REPORT

Tonkin+Taylor

Newtown Connections

Draft Issues Paper

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Executive Summary

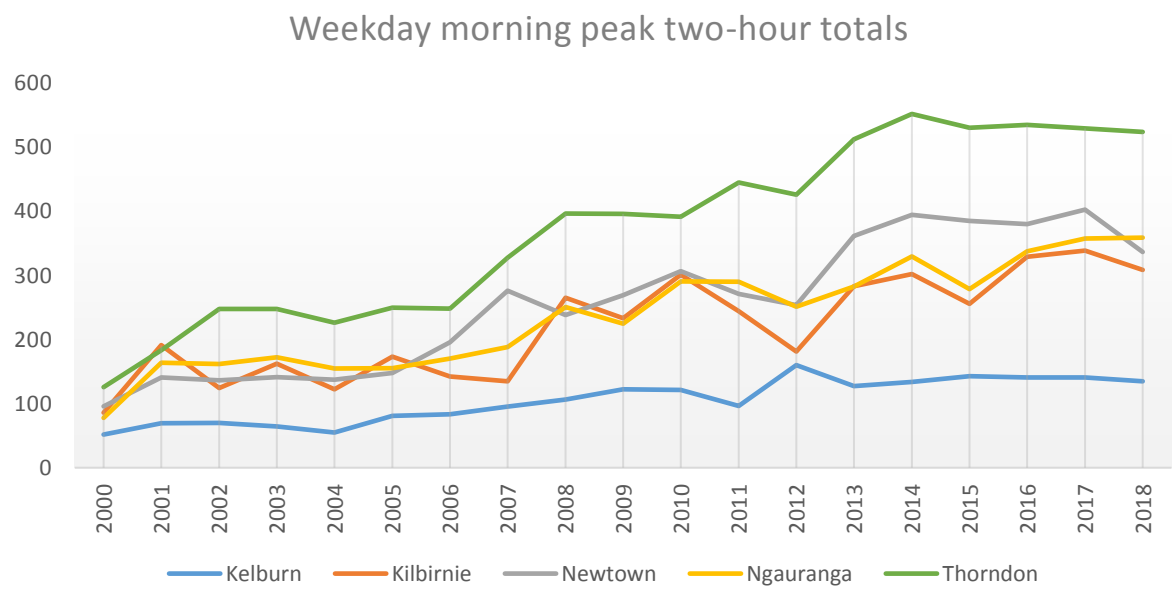
Wellington City Council (WCC) have engaged Tonkin & Taylor to develop the Newtown Connections cycleway project. The project is intended to provide greater cyclist connectivity for the southern suburbs of Island Bay, Berhampore, Newtown, and Mount Cook to the central city and within the suburbs. The network is intended to connect with the existing cycleway on The Parade in Island Bay and planned cycleway projects in Kilbirnie and the central city.

This issues paper provides background information to guide future assessment of cycling improvement options for the Newtown Connections. This paper identifies a need for improved cyclist connectivity in the study area and outlines previous studies conducted; applicable plans and policies; the existing environment; the existing situation for pedestrians, cyclists, buses, and other motor vehicles; the current level of service for cyclists; and the identified issues and opportunities.

Cycling on the Newtown Corridor

WCC has established a sustainable transport hierarchy that encourages walking, cycling, and public transport over other modes of transport. The intention of the hierarchy is to address the pressure that future population growth will place on the existing transport network. In response to this, WCC has proposed the development of a safe and comprehensive cycle network. The aim of this network is to make cycling a more appealing choice by making it safer and more convenient. These changes will contribute to reducing congestion and giving people more transport choice.

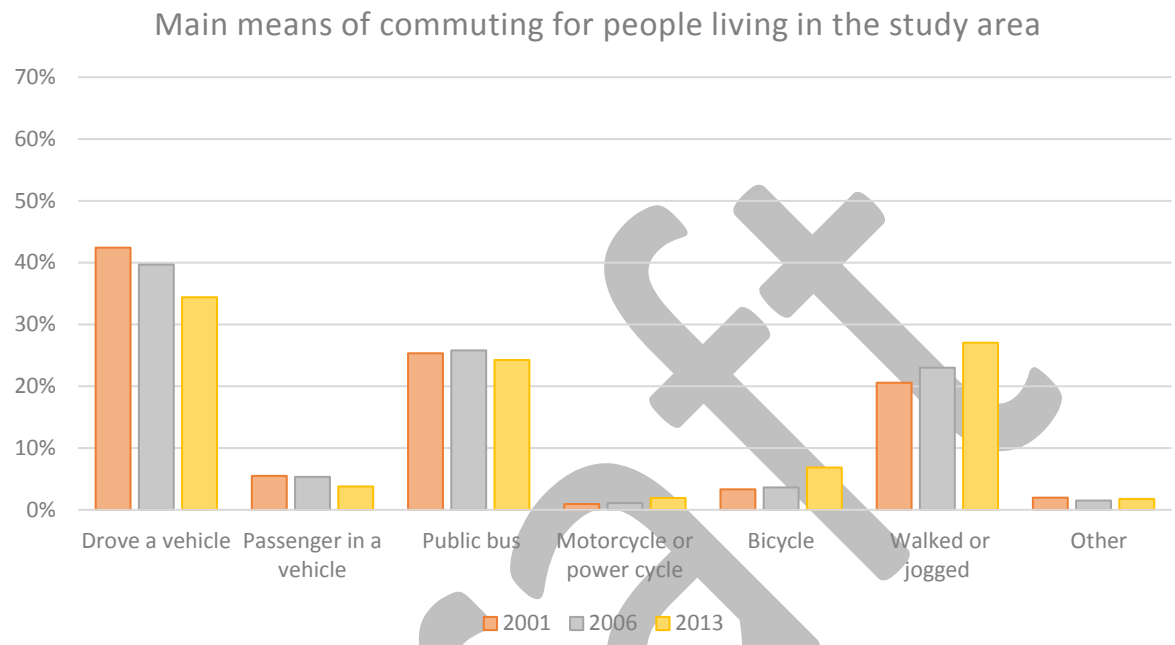
The percentage of people in Wellington who cycle as their primary means of commuting increased from 2.43% in 2006 to 4.04% in 2013[1]. Cycling has been growing steadily despite a lack of improvement in cycle infrastructure within the city. Transport monitoring surveys have shown an increasing trend in the number of people cycling along the main transport corridors in the city, including the Newtown corridor. The trends suggest that cycle use will increase further in Wellington, but improved cycling infrastructure will be required to ensure this growth continues.



