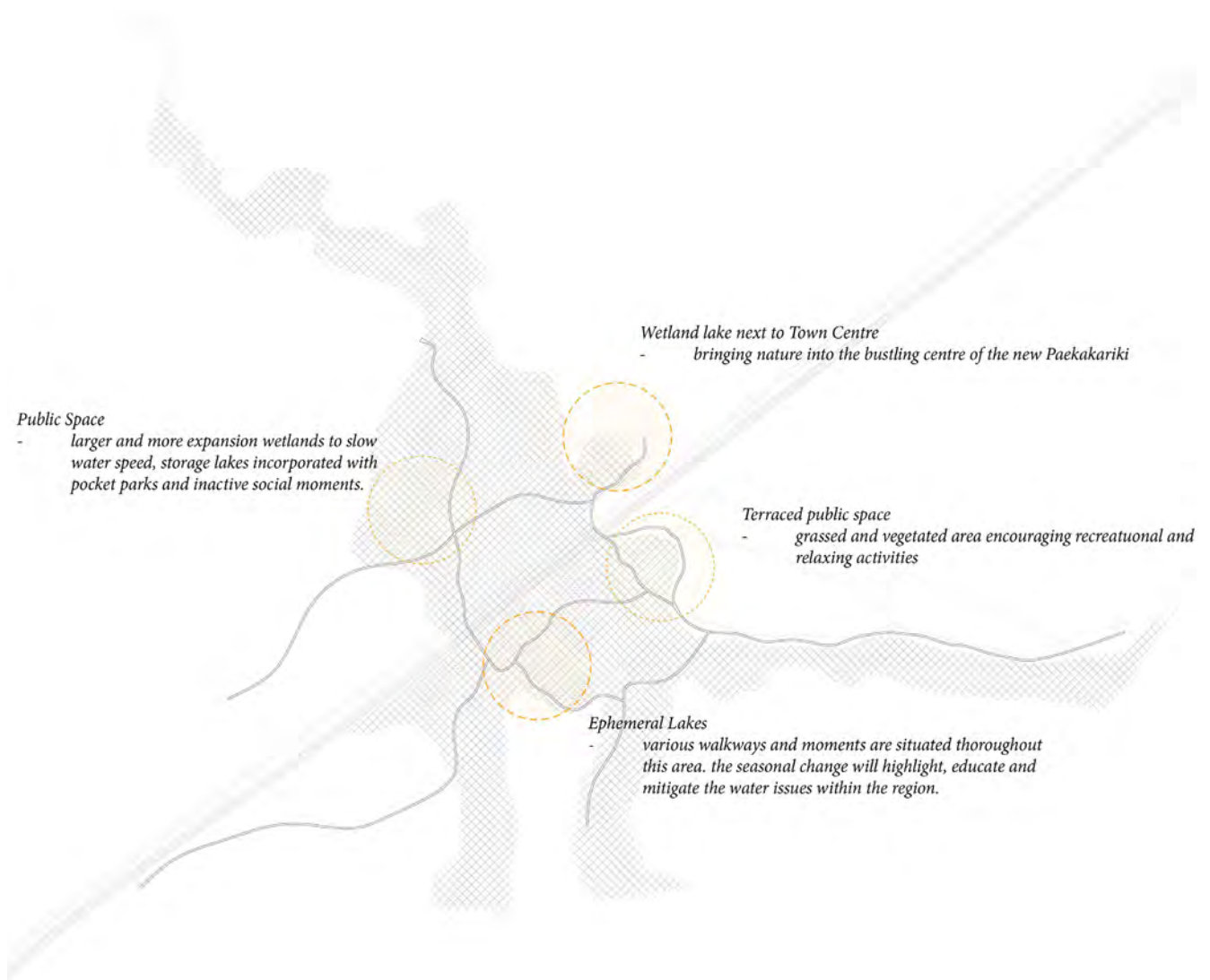


Figure 4.79 // Annotated plan highlighting design moves to mitigate and integrate water into public life.



Figure 4.80 // Current Flooding in a 1:125 year flood.



Figure 4.81 // Mitigated Flooding map. Concentrating water and having deeper and wider areas for the excess water to flow.

