Victoria University of Wellington

From Cycleway to Urbanism: Planning for Coastal Cycleway

Exploring Missed Opportunities along The Great Harbour Way
Urbanistic Approach to Cycleway Design

Donghwi Roh

2015

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School of Architecture
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From Cycleway to Urbanism

Planning for Coastal Cycleway

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Urbanistic Approach to Cycleway Design

By

Donghwi Roh

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

Thesis Supervisor: Peter Connolly
Second Supervisor: Tobias Danielmeier

Preface

It was from here, Wellington, where I bought my first mountain bike. Then my bike obsession officially began, upgrading it to a road bike, trading and experiencing all sorts of other bikes. My weekend became a bike-out day. The idea of doing a cycling project had started with an interest in Wellington's cycling infrastructure. I had a question: 'Can a piece of architecture change the way we view and experience the world?', 'Was there something I could contribute to Wellington and its people?'

In recent years, many cities have been looking for alternative urban transportation tools due to the high cost of energy and the global climate change. With the attention given to cycling has increased significantly, the cities of New Zealand have been promoting cycling for years and have started to lay more emphasis on it recently. Wellington wants to build and project an attractive image, and, therefore, become a powerful touristic centre. In order to reach this goal, innovations that suggest new ways of enjoying and working the land economically need to be made; and, by doing so, a high value would be given to the environment.

As I cycled, I found myself continuously attracted towards the shoreline of the harbour. This seemed as a place of great opportunity. I persuaded myself that I should do this project, giving me a great excuse to buy a new bike and go out cycling more. However this romance of a cycling quickly disappeared as the project proceeded. My understanding of the architecture profession was confronted with realities: policies, politics, budgets and legal topics. I was introduced to new realm of landscape architecture and waterfront design. Deciding to work on three different sites created three different projects and endless research need to be done. To find out opportunities and benefits of lying on our shoreline, and explore what can be learned from the sites themselves, I did what I had to do: I hopped on a bike.

“ Combining the glorious views of our harbour with the healthy exercise of walking, running or cycling makes this a terrific way to explore Wellington for locals and visitors alike. The complementary network of ferries, buses and trains mean short trips and long journeys can both be catered for with minimal environmental impact.

The Great Harbour Way Te Aranui o Pōneke, when properly completed, will take advantage of one of Wellington's greatest features to provide the ability for people to walk or cycle the entire coastline.

-Celia Wade-Brown (Wellington City Mayor)

Abstract

A strategic use of cycling to create liveable and healthier cities is increasingly common in cities across the globe and among forward-thinking urban designers, policy makers or political entities who often improve bicycle infrastructure and install bicycle supporting policies to augment urban cycling (Pucher & Buehler 2012). Yet, cycling can do more than improving urban mobility and health. As pedal-powered vehicles are also means for cultural and artistic expression, subcultural social interaction (Fincham 2007), economic opportunity and urban servicing (Lorenz & Bufton 2011) which is reflected in geographically distinct bicycle cultures (Pelzer 2010). There is an increasing focus on cycle planning by local and regional governments throughout New Zealand. However there is a tendency to design cycle route in isolation, not approaching it as an urbanistic issue. In August 2014, Prime Minister John Key has announced \$100 million in new funding that will be made available over the next four years to accelerate cycleways in urban centres. There is strong growth in cycling trails internationally, and in New Zealand there is also strong demand for family based cycling activities and products. Should more cycleways be provided and improved, and if so, how should they be planned? My project will attempt to go beyond the set aims to create more urbanistic approach to cycleway.

This research draws upon an idea of the Great Harbour Way (GHW) - Te Aranui o Poneke, initiated by group of walkers and cyclists being a concept to develop and market a 75km shared pedestrian and cycle path around the shoreline of Wellington Harbour. The project aims to promote a walkway and cycleway as an enjoyable and convenient form of travelling around the harbour of Wellington, New Zealand. However, the way it has been conceived, the GHW undermines its possibilities.

Our cycling infrastructure needs to evolve not only from transport or engineering perspective but also with architecture perspective to respond to those changing demands on the issues of cycleway planning. This aim of this study is to provide a greater ambition towards GHW by planning orientated research which could increase the numbers, activity of and engagement of cyclists with a particular focus on the Great Harbour Way cycle route.

Firstly, the thesis briefly goes over the current status of cycling, addressing the increasing popularity and role of utilitarian cycling in Wellington. Secondly, the study will review and discusses previous cycling planning theories and discuss different models of cycle route planning. In this part, it will also take the project of New Plymouth Coastal Walkway, and Norwegian National Tourist Routes as a case study, discussing the planning strategy of how to implement cycling in our city. The case studies show that the entire visitor experience is important, not just the cycling aspect. This is particularly true for those markets whose primary motivation is not cycling. Accommodation, services, information, scenic values and other activities combine to make the experience more appealing to a broader range of visitors.

Thirdly, the thesis proposes a cycling supportive architectural interventions at three different sites and scales to catalyse the GHW project. Last part of the study tried to resolves the complex access problems of the site through integrated planning/landscape architecture thereby creating a usable, functional and adaptable plan for the Wellington to Petone link. Conclusions of the design proposals and future suggestions are included in the last chapter.

Thesis Question

How do we re-appropriate and negotiate coastal cycleways in urban space?

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Abbreviations

GHW (Great Harbour Way)
WCC (Wellington City Council)
HCC (Hutt City Council)
NPDC (New Plymouth District Council)
CAW (Cycle Aware Wellington)

NZTA (New Zealand Transport Agency)
SH2(State Highway 2)
DOC (Department of Conservation)
CBD (Central Business District)

Glossary of terms

CYCLE FACILITY

Infrastructure that is cycling-specific, such as cycle lanes, paths and parking.

CYCLE FACILITY

Infrastructure that is cycling-specific, such as cycle lanes, paths and parking.

CYCLE NETWORK PLAN

A map of the primary cycle route network and a schedule of the cycle infrastructure projects required to develop it.

CYCLE PATH

An off-road path for cycles. It can be an exclusive cycle path, a shared-use path or a separated path.

LEISURE CYCLING

Cycling done just for the journey itself, not to get to an activity at the journey's end. Sports and recreation cyclists and cycle tourists do leisure cycling.

PRIMARY CYCLE NETWORK

The most used cycle facilities, designed mainly for trips across town and between suburbs.

SEPARATED PATH

A path where the section for cyclists' use is separated from the section for pedestrians' use.

SHARED-USE PATH

A path provided for use by both cyclists and pedestrians.

TRAFFIC CALMING

A combination of measures (mostly changes to the road environment) aimed at altering driver behaviour (such as by reducing speed) and improving conditions for pedestrians, cyclists and residents.

UTILITY CYCLING

Cycling done mainly to get to an activity at the journey's end, such as commuting trips to work, education or shops.

CYCLING STRATEGIC PLAN

A document setting out cycling objectives and the actions required to achieve them including a cycle network plan.

Chapter 1. Introduction

Why the Bicycle?

What are the benefits for the community?

The list of presumed or proven advantages to be gained from cycling. They are of various kinds, including:

- economic benefits (such as a drop in the share of the household budget devoted to the car, reduction of working hours lost in traffic jams, reduction of health costs thanks to the effects of regular exercise)
- political advantages (such as a reduction in dependence on energy, saving non-renewable resources)
- social advances (such as the democratisation of mobility, greater autonomy and accessibility of all facilities to both young and elderly people);
- ecological impacts (with a distinction between local, short-term effects — notion of the environment — and non-localised long-term effects — notion of ecological balance).

Background

To Cycling in Wellington and
The Great Harbour Way Project

Benefits of raising the profile of cycling in New Zealand

Encouraging more walking and cycling has many benefits, both for our communities and for us as individuals. Evidence suggests that increased numbers of walkers and cyclists can stimulate economic activity, promote accessibility and community cohesion, reduce congestion, improve safety, reduce transport emissions and improve public health.¹

Figure 1-01: Women cycling group at Civic Square.

Figure 1-02: Ciclovía Wellington 2014 event at Miramar.

Perceptions of walking and cycling

Some pedestrians and cyclists may feel intimidated by high traffic volumes and speeds, as well as intersections, crossings and roundabouts, which can be difficult to negotiate. Negative perceptions and experiences may discourage people from using a particular route or encourage them to drive instead of walk or cycle, especially if the walking and cycling infrastructure is poor.

Cycling in Wellington

Wellington wants to be cycling capital.² Before the last local body election mayoral candidate Celia Wade-Brown pledged to make Wellington a better place for cyclists. Three years on, cyclist numbers have doubled, but does the city have adequate infrastructures for them? What are the possibilities to continue encouraging the bike culture?

A local walking and cycling revival?

In Wellington, cyclists crossing the Central Business District (CBD) cordon in the morning peak increased by over 50 percent in 2007, while pedestrian numbers rose by 17 percent and lunchtime pedestrian numbers between the CBD and waterfront showed an eight percent increase.³

¹ Ministry of Transport. "Raising the Profile of Walking and Cycling in New Zealand." Wellington, October 2008. This guide is focused on walking and cycling for transport but recognises the importance of walking and cycling for recreation, particularly the opportunity for current recreational walkers and cyclists to also walk and cycle for transport journeys.

² Absolutely Positively Wellington. "Our Capital Spaces: An open spaces and recreation framework for Wellington: 2013-23." Wellington City Council, 28 August 2013.

³ For Wellington cyclist and pedestrian see Greater Wellington Regional Council 2007. 2006/2007 Annual Monitoring Report on the Regional Land Transport Strategy. GW, Wellington, p. 20.

More people are going by bike

Wellington statistics

Method of travel to work

Latest Research:

Over the last few months, the Council has completed research into the demand for improving cycle infrastructure in Wellington. The results support the plan to make it safer and easier to cycle here.

1. 9% cycle to work regularly.
2. An additional 22% would prefer to cycle to work, but currently don't for one reason or another.
3. The two main reasons preventing people from cycling are the lack of dedicated infrastructure and traffic-related safety concerns.

Change in method of travel to work, 2006 to 2013

“ Cycling in Wellington is becoming increasingly popular.
Internationally, nationally and locally,
the number of people cycling is increasing.
The 2013 Census showed cycling to work
in Wellington had increased by 73% compared to 2006.

Wide Context: The New Zealand Cycle Trail Project

A national project to build a world class network of cycle trails.

Walking and cycling holidays are one of the greatest areas of growth in tourism worldwide. In early 2009, Prime Minister John Key announced there would be \$50 million committed to creating a series of cycleways across both islands of New Zealand. This network of cycleways of Nga Haerenga, The New Zealand Cycle Trail Project will be based around New Zealand's iconic attractions and existing infrastructure. It would not only provide a healthy and enjoyable way for Kiwis and international visitors to see the country, but would also generate economic, social and environmental benefits for our communities. Ultimately providing thousands of kilometres of trails, these Great Rides will take in the best of New Zealand's dramatic landscapes and are the future of cycle tourism in New Zealand.

Figure 2: New Zealand Cycle Trail. Ministry of Business, Innovation and Employment. The individual routes are to be connected into a New Zealand-wide network in the long term.

Great Rides Project

Figure 3: There are currently 23 Great Rides along the New Zealand Cycle Trail. They were developed through a partnership involving local district councils, the Department of Conservation and the New Zealand Cycle Trail Project. Those trails offer cyclists and walkers opportunity to enjoy the region's best scenery.

Hutt River Trail + Rimutaka Trail

Wellington / Wairarapa

Grade: Easiest - Intermediate
Total Length: 115km
Duration: 2-3 Days

Figure 4 - above: Map of Hutt River and Rimutaka Trail - The Rimutaka Cycle Trail goes from Petone in Lower Hutt to the southern Wairarapa coast. Away from the shoreline, the lands within East Harbour Regional Park have long been a place for recreation for Wellingtonians. From the 1890s, Days Bay became the main centre for picnics and walking.

Figure 5 - left: The Hutt River flows out to Wellington Harbour. Running alongside the Hutt River from Hikoikoi Reserve, Petone to Birchville, Upper Hutt, the 29km Hutt River Trail is an easy scenic walk and cycle path. It also allows access to the river for swimming, fishing and kayaking. The Hutt River Trail will eventually run as far as the Te Marua area of Kaitoke Regional Park, to link with the Rimutaka Rail Trail.

Figure 6: The trail terrain is varied, without being too challenging, and takes you through bush, open countryside and rugged coastline, for an unforgettable cycling journey - all on the doorstep of the capital city.

What the market is looking for

In general, international cycle tourists want easy multi-day trips with good supporting services or events. They require trips that take in New Zealand's landscape, natural environment and culture. Domestic cycle tourists and recreational riders are not primarily focused on cycling but on the broader experience. This group is likely to be older or consist of families rather than single visitors or couples.

Both markets are looking for easy access to safe and traffic-free trails. For the domestic market in particular, there is often limited opportunity for this within their local region. They also want to see services that can complement their experience and better linkages to longer riding opportunities.

Key segment of the GHW cannot be safely used by cyclists and walkers. The future development of the GHW should be negotiated to satisfy those demands.

“ The proposed Great Harbour Way walk and cycle route is the perfect candidate for development as a New Zealand ‘Great Ride’, Positively Wellington Tourism says.

The Great Harbour Way, Te Aranui o Pōneke

Etymology: Aranui is a Māori word, with ara meaning path and nui meaning great.

Project Vision

The Great Harbour Way (GHW) is the name adopted to describe a new recreation, active transport and tourism initiative for the Wellington area. The GHW concept involves the development and marketing of a continuous shared cycle and pedestrian route around the coastline of Port Nicholson/Wellington Harbour. The 67km route stretches from Pariwhero/Red Rocks to Pencarrow Head and the aim is for it to be located immediately beside the harbour edge as far as is practicable.

Figure 7: Map of the GHW - Wellington's nearly circular harbour, about 10 kilometres in diameter Wellington's magnificent harbour is a lake-like expanse of sheltered water surrounded by hills, with a narrow entrance to the sea. Wellington has action-packed adventure activities like mountain biking and sea-water kayaking, as well as beautiful walks around the harbour and surrounding hills.