Volumes of people cycling on the main cycle corridors in Wellington[2]

[1] Wellington City Council. (2015). *Wellington Cycleways Programme Master Plan*. Wellington, New Zealand.
[2] Traffic Design Group. (2018). *Wellington City Council Transport Monitoring Surveys: 2018 Summary*. Wellington, New Zealand.

The Newtown corridor has been identified as a route with the potential for significant commuter cyclist uptake. The age demographic is young relative to other suburbs: In 2013, the largest five-year age group in the study area was 20–24 year olds, who make up 16% of the population, and 20% of the working-age population[3] were students[4]. The motor vehicle modal share has been decreasing for both commuters from and commuters to the study area since 2001. In contrast, walking/jogging and bicycle modal shares have both been increasing. The modal split trends for those who live in the study area are shown below.



Main means of commuting for people living in the study area

The roads in the Newtown Connections study area provide for a wide variety of user needs. The area includes local, collector, and principal roads. Adelaide Road, a principal road, traverses the entire length of the study area and carries more than 20,000 vehicles per day. In contrast, some of the local roads see less than 200 vehicles per day. There is a relatively high demand for parking due to competing demands for residential, commuter, retail, and recreational parking. All roads within the study area provide on-street parking, including time-restricted, residents, coupon, and unrestricted parking. There are very few existing provisions for cyclists on the roads. On the main routes, the cyclist level of service is rated as E or F. An LOS of E indicates that more than 50% of cyclists would be moderately or very dissatisfied with the route. An LOS of F indicates that more than 50% of cyclists would be very dissatisfied with the route.

Previous Studies

A number of past studies have been carried out on potential cycleway network options to connect Island Bay to the Wellington Central Business District. These studies have assessed potential routes and facility treatment options to encourage uptake in new commuter cyclists from the connecting suburbs. Some of the studies have recommended specific routes and/or treatment options, while others have only gone as far as to assess the impacts of select options without making a recommendation.

[3] The working-age population is defined as the usually resident, non-institutionalised, civilian population of New Zealand aged 15 years and over who live in private dwellings. (stats.govt.nz)
[4] Data retrieved from Stats NZ: nzdotstat.stats.govt.nz

There is not a consistently recommended route option among the studies, nor a consistently recommended facility treatment option. However, there are design themes and recommendations that are consistent between the studies. Some of the key themes are as follows:

- It is important to provide a central spine route, running north-south to connect Island Bay to the CBD. Supplementary routes should be considered in the future to provide more connections, but the initial focus should be on a high-quality central spine.
- The most important factor that will affect new commuter cyclist uptake is safety (or perceived safety). In general, the previous studies recommended protected cycle facilities or supplementary quiet, low-traffic cycle routes for less-confident cyclists where protected facilities were not provided on the main routes.
- Hill gradients and route directness were also important factors that would contribute to the success of a cycle facility.

Issues and Opportunities

This paper has identified a wide range of issues and opportunities related to the development of a cycle network in the Newtown Connections study area. Key issues and opportunities in the study area include:

- The opportunity to integrate and build on a number of previous investigations and subsequent recommendations for cycle facilities within the Newtown Connections study area;
- An increase in alternative travel mode choice is needed to support integrated and sustainable future growth in the study area;
- There are not currently any existing cycling facilities within the study area;
- The existing road reserve widths on many of the roads are very narrow and constrained, affording little flexibility to provide cycle facilities without removing existing facilities (i.e. on-street parking);
- There are a large number of high-volume road corridors and intersections within the study area. Intersections are the most dangerous location for cyclists;
- A total of 81% (13 of 16) of cyclist crashes resulted in injuries to cyclists over the previous 5-year period to 2018;
- The topography throughout most of the study area is of steep grade, or has sections of steep grade;
- Parking demand occurs from a mixture of residential, commuter and recreational users. Previous studies have explored the effect of alternate cycle facilities along Adelaide Road. Provision of uphill cycle lanes only had a minimal effect on parking. Other options, including dual cycle lanes, wide shared lanes, and two-way cycle lanes, are likely to result in a parking shortfall, with significant effects on parking availability and amenity for users;
- Future land use changes and intensification is likely to increase on-street parking demand;
- It will be important to provide consistency and clarity between any cycle facilities within the study area or connecting into the study area; and
- There are a number of routes that could provide different connections and LOS for cycling within the study area. A plan may incorporate a range of complementary short term and long-term facilities on separate routes that propose a staged approach to a cycling masterplan for the area.

1 Introduction

Wellington City Council (WCC) have engaged Tonkin & Taylor (T+T) and Studio Pacific Architecture (SPA) to develop the Newtown Connections cycleway project. This project will provide greater cyclist connectivity between the southern suburbs of Island Bay, Berhampore, Newtown, and Mount Cook (24,621 total population and 738 commuter cyclists[5] at 2013) and the central city. The project also aims to provide more options for commuting cyclists to connect to businesses, schools, and recreational areas across these suburbs.

1.1 Purpose of this report

This issues paper is intended to provide background information to guide future assessment of cycling improvement options in Island Bay, Berhampore, Newtown, and Mount Cook. This paper identifies a need for improved cyclist connectivity in the study area and outlines previous studies conducted; applicable plans and policies; the existing environment; the existing situation for pedestrians, cyclists, buses, and other motor vehicles; the current level of service for cyclists; and the identified issues and opportunities.

1.2 Project Objectives

The Newtown Connections cycleway project is part of WCC's investment in a safe and comprehensive cycle network to give people more transport choice, reduce congestion and emissions, and make Wellington a more attractive place to live, work, and visit. The primary objective is to identify cycleway options that maximise benefits for all users and, in particular, improve the level of service for people who travel by bike.

The Wellington Cycle Network Programme Business Case[6] outlines the need for investing in cycling in Wellington. The business case outlines the following five investment objectives for cycle network improvements and associated activities:

- Provide a high Level of Service for people who bike within an integrated transport network;
- Improve cycling infrastructure and facilities so that cycling makes a greater contribution to network efficiency, effectiveness and resilience;
- Ensure cycling is a viable and attractive transport choice;
- Reduce the crash rate and the number and severity of crashed involving people on bikes; and
- Improve Wellington's sustainability, liveability, and attractiveness.

1.3 Study Area

The study area for the Newtown Connections cycleway extends approximately 3.5 kilometres through the suburbs of Island Bay, Berhampore, Newtown, and Mt Cook, from the intersection of The Parade and Dee Street in the south, to the Basin Reserve and Pukeahu National War Memorial Park in the north. Taranaki Street, Wallace Street, and the town belt bound the study area to the west and Coromandel Street and the town belt to the east. The Newtown Connections will also need to consider connections to neighbouring feeder suburbs, including Kilbirnie, Melrose, Southgate, Houghton Bay, Kingston, Mornington, Vogeltown, and Te Aro.