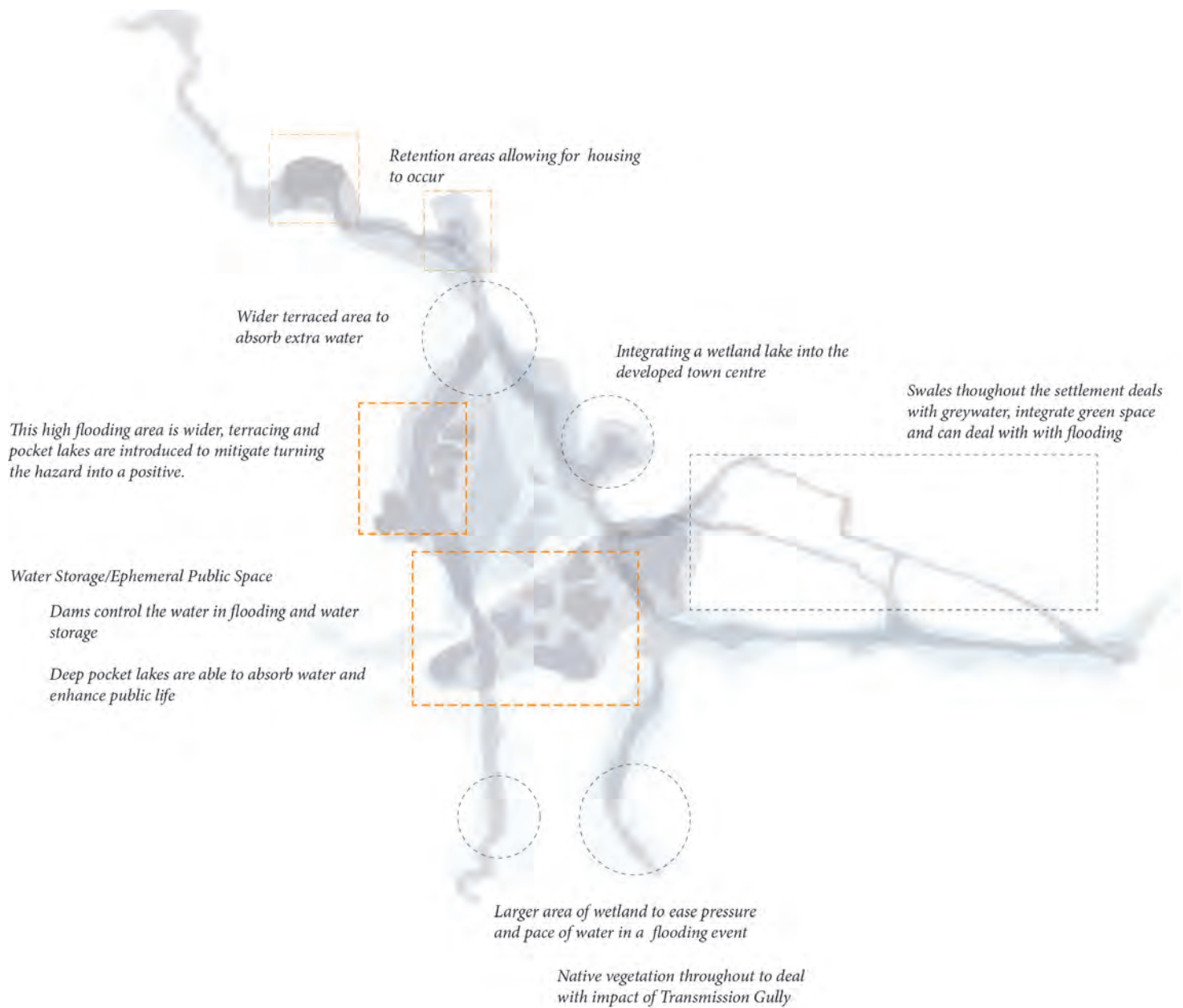


Figure 4.82 // Detailed Plan on the water's movement looking at greywater, water storage and flooding.

