

Newtown Safe Cycleway 2014 Safer Cycleways Design Report

Safer Cycleway proposals for segment 2 of Wellington's Island Bay to Te Papa Cycleway

Prepared for:
Wellington City Council

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Project Summary Prepared by: Red Design: *Architects* – Urban Activation Lab

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SAFERCYCLEWAYS NEWTOWN ROUTES

Red Design: *Architects* URBAN ACTIVATION LAB: Newtown Safe Cycleway 2014

Safe Cycleways for Wellington



- A Community Project by Red Design: *Architects*
- Focusing on
 - Dee Street to John Street – WCC's 'Section 2' of the Island Bay to City cycle route



Red Design: *Architects* URBAN ACTIVATION LAB: Newtown Safe Cycleway 2014 Safer Cycleways Design Report

This report presents a summary of the Cycleway research and community design work undertaken by Red Design Architects' Urban Activation Lab team during the summer of 2013 – 2014

This Design Report is to be read in conjunction with the Urban Activation Lab's:

Newtown Safe Cycleway 2014 Route Network Drawings
plans, sections and details book

Newtown Safe Cycleway 2014 Design Principles *paradigm presentation*

Newtown Safe Cycleway 2014 Project Overview *methodology presentation*

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Safer Cycleways Design Report

Section 1

Red Design: *Architects* URBAN ACTIVATION LAB: Newtown Safe Cycleway 2014

This document summarises the research and design work of Red Design Architects' Urban Activation Lab as commissioned by the Wellington City Council investigating ways that cycleways might closely and successfully fit Berhampore, Newtown and Mt Cook. By the nature of its research this report challenges conventional perceptions (both national and international) of cycleway engineering.

Executive Summary

Introduction

1.1

The Wellington City Council is moving to introduce a purpose-engineered cycleway network throughout the suburbs of the central city and beyond. If this project is well researched, designed, built and maintained it will have a profound positive impact on the number of people cycling, the quality of the cycling experience and cyclist safety. A growing body of research both nationally and internationally suggests that these benefits will provide Wellington economic benefits through increased productivity and reduced transportation costs, while also enhancing its citizens' quality of life and Wellington's tourist brand.

At the close of 2013, the Wellington City Council funded Red Design to deploy its Urban Activation Lab team to research and design cycleway options for 'Section 2' of WCC's Te Papa to Island Bay cycleway – namely Dee St to John St. The work was commissioned to provide the Council with an alternative approach to the recommendations made by Opus International on the same infrastructure project in September 2013.

This document discusses Red Design's research work in designing world-class safe-cycleway paradigms specifically for Wellington. The detail of the project can be read in the following pages.

Red Design asserts that the best way to incorporate cycleways is to do so in a manner that meaningfully increases cycle use and that a major factor in achieving this is the selection of cycleway paradigm. The paradigm for Wellington should stimulate demand for cycling and be tailored to the city's terrain, amenity network and motorist & pedestrian culture. The paradigm should be the answer to the strategic questions the city asks in deciding its transportation future.

The significant factors of this cycleway research project relate to:

- Understanding demand and the cycling market in Wellington
- Balancing the demands of limited road space with particular attention to retention of residential street parking
- Engineering for safety and infrastructure effectiveness

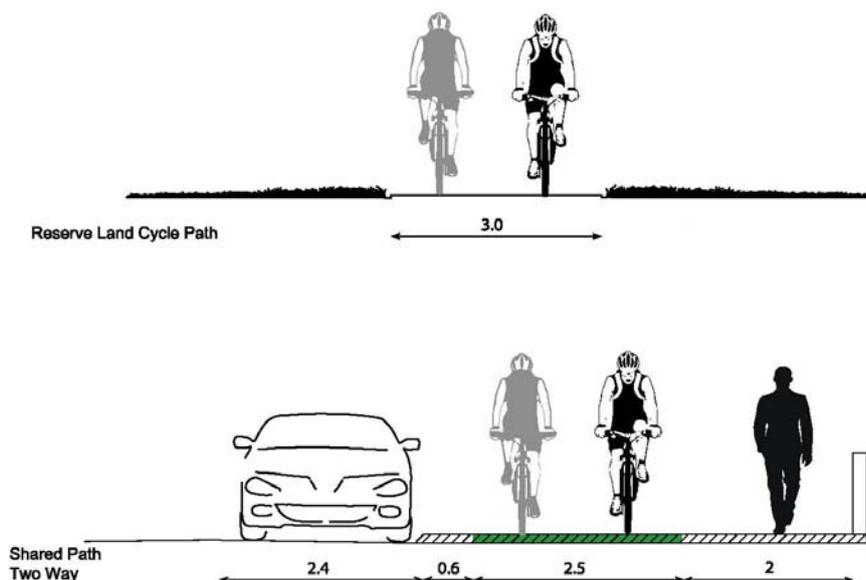


Executive Summary

Recommended Paradigm Choice

1.2

The paradigm advocated for is the Two-Way separated system. This is where the two cycle lanes are on the same side of the road and the cycleway itself is separated from motorist traffic by street-parked cars. This paradigm entails re-engineering of the footpath to accommodate a cycleway that is crucially flush with the level of the pedestrian pavement and demarcated by colour. Being on the same level allows a uniform safe surface for emergency swerving if needed by cyclists. Similarly pedestrians can utilise the area if required.