Development Timeline

The New Zealand Cycle Trail and The Great Harbour Way

2003/4	<p>The Great Harbour Way was 'scoped' by a group of walkers, and later by cyclists. A paper promoting the concept was presented to Positively Wellington Tourism and Greater Wellington.</p> <p>A successful application was made to WCC for \$2000 to create a website with details of the route, times, facilities, information on historical & natural features.</p>
2005	<p>The website, www.greatharbourway.org.nz was completed in 2005.</p>
October 2008	<p>Other groups became involved as a result of their interest in 'fixing the gap' between Petone and Ngauranga – a critical part of the route.</p>
February 2009	<p>National Cycleway Project, an ambitious national project started to build a world class network of cycle trails that would run through the length of New Zealand, "from Kaitia to Bluff".</p> <p>The Government invested \$50 million into turning this idea into a reality, the commitment of the local communities involved generated a further \$30 million of co-funding towards the construction of the inaugural Great Rides.</p>
2009	<p>Boffa Miskell Ltd was commissioned for environmental planning and design consultation, to undertake a study of the development opportunities, constraints and priorities.</p>
September 2010	<p>Out of 54 applications, 18 had been selected to receive funding. If all these trails and the quick-start trails were realised, they would provide over 2,000 km of trail.</p>
November 2010	<p>Opening of the first stage of the Great Harbour Way with a leisurely cycle ride from Queens Wharf to Shelly Bay.</p> <p>Celia Wade-Brown, Living Streets Aotearoa and Cycle Aware reinvigorated the concept, calling together interested parties and organising the meeting.</p>
August 2012	<p>The Great Harbour Way is included in a \$1.25 billion package of transport initiatives for the region as part of the National Land Transport Programme for 2012-15, announced by Transport Minister Gerry Brownlee.</p>
October 2013	<p>The Rimutaka Cycle Trail, from Petone as far as Ocean Beach, was officially opened.</p>
December 2013	<p>The Wellington City Council has signalled. the cycling budget for 2014/15 be increased from \$1.3 million to \$4.3 million, an increase of 230 per cent.</p>
February 2014	<p>Prime Minister John Key announced \$8 million worth of maintenance funding over four years for the New Zealand Cycle Trail Great Rides.</p>
March 2014	<p>Census data released show ever growing number of Wellingtonians are choosing to walk or jog to work: increased by almost 16 percent – up from 15,696 to 18,183 on 2006.</p>
April 2014	<p>The NZ Transport Agency is investigating options to deliver a safe and efficient route for cyclists between Ngauranga and Petone along State Highway 2. This project aims to "close the gap" of the existing cycleway along SH2, support existing cyclists and encourage more people to travel by bike between the Hutt Valley and Wellington.</p>

Why is this possible?

Wellington region has the opportunity to create such unique walkway/cycleway because:

- The rim of the harbour is entirely in public ownership. This provides the potential generosity of public works and avoid potential conflict between land uses.
- Most of the route is already able to be walked and cycled, even if not always in ideal conditions.
- Upgrading plans already exist for some sections.
- Greater Wellington, Wellington City Council (WCC) and Hutt City Council (HCC) have, among them, considerable experience in developing walkways and cycleways.
- There is a well-established recreational community, with many organisations and individuals ready and willing to lend active help and support to the project.
- The GHW will enhance the appeal of cycling and walking as commuter options. The environmental conditions around the coastline are widely diverse, and on the bike you will have a chance to explore them all in a manner different from within a car.

Luring travellers

- The GHW will attract visitors – domestic and international, encouraging longer stays and complementing other attractions such as Waterfront and Oriental Bay.
- Development of the GHW can offer a special and exciting cycling experience for travellers, and provides safe commuting and recreational routes for Wellington residents. Much of the route is available now.

Boosting the economy

These open spaces and recreation areas are vital to our lifestyle, health and wellbeing, culture, and economy. Increasingly, cities worldwide are competing for the economic benefits derived from attracting talented workers, visitors and hosting events.

The Great Harbour Way will allow for major round-the harbour sports events – fun rides and walks, marathons, ultra-marathons, and cycling events like the Lake Taupo Cycle Challenge. New businesses will develop and existing ones expand to meet demand for accommodation, food and transport, for example backpackers, cafes and restaurants, shuttle services, ferries and water taxis, tour guides and companies.

Appreciating our special environment

In the belief that people and public spaces are the lifeblood of a city, it is time to reclaim the coastal edge for pedestrians and bicycles. Wellington has a stunning natural beauty with a mix of harbour, islands, mountains, forests beaches and suburb areas which all combine to make the city unique.

The Great Harbour Way website already provides detailed information on the history and attractions of each part of the route. And this is just the beginning. Walks by school groups, community groups and others will lead to greater understanding of and therefore respect for the region's natural environment.

The Great Harbour Way Benefits

The development of the GHW will bring benefits to:

- **Commuter cyclists**

- safer commuting path
- save transport costs

- **Rail users**

- railway protection with seaward trail construction.
- less erosion and flooding of railway lines

- **Recreation: Connection to**

- Hutt River Trail
- Rimutaka Incline
- South Coast
- Pencarrow Coast
- Surrounding mountain bike tracks

- **Events**

- running events: Round the Bays
- swimming events: Capital Classic - State Ocean Swim Series
- cycling events: Wellington Cycle Challenge

- **Walkers and runners**

- walk-ability along the whole harbour edge

- **Neighbourhoods and Communities**

- fewer cars , emissions, congestion
- less reliance on fossil fuels
- improved health⁴
- fishing platforms

- **Tourists**

- will be attracted to the Greater Wellington Area as walkers/cyclists/nature-lovers⁵

- **Business people**

- opportunities from tourism e.g. moteliers, restaurateurs, bike hire firms

⁴ Health benefits: at 50c/km cycled and \$1/km walked, 500 cyclists and 20 walkers per day equates to approximately \$2 million / year in health benefits (LTNZ/NZTA research announced at NZ walking conference).

⁵ Completing this link in the GHW will attract tourists and recreational users as does the Otago Rail Trail, or the US Great Allegheny Passage (which in 2007 generated NZ\$23 million/year in economic benefits).

Missed Opportunities

The GHW, when properly completed, will have direct bicycle and pedestrian connection to the city and town centres. Bicycle mobility can be enhanced further through a bicycle-expressway that circles the harbour. In order for Wellington to create thriving and vibrant waterfront, we need to consider the entire waterfront-how well it connects to the rest of the city and sustains a variety of activities in multiple areas.

The development of the GHW will increase public awareness and use of Wellington region's other natural and complementary attractions – for example, East Harbour Park, the Hutt River Trail, Wellington city walkways such as the Eastern Walkway and South Coast Marine Reserve. There is lots of potential for linking the Hutt River Trails, the Rimutaka Incline, and around Pencarrow with Martinborough and Lake Wairarapa into a marketable whole. It is a Wellington region's primary recreational asset and would be of national significance as it would attract international tourists to stay for a few days in the region.

By exploring the water's edge and vigorously incorporate the waterfront into the broader life of the community, we will experience and realize how much more would be possible with a coordinated strategy to make the whole waterfront a place for people.

Guiding Principles/Objectives

Proposed by Great Harbour Way Coalition Steering Group

The GHW will:

- Provide a safe continuous walking and cycling route for both transport and recreation movement around the perimeter of the harbour between Pencarrow Head and Red Rocks.
- Be predominantly designed to accommodate a continuous 2-way path.
- Provide a safe cycling commuter route between the communities along the route.
(such as between Petone and Wellington CBD)
- Be located immediately beside the harbour edge as far as is practicable.
- Be planned and designed in such away as to avoid adverse effects on environmentally sensitive areas.
- Highlight Maori cultural history and values and other historical values.
- Recognise the opportunities of this route to act as a catalyst for new ancillary or development opportunities within the corridor of land it traverses.
- Enhance knowledge and awareness of the Wellington Harbour environment and immediate environs through interpretation, storytelling and art.
- Become a nationally recognised cycleway/walkway, and a key part of the National Cycleway project promoted by the Government.
- Be developed and upgraded over time and in stages as resources allow. The initial focus is on providing at least a basic level of access along the entire length.

Figure 8: Pictures taken from various points along the GHW. In 2009 the GHW Trust commissioned a report from Boffa Miskell Consultants on the issues and opportunities connected with the project. In part 2 of that report they set out the Guiding Principles and Objectives.

Urbanistic Approach to Cycleway Design

Re-urbanisation and re-appropriation of infrastructure with bicycles

Current work of the GHW only weakly explores their vision. The GHW provides an opportunity for more than just a route or pathway around the edge of the harbour; it has potential to be developed as a recreation corridor and part of a wider network that connects communities and provides opportunities to interpret the multi-faceted natural, cultural and historical values of the harbour. The trail will complement and add to the already extensive network of mountain bike tracks.

The pleasant experience of cycling in cities relies on the implementation of high quality infrastructure in the city. Pedal-powered vehicles and cycling as a form of mobility are significantly enriching urban life in cityscapes worldwide. Organizing urban individual mobility by bicycle rather than car can alter the use of public space, thereby raising the quality of urban life (Gehl 2010). Wellington, a city whose historical progression and settlement has been defined by mediating between water and land, city and sea, has been aided by various constructed edges. The proposal give the edges back to the Wellingtonian. This will be Wellington's great asset, celebrating Wellington's social, cultural and maritime environment.

Wellington's harbour is also home to myriad of attractive open spaces. Here lies the opportunity that allows to build the greater experience: bike-ability to move uninterrupted offers a truly unique experience for riders. The route traverses a tremendous diversity of Wellington's coastal landscape, each with its intrinsic character, qualities, issue and opportunities. It is the eagerness to explore more of Wellington, which has inspired to create a better network that can open up waterside cycling either for recreational, training, racing or touring purposes. The implementation of those design interventions focus on expanding a network of diverse and attractive public access to the harbour and connecting those destinations. This experimental design operates at the intersection of architecture, landscape and urbanism. It seeks to capitalise on the unique characteristics of the Great Harbour Way by analysing wide ecology and re-envisioning the relationship between city and harbour-scape while also aiming to create a stronger socio-economic environment where both community and users benefit, enhancing the experience of the journey.

The coastal edge of Wellington is mostly developed for transport requirements, meaning a lot of coastal roads have water to one side and housing or hills to the other. The result is that road widening is difficult and very costly. On its narrow roads, where segregated bike lanes do not exist, Wellington's cyclists share space with other traffic. To become a pedestrian and bike-friendly city, the development of an extensive network of segregated cycling facilities and bicycle friendly policies are essential. We need to revitalise low activity area and improve management in high activities area in order to distribute and encourage people to move through the city and around the harbour. Drawing from the success of many cities around the globe, Wellington's unused or potential space can be artistically, culturally and creatively re-invented to encourage walking and cycling between sites.

Chapter 2. Case Studies

Model Communities Projects

NZ Transport Agency has approved the funding in the walking and cycling activity class of the National Land Transport Programme. New Plymouth and Hastings were then selected as model communities. The purpose of this investment is to help create an environment that will make walking and cycling easy transport choices for people in New Plymouth and Hastings. Further investment is enabling New Plymouth and Hastings to build on their community's enthusiasm for getting around on foot and by bike and outdoor recreation to attract new cyclists and walkers.

Figure 9 - above: In 2010, New Plymouth became one of New Zealand's first two Walking and Cycling Model Communities with Hastings, collectively receiving funding of \$7.28m which has resulted in an expansive network of cycle trails, amenities, walkways and events. Through this funding NZ Transport Agency is encouraging the local councils to demonstrate the leadership and commitment to best integrate walking and cycling as an integral part of their communities.

New Plymouth Coastal Walkway

Figure 10: The award-winning Coastal Walkway is a ten kilometre path that forms an expansive, boulder-edged promenade stretching almost the entire length of the city along the Tasman Sea.

Coastal Walkway Design

Community projects that connect people with place through outdoor experience.

New Plymouth set out to encourage and enable predominantly recreational cyclists and walkers to transition from the well-used coastal walkway to commuting on road and on the many upgraded and newly connected pathways. A strong focus on safety around schools and getting school children and their parents to walk and cycle to school will embed the active transport habit in the next generation.

Enabling:

- Overcoming infrastructural barriers to walking and cycling.
- Extend the existing network of safe and accessible shared use off-road cycle and walking pathways to link key destination points including schools, industrial areas, city centre and residential areas.
- Another significant aspect of the New Plymouth District Council (NPDC) programme has been the creation of shared spaces to bring residents out onto the streets and build stronger communities.

Figure 11: An ideal access point in central New Plymouth is via an underpass along the river at museum/i-site/library Puke Ariki, at Egmont Street and the Puke Ariki landing. That leads to a grassy park and boardwalk surrounding the iconic Wind Wand, a 45 m carbon fibre tube, topped by a glowing red sphere that sways back and forth in the near constant winds.

Re-claiming the Edge: Creating a safe, and pleasing connection to shorefront Application towards GHW: Site analysis - seek for ideal access points

Figure 12: The Coastal Walkway has been designed to suit the greater coastal landscape. The design uses robust and simple materials with strong lines and textures to stand up to, and reflect upon, the character of the west coast.

Re-claiming the Edge

Building new central urban foreshore along the abandoned railway land.

Figure 13: The shoreline has been expanded in order to reclaim the edge. Seaside paths are well used for recreation and are important visitor destinations. Use of boulders have subtly altered the coastal form over time, preventing potential erosion of reclaimed land.

Figure 14: The promenade is designed without an edge, to accentuate the sense of being on the edge of the sea, while the curved seawall and location of the path provide protection from the waves. The seawall is also punctured by finger piers, which are designed for people to view and enjoy the open coastline.

Te Rewa Rewa Bridge

Framing the soul of the province: identity

Figure 15: Beginning at Hickford Park, meander through picturesque farmland continue past the Waipu Lagoons, then start hugging the coastline where you will walk alongside the New Plymouth Golf Club before reaching Te Rewa Rewa Reserve. Cross the dramatic Te Rewa Rewa bridge, which frames Mt Taranaki, then go on to the Fitzroy Motor Camp, and visit surf beaches at Fitzroy and East End - all the time watching the ever-changing sea.