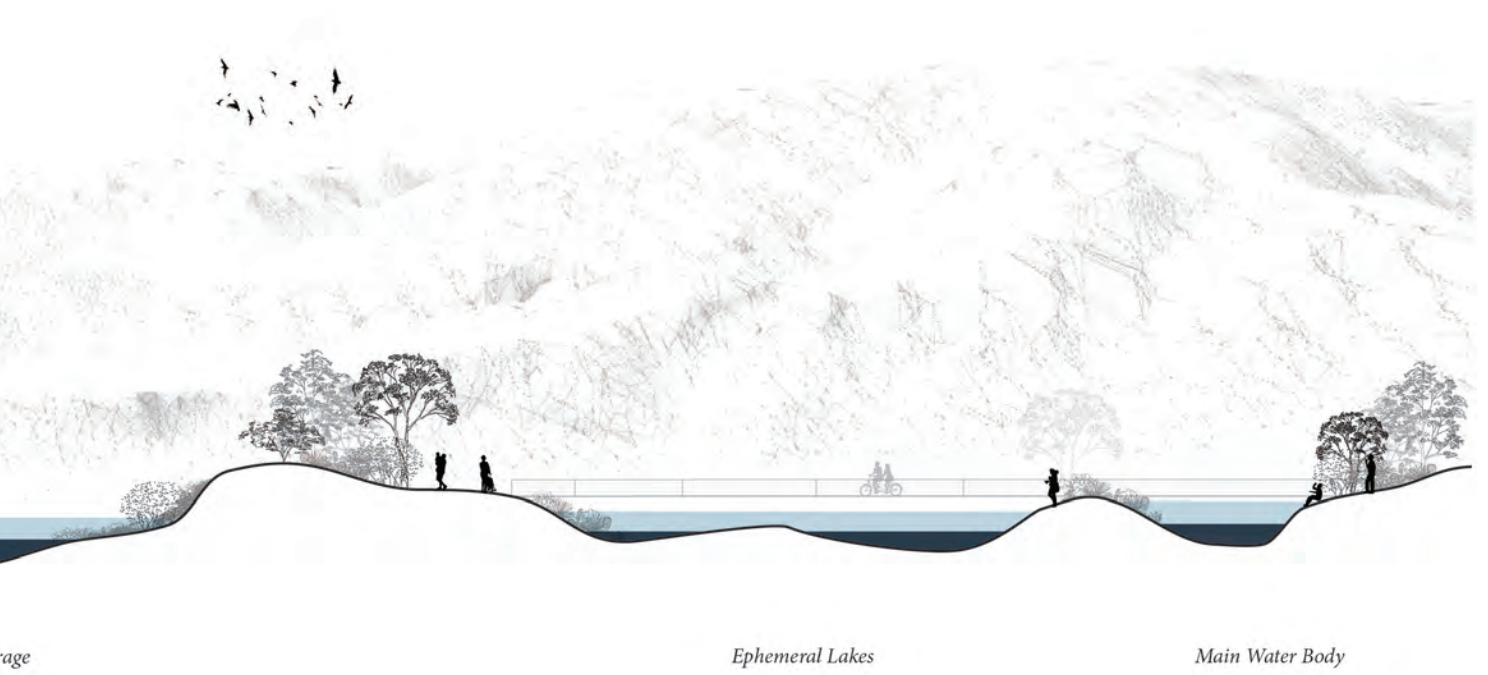


Figure 4.83 // Perspective highlighting the boardwalk that weaves and meanders through the ecological corridor.
Figure 4.84 // Perspectives of a ephemeral lake being occupied by recreation kayakers.