The Newtown Connections study area abuts the Central Area Improvements study area and the Kilbirnie Connections study area, to the north and east respectively. The study area connects with an existing protected cycleway, Island Bay, to the south. The study area is shown below in Figure 1.

[5] Stats New Zealand. (2013). *2013 Census*. Retrieved from: nzdotstat.stats.govt.nz
[6] Wellington City Council. (2016). *Cycle Network Development Programme Business Case.* Wellington, New Zealand.

Figure 1 – Newtown Connections study area[7]

[7] Google. (2018). *Google Maps*.

1.4 Limitations

The opinions, conclusions, and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. The existing road corridor descriptions are based on site visits undertaken in August 2017 and the observations are correct as at that date. The data contained in this report includes traffic count information obtained from WCC. It has been assumed that the information received is correct.

This is a living document, which will include further updates to account for events or changes occurring, including information collated from stakeholder engagement, subsequent to the date that the report was prepared.

2 Background

2.1 Cycling in Wellington

Wellington City's population of 200,000 people is forecast to grow by more than 25% over the next 30 years[8], placing extra pressure on the transport network. To address this pressure, WCC has established a sustainable transport hierarchy, which encourages walking, cycling, and public transport over other modes of transport (Figure 2). WCC proposes to develop a safe and comprehensive cycleway network that will reduce congestion, give people more transport choice, and make sure they can easily get to the central city and other important places around Wellington. The aim of this network is to contribute towards cycling becoming "safer and more convenient"[9] by increasing the level of service for people who use bikes. Cycleway development will be supported by promotional and safety schemes.

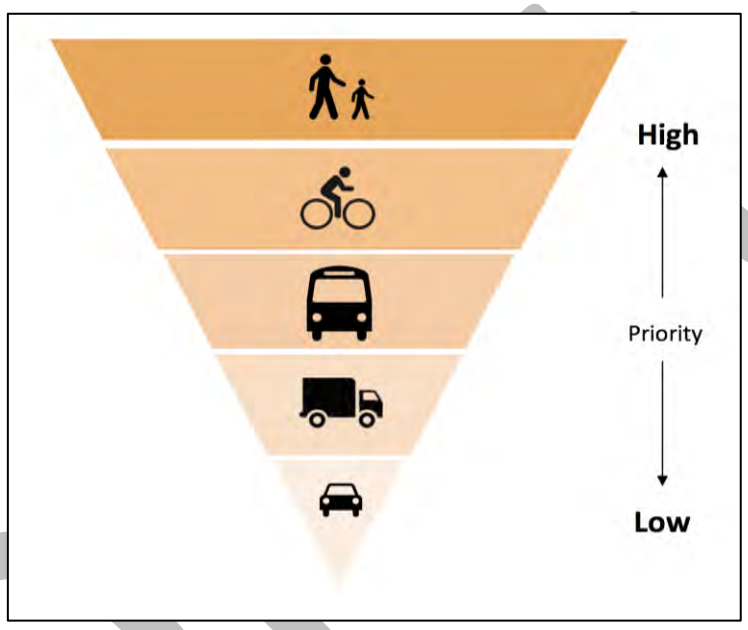


Figure 2 – WCC Sustainable Transport Hierarchy[10]

The percentage of people in Wellington who cycle as their primary means of commuting increased from 2.43% in 2006 to 4.04% in 2013[11]. Cycling has been growing steadily despite a lack of improvement in cycle infrastructure within the city. Transport monitoring surveys have shown an increasing trend in the number of people cycling along the main transport corridors in the city, as seen in Figure 3. The trends suggest that cycle use will increase further in Wellington, but improved cycling infrastructure will be required to ensure this growth continues.

[8] Wellington City Council. (2015). *Wellington Cycleways Programme Master Plan*. Wellington, New Zealand.
[9] Wellington City Council. (2008). *Cycling Policy*. Wellington, New Zealand.
[10] Wellington City Council. (2015). *Wellington Urban Growth Plan.* Wellington, New Zealand.
[11] Wellington City Council. (2015). *Wellington Cycleways Programme Master Plan*. Wellington, New Zealand.

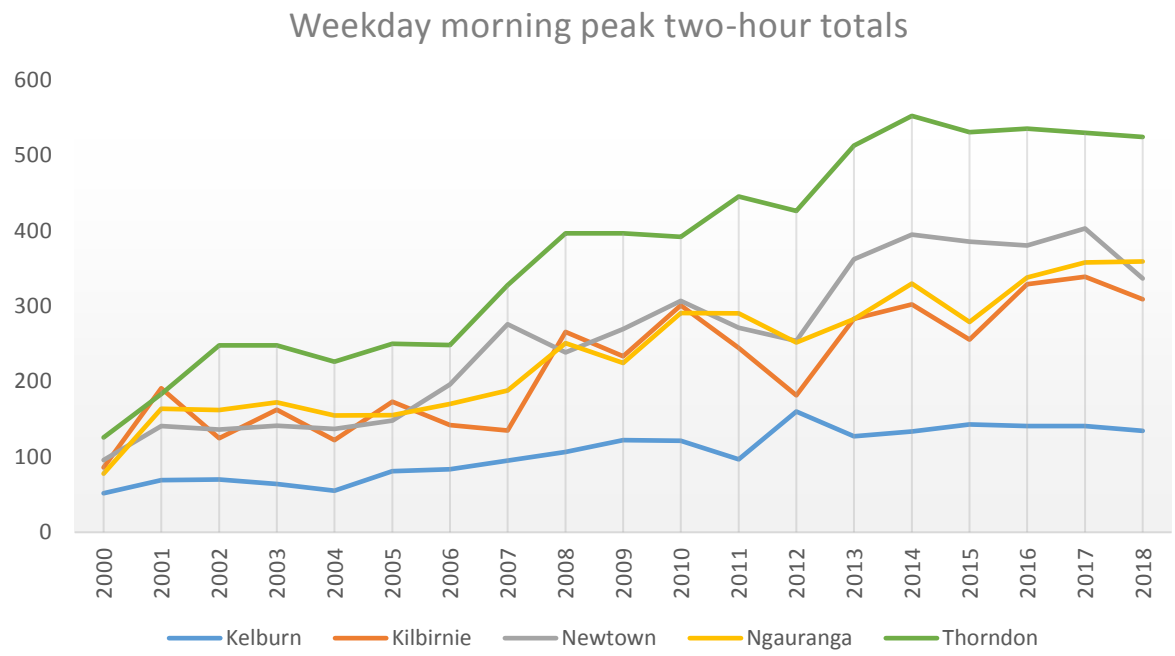


Figure 3 – Volumes of people cycling on the main cycle corridors in Wellington[12]

In order to provide cycling infrastructure that meets the needs of the Wellington community, it is important to understand the types of users who would consider cycling if safe infrastructure were provided. A 2014 study carried out by WCC identified the various groups of cyclists and their attitudes towards cycling and cycling infrastructure. Figure 4 displays the percent make-up of each group within Wellington.