Framing: Creating a special 'moment' in the journey

Application towards GHW: Viewshaft analysis - seek for opportunity

Figure 16: At its heart – both geographically and spiritually – stands Mount Taranaki, a natural playground and proud regional icon. It has many vivid stories to tell. Mount Egmont/Taranaki, the rain magnet and the original source of the rich soil that drives what continues to underpin the main economic driver of the province: dairy. It is a symbol of the region.

Development Timeline

Walking and cycling model communities Project

Hastings' vision

“ Making walking and cycling irresistible.

- Hastings aims to increase walking and cycling by 8% per annum to achieve a total mode share of 20% by 2020, taking as a baseline the 2006 census data (walking 5% and cycling 4%).

Hastings, on the other hand, focused more on providing **key walking and cycling arterials** and a **highly visible and coherent network of adjoining collector level routes** that link where people live, work and learn. A multi-modal urban transport model developed in partnership with Hawke's Bay Regional Council and the NZTA has been used to identify the best routes, taking into account trip length, attractiveness, traffic volume and speed and roadside parking, among other things.

Learning From the New Plymouth and Hastings

The concept of integrated network reinforced new pathways connecting the centre of Hastings to be created to outlying towns and enhanced on-road facilities. An additional focus has been on disadvantaged communities where accessible transport options are important and the health benefits of active transport modes are the greatest. These arterials are significant commuter routes for the journey to work, school and shopping areas and they also provide a major advantage over more secluded off-road routes in the battle to win over hearts and minds and get people out of their cars. It is particularly important to provide safe, easy trails for beginners and families. Wide shared path where cyclists can ride two or three abreast enhance the social aspect of the cycle experience.

Wellington also requires to develop a programme and ambitious package with timeframe imposed. It takes time to go through the planning process, to determine the right mix of solutions, to the right standard and in the right place, and to ensure key stakeholders and the community are on board. Wellington has already started building the momentum. A prioritised programme of activity that takes a strategic approach to deliver transport outcomes, is well planned, incorporates an integrated package of interventions and is ready to implement, is likely to be more successful in delivering on outcomes and receiving investment.

A model walking and cycling community is not developed in isolation from the transport network as a whole. To achieve the best results, it must be seen as an essential component in an integrated approach to ensure it contributes to delivering an integrated, multi-modal, and one network transport strategy.

Norwegian National Tourist Routes

Nasjonale turistveger
National Tourist Routes in Norway

Figure 17: Norwegian Public Roads Administration (NPRA) has been commissioned by the Norwegian Parliament and Government to develop the tourist attraction National Tourist Routes, consisting of 18 selected stretches of road passing through Norway's beautiful and varied scenery. The construction of the National Tourist Routes started in 2005. To date, more than one hundred rest areas have been established, and several new ones are foreseen in the years to come.

Figure 18: Norway has abundance of well-marked routes for walking, hiking, cycling and cross-country skiing. The National Tourist Routes - scenic roads for exploring Norway's breath-taking landscapes - comprises selected stretches from north to south. Mountains, fjords and coastline form the core of the travel experience.

“ The National Tourist Routes scheme is a successful long-term architectural initiative that has transformed parts of rural Norway into national tourist attractions. Previously isolated areas have become destinations in themselves through the commissioning of a variety of built projects.

- Royal Institute of British Architects (RIBA)

Norway powered by Nature + Architecture

An ambitious series of architectural design is turning the spotlight on Norway's natural beauty.

“ I am admiring an icy-blue river framed by majestic snow-capped mountains - but would have easily missed the spot were it not for the stunning structure I am standing on. ”

Figure 19: Visitors walk out on a wooden platform over the Aurland fjord, Norway.

Architecture and design added value along tourist routes

The routes have been tidied up and new amenities have been built along the roads to make them more convenient for travellers. The rich experiences of the countryside are hereby enhanced, making travellers' encounters with Norway more diverse. However, the amenities themselves are meant to have a signifying function and provide an image of modern Norway by representing the best architecture and design that this country has to offer. This is the added value to be achieved through the project.

Adapting to the rugged topography, yet distinctive architectural features: enhance the identity of individual stretches.

Figure 20: Over the past few years, a number of small but noteworthy architectural projects along Norwegian roads have received substantial international attention. Functional objects, such as rest areas, observation platforms and service facilities with exciting shapes and startling solutions. They have been placed in harmony or in sharp contrast to the Norwegian landscapes and surroundings, giving each tourist route a special identity. Photographs from the Norwegian Public Roads Administration.

Application towards GHW: Locate breath-taking 'moments' on the route. Create vantage points - highlighting different geographic features.

Trollstigen Viewing platform

Trollstigen National Tourist Route

Project: design by Reiulf Ramstad Architects, Norway

Location: Geiranger Fjord, Romsdalen, Norway

Construction: 2005-2011

Figure 21: Trollstigen - or "troll's ladder" - is regarded as one of Norway's most spectacularly beautiful areas and the tourist route across it is one of the country's most popular attractions. Created by glacial ice cutting through steep valleys of existing bedrock, the fjord is enclosed by dense forests that withstand rough winters. Its exquisite characteristics are also derived from its towering crystalline rock walls, free-flowing rivers and sporadic waterfalls. With such an intense landscape to manipulate, Reiulf Ramstad Architects spent over six years in the route's construction. Previously isolated areas have become destinations in themselves through the commissioning of a variety of built projects.

The Tourist Route Initiative: Distinctiveness

Each individual National Tourist Route have its own identity, but equally so be a piece of an entire, comprehensive mosaic made up of 18 sections. Mountains, fjords and the coastline are strong fundamental and recurring elements found in all sections and which therefore spiced up with different types of content in order to enhance each area's distinctiveness. It is crucial that such elements be varied so that the different sections do not converge.

One of the objectives of the GHW is for it to become part of a wider network that connects communities and provides interpretation of the natural, cultural and historical values of the harbour. An initiative may involve a few simple benches or a roadside rest area that provides access to a unique location, ensures that people who are less mobile can participate in experiencing the coastal pathway, or that everyone is able to reach the sea across the road effectively.

Inaccessible nature of the site, elements molded into the landscape providing intimate experience.

Application to GHW: a thin thread that guides visitors from one stunning overlook to another.

Learning from the Norwegian National Tourist Routes Project

Over the past few years, a number of small but noteworthy architectural projects along Norwegian roads have received substantial international attention. Functional objects, such as rest areas, observation platforms and service facilities with exciting shapes and startling solutions, have been placed in quiet harmony or in sharp contrast to the Norwegian landscapes and surroundings, giving each tourist route a special identity. All of these elements are moulded into the landscape so that the visitor's experience of place seems even more intimate. The architectural intervention is respectfully delicate, and was conceived as a thin thread that guides visitors from one stunning overlook to another.

New Zealand's cycle trail tourist routes offer many similar opportunities to those that have been developed in Norway. The GHW project has set out on a journey to make a vision come true. In order to capitalise on the opportunity to showcase Wellington to the visitors - as well as to the population of city, I believe the experience gained in Norway in site identification, design briefing, competition organisation, collaboration between organisations and project financing are all things local authorities and tourism organisations can learn from, and, with political will and determination, apply to New Zealand. These will stimulate debate on how the ideas generated in worldwide can be positively transferred to our situation, particularly through architectural competition.

In other cases, the challenge is to interpret established locations each of which carries its own more or less well-known history. All along the GHW route, we encounter that which is local and unique, and with these project can acquire a narrative function and interpret local context. One example of this is a project concerning the Pencarrow Head where New Zealand's first light house was erected on 1 January 1859 and up to 21 wrecks have been recorded on the Pencarrow coast including sinking of the Lyttelton-Wellington ferry Whine on 10 April 1968. There are also the nationally important Lakes Kohangapiripiri and Kohangatera. The ambition here was not only to make it possible to experience the wild coast, but to tell a meaningful story about the local history and natural environment.

In other cases it is about tidying up, re-establishing sites and experiences, and rehabilitating situations such as poor roads and thoughtlessly built amenities along the route that over time have fallen into disrepair. Wellington to Hutt Valley Walking and Cycling Link is particularly difficult being only commuting route between two major cities. The issues with the current cycleway link include it being too narrow for two-way travel, its width isn't consistent and it has maintenance, drainage, flooding and uneven surface issues that make it off-putting.

Because we live in urban and industrial environments that are constantly evolving, time and movement are increasingly important to us as place and permanence. It is time to redefine roads as scenes of work and leisure and social intercourse-as place rather than as means of getting to places. How do we design transport infrastructures to invite people to interact with our natural environment and share it with others?

Chapter 3. Design Study

Approach to Design: Coastal Cycleway

Strategic locations: Rest-stop points selected

Process of selection is based on scenic value, availability of open space, link with other transport, analysis has been done to understand behaviour of current cyclists and pedestrians-where they inhabit, stop for rest, vintage point and what are they attracted towards in order to enhance the excitement of the journey. They will also act as key marks along the journey. Map on the right indicates points of pre-developed sites as rest-stops and new potential sites to be developed further.

Multiple functions

The construction has to adopt several roles, such as a viewpoint, kayak launching or rest stop for relaxation that can give the cyclists the opportunity to enjoy the landscapes and provide them with a place where they can wallow in the whole experience. It will also provide alternative mode of travel or sport that trigger people to choose new ways of enjoying the coastal pathway. The minimum functionalities that allow the cyclists to recover and shelter from weather conditions should be added.

The Great Harbour Way: Opportunities

Identifying User Profile

Differences in the abilities and purposes of pedestrians and cyclists must be understood before planning for transportation improvements (see appendix 11). Whether the individual is walking or cycling, his or her purpose can generally be divided into utilitarian or recreational categories. The utilitarian pedestrian or cyclist has a specific goal of reaching a destination in the shortest amount of time with as few interruptions as possible. The recreational pedestrian or cyclist either enjoys the view at a relaxed pace or with a faster-paced, aerobic workout with an occasional rest stop.

Grade and Elevation

Trail gradient is a critical factor in successfully designing a trail for a specific market or type of rider. For a large portion of the location-based cycling and cycling holiday market average trail gradients of 2-3° are required. Wellington's coastal cycle route are relatively flat and therefore can be well used as both recreational cycling and popular commuter route.

Grade and Elevation through the GHW Route - from Sinclair Head to Bearing Head, Fitzroy Bay: 74.9 KM

Negotiating between land and sea

The proposal implements interactive structures that connects urban and natural elements weaving together nature preserve, beach, residential neighbourhoods, cycling and tourism in a cohesive urban fabric. Instead of backing away from the shoreline, I took an opportunity to access on to our new public realm, bringing Wellingtonians closer to the water.

The route passes through a variety of coastal landscapes ranging from undeveloped wild and relatively 'natural' coast, to highly developed and modified urban areas. The diverse character of these landscapes along the route provides a variety of experiences that typify the harbour edge. Eight generic recognisable landscape character types are found along the GHW route.

Landscape Design Strategies

Possible design options along the seafront

LAWN

function: green experience / walk

QUAY

function: walk / connect

WETLAND

function: water purification / bird nesting

PICNIC

function: sitting / lunch opening

VEGETATION

function: increase biodiversity

TERRACE

function: touching the water

BOAT RAMP

function: kayak launching and landing

STEPS

function: events / theater / outdoor reading

LOOKOUT

function: sitting / socialise

LOUNGE

function: sitting / socialise

Existing Character Area

Typology of existing roads

Existing Character: Study Area Sections

Study Area 1: Point Jerningham - residential coast / constructed edge

Study Area 2: Pencarrow Head - wild coast / natural edge

Study Area 3: SH2 - highway environment / stabilised edge

Design Study One

Point Jerningham

Site Context

Figure 22: In the summer months, Oriental Bay becomes a hive of activity. The beach is consumed with swimmers, party goers and families. The Carter Fountain is a distinctive feature in the Bay, as is the wooden barge which is often covered in swimmers.

Watercourses

Route adjacent to Oriental Bay provides attractive views for cyclists, relatively flat and therefore well used as recreational cycling routes from children to cyclist groups. They provide access to central business districts, they are also popular commuter routes. It also attracts many pedestrians, so conflicts between pedestrians and cyclists need to be considered.

Figure 23: Oriental Bay is situated against the northern slope of Mount Victoria, 1.5 kilometres southeast of the city centre, at the start of a coastal route which continues past Hataitai around Evans Bay.

Figure 24: Walking from Freyberg Beach to Point Jerningham. Located close to the CBD on Wellington Harbour, it has the closest beaches to the central city and is thus a popular spot both for living and for visiting.

Water-vehicle Network

Existing & Potential future network of water-vehicle launching & landing areas

New Water Trail: Canoeing and kayaking opportunities

Along with the development of coastal pathway, groups of non-motorized-small-boat enthusiasts could benefit for this network. New rest-stops will also provide network of launch and landing sites that allow people in small boats and sail craft such as kayaks, canoes, dragon boats stand up paddle and windsurf boards, to safely enjoy Wellington through single and multiple-day trips. This water-vehicle network has the potential to enhance bay area communities' connections and create new linkages to shoreline open spaces and other regional trails as well.

Waterfront Edge Condition

Point Jerningham

Existing context / new water-vehicle network & opportunities

Figure 25: The distance from Freyberg Beach to the Point Jerningham lighthouse is 1285 metres. There are four yellow 5 knot marker buoys off Oriental Bay. From about the middle of Freyberg Beach out to the western end 5 knot buoy is 250 meters, from there to the next buoy is 350m, then another 220m to the 3rd buoy and 260m to the eastern-most one. From that eastern buoy to Point Jerningham lighthouse is another 400m.

Journey Sequence on Bike

From Waterfront to Point Jerningham

Experience Note

Every lunch and evening hours thousands of feet walk, jog, stroll or bike the well-worn waterfront pavements between Queens Wharf and Point Jerningham via Oriental Bay. The route is flat, safe, and incredibly scenic. From Waterfront, Point Jerningham is about 3 km away and 30-40 minutes walk. On the way there are generous number of benches and opportunities to touch the water. The wide shared pathway gets narrower and shaded passing the Point Jerningham. People tends to stop at the seawall platform and step down to the gravel beach at Point Jerningham for refreshment and fishing.