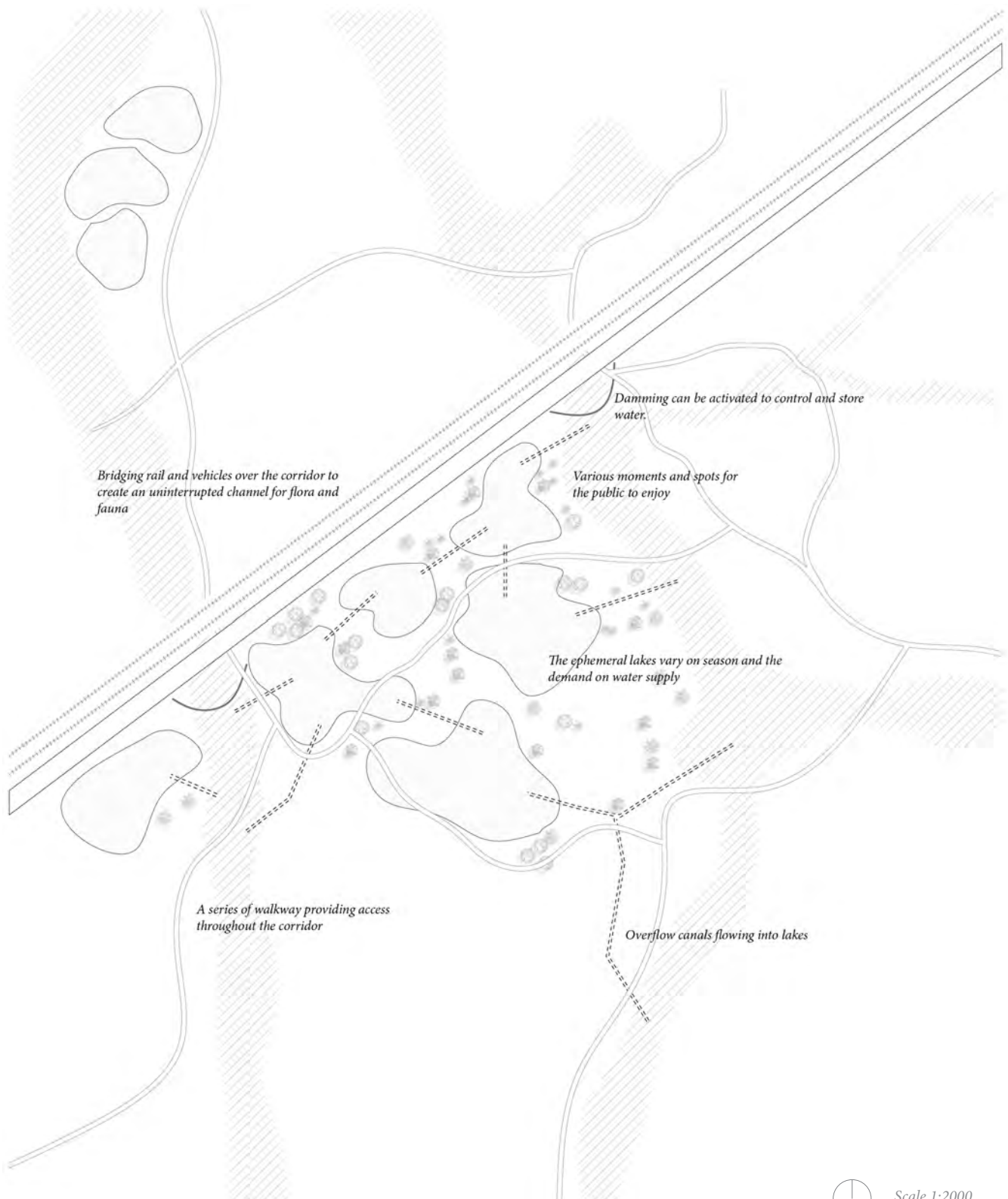
Main Water Body

Water Storage



Section MM

Figure 4.85 // Cross-section of the integration of public space within the ephemeral lakes. This ecological corridor will strengthen the biodiversity of the region.



Scale 1:2000

Figure 4.86 // Highlighting the dams, canals and pipes which channel the water into these areas.

Figure 4.87 // Opposite Page // Perspective of a wetland lake and the public walkway integrated.



A detailed topographic map of a mountainous region, likely in the Himalayas, showing intricate contour lines and a prominent river valley. The map is rendered in grayscale, with the river valley and surrounding peaks highlighted in a darker shade of gray.

DISCUSSION, LIMITATIONS + CONCLUSION

Infrastructure as a catalyst

Transmission Gully, is a contentious four lane highway that extends from Wellington airport to the Levin town centre, dissecting through the Kapiti Coast. Like some infrastructural developments, it has the potential to segregate and negatively impact the people of the region and the landscape in which it cuts through. However, it may also provide opportunity for the region to grow and connect in a much more efficient and resilient manner.

Stan Allen discusses how we should look to infrastructure to provide more than its function. This highway is situated within a field of opportunities - the design looks to harness these opportunities within the existing landscape to inform an outcome that will allow for growth and connectivity in Paekakariki. The use of transportation infrastructure within the design sets an achievable ambition to catalyse a town centre for the proposed development and extension of the existing township. This town centre is the connective link for the future of Paekakariki that aims to act as a beacon throughout the region.

The premise of the design is to be able to cater for growth within the Kapiti region, although assumptions have been made, it is conceivable that with Wellington's contained topography and people's desire to move out of the densifying city is increasing. The improved and more efficient connection could be the answer that provides an opportunity to 'settle in paradise'.