The same off-road layout continues along the streets

Newtown Safe Cycleway: TWO-WAY Paradigm

beside footpath and off-road in reserves

There are two main benefits in adopting the Two-Way separated system. Firstly, the paradigm rates well on the Copenhagen Model's Level of Service (LoS) measure, which evaluates safety. Secondly (and importantly) the Two-Way system can give minimal disruption of existing street parking. In doing so, this model reduces the significant parking displacement costs of the Opus cycleway solution (2013) by utilising Wellington's relatively generous footpath widths. Furthermore it makes sense to preserve parking where possible if the City is effectively encouraging motorists to leave their cars at home and ride. Red Design believe that parking disruption creates considerable cost and adversely affects the public's support of cycleway infrastructure.

As with all cycleway paradigms, the two-way separated system presents a set of safety issues to be addressed. The authors of this report believe that solutions can be engineered to mitigate these issues and the accompanying design drawings in this report go to considerable depth to illustrate these solutions.



1.2.1 Targeted Groups and Paradigm Design

It's important to note that the cycleway designs of this report are aimed not so much at the existing confident "lycra" cyclists, but for an untapped slower and less confident cycling group. The two-way separated system is designed for slow cycling where pedestrian safety is important along with cyclist safety at intersections. The authors believe that the existing confident cyclists of Wellington wishing to travel at speed would be likely to stay on the street. In this case designated streets could be engineered and controlled as safe-cycle avenues for express cyclists. This report details those recommendations in its design drawings as well.

Executive Summary

Cycleway Routes for Consideration

1.3

Red Design Architects' Urban Activation Lab has drafted three safe cycle-route options and one cycle-friendly avenue concept for the Council to consider which all have differing strengths and weaknesses:

- **Western Route:** Going west of Adelaide Road via the Island Bay/Berhampore sports grounds, through MacAlister Park and down Hanson St.
- **Central Route:** Incorporating the Berhampore Shops, Luxford, Rintoul and Riddiford Streets
- **Eastern Route:** Going through the Berhampore Golf Course & Martin Luckie Park (utilising the design work of Studio Pacific), Russell Tce and all Riddiford St or incorporating Daniell and Mein Streets.
- **Cycle-Friendly Avenue Zones:** Berhampore Shops (Adelaide Rd), Newtown Shops (Riddiford St) and Wilson St transit route. These streets have traffic-calming elements and are explicitly signed for cyclist and motorist sharing. These are not safe cycleways for the 7 to 87 year olds.

Executive Summary

Components of Success

1.4

Our Team believes that meaningful change requires resolve on the part of the Council and ongoing commitment to the project. The following components are seen as key to the making of a success story for Wellington:

- Acceptance of a first principles approach in the creation a Wellington cycling paradigm;
- Clear targeting of cycling groups;
- Appropriate funding from Council and sponsors to implement a well designed and engineered cycleway with provision for bike parking;
- A broad and steady marketing/education campaign for cyclists, pedestrians, residents and motorists for safety and etiquette;
- Support for community initiative promoting cycle use from interested groups such as schools;
- Maintenance programme that regularly sweeps the surface of glass and debris. The lanes need to be the width of Wellington's footpath cleaners;
- Good lighting along off-road sections to promote safety;
- Support from the Police by introducing constables on bikes to promote safety;
- A programme of monitoring of data for the continuous improvement of the network's expansion programme.



Background

Newtown Safe Cycleway 2014

Section 2.

Beginning back in 2001 Red Design sponsored a research project which looked at possible cycle routes from Island Bay to the CBD. The project designs were given to the Council and the initiative was absorbed into its Annual Plans and Policies. With political will in 2013 supporting the development of a cycling network in Wellington, the Council invited Red Design to revisit its work and apply it to the proposed Island Bay to Te Papa route. The Council had identified a need to have community-based design alternatives to the Opus Consulting designs for a cycleway on Adelaide Rd, which were published in late 2013.

Red Design was directed to Section 2 of the route – Dee St to John St, which presented the greatest design challenges.

Background

The Project Team

2.1

The Urban Activation Lab is the community project urban design group of Newtown-based firm Red Design Architects. Headed by Martin Hanley and Anna Kemble Welch, the group has been actively involved in projects relating to community resilience; public events; and public space, transportation design, ecology and heritage work for inner city Wellington since 1979.

The firm recruited two design and project management professionals to work with nine Victoria University architecture and landscape architecture students and graduates. They were tasked with researching and drafting possible solutions to Section 2 of the proposed new cycleway. There was a directive to interact with locals and apply fresh “blue-sky” thinking to the task.

Background

Design Principles

2.2

Design principles for the project:

- Apply blue-sky thinking to the problem solving process.
- Understand the community affected by the design project.
- Design for 7 to 87 year olds.
- Adopt the Copenhagen Model of analysing the Level of Service.
- Present options first before solutions.
- Involve community input early in the design process in order to get the best outcome.
- Develop design documentation that promotes community input
- Work with a living document that changes as a result of community input
- Optimise links to public amenities, educational institutions and commercial areas.



Background

The Research Process

2.3

Research covered the following aspects:

- **Literature Review**
- **Street & Human Behaviour Observations** (within Section 2 and beyond)
- **Engagement Observations**
- **Other Cities**

The aspects are summarised below and accompanied by paraphrased findings where pertinent.

2.3.1 Literature Review

The following set of literature went into the research process. This list is not exhaustive by any means but represents a broad range.

Cycling for Transport in Wellington, 2013. Author: Jean Beetham, Environmental Studies Programme, Victoria University 2013

- Safety (i.e. perception of a lack of) is the biggest barrier to cycle use in Wellington.
- Safety is the biggest priority for both existing cyclists and those who want to ride but do not.
- All identified groups (excepting the “Maintenance” group who always ride) had the following priority rankings for factors influencing cycle use: 1. Safety; 2. Flatness; 3. Directness; and 4. Greenspace. Regular riders (i.e. “Maintenance” group) ranked Directness above Flatness.