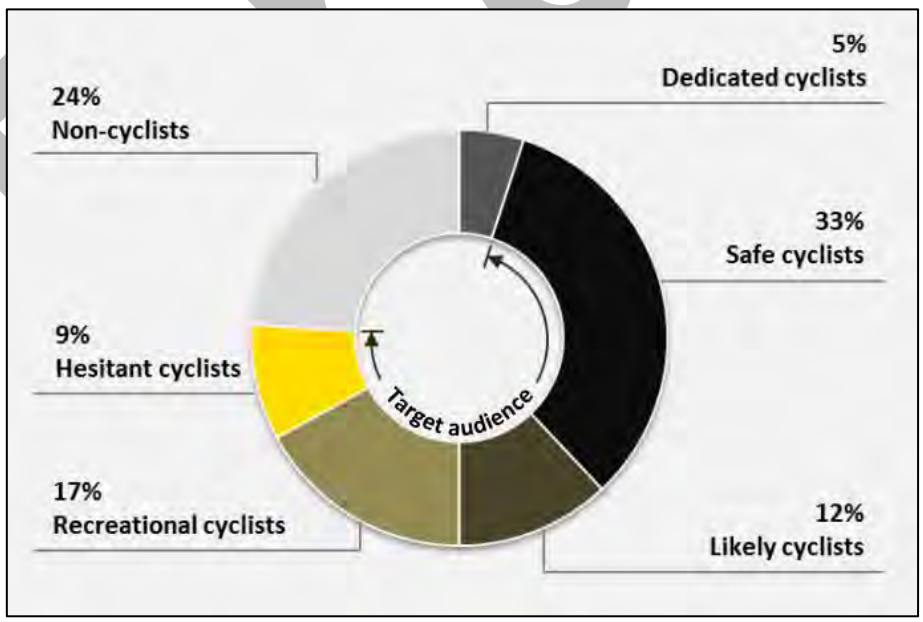


Figure 4 – Distribution of types of cyclists in Wellington[13]

[12] Traffic Design Group. (2018). *Wellington City Council Transport Monitoring Surveys: 2018 Summary*. Wellington, New Zealand.

[13] Wellington City Council. (2015). *Wellington Cycleways Programme Master Plan*. Wellington, New Zealand.

The identified groups and their attitudes towards cycling are as follows[14]:

- **Non-cyclists:** Non-cyclists are highly unlikely to consider cycling, no matter what improvements are made to infrastructure.
- **Hesitant cyclists:** Hesitant cyclists are unlikely to cycle in Wellington under current cycling conditions but are much more likely to cycle if separated cycleways are provided.
- **Recreational cyclists:** Recreational cyclists are much more likely to cycle for recreational purposes than for transport. Cycling infrastructure has a very strong influence on this group's decision to cycle.
- **Likely cyclists:** Likely cyclists are likely to cycle under current conditions. However, a large percentage would cycle more often if infrastructure were improved.
- **Safe cyclists:** Safety-related factors are the most influential for safe cyclists when deciding to cycle. This is the largest group that will be likely to start cycling if improvements to infrastructure are made.
- **Dedicated cyclists:** Dedicated cyclists are dedicated to cycling no matter what and will cycle under current conditions.

Over recent years, WCC has committed capital funding to improve cycling infrastructure across the city through its Long Term Plan and Annual Plan processes. Additionally, the Urban Cycleways Programme (UCP) has provisionally allocated $9.5 million to Wellington City for investment by 30 June 2019. When contributions from rates and the National Land Transport Fund (NLTF) are taken into account, some $37 million will be invested in cycling in Wellington City by 30 June 2019. In the draft WCC Long-Term Plan 2018-2028, Council has allocated $15 million for the Newtown Connections project, of which $4.5 million has been allocated for the period up to 30 June 2019.

[14] Wellington City Council. (2015). *Wellington Cycleways Programme Master Plan*. Wellington, New Zealand.

2.2 Previous Studies

A number of past studies have been carried out on potential cycleway network options to connect Island Bay to the Wellington Central Business District (CBD). These studies have assessed potential routes and facility treatment options to encourage uptake in new commuter cyclists from the connecting suburbs. Some of the studies have recommended specific routes and/or treatment options, while others have only gone as far as to assess the impacts of select options without making a recommendation.

There is not a consistently recommended route option among the studies, nor a consistently recommended facility treatment option. However, there are design themes and recommendations that are consistent between the studies. Some of the key themes are as follows:

- It is important to provide a central spine route, running north-south to connect Island Bay to the CBD. Supplementary routes should be considered in the future to provide more connections, but the initial focus should be on a high-quality central spine.
- The most important factor that will affect new commuter cyclist uptake is safety (or perceived safety). In general, studies recommended protected cycle facilities or supplementary quiet, low-traffic cycle routes for less-confident cyclists where protected facilities were not provided on the main routes.
- Hill gradients and route directness were also important factors that would contribute to the success of a cycle facility.

The studies and their outcomes are summarised in the following sections.

2.2.1 Island Bay to CBD: Preliminary Funding Report (Opus, 2013)[15]

This study assessed cycle route options to connect the southern suburbs to the Wellington CBD, beginning at Reef Street in the south, extending up to the waterfront in the north. The design philosophy was to provide a facility that would encourage an uptake in new commuter cyclists.

In order to understand the route characteristics that affect the level of appeal for commuter cyclists, the report included an analysis of a survey undertaken by Jean Beetham as a part of her Master's Theses (2013) for the School of Geography, Environment and Earth Sciences Victoria University of Wellington. The survey results included 603 online responses from people who travel along the corridor between Island Bay and the CBD. The research found the following conclusions regarding route choice considerations for commuter cyclists:

- The most important consideration for attracting new users is a perception of safety;
- People who sometimes cycle that could be encouraged to do so more frequently also place high importance on feelings of safety;
- The second most important factor for potential new users is flatness (minimal level changes/steep gradients); and
- Directness becomes relatively more important for regular cyclists.