Linearity

By applying the notion of using infrastructure as a vessel for movement, the design manifested itself into a linear form – primarily to create an accessible connection from the mountains to the sea. This linear form was dictated by external factors influenced from site analysis and conceptual work. The use of a 'big' infrastructural element within the landscape provided opportunities for recreational areas, ecological integration, public spaces, a regional transportation node, a town centre and a housing development to attach to, creating an all-encompassing structure. These 'nodes' were informed by the context and the evolving objectives during the design process.

This linearity progressed the idea of creating a 'new' coastline and encouraged a structure that created a stake in the ground for future coastal development. The notion of a perpendicular coast provided legibility to the development while also aiming to heighten the appreciation for the parabolic dunes and the landscape to the north. By making this move, it allowed for a substantial area that has been previously marked for an optimal ecological habitat area to flourish and encourages this to be more of focus within the public realm. By working through the site analysis this created parameters to work with and around - the landscape set the basis and the design worked within that. This approach to landscape architectural design made a more critical and reflective design process that continually referred back to aims and objectives.

The perpendicular and linear nature of the design could be applied throughout various coastal or inland locations in New Zealand and internationally. The foundations of the scheme were accessibility, developing a site-specific response and promoting potential. Site analysis and external influences dictate and manipulate the process but these are important factors to understand what is possible and what the site/region needs.

Growth

The line establishes itself as a framework for growth. Driven by accessibility and infrastructural development, the linearity of the scheme set in this particular landscape argues with the normative response to urban densification. Instead of seeking yield from the number of property plots, this response generates a balanced environment where an intertwining of the landscape with the proposed housing aims to create a holistic settlement that has a direct and legible language with the existing Paekakariki fabric.

This scheme and design process generally worked between two scales, at a master planning scale to configure the framework scheme and at a finer grain to establish how the design works with the landscape. Upon reflection, another scale that zoomed in on specific areas would have been beneficial to convey various ideas of creating a higher appreciation for the landscape and how the increased density and growth could work within this rural landscape. To further this, it would have been a useful exercise to develop a study into housing typologies - this would have established a better understanding of what could have been achieved from both a dwelling numbers and population point of view. While this would help with the feasibility of the research, it also could have impacted the design from a community/social perspective.

Ecology

The typical response when settling in a coastal region is often about getting as close to the water's edge with best views possible. But settling on the coast in an ill-considered manner raises issues that generally have a negative effect on the coastal topography and vegetation which essentially fragments the ecology. The unique biodiversity that occurs along the coastline of Kapiti need to be preserved, maintained and ideally have the opportunity to be enhanced. Paekakariki sits in this rich and complex part of the landscape where a myriad of environmental, infrastructural and regional issues converge.

New techniques and ways of thinking must be utilised for the betterment of our natural environment. By essentially 'flipping the coast' to be perpendicular allows the coast to be maintained, it maximises the exposure of people to the landscape and provides a direct accessway to the coast.

Landscape Architecture offers a solution to the problem faced in Paekakariki by having the ability to work across and between disciplines and scales to tackle the various issues between the built, the public realm and nature. One solution previously explored was the Rockaways Rising case study which took an approach where the public spaces were a part of the mitigation technique used to absorb water in the event of a flood. The notion of sustainability throughout the design offers a diverse and resilient space capable for providing public amenity while managing and mitigating. Although the ecological corridor evolved into an important aspect of the process, a limitation of the research could be associated with this as the scale required more attention and exploration than it received and is something that could have evolved into a thesis in itself.