Reallocation of Road Space, August 2013. New Zealand Transport Agency research report 530 by Beca Infrastructure Ltd. Authors: T Fleming (Allatt), S Turner and L Tarjomi 2013.

This was a very broad document, which cited many studies. The following points of interest were gained:

- Cycle accident data is difficult to obtain because many near miss or low impact collisions go unreported. Accident information relates mainly to serious injuries. More could be known about the circumstances of crashes if a research study targeted this subject.
- A New Zealand study associates crash probability reductions with the following engineering measures:
 - 37% to 50% reduction by implementing flush medians
 - 75% reduction through removal of street parking
 - 10% reduction through cyclelane introduction (though the cycleway paradigm was not provided)
- It is not the presence but the quality of cycle lanes that create a safety benefit.
- Removing parking greatly improves cycle safety
- Off road segregated cycle routes are often perceived as being safe by novice cyclists, though these types of routes have the most potential for conflicts at road intersections.
- An area of difficulty in regards to cycle safety is the difference between perceived and actual safety. Limited cycle crash data is a source of this problem.
- Cycle lanes of 1.5m to 1.8m appear to be appropriate for safety.
- Painted cycle facilities are substantially safer than standard facilities.
- 4m cycle boxes at signalled intersections appear to benefit cyclist safety.
- A British cost benefit trial across five towns looked at investment vs future cost relating to mortality. It was found that for every £1 of cycling investment, the value of decreased mortality was £2.59. Furthermore increased investment led to increased cycling rates.
- When people walk or cycle for transport they are on average active enough to meet the recommended daily exercise minimum of 30 minutes of activity for good health.



- The saving to New Zealand's health system through cycle riding is estimated at \$2.14/km. This economic analysis excludes benefits such as reduced congestion, improved productivity and improved air quality.
- New Zealand Government Policy Statement asserts that cycling has a role to play in the optimisation of traffic flows. The implication being it reduces long-term costs in private motor vehicle infrastructure.
- A Norwegian Institute of Transport Economics study cited by the Austroads Association, calculated the cost to benefit ratio of cycleway investment as 1:3
- A Government of South Australia study stated that over a third of all adult citizens would cycle more if the number of cycleways (both on and off road) were increased.
- Cycleway surfacing costs are approximately a tenth of the costs of motorist roadway surfacing. Sealed former has a 40 year life span as opposed to a 4-9 year life span for the latter.

Valuing cycling – Evaluating the economic benefits of providing dedicated cycle ways at a strategic network level, 2011. From Australasian Transport Research Forum 2011 Proceedings 28 - 30 September 2011. Authors: Matthew Yi, Katie Feeney, David Adams, Claudia Garcia and Parish Chandra, AECOM.

- Gauging the nature of demand for cycleways is difficult
- It is estimated that 21% of Sydney's population will never be inclined to use a bike as a transportation option.
- In the event of cycleway network implementation, Sydney would experience a 66% increase in cycling demand within 5 years and 71% over 15 years.
- That demand increase would result in a 3.88 benefit to cost ratio for Sydney and an internal rate of return of 27%.

Christchurch Cycle Design Guidelines, 2013. Author: Christchurch City Council

Island Bay Cycleway – Dee St to John St Report Presentation, 2013. Author: Wellington City Council.

- Using Adelaide Rd for cycleways is problematic from the point of view of cost, disruption to parking, high traffic volumes and limited space.
- Adelaide Rd residents are heavily dependent on street parking
- Existing Level of Service (as measured by the Copenhagen Model) along the proposed route was very poor.
- Sharrows provide poor Level of Service for cyclists
- Parking displacement costs for a high Level of Service cycleway paradigm from John St to Dee St would be up to \$6M.

State of Cycling Report: Wellington region 2001-2012. Author: Greater Wellington Regional Council.

- Wellington is the worst performer in New Zealand for cycle safety.
- Commuting cycling is on the increase in Wellington (doubling from 2006-2012).
- Congestion is exacerbated by school pick-up/drop-off traffic.
- As cycling increases, the incident rate hasn't correspondingly increased, though the serious crash incident rate has if anything worsened.



Inner Sydney Regional Bicycle Network – Demand Assessment and Economic Appraisal, 2010. Authors: Claudia Garcia, Parish Chandra & Matthew Yi, AECOM.

Cycle Safety: Reducing the Crash Risk – 2009. New Zealand Transport Agency Research Report 389. Author: Beca Infrastructure.

- Confusion at intersections increases the risk of crashes.
- The presence of cycling infrastructure promotes the perception of safety for cyclists and encourages riding, though that perception of safety doesn't necessarily equate to actual increased safety.
- Flush medians for motorists are the biggest feature in promoting cyclist safety.
- The more cyclists on a road the lower the rate of cycle crashes.
- Reduced speed zones reduce the severity of crashes, but not necessarily the overall frequency of crashes.

Road Factors and Bicycle-Motor Vehicle Crashes at Unsignalized Priority Intersections – 2010. Authors: J.P. Schepers, P.A. Kroeze et al.

The Safety of Urban Cycle Tracks: A Review of the Literature – 2012. Authors: Beth Thomas and Michelle DeRobertis.



2.3.2 Street & Human Behaviour Observations

The group spent time photographing and observing the parks, Town Belt and streets of Newtown, Berhampore, Mt Cook and beyond.