The Island Bay to CBD feasibility study was divided into three sections, with route options developed for each section (refer Figure 5). Following an option assessment that considered safety criteria, topography, and directness, the following route option combination and respective treatments were determined:

- Route Option 1-A following The Parade constructed with on-road cycle lanes;
- Route Option 2-A installed with on-road cycle lanes or a shared-use path facility; and

[15] Opus. (2013). *Island bay to CBD: Preliminary Funding Report*. Wellington, New Zealand.

- Route Option 3-A developed with either on-road cycle lanes accommodated within the bus lanes, or a shared-path facility along Adelaide Road and Cambridge/Kent Terrace to cater for commuter cyclists.

In addition to the above, a quiet, low-traffic route following Option 2-D and Option 3-C on Stoke Street, Hanson Street, Tasman Street, and Tory Street was recommended to provide new, less confident cyclists a route away from the central, heavy-trafficked corridor. Recommendations for the route include:

- Cycle directional signing, low-intervention traffic calming, and treatments to highlight the presence of cyclists between Stoke Street and the south of Rugby Street; and
- Road space reallocated to provide a southbound cycle lane or shared path on the eastern side of Tory Street and Tasman Street north of Rugby Street.

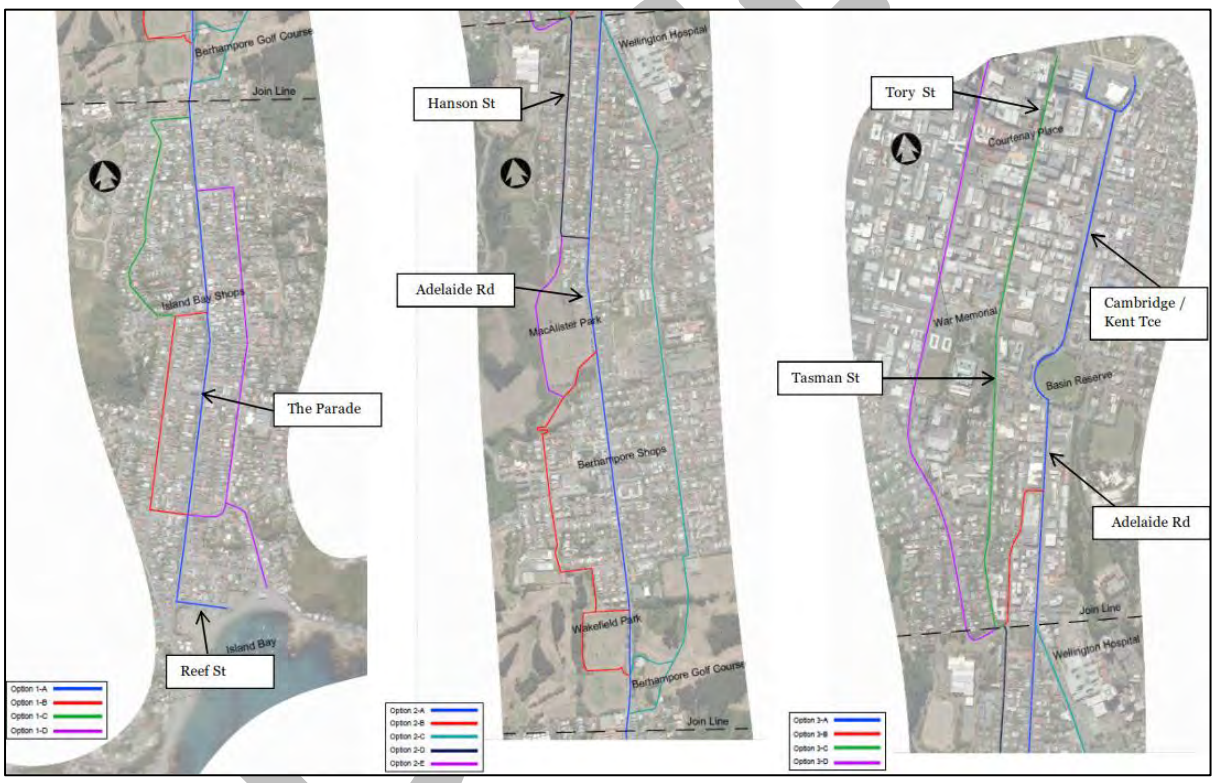


Figure 5 – Routes considered in the Opus feasibility study[16]

2.2.2 Island Bay Cycleway Design Options: Dee Street to John Street (Opus, 2014)[17]

This study was completed as a follow-up to the Island to CBD: Preliminary Funding Report, which recommended Adelaide Road as the best cycle route option. This report provides as assessment of cycle improvements on Adelaide Road between Dee Street and John Street. An assessment was carried out on the impact of different cycle infrastructure options on cyclist level of service (LOS), cyclist uptake, parking effects, and implementation cost. The study found the following:

- Permanent/full-time route improvements (i.e. dual or two-way cycle lanes) provide the best cyclist LOS and are most likely to encourage new users;

[16] Opus. (2013). *Island bay to CBD: Preliminary Funding Report*. Wellington, New Zealand.
[17] Opus. (2014). *Island Bay Cycleway Design Options: Dee Street to John Street*. Wellington, New Zealand.

- Partial/part-time route improvements (i.e. clearways or uphill cycle lanes) have the potential to improve cyclist LOS, but only at certain times or on certain sections of the route. While these improvements would increase safety and priority, they are less likely to attract new users; and
- Removal of parking without reallocating space specifically for cyclists (i.e. wide traffic lanes) does not provide a significant improvement to cyclist LOS and would potentially result in increased vehicle speeds.

The report also found that using alternative routes east or west of Adelaide Road improved LOS, lowered costs, and minimised impact on parking. However, these alternative options decreased the directness of the route and the attractiveness to commuters, as identified in the Island Bay to CBD: Preliminary Funding Report. These options would decrease the likely cyclist uptake, which would not meet design philosophy requirements.

2.2.3 Berhampore Cycle Track Study (SPA, 2014)[18]

Studio Pacific Architecture (SPA) carried out a study to assess options to provide an off-road cycle track to connect Adelaide Road and Lavaud Street in Berhampore. The track traverses the eastern section of Berhampore Golf Course and Martin Luckie Park. SPA identified five potential routes for the off-road cycle track, shown below in Figure 6. The report provides details on each route option, including gradients, potential conflicts, and typical cross sections. The report does not draw a conclusion as to which option is best.