Figure 26: Aerial view of Point Jerningham, acquired from LINZ Data Service. Point Jerningham is on the west side of Evans Bay and it protrudes into the harbour. Driving from Oriental Bay, it is at the sharp right-hand corner where you start back towards the airport.

Welly to Shelly Route

from Wellington Railway Station to Shelly Bay: 11.7 KM

- Users

Tourists / Joggers / **Strollers** / Fisherman / Welly Paddlers / Local Residents
 Types of **Cyclists**: Commuting / Recreational Riding / Casual Riding / Group Riding / Rental Bikes / Training Riding
- Opportunities

Scenic View / Plant Life / Meeting Place / Fishing Platform / **Rest and Recover** / Touching the Water
 Seating for a bite or Reading / **Check or Turning Point** / Picnicking / Ocean Swimming / Round the Bays
- Facilities

Restroom / Drinking Fountain / Bike Parking / Bike Maintenance / Water Vehicle Parking
 Tidal Pool / **Lookout** / Elevated Park / Shower / Changing Room

Existing Site Plan

Point Jerningham

Close-up textures

Figure 27: The existing rest-stop at Point Jerningham is unused most of the time due to direct noise and obstruction of the view from the traffic. However when you step down to the shore, water generated sounds mask the road traffic noise and the view towards the city is wide open.

Physical Model Making

Using glod foam and CNC Router

Design Study Drawings I

Design Study Drawings II

Design Study Drawings III

Visibility Analysis Crossing safety risk

Figure 28: Crossing streets at uncontrolled locations such as Pt Jerningham is posing a serious risk to pedestrians and cyclists. Even if a crosswalk has been painted across the roadway, the driver may not notice the crosswalk markings. In addition, the driver may physically not see the pedestrian because the pedestrian is obscured by parked vehicles along the curb. At night, pedestrians can be extremely difficult for motorists to see in time to stop.

Design Exploration I

Design Idea

An open-air elevated platform reaches out into the sea, it forms a living and integral part of the coastal trail of Wellington. The circular wooden pier leads the visitor to the tip of Point Jerningham. The parts of the platform gradually change above the sea surface, forming a diving platform, boat launching / landing point and lookout point. The platform is conceived as a sculptural dynamic form, which can be seen as a fish hook. According to Maori legend, Wellington harbour is the mouth of the fish. I wished for an architecture that not only communicate the story of its land but also fulfil the practical needs.

The circular shape creates a concentrated interior and shelter from the winds. The shape opens up towards the seaside to invite kayakers and peddlers inside. A continuous bench runs along the pier, thus creating an additional rest and leisure area. Ramps, and other special features and facilities allow the less mobile members of the population full access to the sight. This is nothing private or exclusive, rather a facility open to everyone, regardless of age, physical mobility or needs.

Sequence Design

Figure 29: Hei-Matau: Fish Hook - The stylised fish hook represents strength, prosperity, abundance, fertility and a great respect for the sea. It also is said to provide good luck and safety when traveling over water and often worn by travellers. The design was inspired from the story of Maui's fish because not to do so would be simply unnatural, because we have grown up with these forms, and because they speak so deeply of this place, this land, and its people. As Kiwis these forms infuse our consciousness, they are part of what it means to grow up in Aotearoa – New Zealand.

Figure 30: Physical model of the proposal.

First Proposal on Point Jerningham

To create a series of harbour-side facilities along the GHW in Wellington, the design interventions could be public interface between the Earth and the Sea. The primary purpose of the design intervention is to provide rest stops for bike riders and walkers whilst accommodating various pre-existing users and activities such as kayaking and fishing. Such a sensitive location presented a number of problems and constraints, perhaps the most difficult balance to strike was whether the structures should be visible and iconic or not. If the facility was to become a key point through the journey then it should announce itself, however given the nature of the landscape setting, it had to be a sensitive response to the site. The design creates an attractive landscape, part of the extended platform steps down into the sea water while the part of the structure cantilever outwards to capture the views of the harbour and the city.

It is a building for the people – for the people of Wellington, for cultural visitors and for tourists. A simple and organic gesture creates a topographic form that blends into landscape making a fluid and natural relationship between the Earth and the Sea.

Design Iteration II

Second Proposal on Point Jerningham

The concept for the project has been driven by a practical solution to access, movement and visual and environmental sensitivity. The design has minimal change to existing condition of the seawall while adding new platform that brings people down towards the sea. The rest stop provides a 'park and rest' that previously did not work due to the passing by traffics. Visitors are led down to the seawall and down to the sea. The sloping slope forms an informal seating area. Water generated sounds mask road-traffic noise and provide perception of "freshness" and "calmness." The proposed design engages visitors with the natural beauty of its setting, the harbour, marking memorable point along the journey and create opportunities for quiet rest and unexpected interactions.

Design Study Two

Pencarrow Head, East Harbour Regional Park

East Harbour Regional Park

Figure 31: East Harbour Regional Park is located on the eastern side of Te Whanganui-a-Tara (the Wellington Harbour). The park covers just over 2,000 hectares and is made up of three separate blocks: the Northern Forest, the Parangarahu Lakes Area and Baring Head/Ōrua-pouanui.

East Harbour Regional Park

Parangarahu Lakes Area & Baring Head

Recreation activities at the Regional Park

Legend

- Mixed forest
- Broadleaf forest & regrowth
- Scrub
- Wetlands
- Grassland
- Walking and Mt. biking track
- Tramping track
- Gravel road

- Mapboard
- Walking
- Tramping
- Mountain biking
- Wildlife
- Viewing point
- High point (height in metres)
- Lighthouse
- Bridge or boardwalk

Figure 32: The Pencarrow Coast Road, south of Eastbourne and around to Fitzroy Bay, is a flat and relatively easy mountain bike ride. Sea birds and plant life thrive on the exposed coastline, while the nationally significant Lakes Kohangapiripiri and Kohangatera are home to a variety of waterfowl, eels and fresh water fish.

Journey Sequence on Bike

From Eastbourne to Old Pencarrow Lighthouse

Experience Note

You can walk or cycle to the Pencarrow Lighthouse. The terrain is flat on a well formed gravel road. It is about 8km to the Lake area so cycling is recommended. The primary recreation activities are walking and mountain biking and the area has become a popular location for bird watching and photography. Visitors can enjoy views of the rugged coast, panoramic scenes at the lakes, and from higher vantage points wide vistas over Wellington harbour and further out to sea and across to the South Island.

The majority of visitors will follow the path up the escarpment to the historic Pencarrow Lighthouse and then venture into the lakes if time and energy permits. More experienced cyclists may want to explore the headland between the two lakes. While this is an easy ride, there are no facilities and little shelter on the way. As this area is exposed to strong southerly wind, a rest-stop at the bottom of the Pencarrow Head seems very beneficial for lunch break and recovery.

Exploring the South Coast - from Days Bay to Bearing Head: 18.03 KM

Users

Tourists / Traking / Fisherman / Welly Paddlers / Geologists / Campers / Field Trip / Oyster Catchers
Types of **Cyclists**: Recreational Riding / Mountain Biking / Bike Touring and Camping

Opportunities

Scenic View - Cook Straight / Plant Life / Meeting Place / Fishing Platform / **Rest and Recover** / Touching the Water
Seating for a bite / **Check or Turning Point** / Picnicking / Cayak Landing / Orientation / **Environmental Education**

Facilities

Restroom / Drinking Fountain / **Bike Parking** / Bike Maintenance / Water Vehicle Parking / **Lookout** / Wetland Walk

Historic Timeline

Pencarrow Coast and its surroundings

Conservation Values and Threat Management I

“ Kohangapiripiri has been freshwater for at least 7000 years. It is the “mountains to the sea” integrity of the “lakes block” that gives the wetlands a unique value in the Wellington region and a high national status. ”

Farm stock have been excluded from the whole “lakes block” thereby allowing **Re-Vegetation** of not only the lake shores, but also the surrounding hill slopes. This should result in an improvement in water quality. The upstream wetlands, the hill slopes and the ocean beaches all contribute to the overall quality of the lakes and their biotic and landscape integrity.

“ The indigenous freshwater fish fauna of these lakes and catchments is one of their prime biological values. ”

Wetlands are New Zealand’s overlooked natural spaces. To protect and enhance the valuable native fish fauna, modifications to the outflow stream culverts need to be undertaken to permit **natural flushing to the sea**. They are shallow, and grade into extensive valley wetlands at their upstream ends. Being accessible to the public and currently part of a grazing lease, their **vulnerability to disturbance** is high. Hence future management should aim to **protect and restore ecological communities**.

Recreational Impacts:

The Kohangapiripiri dune area between the roadway and the sea is always criss-crossed by vehicle tracks and footprints, evidence that the signage is ineffective at preventing access. Probably the most practical approach for keeping people off the beach surface is to **provide a boardwalk** with appropriate interpretation.

The establishment of a **resident park ranger** should enable more thorough policing of access to these beaches and lakes.

Conservation Values and Threat Management II

“ Under a Regional Park concept, with stock excluded, the most serious threat to the integrity of the lake and beach ecosystems is people. ”

The endemic lakeside and dune vegetation is sensitive to trampling, especially on the beaches. The high quality of these habitats today is primarily due their remoteness, in terms of walking distance, and the resulting very low visitor numbers. Any change to present condition have a risk to escalate the damage.

It is recommended that **boardwalks be used to protect sensitive beach** and lakeshore habitats and that posts be inserted along the roadways to deter vehicular traffic from leaving the formed road. Additional measures will be required to **restrict people's access to the beaches** during breeding times of banded dotterel.

Banded dotterel:

The lakes, wetlands and raised beaches together support a wide range of native plants and animals, including ten species of significant plants, two of fishes and three rare wetland birds. Banded dotterel nest on the open sand, the only area in Wellington region where this occurs.

Historic Value:

The land now part of East Harbour Regional Park has long been a place of Maori occupation with archaeological evidence recorded particularly around Fitzroy Bay and Lakes Kohangatera and Kohangapiripiri. Maori also used a network of routes along the eastern harbour ridges to connect their settlements on the Pencarrow coast, Fitzroy Bay and beyond.

“ The raised beaches, in their natural state, allowed breaching of the lakes to the sea whenever flooding occurred. This natural cycle is irregular and vital to the sustainability of the freshwater fish fauna. ”

It is noted that the present outlet culverts and road embankments have the potential to obstruct the natural outflows from the lakes and the inward migration of larval fishes. It is therefore recommended that **open piled causeways** be considered to replace the existing outlet pipes under the roadway in order to permit more natural scouring by the outlet streams.

Figure 33: Raised Beach Ridges, These ridges are significant to the Wellington area as they give insights to the formation of Wellington Harbour.

Rāhui at Parangarahu

Rāhui to protect nesting site of rare birds on 1.7km of Pencarrow coast

Figure 34: October 2013, Taranaki Whānui kaumātua placed a land-based temporary rāhui at Parangarahu (Pencarrow Coast). The rāhui encompasses around 1.7 kilometres of beach next to Pencarrow Coast Road between the Pencarrow lighthouse and the eastern end of Lake Kohangapiripiri beach where a small colony of Banded Dotterel are trying to breed above the high tide mark. Vehicle access along the 9km Pencarrow Coast Road and walking access to and around the Light House is still possible but people are asked to stay on the road and if walking on the beach, to stay below the high-tide line.

Banded dotterel nest and eggs set on open beach gravels, vulnerable to vehicles and predators

Figure 35: "This is one of the largest, of only a handful of coastal breeding colonies of banded dotterels in the Wellington region, with around 20 breeding pairs at this site. Unfortunately this population is under considerable pressure at the moment, with only three per cent of nests successfully hatching chicks over the past two years," says Wellington Regional Council, Environmental Scientist, Nikki McArthur.

Conservation Values and Threat Management III

“ A maximum of three **public viewing platforms**, connected to the shore by boardwalks, are suggested for the lakes. ”

Contour tracks that follow the lake esplanade strips are acceptable to encourage public access along the shorelines of both lakes to reach the upper swamplands as shown in WRC Concept Development Plan, 1998. It is strongly recommended that vehicles be banned from these tracks and that vegetation be allowed to regenerate so as to form a closed canopy over the tracks in some places.

In addition to providing views and interpretation for visitors, **extended platforms** would enable sampling of aquatic fauna and flora to be carried out without the need for a boat.

Ti kōuka – New Zealand cabbage tree
(*Cordyline australis*)

Originally cabbage trees grew in swamp forest, along river terraces, and on damp hillsides. They have been widely planted throughout New Zealand. Cabbage trees grow to 20 metres in height and develop a massive trunk up to 1 metre in diameter. This branches after each flowering and over time develops a wide crown of long tufted leaves. Each spring it produces a large spray of sweet-smelling flowers.

Kakara Tree
(*Corynocarpus laevigatus*)

This evergreen tree is a popular place for smaller birds to sleep in during the winter. It is of great value to birds and other fauna, including invertebrates that feed on their fruits and disperse their seeds. The ability to bear fruit in winter gives this plant a very important ecological value, being a good food source for many species, especially birds, at a time when resources are scarce.

Management Recommendations:

Active revegetation is recommended around the lake shorelines to establish groves of taller trees close to the water. Ideal species would be cabbage tree (*Cordyline australis*) and karaka (*Corynocarpus laevigatus*). The other local shrub and tussock-forming species should establish naturally.

Sequence Study - Existing Condition

Sequence Design

Figure 36: One of the proposed objectives of the East Harbour Regional Park is "to provide for a wide range of outdoor recreational activities which are compatible with the park's natural and cultural heritage values..." (East Harbour Regional Park Management Plan, Pt 1, p. 6. 1995)

Figure 37: For design method, I explored the sequence of how people approach and move through the site. How the site is experienced is a focus of this stage.