Within Section 2 (Dee St to John Street)

- Area has a relatively high level of public, educational and business amenity.
- Area has low level of off-street parking for residents and high dependency on street parking.
- Employees of hospitals, education institutions and businesses driving to work compete with residents for street car parks.
- Arterial routes (e.g. Adelaide Rd etc) provide limited scope for cycleway insertion without significant disruption to street-parking.
- Rintoul St is a preferred cycling route for existing Island Bay / Berhampore cyclists. It's described as being the lowest climb en route to and from the CBD and having less traffic than Adelaide Rd.
- Wellington motorists adapt their driving to the city's changing street configurations – particularly so on non-arterial streets. The “negotiable two-way” street is common in Wellington where one driver waits for another to pass through a corridor too narrow for two vehicles.
- Wellington's footpaths are often generous.
- There are narrow streets in Wellington where convention is for vehicles to half-park on the footpath.
- Cycling on the footpath is common in areas where roads are both narrow and busy with traffic.
- There are street areas in Wellington where footpaths are non-existent.
- There are significant levels of parkland and green-belt area in Section 2.
- Scooter use by children is high in the area. This suggests there is already an awareness to on the part of drivers coming in and out of driveways to look boyh ways.

Beyond Section 2

- The plaza cross-section profile on Allen and Blair Streets changes driver/pedestrian expectation and behaviour. This demonstrates that drivers can interpret and adapt their driving in situations where they do not automatically have right of way.
- The “negotiable two-way” street is common in hilly suburbs of Wellington where vehicle corridors are narrow and parking space is limited.
- The Hutt Rd experience of Two-Way cycleways creates counter flow issues because of the industrial/big-box retailer characteristics of the zone.
- Speed limited areas facilitate shared use of road space between motorist traffic, pedestrians and cyclists.



2.3.3 Engagement Observations

- Broadly speaking, there appear to be three kinds of existing cyclists in Wellington:
 - those who adopt circuitous routes that avoid traffic risk
 - those who are confident enough to mix with traffic on the more direct arterial routes.
 - those who feel unsafe on the roads and seldom cycle
- Residents do not want to lose the street parking outside their homes.
- Store owners do not want to lose the street parking outside their establishments.
- Residents would welcome the idea of traffic-calmed streets.
- Some residents see a windfall opportunity in property values if their home is on a traffic-calmed street.
- The Mornington Golf Club in Berhampore do not want their sporting facilities disrupted by a cycleway.
- The public hospital has a specific commuting to work section in its staff wellbeing policy that would promote cycle use.
- Schools are concerned about preserving motorist drop-off zones for their pupils.
- School pupils (of age) do not cycle to school because of significant safety concerns on the part of their parents.
- Existing cyclists have confidence to ride in Wellington with little or no infrastructure.
- There are a significant number of Wellingtonians living in the proposed cycleway's catchment who would like to ride but feel it too unsafe to.
- Tourists have no "free and easy" or intuitive way of getting themselves to the Town Belt or the South Coast.
- The Hutt Valley cycleway, which lies adjacent to the motorway along the harbour, is too narrow for fast two-way commuting. It cannot be easily swept. Cyclists won't use it because of congestion slows them down and because of the puncture risks from broken glass.

2.3.4 Other Cities

Precedent configurations investigated included Sydney, Melbourne, Vancouver, Portland, Washington D.C., New York, Yokohama, Tokyo, Kyoto, Sapporo, Trondheim, Copenhagen, Groningen, Amsterdam, Berlin, Tauranga, Christchurch, Nelson and Dunedin.



Photo: © A Kemble Welch



Photo: © J Jiang

refer **Newtown Safe Cycleway Route Network Design Drawings** scheme book
Newtown Safe Cycleway Project Overview methodology presentation
for further existing precedent images



Background

Conclusions

2.4

2.4.1 Understanding the cycling demand

The data available from local body government shows that cycling demand has been growing in Wellington on effectively zero infrastructure. This data is based on assessment of commuter traffic to and from the CBD. The Beetham study delves into the nature of cycling demand in Wellington. While the survey sample was not representative of the city, it did separate out a spectrum five distinct groups based on their inclination to ride. Where the commuter group already riding would fall into the 'Maintenance' category of Beetham's study, the majority of the study's sample (60 per cent) were classed as 'Contemplation', 'Ready for Action' or 'Action'. This majority broadly cited safety as being the largest barrier to them riding a bike in Wellington.

2.4.2 Paradigm for Wellington

While it is prudent to continue to enhance cycling safety for the existing cyclist group discussed above, the city should target the group that want to ride but do not. This group includes school students, tertiary students, women and senior demographics. The cycle route should be strategically developed to link amenities/facilities with a given market in a manner that will see the future establishment of a network.

With Wellington motorists already accustomed to adapting their driving to narrow and traffic-calmed streets, there is an opportunity to capitalise on this behaviour when designing cycling infrastructure for the city.

2.4.3 Reviewing literature

There is a growing body of research literature around the world on cycle infrastructure; its societal, economic and environmental benefits; and the merits of different types of infrastructure. At times it is difficult to find unifying conclusion across the studies, though there are unifying themes. The theme that we focussed on was that of safety because it appears to be the crucial factor in increasing cycle use for Wellington, as indicated by Beetham.

2.4.3 Cycle Safety

There is a lack of agreement between the literature reviewed on what constitutes a safe cycleway. A part of this is that terminology and classification of the terms "cyclelane", "cycleway", "cycle track" and "two-way" vary. This situation is compounded by the fact that what is perceived as "safe" by riders (or the groups who desire to ride) may not be manifestly safe. In short there is a gap between perception and reality. This presents a paradox for planners to overcome in attempting to grow the number of cyclists.

Beca and the NZTA (2009) point out that the more cyclists riding on a route then the safer they will be regardless of the infrastructure they ride on. This is presumably because rider frequency affects motorist awareness and behaviour.