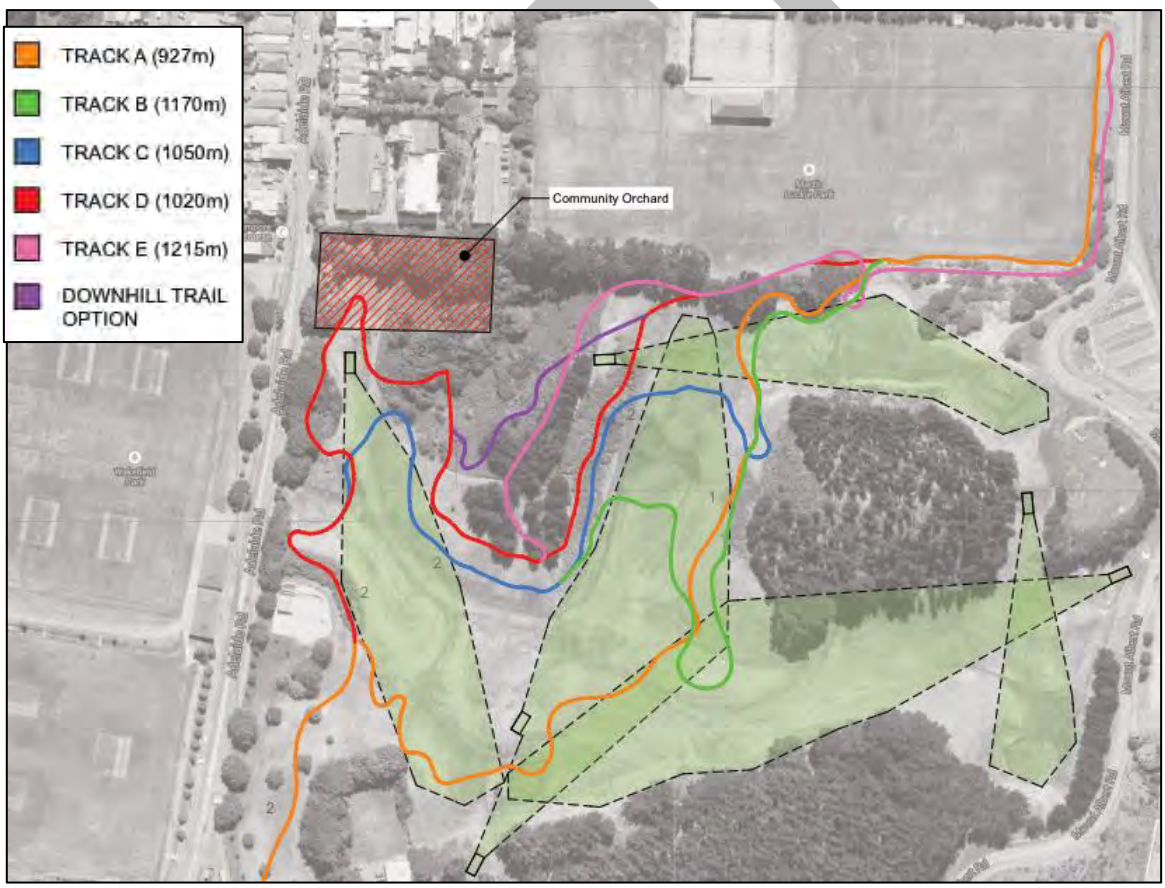


Figure 6 – Berhampore Cycle Track options[19]

[18] Studio Pacific Architecture. (2014). *Berhampore Cycle Track Study*. Wellington, New Zealand.
[19] Studio Pacific Architecture. (2014). *Berhampore Cycle Track Study*. Wellington, New Zealand.

2.2.4 Newtown Safe Cycleway (Red Design Architects, 2014)[20]

The Newtown Safe Cycleway study assessed the option of providing a two-way separated cycle facility between Dee Street and John Street. A two-way separated facility, as shown in Figure 7, was considered because it was found to have two main benefits. Firstly, the facility type rates well on the Copenhagen Model's LOS measure, which evaluates safety. Secondly, the arrangement was described to have minimal disruption of existing street parking. With this model, it was found that it could reduce the significant parking displacement costs that would result from the solution identified in the Island Bay to CBD: Preliminary Funding Report.

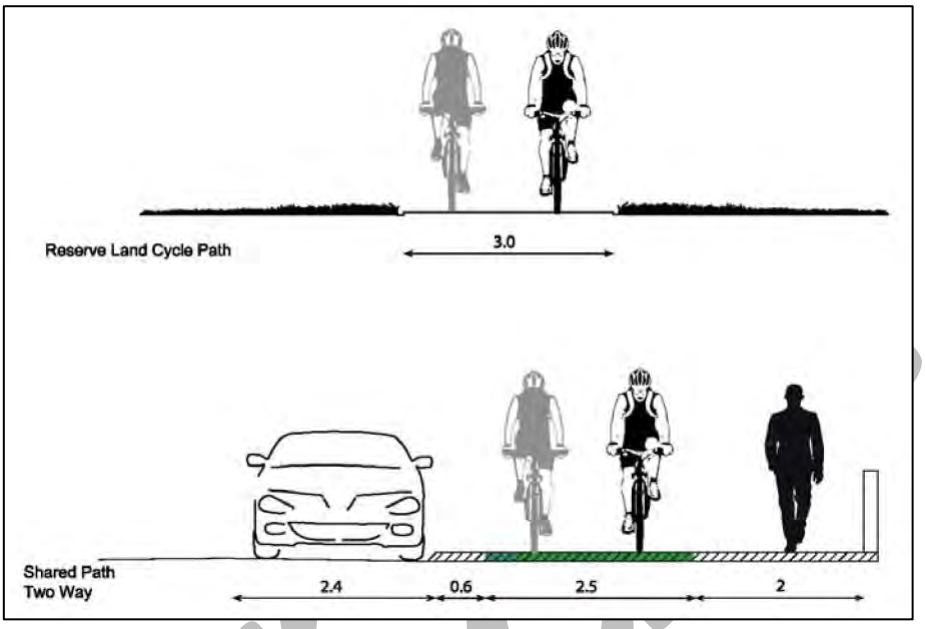


Figure 7 – Red Design off-road and on-road typical cross sections

Red Design Architects identified multiple route options for consideration between Dee Street and John Street. Western, central, and eastern route options were identified, along with potential alternatives and supplementary routes (including cycle-friendly avenues and off-road paths). These routes are all shown in Figure 8.

[20] Red Design: Architects. (2014). *Newtown Safe Cycleway 2014: Safer Cycleways Design Report*. Wellington, New Zealand.