Site Selection

Figure 38: At present the number of visitors to the Lakes area is severely limited by the restricted vehicular access to Fitzroy Bay (controlled by HCC) and the distance from car parks. Apart from those transported by M. Curtis for his tourism business, the majority arrive on mountain bikes.

Design Exploration I In-between Passage

Design Iteration

First Proposal on Pencarrow Head

Conceptually, the approach is to encourage visitors to experience and move between the two contrasting and ecologically rich sites, the lake and its wetland and shoreline of the raised beach. With timber boardwalk, rectangular timber frames are used to intensify the sense of movement while wooden slats and benches provide place as shelter. This intervention provides a public space that could foster an appropriation of its land and become a privileged and interactive stage for the visitors.

Section AA

Design Exploration II

Figure 39: At the southern end of the beach lies an abandoned pier. The site of the former shipyard near Pencarrow Lighthouse comprises a rough concrete pier extending some 40m seaward from the end of the beach pebble.

Design Exploration III

Watching Tower + Mobility Hub + Shoreline Protection

Second Proposal on Pencarrow Head

The design strategy is to build a watching tower to give visitors a point where they can overlook both the lake and Cook Strait, connect with mobility hub, to enhance accessibility and allow cyclist to park their bikes to walk up to the lighthouse on the hill. The viewing platform was given the form of a tower with a main space at the top overlooking the Cook Strait to South and two smaller spaces on the way to the top, one facing a nearby bird nesting area and the other one facing Lake Kohangapiripiri.

Figure 40: View towards the viewing tower from the abandoned pier.

Figure 41: View from interior of the tower toward Lake Kohangapiripiri.

Proposal on Pencarrow Coast Road

This beach ridge was raised by earthquake uplifts prior to 1855. It is one of the best examples nationally of a raised beach ridge. It is also very important within the Wellington area, both ecologically and scientifically for the insights it offers into the formation of the Wellington Harbour and environments. Other examples of raised beach ridges in the Wellington area have in many cases been destroyed or concealed by quarrying, houses or roads. The profile of this ridge is constantly changing as it is affected by storms, wind, wave action and build-up of sediment.

Project on such ecologically significant area requires close collaboration between coastal engineers and landscape architects to arrive at an attractive, sustainable coastal beach in harmony with its surrounding. Essential for a successful project is a clear understanding of the local natural processes and environments, local societal demands and economic issues as a basis for the design of an attractive, high-quality and memorable point in the journey. The viewpoint becomes thus not the final destination, just a resting point between the landscapes of the known and the unknown.

Design Study Three

Wellington to Hutt Valley Walking and Cycling Link

Overview

Wellington to Hutt Valley Walking and Cycling Link

Background of NZTA Project

NZTA are reported to be considering building a new seawall to protect the rail corridor between Petone and Ngauranga. This is good news for Great Harbour Way/ Te Aranui o Pōneke, since it provides the opportunity to mount a shared walking and cycling path on the seaward side of the rail corridor.

The existing cycle path runs between the rail corridor and the expressway, and in places there is simply not enough space to provide an adequate cycle route. At the same time, NZTA is considering the cycling issues all the way from Melling to Aotea Quay. Although this wider scope may prolong the investigation, it is likely to result in a better route for cyclists. This project aims to 'close the gap', investigating options to deliver a safe and efficient route for cyclists between Ngauranga and Petone along SH2.

Figure 42: Aerial view of the ferry terminal and Kaiwharawhara Point. Source: NZTA-Ngauranga to Aotea Quay-Gallery <http://www.nzta.govt.nz/projects/ngauranga-to-aotea-quay/gallery.html>

Figure 43: Aerial view from Kaiwharawhara Point to Petone. Source: NZTA-Ngauranga to Aotea Quay-Gallery
<http://www.nzta.govt.nz/projects/ngauranga-to-aotea-quay/gallery.html>

Key Issues for Cycling and Walking

Incomplete networks for cycling and walking

Problem

The 5km Ngauranga to Petone section of State Highway Two (SH2) is the only direct connection between Wellington and the Hutt Valley. The nearest alternative route would involve a diversion via SH1 to Pauahatāhānui and along SH58 of approximately 45km. In this location SH2 is a 100kph, dual lane median divided carriageway which is an important commuter route for motorists, public transport users and cyclists. The NZTA plans to increase cycle safety and use along this route through improved infrastructure.

It is currently used by over 400 cyclists daily who are forced to use the highway shoulder for at least part of their journey. A southbound off-road cycleway exists for part of the route, but only 3 - 5% of cyclists use the currently provided off-road southbound facility.

The previous study had identified some issues on the cycleway which were factors influencing poor usage, such as the narrowness of the corridor, poor sweeping and drainage, and the fact that the cycleway was not continuous, there was no clear indicator of the key deciding factors or if it was instead the cumulative effect of numerous factors which was at fault. In addition, some issues, such as connectivity of the route to neighbouring urban areas had never been explored.

Figure 44: The cycleway varies in width from about 1.3m to 3.6m wide and is bordered by native plants and a wire rope barrier between the cycleway and the SH2 shoulder. The existing cycle path runs between the rail corridor and the expressway, and in places there is simply not enough space to provide an adequate cycle route. The cycleway pavement is of variable quality and is known to collect both rainwater in the uneven surface and swept debris from SH2. Because of the narrowness of the cycleway, maintenance and sweeping is challenging.

“We want to remove barriers to people’s travel choices, however they choose to get around. This means providing better trains, it means providing better highways, and it means ensuring that cyclists feel like there’s nothing stopping them hopping on a bike to travel between the Hutt and Wellington.”

- Jenny Chetwynd (NZTA Regional Director)

Figure 45: People walking the section between Ngauranga and Kaiwharawhara: After the first km or so there is a reasonable path on the seaward side of the railway line, and near Ngauranga there’s a maintenance track.

Figure 46: A Photoshop recreation of how a dedicated cycleway immediately south of Petone could look on reclaimed land by the harbour. (Alastair Smith, From GHW workshop: Presentation to Regional Transport Committee of Wellington Regional Council, August 2008).

This photo illustrates a possible Ngauranga-Petone cycle path built on the seaward side of the railway line, utilising an improved seawall and the existing rail maintenance track.

Development Timeline

Wellington to Hutt Valley Walking and Cycling Link

Figure 47: The proposed 3.0m width is in line with Austroads Guidance which stipulates that a shared (walking and cycling) commuter path can be between 2.0m – 3.5m. This is adequate for two-way movements of cyclists and pedestrians.

Elevation Map

A coloured representation of elevation

Solar Map

Analysis of average solar radiation and locating appropriate open spaces

Figure 48: Understanding solar radiation to landscape is key to understanding a broad range of natural processes and human activities.

Study Area Topography

Slope gradient

Figure 49: The geographic distribution of slopes influence the size and shape of bikeshed, and energy consumption of the cyclist varies greatly depending on topography, presence of intersections, and street network. Bicyclists are more sensitive to the slope (or grade) and the surface quality of a route than are automobile drivers.

Bikeability Surface

evaluation of the bikeability of neighborhoods.

Figure 50: A large body of research has focused on walkability, however, there has been little effort to define and map “bikeability”. There are important differences between walkability and bikeability. For example, whereas sidewalks are important to walking, our research has shown that bike routes (especially those separated from traffic) and flat terrain are key factors to encourage cycling.

Journey Sequence on Bike

From Wellington City to Ngauranga Station

Experience Note

Concerning the motive to travel, the views, character of the respective landscape are important. Views from Wellington City to Ngauranga is dominated by high volume of motor vehicles. The seaward views are entirely obstructed or blocked off by large industrial buildings and motorway infrastructures. There are lack of cultural or natural attractions, no prepared lay-bys, something that makes viewing the landscape as well as pausing and picnicking more difficult.

Possible Solutions

1. Fix existing bike path
2. Seaward path Horokiwi-Petone with rail crossing at Horokiwi
3. Seaward path Petone-Ngauranga-Kaiwharawhara

Solution 1: Fix existing bike path

Figure 521: Photographs by Alastair Smith. The existing cycle path goes between the rail line and the highway, and is too narrow to allow for a two-way cycle path.

- No space for two way path between Horokiwi and Petone – cyclists must ride on highway
- Inadequate width for cyclists/walkers to pass safely
- Machine sweeping/smoothing
- Not a recreational route

The Great Harbour Way and the regional cycling and walking strategy by CAW suggest developing a cycle/walking path on the seaward side of the rail/motorway corridor, in four stages:

- 1) Petone-Horokiwi
- 2) Horokiwi-Ngauranga
- 3) Ngauranga - Ferry terminal
- 4) Ferry terminal – Wellington waterfront through CentrePoint development.

Issues and opportunities of these sections have been closely analysed later in this study.

Solution 2: Seaward path Horokiwi-Petone with rail crossing at Horokiwi

Figure 532: Seaward cycle path impression by Alastair Smith, cycling advocate, Petone cycle path - using the same track design as the Petone foreshore.

- Allows a route separated from cars
- Problems remain with narrow, difficult to maintain cycle track
- A possible first stage of a seaward route

Preferred solution: Seaward path Petone - Ngauranga –Kaiwharawhara

- Build 3.5m cycle/walk path on seaward side of railway line

Figure 54: Walkers on path from Ngauranga to Kaiwharawhara

Closing the Gap
Infrastructure network proposal

Figure 55: Improving the Petone – Ngauranga cycleway, including creating a new off-road facility between Horakiwi and Petone, will assist in increasing the mode share for pedestrians and cyclists. It is consistent with the objective in the Council's cycling strategy to improve the experience of cycle trips to and from the central area by providing an option for cyclists to ride free of general traffic, and with the vision of the Great Harbour Way / Te Aranui o Pōneke.

Figure 56: Integrating bicycling and transit requires analysis of a broad range of alternatives that considers both the travel patterns and needs of individuals but also accompanying urban form characteristics. What are the most cost effective strategies likely to generate the largest number of cyclists accessing transit?

Bathymetry Analysis + Coastal Land Reclamation

The study of underwater depth and possibilities of future land reclamation

Legend

- Deep Depth (7 - 12m)
- Wider Reclamation (3 - 6m)
- Shallow Depth (0 - 3m)
- New Routes
- Dirt / Unpaved Trails
- Routes for Driving
- Existing Routes for Walking / Cycling
- Walking / Mount Biking
- Bridge to New Seaside Route
- New Kayak / Ferry Route

0 0.35 0.7 1.4 2.1 2.8 Kilometers

Wellington Public Transport Network

evaluation of potential transit hubs along Wellington to Hutt Link

Figure 57: In response to the increasing popularity of bicycle commuting, this study seeks to provide a systematic evaluation of potential bicycle routes and connection of this routes into wider network in order to improve residents' desirability and potential level of use for bicycle commuting. Designing of transit hubs at key interchange points and incorporating bike bus system can encourage people to take up uphill cycling with ease and make the journey to work or home a more interesting and sociable experience.

Public Transport Catchment Area

	Average speed	Distance covered in 10 min.	catchment area
5 km/h	0,8 km	2 km²
20 km/h	3,2 km	32 km²

Appeal of public transport: Encouraging Bike-and-Ride

Having to change bus/train is a distinct disadvantage for public transport passengers (waste of time, discomfort of waiting). Bicycles are an effective answer to this problem. Cyclists may gain a quarter of an hour compared with a bus over the same distance to reach a rapid form of transport-railway station.

Bike + Public Transit

building effective transit

Figure 58: Bicycles can contribute to making public transport more appealing by guaranteeing better accessibility. On the basis of an unaltered journey time of 10 minutes, if commuters likely to carry out the first part of their trip by bike are taken into account, this increases the catchment area of a public transport bus stop 15-fold.

Figure 59: A successful marriage between bicycling and transit will likely increase the use and efficiency of both modes. In certain suburb such as Khandallah and Ngaio, it would be inconvenient to walk or bike all the way of your trip. However it can be no sweat when you combine biking and transit for longer trips.

Potential Public Transport Catchment Area

by development of the Kaiwharawhara and Ngauranga Transit Hub

ISSUES AND OPPORTUNITIES ANALYSIS: Hutt Road 1

CONTEXT

Busy road dominated by commercial activity. The route has no direct connection to the coast and is separated from the coast by SH1 motorway and railway corridor. The interisland ferry terminal is a potential block to creating a path along the coast due to operational requirements of freight/vehicles etc. However, it is important that there is a link between the terminal and the route.

DEVELOPMENT OPTIONS

Consider alternative route along harbour edge, seaward of the rail corridor as part of Hutt Road section upgrade options to the north of this sector. There are potential opportunities for cross links in the vicinity of the Kaiwharawhara Stream, from a coastal path to Hutt Road, if the ferry terminal needs to be avoided. These would involve ridges, ramps and underpasses to cross the railway and SH1.

1. A new cycleway route for the Great Harbour Way between the waterfront and the Interislander terminal needs to be found.

2. The Wellington Urban Motorway, the railway line, and other transport infrastructure surrounding the beach have made it difficult and dangerous to reach.

3. Spaces under the motorway potentially provide space for a cycleway through the Interislander Ferry Terminal.

4. The GHW would need to avoid the operational Interislander Ferry Terminal area.

5. Potential changes to the northern railway link, as well as the push for the Great Harbour Way track can presented an opportunity to open up the beach.

6. Potential links between the coast and Hutt Road via Kaiwharawhara Stream where it passes under the motorway.

ISSUES AND OPPORTUNITIES ANALYSIS: Hutt Road / Ngauranga

CONTEXT

The Ngauranga Gorge is a vital link between Wellington City and the Kapiti Coast and the main route north out of Wellington and it connects the Wellington Urban Motorway with the Johnsonville–Porirua Motorway. There is an industrial area with some retail outlets at the bottom of the gorge, where there was previously an abattoir. There are an abattoir and quarry part way up the gorge. The two kilometre cycle up the gorge is a daily mini-endurance test for many cycle commuters at the end of their working day. However the steep downhill for undertaken by cycle commuters in the mornings represents a relatively dangerous and thrilling start to their day.