Cycle crash data in New Zealand and around the world is very poor. It's thought that somewhere between 10-30% of cycle accidents are reported and there is negligible rates of near-miss reporting This means the circumstances of crashes and hazards are poorly understood.



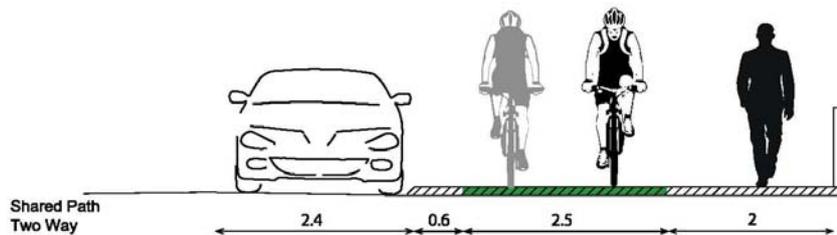
2.4.4 Conflicts with Pedestrians

The Council will have to resolve potential conflicts in whichever paradigm it chooses. The research on conflict between pedestrians and cyclists suggests that density of pedestrians and pavement width relate to safety. High pedestrian density requires greater distance and vice versa. A Japanese study on shared use paths found that cyclist speed drops with increasing density of pedestrians, while pedestrian perception of danger dropped from a probability of 0.86 at a passing distance of 75cm to 0.01 when that distance is 150cm. Low speed is also a significant factor.

In the report *Making Space for Cycling*, written for Cyclenation by Cambridge Cycling Campaign, authors Robin Heydon and Martin Lucas-Smith, they state that shared use (between pedestrians and cyclists) is broadly acceptable where pedestrian flows are less than 100 people per hour per metre of width.

Pedestrian volumes would be lower than this (ie. 150 people per hour on a 1.5 m wide footpath) in most Wellington residential streets.

A benefit of the Two-way system over the One-way to pedestrians walking medium to long distances, is that they can opt to walk on the opposite side of the street because the cycling lanes occupy only one side of the road.



The same off-road layout continues along the streets

Newtown Safe Cycleway: TWO-WAY Paradigm

beside footpath and off-road in reserves



2.4.5 General Conclusions of Research

Below are the conclusions gained by the research project, which have driven the designs of this report.

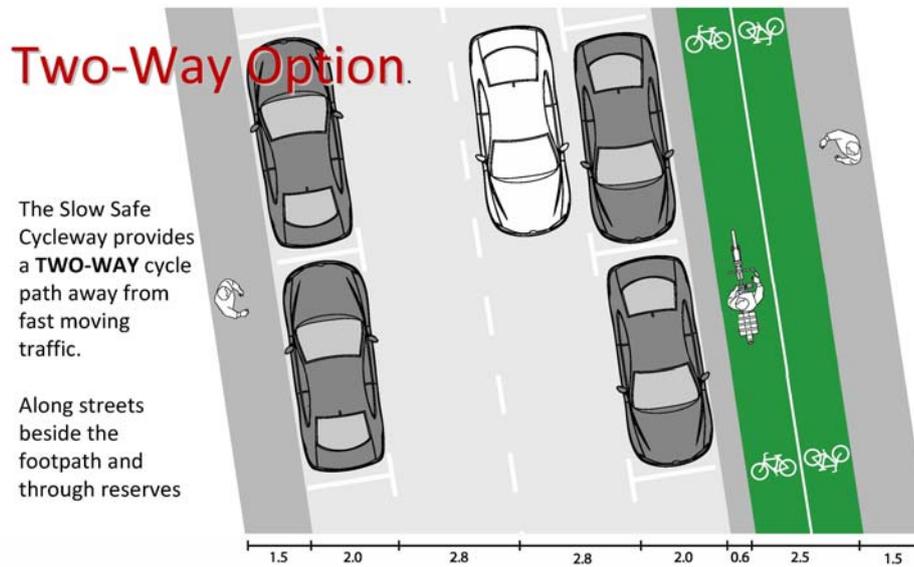
- Paradigm selection will be key to the success of cycleways in Wellington.
- Prioritising paradigm choice over route choice will provide the best outcome for Wellington.
- It is essential to identify who Wellington is designing any given cycle route for.
- The cycle route must have a strategic purpose and link facilities/amenities with a target market.
- The cycling market is segmented, but has two broad distinctions: those who currently ride and those who would be interested to but don't for safety reasons. For Wellington to make meaningful change it should be designing and constructing cycleways for the latter group.
- Separation of cycleways from motorist traffic will provide best safety for Wellington cyclists. Furthermore complete separation of the cycleway lends the greatest change to the perception of safety—a key driver in the uptake of cycling.
- With street parking displacement being a likely barrier to public support for the cycleway, it makes sense to find a solution that preserves parking—such as the Two-Way paradigm recommended by Urban Activation Lab. Furthermore the cost of parking displacement is perceived as a lose-lose situation from a public and political perspective. Investment would be better spent on minimising disruption to parking.
- A cycleway in Wellington that has cyclists riding adjacent to motorist traffic will mostly benefit the group that already cycles. For those who don't presently ride, it would present little perception of improved safety.
- One-Way cycleways (where the cycle lanes are on opposite sides of the road) separated from traffic would be an adequate paradigm for a safe cycleway, but we believe they are not best suited to the narrow streets of Wellington where space is at a premium.
- A Two-Way cycleway (where the opposing cycle lanes are together on the same side of the road) separated from motorist traffic is the most efficient use of limited street space in Wellington.
- The combined width of the Two-Way paradigm enables the inner city footpath cleaning vehicles to service the route.
- A safe cycleway should be continuous from end to end and unambiguous for riders in its design and engineering.
- A Two-Way system must crucially address counter flow issues at intersections. This requires well-designed and engineered solutions that are intuitive and provide clear visibility between cyclists, motorists and pedestrians.
- In the separated safe-cycleway paradigm the injury risk of a collision between cyclist and pedestrian is lower than between cyclist and motorist.
- The counter flow issues of the Hutt Road Two-way cycleway illustrate that it is inappropriate to use the paradigm in a high-speed zone through a commercial/industrial area where customers driving vehicles only occasionally deal with the paradigm.
- Wellingtonians' familiarity with existing "negotiable two-way" streets offer a paradigm where the traffic corridor can be narrowed slightly to provide space for safe cycleways. This enables the preservation of street parking along such roads.
- There is a strong long-term business case for properly engineered safe cycleways.
- Preservation of street parking in residential areas is in the interests of promoting cycle use, as the city is effectively asking motorists to leave their cars at home.
- Red Design Architects' Urban Activation Lab believes that the City Council should be bold in adopting a Wellington paradigm for safe cycleways.
- Successful building of this paradigm would spread the demand for the network's expansion across the city and galvanise public support for improved transport infrastructure.
- Newtown requires action to increase parking amenity for commuters. Having said this, the group believes improved cycling and public transport infrastructure will help reduce street parking demand.
- Increasing school time cycling traffic will reduce peak time congestion on Wellington's roads. This could qualify the cycle route for NZTA congestion reduction funding.