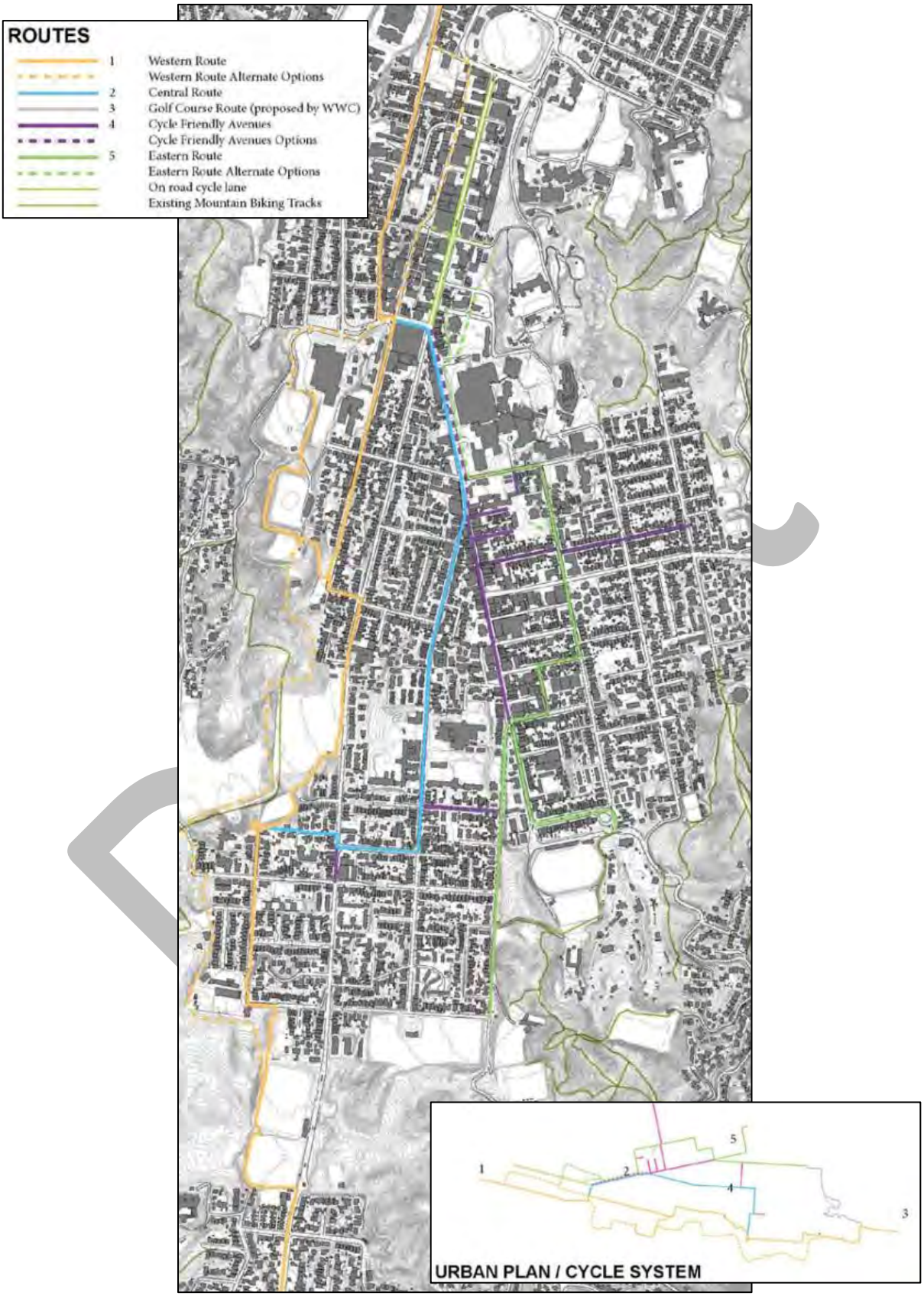


Figure 8 – Red Design routes for consideration[21]

[21] Red Design: Architects. (2014). *Newtown Safe Cycleway 2014: Safer Cycleways Design Report*. Wellington, New Zealand.

2.2.5 Newtown-Berhampore Cycle Route (Citizen's Advisory Panel, 2014)[22]

WCC established the Citizens' Advisory Panel to determine potential options for cycle routes to connect the Wakefield Park to John Street section of the Island Bay to central city route. The Panel consisted of 16 members, representing residents, business owners, user of the town belt, and people who cycle. Two target user groups were identified: "city commuters" who commute into the central city from the suburbs and "community commuters" who cycle within the southern suburbs between businesses, schools, and recreational areas.

The selection criteria used to determine the best options for the cycleway were as follows:

- Safety and security along all points of the cycleway for all users
- Usability and accessibility for the most possible users
- Direct route to Wellington city and to the local suburbs
- Minimal disruption to community - residents, businesses, road users and others that may be affected by the cycleway
- Meets the needs of the target groups – city commuters and community commuters
- Cost of implementation
- Legal requirements

Some of the initially considered route options were ruled out because they did not meet key design criteria. Most commonly, routes ruled out did not contribute to the creation of a central backbone for the cycle network, which was identified as a priority by the Panel. These routes included:

- Constable Street;
- Most of the west corridor route;
- Off-road cycle track to connect Adelaide Road and Lavaud Street; and
- Berhampore Golf Course and Martin Luckie Park, Daniell Street, and Mein Street.

The Panel recommended two preferred route options, Route 1 and Route 2, to be implemented together. They also identified a third option, Route 3, to run alongside Route 1 and Route 2. However, it was acknowledged that this route was not as high of a priority as it mostly caters to the community commuter group but should be considered as a complementary route for future development. The route options are shown in Figure 9.

The Panel also considered a route that would follow Rintoul Street, as this was a more direct option with an easy slope and access. However, the route was dismissed because of the high frequency of buses travelling on this route and the safety concern of cyclists mixing with buses. The Panel recommended that this route be considered if the safety concern could be resolved.

The Panel did not identify specific treatment options and cross sections designs for the proposed routes. However, they proposed the following design treatments and considerations:

- Cycle paths separated from traffic and providing safe pedestrian passage;
- Two-way cycle lane only for the flat parts of the cycleway;
- One-way, dual cycle lanes for hills where cyclists have a dedicated lane on each side of the road;
- Design of cycleway that minimises parking loss;
- On-road protection to create separation between different users; and
- Traffic calming by reducing speed limits in certain areas.

[22] Citizens' Advisory Panel Report. (2014). *Newtown-Berhampore Cycle Route*. Wellington, New Zealand.