ROAD / PATH CONDITION / ISSUES

The Ngauranga Stream is piped for a considerable distance before entering directly into the harbour under the motorway and railway line. By piping streams all the way to the harbour, an important component of the aquatic ecosystem is removed; that being the transition from a freshwater to marine environment (and all the flora and fauna associated with it). The Wellington Harbour is not only lacking in such habitats, but those that remain are generally degraded and severely impacted, as is shown in the case of the Kaiwharawhara estuary. Thus, while considerable time and money would need to be invested in order to make any meaningful improvement to the ecological value of the site, this represents one of the last few opportunities in the District to do so.

MOTIVATION FOR DEVELOPMENT

With wide empty space along the railway and being a middle point between Wellington City and Petone and transit / inter change point to number of neighbourhoods, Ngauranga can be an attractive public area. Development of this area will hel make cycling and walking more convenient by providing neighbouring residents with straight and safe route along th shoreline. Whether you are a seasoned or a novice walker or cyclist, walking your dog, or planning a commute to work or a tri to the local destinations, GHW will be connectt people better with wider Wellington.

Shared path along Old Hutt Road.

Separation from the motorway north of Kaiwharawhara.

Space to develop a path along the coastal edge between Ngauranga and Kaiwharawhara.

The GHW path could skirt around the coastal edge of the tunnelers at Ngauranga.

An extended underpass at Ngauranga Station could provide a safe connection between the coast and the Hutt Road.

ISSUES AND OPPORTUNITIES ANALYSIS: STATE HIGHWAY 2

CONTEXT

Traffic dominated environment, with the route located between the four lane highway and the railway. Separated from the shore by double track electrified railway corridor which allows no access to the harbour edge.

ROAD / PATH CONDITION / ISSUES

2m wide shared footpath/ cycle path for most of the length, separated from the road and rail by a fence or wire barrier either side. The wire barrier between the road and path ends at Horokiwi Road, therefore north of Horokiwi Road north bound users would need to use the seaward hard shoulder, in direct conflict with southbound vehicles, or cross four lanes to the landward side of the road and use the hard shoulder there. Hazardous and unsatisfactory for GHW purposes.

DEVELOPMENT OPTIONS

It is well acknowledged that this section of the route is unacceptable, hazardous and the most challenging section of the proposed GHW, for both cyclists and pedestrians and particularly for north bound travel . Various options are being considered in consultation with NZTA, GWRC, WCC and On-Track.

1. Beside Ngauranga Station is a wide open sapce that can be uti-
lised in various ways.

2. Shared path below grade provides separation from traffic on SH2.

3. In places reclamation along the coastal edge provides a wide plat-
form between the sea and the railway.

4. In other locations the platform on the seaward side of the railway
lines is narrow and largely taken up by coastal armor protection.

5. A path along this section between the railway and shore would
require reclamation or an extended platform.

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4. In other locations the platform on the seaward side of the railway lines is narrow and largely taken up by coastal armor protection.

5. A path along this section between the railway and shore would require reclamation or an extended platform.

ISSUES AND OPPORTUNITIES ANALYSIS: STATE HIGHTWAY 2

1. Peninsula and bench at Rocky Point is a popular fishing spot.

2. Wire barrier provides some physical separation from SH2.

3. Separate path ends and users forced to use hard shoulder of highway.

4. No separate path at the northern end of the shared path.

ISSUES AND OPPORTUNITIES ANALYSIS: PETONE PROMENADE

CONTEXT

Relatively unmodified environment with direct access to the foreshore and boat launching area. Sections of natural shoreline and a section of sea wall. Traffic noise from SH2 and The Esplanade is evident. One of few sections of the route that is adjacent to the foreshore and separated from traffic, coastal road and parked vehicles. Various open space recreation areas and mixed native coastal vegetation. Has 'natural' ambience compared to much of the route.

ROAD / PATH CONDITION / ISSUES

Path varies from narrow gravel weaving through coastal vegetation to wide sealed path above the sea wall. Currently to only possible link between Petone and SH2 is via the overpass.

DEVELOPMENT OPTIONS

Western end links to SH2 section via the road corridor. Potential to continue a path past the water ski club at the west end of Petone beach and connect to SH2 via a rail crossing or continue the path along the coastal side of the railway lines. Assign the existing path as shared path and widen where necessary.

1. Wide path in association with sea wall.

2. Appropriate path surface for less developed coastal environment.

3. Existing way-finding signage.

Places to rest and viewing platforms.

Exploration 1: Acoustic Buffer

No direct audio relationship between cars and bike riders

HIGHWAY NOISE: ACOUSTIC SOLUTION

Walls are most common, and are usually constructed out of dense materials such as concrete or masonry blocks. Earth berms are natural alternative to walls, but require more land space to construct.

2-WAY CYCLE TRACK + PEDESTRIAN WALKWAY

Combined pedestrian and bicycle paths lead to problems for both pedestrians and bicyclists; for pedestrians it is a security and safety problem and for bicyclists a mobility problem. Designing the tracks so that the pedestrians and bicyclists keep to their side respectively is important to improve the situation.

Figure 61: Urban Art Open Call: Barrier Beautification, New York Department of Transportation.

Figure 60: Barrired two-way cycle track would create clear separation from high-speed vehicles and help increase ridership by giving bicyclists a safer option for entering downtown from Oak Cliff

Exploration2: Acoustic + Visual Buffer

No visual relationship between vehicle roofs and bike riders

PERCEIVED SAFETY + BARRIER AESTHETICS

Provision for cyclists on State highways (SH), particularly where there are no alternative routes between district towns, is very important. Route choices and decisions to cycle are affected by perceptions of safety, and it is found that perceptions usually corresponded with observed safety. design options, and encourage appropriate aesthetic considerations to develop visually pleasing

Figure 62: Colourful noise wall barriers on the EastLink Trail. Across the various sections subtle changes are introduced to give a sense of place without compromising the sense of a continuous journey.

Figure 63: These elements form the natural punctuation marks existing contextually throughout the region.

Exploration3: Activating the edge

Encouragement of mixed uses for public enjoyment

PHYSICALLY SEPERATED PATHS

Physically separated facilities such as sidepaths or shared-use paths for pedestrians and bicyclists are a great way to encourage more walking and bicycling.

SHARED ESPLANADE

A separate shared-use path provides transportation links, recreation areas, and outdoor fitness opportunities for a variety of users, including bicyclists and pedestrians.

Figure 64: A separate shared-use path provides transportation links, recreation areas, and outdoor fitness opportunities for a variety of users, including bicyclists and pedestrians.

Figure 65: Taking a stroll or cycling parallel to the water's edge, HafenCity, Hamburg.

Exploration 4: Stormwater Management

Collect, slow, filter and absorb, delaying discharge into the watershed system

STORMWATER FACILITY STRATEGIES

Stormwater facilities such as vegetated swales, infiltration and flow through planters, rain gardens, stormwater curb extensions, green gutters, and pervious paving retain stormwater, and allow for natural infiltration.

SOFTSCAPE

Simple stormwater management applications that do not use extensive hardscape or pipe infrastructure can be very cost effective to install.

Figure 66: Nashville Metro Public Works developed the 28th/31st Avenue Connector as a highly visible, sustainable “complete street,” meaning the design not only accommodates vehicles and transit, but pedestrians and cyclists within a limited right-of-way, plus “green street” stormwater management.

Figure 67: Barriered two-way cycle track would create clear separation from high-speed vehicles and help increase ridership by giving bicyclists a safer option for entering downtown from Oak Cliff.

Kaiwharawhara Catchment

one of the region's most degraded water body

Figure 68: To effectively understand and integrate the various issues, the report would initially consider how the site fits within the broader context of the Kaiwharawhara catchment. The catchment has its headwaters in the Karori Wildlife Sanctuary and flows through Otari-Wilton Bush and Trelissick Park before entering the Harbour at the estuary mouth near the reclamation. The stream has lost much of its original vegetation and natural character in the lower reaches and no longer contains the sequence of plant and animal communities that would have occurred between the upper stream and lower catchment estuarine environments. (Source: Boffa Miskell-Kaiwharawhara Stream & Estuary, 2011)

Kaiwharawhara Stream

The city's only waterway which still flows unpiped into the harbour.

The Kaiwharawhara catchment is located in the western suburbs of Wellington. Though mainly an urban catchment, the headwaters begin in the Karori Wildlife Sanctuary and flow through native bush reserves (including Otari-Wilton Bush and Trelissick Park) and then through industrial and commercial areas in the lowermost reaches before entering the Wellington Harbour at the estuary mouth near the reclamation. The area is seen as a desirable recreational destination and link within the Sanctuary to Sea Walkway and the proposed Great Harbour Way – Te Aranui o Poneke project.

Figure 69: Aerial view of Kaiwharawhara reclamation and stream mouth. The channelized and modified nature of this section of Kaiwharawhara Stream can be seen passing under the motorway and rail line before running adjacent to the industrial buildings along Kaiwharawhara Road (Boffa Miskell, 2011).

Channelisation of lower Kaiwharawhara Stream

Figure 70: Kaiwharawhara Stream is now contaminated with high levels of lead and zinc and it does not provide a good habitat for birds and fish, according to an environmental report from 2011 by Boffa Miskell. A Wellington stream that was once home to little blue penguins is now contaminated and threatened by future port development.

Kaiwharawhara Stream & Estuary

Stream mouth, estuary and reclamation

The Kaiwharawhara stream-mouth has been hugely modified by the development of road and rail into central Wellington. Apart from a short stretch of gravel at the stream mouth, most of the lower estuary has been constrained by concrete culverts and is devoid of vegetation. In the upper part of the estuary above the railway culvert, the banks are lined with concrete walls. The combination of roading, railway and shipping activities have resulted in the area having a long-term pollution problem.

Figure 71: Neither KiwiRail, who runs the InterIslander facility on the south side of the stream mouth and is the primary user of the railway network, nor CentrePort, who owns the land on either side, actively manage the site. The reclamation site in particular is currently severely degraded. To rehabilitate Kaiwharawhara estuary to improve some of its ecological values and recognise its value as the largest stream system in Wellington City and one of the few remaining tributaries with a natural estuary, it would need a range of activities that would go well beyond riparian planting and minor associated works. It would require major commitment from many agencies and substantial long term funding.

Constructing Wetlands

Storm water Runoff and Size

Figure 72: The efficacy of created wetlands generally increase with size. Wetlands should be sized 2-4 percent of the contributing watershed area. This can be reduced to 1 or 2 percent if the design incorporates a pretreatment sedimentation pond before the wetland. Rebuilding the edge of SH2 as a performance landscape enables storm flows to be staged, treated, and infiltrated on site. The proposal takes account of Kaiwharawhara and Ngauranga gorge as main watershed area and it will offer enormous programmatic and interpretive benefits.

Figure 73: Author's imagined representation of the proposal: Restoring Ngauranga Stream and its estuary as a green corridor throughout Ngauranga George + Constructed artificial wetland for native wildlife and stormwater treatment.

Design Exploration I: Kaiwharawhara Point Section AA

Existing condition

Design Option 1: Underpass along Kaiwharawhara Stream

Design Option 2: Bridge extension over railway station

Proposed design

Figure 74: Considering alternative route along harbour edge, seaward of the rail corridor as part of Hutt Road section upgrade options to the north of this sector. There are potential opportunities for cross links in the vicinity of the Kaiwharawhara Stream, from a coastal path to Hutt Road, if the ferry terminal needs to be avoided. These would involve ridges, ramps and underpasses to cross the railway and SH1. A major element of the work is a new sea plaza, which was designed as a gateway to Wellington City and also the start and end point to Sanctuary to Sea trail.

Figure 75: Author's representation of the design proposal, spaces under the motorway could provide opportunity for recreational activities and shared cycle/walkway through the ferry terminal towards Kaiwharawhara Point.

Figure 76: Author's representation of the design proposal, view from Kaiwharawhara Point toward Ngauranga.

Design Exploration I: Kaiwharawhara Point

Design Exploration II: Kaiwharawhara Stream

CREATING RECREATIONAL LOOP Velodrome Park + Rolling shops + Ferry Wharf

Kaiwharawhara Point is planned to grow and expand over several decades, so it was decided to develop a very simple design concept that would fit the level of inhabitation at every stage. This concept proposes a recreational park with outdoor velodrome that would invite riders, skaters and various events. It will serve as a site for pro-level races in the district, and also community asset to neighbourhood residents. Kids and beginners on bike can safely start their riding experience here. More experienced riders can test their fitness.

The rolling shops can have bike rental facility, cafe, locker room, snack bar and public toilets. In the future, the park can be incorporated with other sports courts to provide wider recreational activities.

Design Exploration III: Kaiwharawhara Point

SANCTUARY TO SEA : LINKING ECO-ATTRACTIONS

Just 10 minutes from central Wellington, Zealandia and Otari Wilson Bush are must-see eco-attractions and groundbreaking restoration project: a nature lover's paradise and a sanctuary by the city! This concept completes the link from the sanctuary to sea. It will help visitors discover and explore Wellington's nature reserves, forests and picturesque views and also adds vibrancy to Kaiwharawhara district.

It's a pleasant 2 hour walk from the Kaiwharawhara Point at the bottom of Ngaio gorge, walking through Trelissick Park, through Otari-Wilton bush and Karori Cemetery to Karori Sanctuary. You will need transport at both ends, or it is a 4 hour return trip. Alternatively the Kaiwharawhara train station isn't far away, and there is a bus stop at the bottom of Ngaio Gorge.

Design Exploration IV: Kaiwharawhara Point

EARTHQUAKE MEMORIAL + PICNIC AND BARBEQUES

This design builds on the existing landform with dramatic earth sculpting. The use of gabions and heavily planted earth berms achieve the required sound control. With the recognition of the earthquake in the region, the site can be developed as a contemplative place for the memorial, appropriate to the families. Visitors move over and around the earth berm onto the park with native plants. The paved platform orients visitors to frame a view towards Wellington City, Matiu/Somes Island and distant hills beyond. A large picnic area with barbecue grills will be available to all the visitors. The design celebrates relationship between people and the environment, and as such is designed as a casual meeting place for the families, friends and visitors.