The Paradigm

Newtown Safe Cycleway 2014

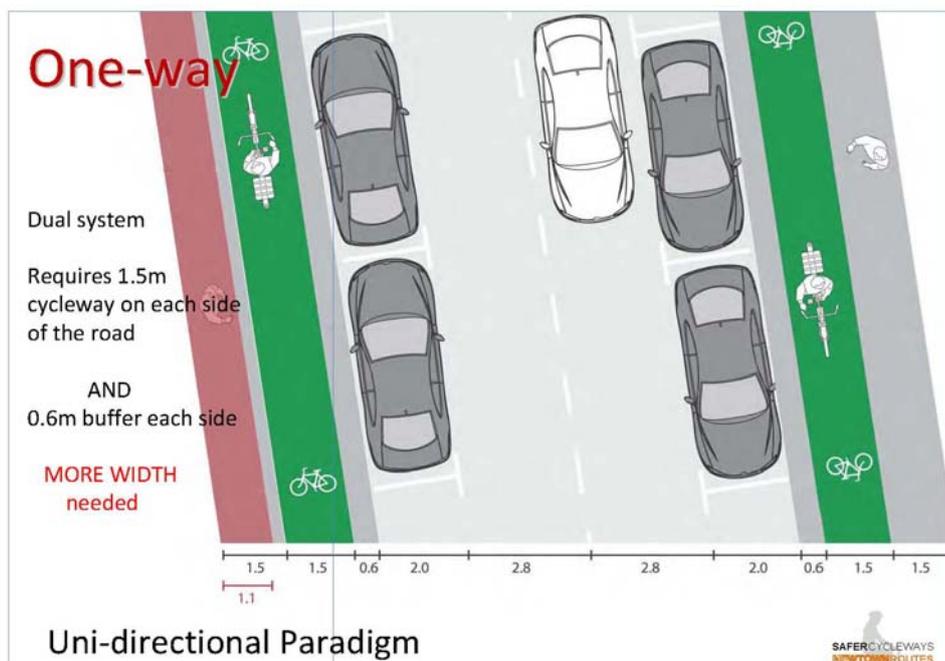
Section 3.



Newtown Safe Cycleway: TWO-WAY Paradigm
Preserves existing Carparking (& street trees)