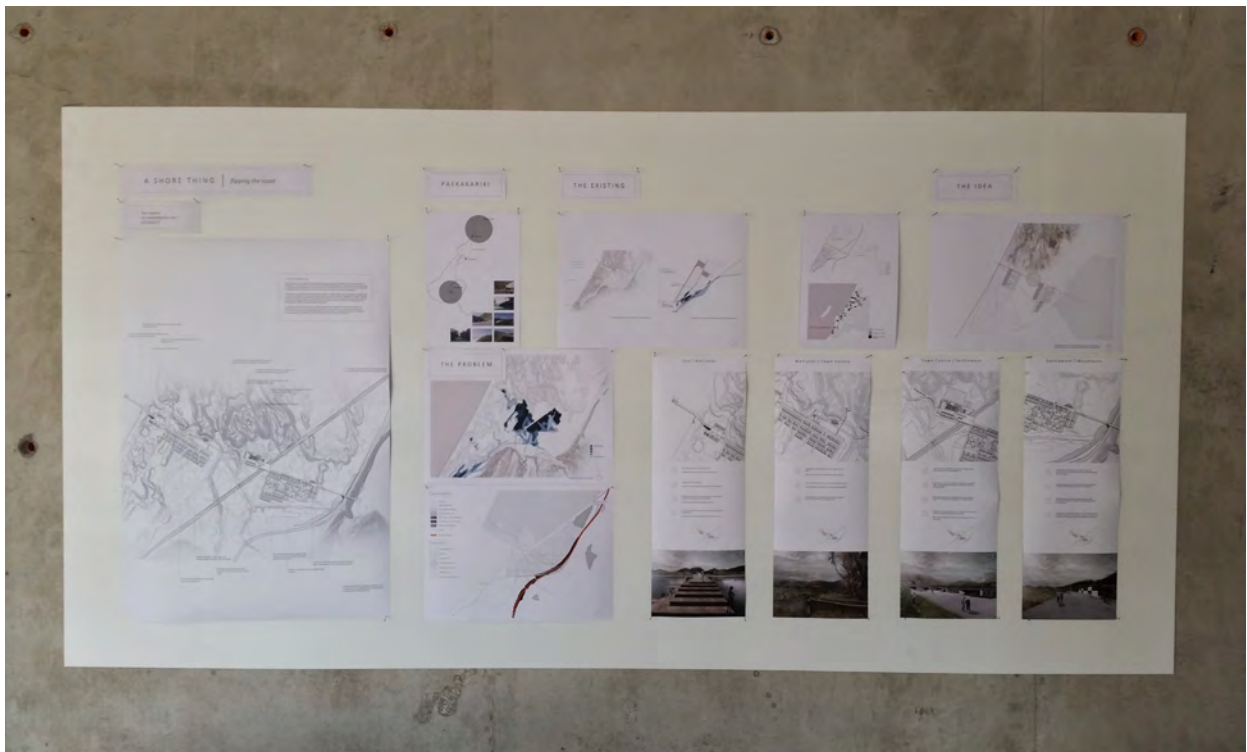
Identity

The design provokes a site specific response that is based on the identity of the existing, the landscape in which is it formed and manipulated around, as well as the infrastructural pressures and developments that occur within the region. Paekakariki is the gateway into the Kapiti Coast, the qualities of the landscape, the culture and the characteristics give this coastal region its identity.

Theses aspects and characteristics of the township have been extracted and highlighted throughout the design. They seek to become catalysts allowing Paekakariki to become a destination, a place to dwell, recreate and experience. This notion of identity has driven the design, seeking to establish Paekakariki as Wellington's satellite city along the Kapiti Coast. Case studies such as The Highline and Tudela-Culip have encouraged a place-making aspect to the design, particularly the highline with its flexibility of spaces, variety of schemes and amenity.

Conclusion

To conclude, the main intention of this research was to develop a landscape architectural response for how future development could occur within the hinterland regions, specifically Paekakariki. As reiterated throughout, this scheme was to be responsive to the existing context and natural landscape while dealing with the potential pressures of densification and to provide a solution to the sprawling development model that is already scattered throughout the region. Housing developments in the past have generally failed to consider the existing natural processes within the site and consequently have had negative impacts on the landscape, the existing community and the local flora and fauna. This design aimed to achieve a considered and innovative approach to coastal developments through its perpendicular configuration, deliberate containment of settlement and approach to design. The thesis challenges the pertinent issue of settling in coastal regions, it is something that is becoming increasingly prevalent and that requires alternative solutions for the future.



Settling in Paradise Exhibition October 2014





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All images throughout this document are products of the author, unless otherwise specified.

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Source:

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Source:

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Source:

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Source:

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(Source: <http://stationmuseum.co.nz/arthertflood1.htm>)

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Source:

http://www.battleiroig.com/wp-content/uploads/160_nus_trinitat_15.jpg

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Source:

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Source:

<http://www.designboom.com/architecture/estudi-marti-franch-tudela-culip-restoration-project-cap-de-creus-spain/>

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Source:

<http://www.archdaily.com/550810/take-a-walk-on-the-high-line-with-iwan-baan/54219436c07a8086fc0000da-take-a-walk-on-the-high-line-with-iwan-baan-photo>.

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Source:

<http://lateraloffice.com/ROCKAWAY-RISING-2013>)

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A Shore Thing

Flipping the Coast

By Thomas Bruce Inwood