Design Exploration V: Kaiwharawhara Point

ECOLOGICAL PARK + WETLAND RESEARCH CENTRE

The project is motivated by the incipient regional interest to protect and to investigate in restoring the ecologically significant area. The project permits the relation between people and nature. Wetlands Research Centre, would work closely with the university and other agencies, conducts research on wetlands and serves as a clearing house of information on wetlands. The Centre's future will focus on several critical themes in ecosystem restoration, protection and supporting biodiversity around Wellington's Harbour. Development of such facilities will contribute to balancing the delicate and fragile nature of wetland system protection and restoration with the population that now lives, and is intrinsically tied, to that landscape.

Design Exploration: Section BB

Existing condition

Deisgn Option 1: Noise barrier

NOISE BARRIER FROM ROAD TRAFFIC

Walls are most common, and are usually constructed out of dense materials such as concrete or masonry blocks. Earth berms are natural alternatives to walls, but require more maintenance and are less effective.

CRASH BARRIER

Traffic is the greatest threat to general public. Solid traffic barriers can be installed at sea-side to provide safety to pedestrian and cyclist using the waterfront route. It can also reduce the traffic noise.

Deisgn Option 2: Sunken pathway

SEPARATION BETWEEN PEDESTRIANS AND CYCLISTS

Combined pedestrian and bicycle paths lead to problems for both pedestrians and bicyclists; for pedestrians it is a security and safety problem and for bicyclists a mobility problem. Designing the tracks so that the pedestrians and bicyclists keep to their side respectively is important to improve the situation. The most efficient design seems to be a difference in material, asphalt on the bicycle side and tiles on the pedestrian side, together with a separation of the two sides, e.g. by paving stones or curbs.

Deisgn Option 3: Shared esplanade

GENEROUS PATHWAY

The shared esplanade allows and encourages sports and leisure activities, from walking to running, biking, skateboarding as well as relaxation on the edge, protected by concrete balustrade.

Design Exploration: Section CC

Existing condition

Design Option 1: Cantilevered Walkway

CANTILEVERED PLATFORMS

Decks are defined as open platforms supported on framing.

Design Option 2: Piled Boardwalk

ANCHORED PLATFORMS

Each application type is suitable for different edge condition depending on the required depth of water, character of the foundation and the allowable movement.

Design Option 3: Solid Fill

RECLAMATION OF THE COASTAL EDGE

Construct new off-road path on the available coastal edge to provide for more capacity or any alternative route.

Design Exploration: Section DD

Existing condition

Deisgn Option 1: PAVED PATH

DEDICATED PATHWAY

Dedicated waterfront route can be well-loved and used for recreation, fitness and green transportation amenity and a world-renowned tourism attraction.

Deisgn Option 2: SEASIDE DECKING

SEASIDE ROUTE AND DECKING

The design creates a seaside promenade that follows construct-ed coastline, widening and narrowing to create a series of specific places along the way. The decking provides open resting place towards the sea.

Deisgn Option 3: SEA WALL CONSTRUCTION

SEASIDE ROUTE AND DECKING

The design creates a seaside promenade that follows construct-ed coastline, widening and narrowing to create a series of specific places along the way. The decking provides open resting place towards the sea.

Design Exploration: Section EE

Existing condition

Deisgn Option 1: PAVED PATH

GRANITE BLOCK STONE WALL

Robust detailing of smaller scale elements, including benches and ground surface treatments, complement the industrial character of the seaside stretch.

Deisgn Option 2: EXTENDED WAVE BREAKER

THE SCOUT JETTY

A view from one of the 'Scouts' towards the sea, which allows visitors to the steps to stand directly over the sea.

Tawa Flat deviation

Ngauranga Interchange

Ngauranga Station Platform / Stream Mouth

Deisgn Option 3: REINFORCED CONCRETE FOUNDATION

THE SCOUT JETTY

The principal features of the route are the 'Scouts' - concrete planes that penetrate the boulder lining and allow access to the sea.

Ngauranga Gorge

Figure 77: The Ngauranga area has enjoyed particularly strong growth over the past decade and this is due in part to its easy access to Porirua, Lower Hutt and Wellington cities. The Ngauranga precinct is regarded as Wellington's premium industrial location with properties comprising predominantly high quality design built office / warehouse buildings. The two kilometre cycle up the gorge is a daily mini-endurance test for many cycle commuters at the end of their working day. However the steep downhill for undertaken by cycle commuters in the mornings represents a relatively dangerous and thrilling start to their day.

Figure 78: Ngauranga's is known for its rugged terrain and it includes the Ngauranga Gorge, through which State Highway 1 passes on its route out of Wellington to Porirua and the west coast. To the east, State Highway 2 runs wedged between hills and Wellington Harbour on its route from Wellington to the Hutt Valley, Wairarapa, and beyond. It is 2 kilometres long and has a grade of approximately 8%. 65,000 vehicles a day travel through it.

Figure 79: 2). Ngauranga railway station is a single island platform railway station. Behind the fence are the waste disposal facility and the abutment for the southbound bridge of the Ngauranga Flyover. 8) Entrance to the tunnel formerly used by the Ngauranga Industrial Siding (Wellington Meat Export Company) from the Ngauranga railway station yard, now the access road to the waste disposal facility.

Figure 80: Bicycle Guidelines – Width and Clearance: The minimum paved width for a two-directional shared use path is 3 m. Typically, widths range from 3 to 4.2 m, with the wider values applicable to areas with high use (300 users per hour) and/or a wider variety of user groups (a high percentage of pedestrians, runners, roller-bladders, etc.).

Figure 81: The design creates a seaside promenade that follows constructed coastline, widening and narrowing to create a series of specific places along the way. The promenade consists of series of platforms, canopies and lighting elements providing open resting place towards the sea.

Design Exploration: Section FF & GG

Section FF: Existing condition

Section GG: Existing Condition

Section GG: Proposed Design

It provides the opportunity for the crea-
tion of a public open space offering
varied recreation opportunities.

Section FF: Proposed Design

Design Exploration: Section HH & II

Section HH: Existing condition

Section II: Existing Condition

Section HH: Design Option 1

Section HH: Design Option 2

Section II: Proposed Design

Figure 82: Author's representation of the design proposal. With the shoreline reclamation, dune can be created to visually and acoustically separate the harbour way users with heavy motorway traffic and passing train. The earth wall will also provide a path on the top, seating for people to view and enjoy the open coastline. It also protects of the railway from the waves. The promenade is designed without an edge, to accentuate the sense of being on the edge of the sea. The finger piers are designed for kayak launching and landing.

Proposal on Wellington to Hutt Link

This study grows out of the project to plan bike route between Wellington City and Petone. Pressure is mounting on the NZ Transport Agency to make progress on a safe path for cyclists and walkers between Petone and Ngauranga. Completing the fragmented path, which ends one kilometre south of the Petone State Highway Two overbridge, was moved from ninth priority of the region's transport projects to second by the Greater Wellington Regional Council in February, 2012. The existing track immediately adjacent to SH2 is off-putting to cyclists as it is noisy, debris-strewn, narrow and incomplete at the Petone end.

Immediately north of the Kaiwharawhara Stream mouth entrance, the Ngauranga Stream is piped for a considerable distance before entering directly into the harbour under the motorway and railway line. By piping streams all the way to the harbour, an important component of the aquatic ecosystem is removed; that being the transition from a freshwater to marine environment (and all the flora and fauna associated with it). The Wellington Harbour is not only lacking in such habitats, but those that remain are generally degraded and severely impacted, as is shown in the case of the Kaiwharawhara estuary. The estuary of Kaiwharawhara steams is highly polluted and is considered unsafe for swimming and recreation and devoid of aquatic life. Thus, while considerable time and money would need to be invested in order to make any meaningful improvement to the ecological value of the site, this represents one of the last few opportunities in the District to do so.

Kaiwharawhara and Ngauranga streams and their watershed are integral components of an overall design strategy to treat polluted water and recover degraded waterfront in an aesthetically pleasing way. The eminent site design challenge was to transform this degraded landscape into a safe and pleasant public space. The existing seaside rock wall would continue to limit accessibility and preclude habitat creation along the water's edge, so an alternative seawall design proposal was necessary. The other challenge was the site itself. The area is long and narrow locked between the railway line and an urban expressway with water frontage is over 7.4 kilometres in length but averaging only 3–50 metres in width.

When a proper cycleway is developed the community would be able to enjoy a safe cycling and walking link between Hutt City and Wellington that would provide a boost for fitness and leisure while lessening the load on State Highway 2 and the train network. I also believe cycle tourism opportunities will open up as this new safe route connecting Wellington with the Hutt will connect to the Hutt River Trail then onward to the Rimutaka Incline and into the Wairarapa.

The development of this section will be complex, expensive and will only be achieved in the long term. The existing cycle path is squeezed between the expressway and the railway and in many places does not have adequate width for maintenance. A path along the seaward side of the railway to Aotea Quay should be seriously considered. For most of the route there is adequate land on the seaward side of the

rail line and this would create a more comfortable, more easily maintained route that would have the added advantage of providing access to the shore for fishers of kai moana. A various recreational areas and facilities can be included such as an outdoor amphitheatre, velodrome, seating terraces, various cafes, kiosks and tea houses, access to carpark, playgrounds, sculpture gardens, water features, meditation gardens, bore watching platforms and bike sheds, woven along SH2.

Chapter 4. Discussion

The most extensive planning powers in New Zealand system reside at the regional level. The planning function of the regional level is largely one of coordination and of laying out broad principles of spatial policy. We need to adopt a new, creative spatial planning strategy that holds promise for helping to create and reinforce more urbanistic and ecological approach to cycleway developments. There is an extensive public land ownership in GHW, and this ownership affords a further level of land use control that is uncommon in other cities. Norwegian transport agency has embarked on an interesting planning strategy that encourage competition among designers to creatively reform their landscape.

Looking to the future, Gehl says Wellington needs to start making long-term transport investments now, and that building more freeways is 20th century thinking. Modern cities are making changes to their transport networks to improve public transport and make it easier and safer to walk and cycle so residents and visitors have good transport choices.

Copenhagen is a cycling city with 37% of all commuters going on bikes. This high population of cyclists has an enormous impact on the quality of the city, where city streets are freed up from traffic, where speed is slower, and where cyclists are able to stop and park easily and be part of whatever is going on. Melbourne has managed to raise its cycling population 10 times just by painting in cycle lanes and adding barriers in heavily trafficked streets, and New York has rolled out 300km of cycle lanes over the past two years.

Promoting and facilitating bicycle use is a key component of Freiburg's transportation strategy. The bicycle also seems intimately linked to the city's positive self-image. This city has also dramatically expanded its bicycle network since the 1970s. The mid-to-late 1980s especially saw the development of a comprehensive system of bike lanes and facilities. The key to achieving high levels of cycling appears to be the provision of separate cycling facilities along heavily travelled roads and at intersections.

To be competitive, Wellington need to continue to make these kinds of changes. With a flat, compact city centre, appealing suburban centres, world-class mountain biking on our doorstep, and a growing number of people wanting to go by bike, there is great potential to make Wellington a truly cycle-friendly city. To turn cycling into real transport option, it will take a combination of successful implementation of public transit, road network and cycling infrastructures to invite more people on the wheel and bring the cultural change to Wellington.

How to approach a cycling network?

How can cycling be taken into account when dealing with public space?

Bicycling Urbanism: Bottom-up approach

The design interventions will be a spatial manifestation of the relationship between people and city's landscape. Big urban gestures express a top-down set of mind and tend to neglect the existing micro-layering of the urban realm. Current economic and social situation asks for flexible and cost-effective solutions that should be dealt with as an opportunity to introduce an additive approach that would lead to a greater benefit out of the minimum intervention. Landscape architecture carries along great potential for re-establishing the bond of citizens with the city; by grafting the infrastructure, which is an effective, costly and permanent intervention, the city will be provided with a framework for spontaneous appropriation. The expected appropriation will trigger people's willingness to take on the journey, stimulate recreational lifestyle. It will create the premises for a new practice of tourism, one interwoven with everyday life.

With architectural interventions along the Great Harbour Way, Wellington can showcase and encourage various interaction along its way. As we cycle around the harbour, we are exposed to a myriad of formal and informal gatherings, performances and vast landscapes that we can experience at our own pace. Shoreline open space can be defined as a mechanism for maximising the diversity of exchanges while simultaneously allowing opportunity to stop and rest. The Great Harbour Way is a great initiative, but we need to remember that it isn't just for cyclists. It will also provide a walking route for commuters, local residents and people wanting to get out and enjoy their coast.

Mixed-use developments further enhance the city's suitability for bicycle use. With home, work, and leisure opportunities typically located within shorter distance of each other, residents have walkable and cyclable access to retail, leisure, health and education facilities are critical in establishing sustainable communities. A cyclable city not only makes it quicker and easier to access urban facilities, it facilitates friendship and networking, developing a sense of community in the process.

Urban Network: Links with existing cycle networks, towns and cities

The GHW are part of, or connect to, existing cycle networks. Most existing cycle networks have been designed for local users with some cycling experience rather than the novice or less energetic cycle tourists being targeted for the GHW. The entire trip made by cyclists needs to be considered in the planning and design of GHW routes, not just on the route itself but also travel through towns or cities on their way to or leaving the GHW. It is likely that completely off-road solutions will not be available through existing urban areas. All cycle trails used for subsidiary links between main routes and accommodation locations should be designed according to the same standards used for the main route. If the road network of a town or city is likely to be seen as a major barrier to cyclists it may be useful to develop an arrangement with accommodation providers to transport cyclists and their bikes to and from an appropriate location with links to the main route. A trip end facility with appropriate vehicle access, parking, and an area for cyclists to rest and wait for shuttles could assist such an arrangement. This kind of facility also serves as a “gateway” to the GHW route and could take the form of a recreational park. It is about promoting behavioural change among existing cyclists and encouraging newcomers to enjoy the benefits of cycling.