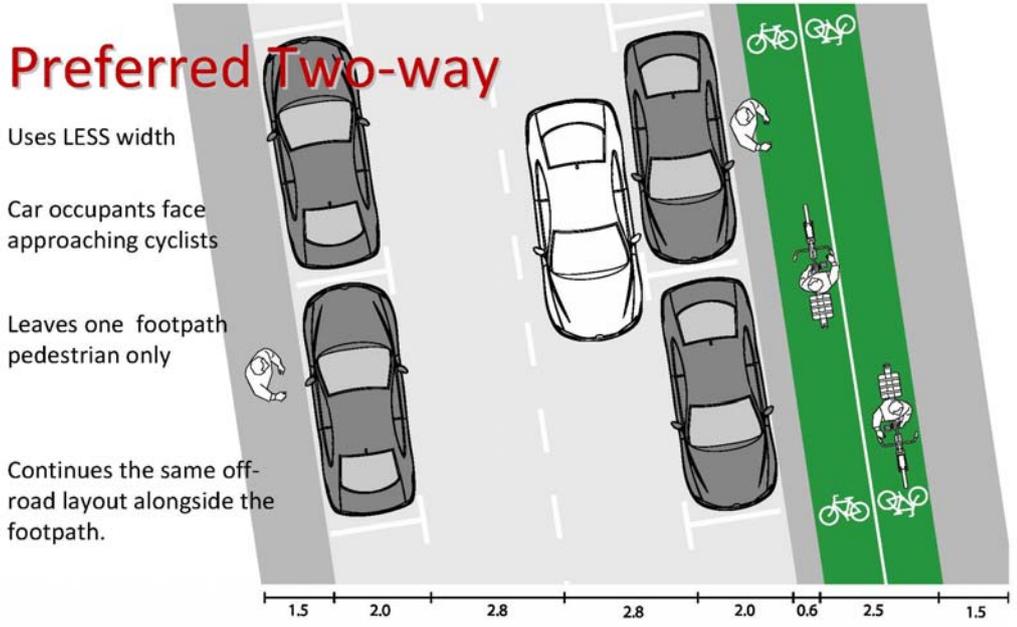
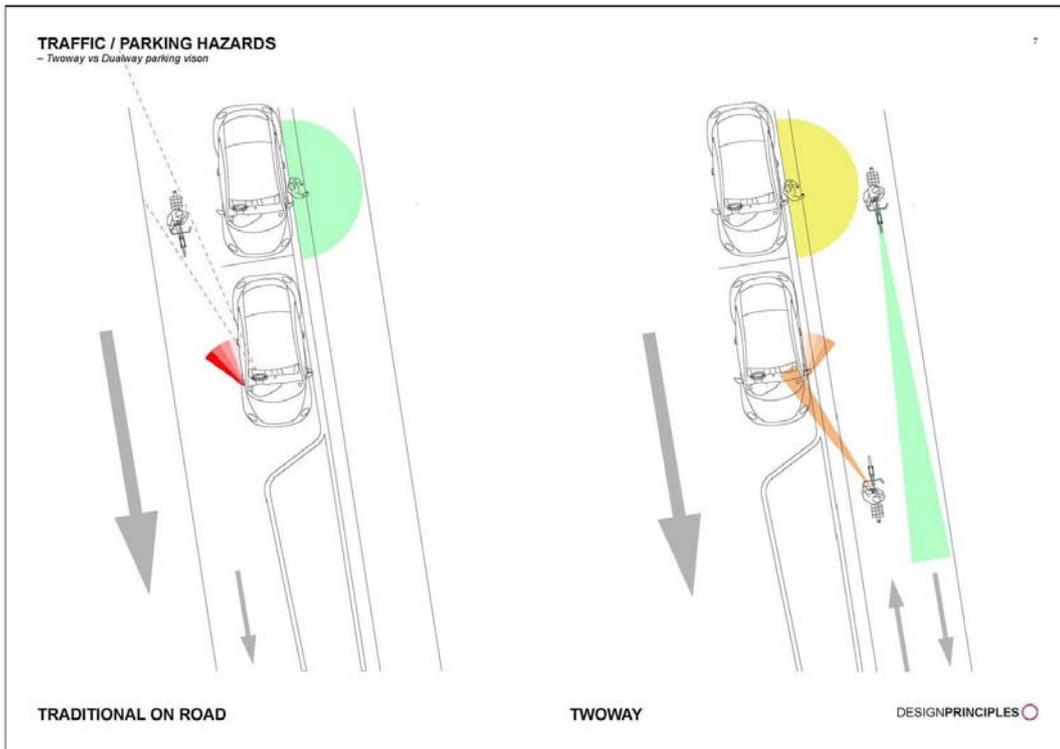


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Newtown Safe Cycleway Layout – Wellington Paradigm
 Preserves existing Carparking (& street trees)



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The Paradigm

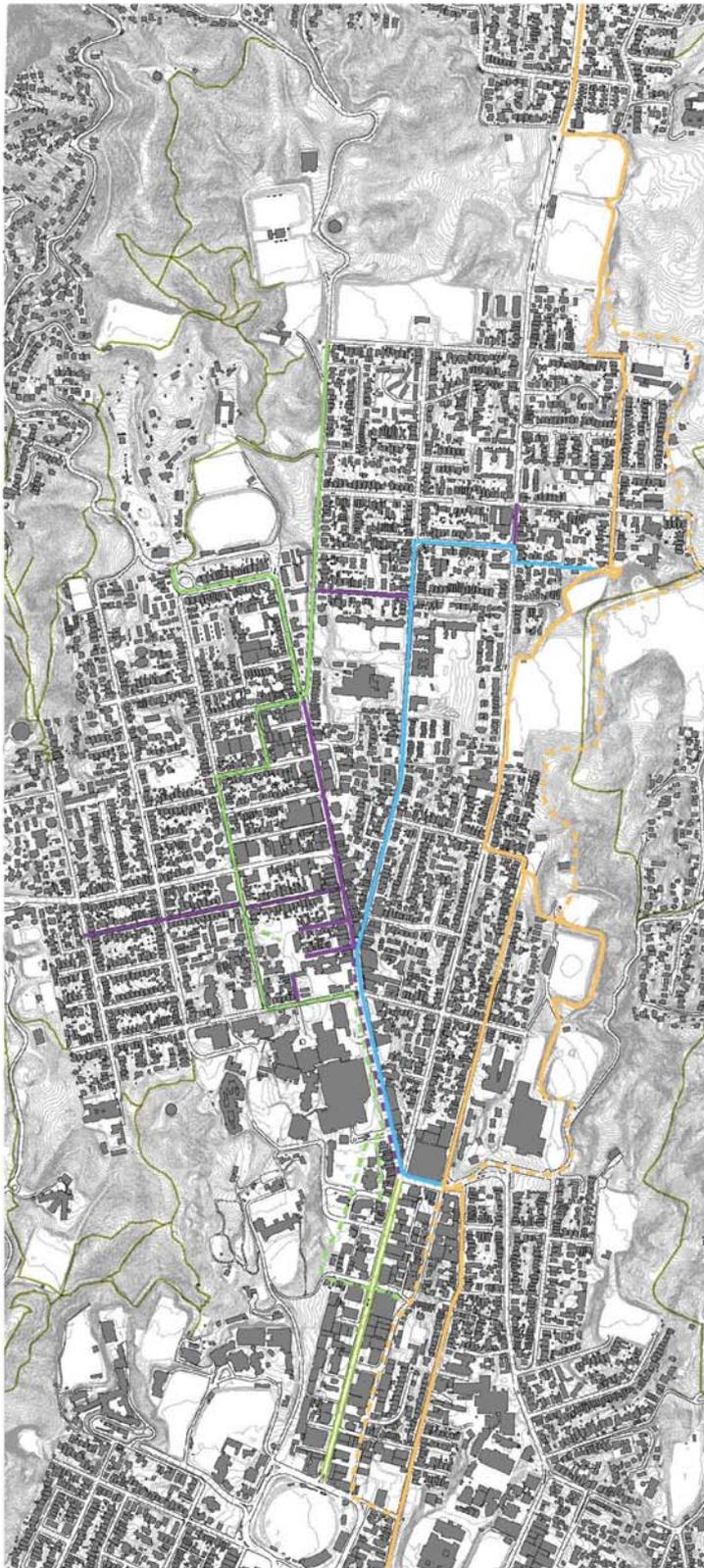
refer **Newtown Safe Cycleway Design Principles** paradigm presentation
Newtown Safe Cycleway Project Overview methodology presentation
Newtown Safe Cycleway Route Network Design Drawings scheme book
 for the full set of images explaining the paradigm