Infrastructure and Service: Cycling and Tourism

The important aspect of cycling and the environment comes under the heading of recreation. Part of the pleasure of cycling lies in being able to travel “silently through the surrounding scene at a pace which allows the rider to enjoy to the very full all the sights and sounds and scents of the countryside.”⁶ A recreational component exist in the very act of cycling and is present whatever the purpose of the trip. To encourage cycling as an everyday activity, bicycle facilities should be placed in locations that serve a variety of purposes. To implement a region-wide network of cycleways, it is necessary that the various local authorities study their respective areas to determine the likely destinations / possible types and sites for cyclists and different users. This idea can be extended to various cycle routes to establish a system and attractive cycle experience; utilising parks or shoreline banks within urban areas, rural roads and mountain or cross-country tracks to provide supportive facilities, enhancing experience of the journey.

⁶ See Warner, Leslie: *Cycling for Pleasure*, British Cycling Bureau, 1974.

Conclusion: Looking forward

I acknowledge that while significant investment and various statutory and other measures will be required to enable the whole GHW route to be developed to an appropriate level, I firmly believe that given the momentum that is gathering in relation to the Government's national cycle network, the work underway and funding allocated by both Wellington City Council and Hutt City Council, GHW has the potential to gain a significant profile on local and national authorities.

Will cycling actually change the city? I believe so. I believe that cycling might just be the catalyst for a 21st Century urban renaissance. Te Whanganui a Tara is a harbour of great natural beauty. Recognising and celebrating this with the development of the Great Harbour Way will give everyone in the region something of which to be enormously proud. The vision of the GHW has been promoted over several years. We need to have much longer-term perspective on our cycling infrastructure needs as well as a radical overhaul of current thinking about how we build them. There is yet inadequate planning, vision or innovation evident from leaders in this field, leading to higher costs, and inefficient developments. All Wellingtonians are invited to take part to learn how they can contribute to the on-going development of this significant resource. Established as a combined effort of all of us will be led to achieving our dream.

Are you ready for a ride?
Pedal and enjoy the harbour.

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Appendices

Appendix1: Planning Framework & Land Tenure

Land Tenure

- The principal landowners are:
- New Zealand Transport Agency (on behalf of the Crown)
- OnTrack (on behalf of the Crown)
- Department of Conservation (on behalf of the Crown)
- Wellington Tenth's Trust
- Port Nicholson Block Settlement Trust
- Greater Wellington Regional Council
- Wellington City Council
- Hutt City Council
- Centre Port Limited
- Wellington Waterfront Limited
- Seaview Marina Limited
- Wellington International Airport Limited
- NIWA

Some private landowners (Lyal Bay, Seatoun, Greta Point, Eastbourne)

Iwi have significant land tenure that the GHW traverses within the scope of the project.

Land & Tenure Designations

Managements and operations - stakeholders and interest groups

Appendix2: Stakeholders Roles and Interests

Key Stakeholders

Information about the role and interests of each of the following key stakeholders is in Appendix 1:

- Wellington City Council
- Hutt City Council
- Greater Wellington Regional Council
- Wellington Tenth's Trust
- Port Nicholson Block settlement Trust
- New Zealand Transport Agency
- Department of Conservation
- On-Track
- Wellington Waterfront limited
- CentrePort Limited
- Seaview Marina Limited
- Wellington International Airport Limited

Other stakeholders

The following agencies, while not landowners, have specific management interests in the GHW route:

- Requiring authorities (see above and Appendix 1)
- The National Institute for Water & Atmospheric Research (NIWA), which owns and manages land at Greta Point
- Utility companies (e.g. Telecom, United Networks, Novagas, etc.) in regard to infrastructure along the GHW route
- Sports clubs & not for profit organisation (e.g. yacht clubs, surf clubs, rowing clubs, Petone Settlers Museum, Wellington Marine Education Centre, South Coast Dune Restoration)
- Businesses (e.g. Maranui café, East By West Ferry, Fergs Rock & Kayak, etc.)
- Community groups and cycle/walking awareness groups (e.g. Living Streets Aotearoa, Cycle Aware, etc.) that support the GHW and groups that may be potentially in conflict with GHW (e.g. dune restoration groups, etc.).

Tangata Whenua

Tangata whenua have a long and culturally significant association with the seabed and foreshore along the GHW route in terms of occupation, use and spiritual connection.

Appendix3: Comments on the GHW

“Combining the glorious views of our harbour with the heathy exercise of walking, running or cycling makes this a terrific way to explore Wellington for locals and visitors alike. The complementary network of ferries, buses and trains mean short trips and long journeys can both be catered for with minimal environmental impact”

"The Great Harbour Way Te Aranui o Pōneke, when properly completed, will take advantage of one of Wellington's greatest features to provide the ability for people to walk or cycle the entire coastline,"

"This would provide a unique advantage for the Wellington region, something that would really appeal to outdoor-minded travellers as it connects with other key walking and cycling tracks such as the Wairarapa trail and Hutt River Trail.

"Residents would also be able to enjoy a safe cycling and walking link between Hutt City and Wellington that would provide a boost for fitness and leisure while lessening the load on State Highway 2 and the train network. It's a perfect fit for the Wellington region."

-Celia Wade-Brown (Wellington City Mayor)

“United Future Leader Peter Dunne, as the local MP, is also working with Cycle Aware Wellington and the Hutt Rotary Club to promote ‘The Great Harbour Way’, a unique and iconic cycling/walking route around Wellington Harbour. “

- United Future Policy Statement, October 2008

“I’m very supportive of the Great Harbour Way concept. As someone who cycles regularly from the Hutt Valley to Wellington City I’m well aware of the safety issues associated with the current route and believe that urgent attention needs to be given to addressing these issues. ”

- Chris Hipkins, Rimutaka MP

“A safe coastal running track offers marvellous opportunities for our Road Runners”

- Geoff Henry, Athletics Wellington

“As one of the most frequent users of the Petone to Wellington section of the road (on a bike) I am very supportive of change in this area. As well as being a great idea for recreational fun and visitors, it would also encourage more people on to their bikes for commuting – as it will make the ride safer and much more enjoyable” - **Trevor Mallard, Hutt South MP**

Appendix 4: User Profile & Sportive Grading

Typology of cyclists

D. No way No How 33%
- very uncomfortable on trails/paths or Physically unable to ride a bicycle
- not interested, not currently cycling for transportation

C. Interested but Concerned 60%
- not very comfortable but interested in biking more.

B. Enthused and Confident 7%
- as being comfortable sharing the roadway with cars, but preferring to do so with their own facilities, such as bike lanes.
- very comfortable with bike lanes

A. Strong and Fearless 1%
- as being willing to ride regardless of roadway conditions
- very comfortable without bike lanes

Main Users / Motivations for cycling
commuting / utilitarian purposes / recreation / tourist cyclists

Ideal level

Accessible pathway

Challenging pathway

More experienced cyclists

Recommended surface types

Asphaltic concrete
Concrete

Compacted gravel / limestone
Chipseal

Paving stones

Natural surface

Comfort level for bicycling on different slopes

Gradient: 0-5 degrees / 7% / 1:14
Flat, wide, smooth, trail. Trail feels safe to ride. Ideal as a first ride for non-cyclists, and those wanting an easy gradient or experience. Trail allows for cyclists to ride two abreast most of the time, and provides a social component to the ride. Cyclists will be able to ride the total distance of the trail without dismounting for obstacles.

Gradient: 0-8 degrees / 14% / 1:7
Some gentle climbs, smooth trail. The trail is predictable with no surprises. Social component with riders able to ride side by side at times, but possibly large sections of single trail. Suitable for beginner riders.

Gradient: 0-11 degrees / 20% / 1:5
Narrow trail, there will be some hills to climb, obstacles may be encountered on the trail, and there may be exposure on the edge of the trail. Suitable for riders with intermediate level skills.

Gradient: 0-15 degrees / 27% / 1:4
Steep climbs, with unavoidable obstacles on a narrow trail, and there will be poor traction in places. Possibly some walking sections. Suitable for intermediate and advanced riders.

Gradient: 0-20 degrees / 36% / 1:3
Physically tough. Big hills, lots of rocks, some walking likely. Technically challenging, and suitable for advanced/expert riders.

Appendix5: Design Precedent I

Project: Kastrup Sea Bath by White arkitekter AB

Location: Kastrup, Denmark

Sequence Study

Appendix6: Design Precedent II

Project: On The Way to The Sea by Derman Verbakel Architecture

Location: Bat Yam Sea Shore, Israel

"On the Way to the Sea" transforms the space that lies between the city and the sea into a place of its own rather than an in-between passage. A series of frames carefully positioned between city edge and the seashore host public activities, creating a new use for this in-between space. The installation invites inhabitants and passersby to intervene and create opportunities for events and unexpected interactions by manipulating different elements integrated within the frames. In the gap between city and sea, the project encourages collective and individual interactions that range from urban events to beach activities.

A series of fixed frames containing movable elements creates a basic infrastructure in which users have the freedom to alter the urban space and fit it to their own private uses. Within the same frame, users can make changes to create very different situations and even fulfill the desire for a private space in the public domain. Together, the elements create a micro-climate where people can meet, play, eat, talk or just hang out, thereby producing a platform for a wide range of possible interactions, from daily uses to special events.

Sequence Study

Appendix7: The Parangarahu Lakes Area

Land titles and legal status

The Parangarahu Lakes Area is located along Wellington's Southeast Coast adjacent the main harbour entrance, nestled behind the distinctive Te Rae-akiaki (Pencarrow Head) where the historic Pencarrow Lighthouse is located. Behind the coastal escarpment lie the nationally significant freshwater lakes Kohangapiripiri and Kohangatera.

The Parangarahu Lakes Area comprises a number of land parcels of different ownership and legal status. These titles comprise the lake beds and the former esplanade reserves and are subject to Section 27 Conservation Act 1987 and Section 77 Reserves Act 1977 conservation covenants. The objectives of the covenant are four fold:

- for conservation purposes (the natural and historic qualities/resources of the area)
- preserving the reserve values (natural environment, landscape amenity, wildlife habitat and historic values)
- providing freedom of access to the public for their appreciation and recreational enjoyment
- to provide for the enhancement and protection of Taranaki Whānui's ancient relationship with the land, and ensure that the land is held and appreciated in accordance with Taranaki Whānui tikanga.

DOC retains a particular interest in preserving the high water quality of the lakes, maintaining the wetlands and preserving indigenous flora and fauna as far as possible in their natural state. A Parangarahu Lakes Conservation Covenant for each lake signed by DOC and landowner PNBST (Port Nicholson Block Settlement Trust) in 2009 sets out the Conservation Values and Reserve Values that must be protected.

Appendix8: Kaiwharawhara

Figure 83: Kaiwharawhara point is opposite the Interisland Ferry passenger terminal and only five minutes from Wellington's central CBD. It is a largely commercial and industrial area and thus has little residential population.

Over the past five years Kaiwharawhara has become well known as Wellington's sales / trade and showroom base for a number of well-known Wellington businesses. The area has been transferred from bulk warehouse and distribution to an environment of showroom tenants such as Backhouse, Living Room, Cudby + Meade and international tenants such as Spotlight, BMW and The Body Shop all moving to this popular location. For this reason this location appeals to users who need space and car parking but do not have to be located in Wellington's CBD.

Appendix9: Kaiwharawhara Point – Land ownership & Reclamation

Figure 84: As a result of Wellington's topography and associated shortage of flat land, a number of reclamations have occurred over the history of settlement in the area. Reclamations in the area of Kaiwharawhara continued through the 19th and 20th centuries, resulting not only in a highly modified stream mouth, but also the complete replacement of some of the estuarine components with the reclaimed land.

Ownership of the land associated with the Kaiwharawhara reclamation (adjacent to the stream mouth) is complex and fragmented. CentrePort has title to a large portion of the reclamation but the Department of Conservation (DOC), Transport Agency (NZTA), and the Crown also appear to own land within the site area.

Appendix 10: Point Jerningham Viewshed

This viewshed identifies the area that can be seen from an observation location

Appendix 11: Kaiwharawhara Point Viewshed

This viewshed identifies the area that can be seen from an observation location

Appendix 12: Ngauranga Station Viewshed

This viewshed identifies the area that can be seen from an observation location

Appendix 13: Petone to Grenada Link Project

Figure above: NZTA is considering a potential new transport link between Tawa/Porirua and the Hutt Valley to improve travel on two of Wellington's main highways. The cuts will excavate a substantial amount of soil and rock from the hillside. This provides an opportunity to potentially use this material for reclaiming the foreshore for the Wellington to Hutt Valley Walking and Cycling Link.

Appendix 14: The Ngauranga to Wellington Airport Corridor Plan

Key elements from WCC's Transport & Urban Development Strategies

Figure above: Ngauranga to Wellington Airport Corridor Plan was adopted formally by the Regional Transport Committee in October 2008, and is now part of the Regional Land Transport Programme. The plan aims to make it easier for you to travel around this part of the region, whether you're taking public transport, driving, walking or cycling. The plan is emphasising the quality and continuity of cycle routes. The development of the GHW, especially cycling and walking improvements between Ngauranga and Wellington City that provide high quality facilities connecting local networks are consistent with the vision of this plan.

Summary

This paper puts forward a bicycle urbanism approach as a strategic urban planning tool to advocate, research and plan for the future city.

Around New Zealand the coastal environment is highly valued for its scenic, cultural and ecological values. The Great Harbour Way (GHW) - Te Aranui o Poneke, initiated by group of walkers and cyclists is a concept to develop and market a 75km shared pedestrian and cycle path around the shoreline of Wellington Harbour.

This study gathers together existing and new information, provides analysis of the GHW route and identifies development opportunities. Then the attempts have been made to advance the project with greater ambition to inspire the current development. This work provides a developed vision for cycling networks along the Wellington's The Great Harbour Way, including a more detailed design of three sites to catalyse the GHW project. A comprehensive planning framework is required for the development and use of land within Wellington Harbour to ensure that there are strong pedestrian, cycle and vehicular connections between the road network, the coastal marine area and open space areas. The development of the GHW as a visitor destination as well as a complementary addition to communities has the potential to enhance the recreational use of the coastline through the appropriate use and design of buildings, pedestrian access, cycling networks and open spaces.