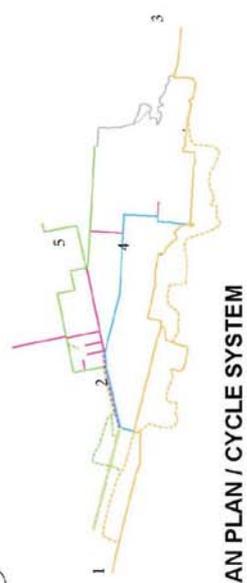
Routes for Consideration

Newtown Safe Cycleway 2014

Section 4.



- ROUTES**
- 1 Western Route
 - 2 Western Route Alternate Options
 - 3 Central Route
 - 4 Golf Course Route (proposed by WWC)
 - 5 Cycle Friendly Avenues
 - On road cycle lane
 - Existing Mountain Biking Tracks



URBAN PLAN / CYCLE SYSTEM

Routes for Consideration

refer **Newtown Safe Cycleway Route Network Design Drawings** scheme book for the full set of images explaining the layout and configuration of the network



Business Case for Cycleways

Newtown Safe Cycleway 2014

Section 5.

A review of literature showed that there is no exact science to methodologies for measuring existing demand for cycling and/or modelling changes in cycling behaviour following infrastructure investment. There are, nevertheless economic cost to benefit ratios available from around the developed economies of the world. In the studies we looked at there seems to be consensus that this ratio is between 1:3 and 1:4 for every dollar spent on cycleway infrastructure (the latter figure from Sydney is based on a 30 year period). We haven't found how population size weights this return for such as Wellington.

At a national level there appears to be a compelling economic case for cycleway investment in urban areas. The New Zealand Transport Agency published that cycling (as an alternative transportation mode) reduces the health budget burden by \$2.14/km ridden. By this rationale a cyclist riding to work in the CBD from Island Bay is saving the New Zealand government \$26 a day. While this saving doesn't affect the Wellington City Council, the benefits to the city's productivity, carbon footprint and congestion (in the event that cycling became widely popular) could not be overlooked.

Wellington has levered off its *Absolutely Positively Wellington* brand successfully over the past 20 years. This has transformed the city's culture by attracting a creative business and arts community – something that has transferred into a strong tourism brand. Cycleways linking the Town Belt natural landscapes and the shores of the city have a significant upside for tourism, where at present tourists miss the hilltop, bush and South Coast experience because of poor infrastructure. There is an opportunity to exploit and build on here.

Broadly speaking we see benefits attributable as follows:

Benefits to Wellington

- Brand Wellington tourism
- Local business opportunities
- Carbon reduction
- Traffic congestion reduction
- Improved productivity
- Reduced roading maintenance overheads

Benefits to New Zealand

- Brand New Zealand
- Carbon reduction
- Savings to health budget long-term

It is worth stressing here that these benefits will only occur if the cycle network is well designed and engineered as this will provide the critical mass of cyclists to get the optimal return.

Finally, this report has mentioned the lack of comprehensive data on cycle safety; the measured behavioural change that accompanies cycling infrastructure investment; and its correlation with economic and societal benefits to New Zealand. The debate about cycleways will continue until these subjects are fully understood. We suggest there could be a win-win initiative for Wellington if there were a research joint venture project with central government to examine the national benefits of cycleway infrastructure projects. This could see the City Council and/or the Greater Wellington Regional Council investing with the government on a world-leading longitudinal transportation research project.

With the amenities, schools, communities and landscapes linked the Island Bay to Te Papa corridor presents an ideal environment for such a research initiative prototype.



Acknowledgements

Newtown Safe Cycleway 2014

Section 6.

Red Design would like to acknowledge the efforts of the team recruited for the project and their dedicated work ethic and professionalism. That gratitude is extended to the volunteer designers who worked on the initial concept scoping of 2001-09.

Red Design also thanks the passionate community members who provided their local knowledge and perspectives on cycling and transportation. Wellington City Council is commended for its facilitation of that community process by helping sponsor this project.

Red Design: Architects – About Us

- Established 1994
- A collaborative architecture practice
 - Include clients in the design process
 - Convened the public design workshops for the Riddiford Street improvements in 1994 and 2004
 - Organise the Newtown Festival
 - Involved in community engagement via the Newtown Residents' Association [since 1982]
- Urban Activation Lab is Red Design's community project team [funded by grants and sponsorship]
- Began working on this route in 2001