Figure 9 – Citizens' Advisory Panel recommended routes[23]

2.2.6 Study for Newtown and Berhampore Cycleways (AECOM, 2015)[24]

AECOM carried out an investigation of potential cycling facility options through Newtown and Berhampore. The objective of the study was to identify an option that would improve the level of service for cyclists and public transport users while maintaining a good level of service for pedestrians and general traffic. The recommended option consists of providing cycling facilities and bus improvements along Route C, shown in Figure 10. The recommended changes are as follows:

- One-way protected bike lanes on Adelaide Road, Luxford Street, and Riddiford Street;
- A low-volume, low-speed environment on Rintoul Street in the short term with plans for a two-way protected bike lane to be installed within ten years;
- 30 km/h speed limit implemented on Rintoul Street, Adelaide Road (Britomart Street/Herald Street to Luxford Street), Riddiford Street (Russell Terrace to Hall Street/Mein Street), and Constable Street (Daniell Street to Riddiford Street);
- Rationalisation of the bus stops along the route; and
- Peak-period bus priority lanes and bus jumps[25] along Constable Street and on Riddiford Street north of Constable Street.

[23] Citizens' Advisory Panel Report. (2014). *Newtown-Berhampore Cycle Route*. Wellington, New Zealand.
[24] AECOM. (2015). *Study for Newtown and Berhampore Cycleways*. Wellington, New Zealand.
[25] A bus jump gives preference to buses at signalised intersections by providing a queue jump lane where they get a head start over other queued vehicles.

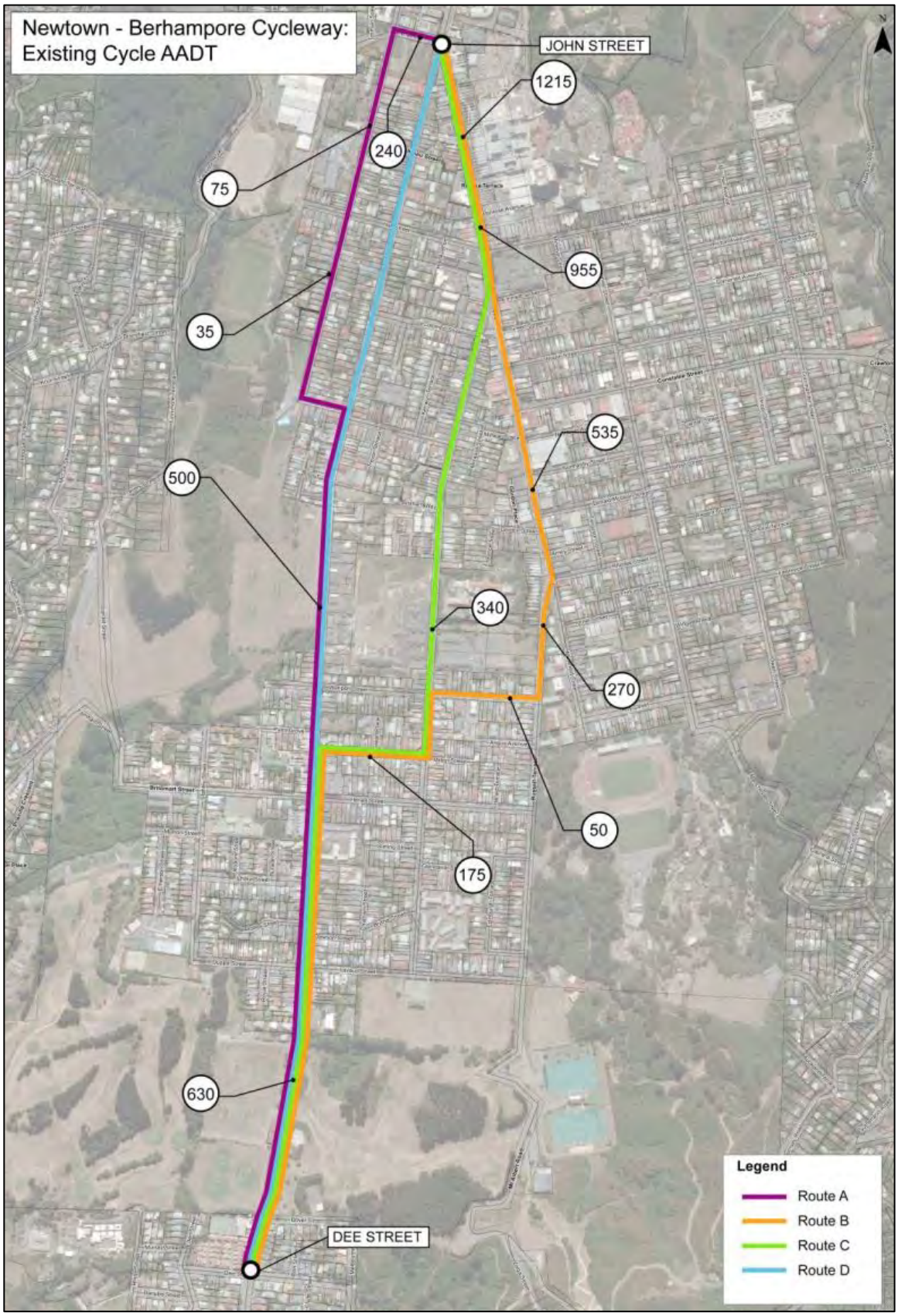


Figure 10 – Routes considered in the AECOM study[26]

[26] AECOM. (2015). *Study for Newtown and Berhampore Cycleways*. Wellington, New Zealand.

2.2.7 Other Studies

Other studies have been conducted in relation to the creation of a cycleway between Island Bay and the CBD. These studies do not include route and facility treatment assessments or recommendations. They do provide relevant information regarding the current situation and the potential impacts of new cycleway facilities. Additional reports that should be considered in design development include:

Cycling Demand Analysis (WCC, 2014):

This study assesses the results of a cycling survey conducted from March to June 2014. The report identifies the cycleway features that most influence the decision to cycle in Wellington and assesses the potential demand for the proposed Island Bay to CBD cycleway.

Trip Making for Island Bay Cycleway (Opus, 2013):

This study provides an understanding of the likely demand for cycle trips on the Island Bay to CBD corridor.

Parking Analysis: Island Bay Cycleway Design Options, Dee Street to John Street (Opus, 2013):

This study provides an understanding of the demand and capacity for parking that currently exists along the Adelaide Road corridor.

Parking Mitigation: Island Bay Cycleway Design Options, Dee Street to John Street (Opus, 2013):

This study provides an understanding of the costs and impacts of feasible options to mitigate parking loss and relocation along the Adelaide Road corridor due to cycle improvements.

2.3 Related Transport Projects

2.3.1 Ngauranga to Airport corridor strategy (2015)

The Ngauranga to Airport (N2A) corridor is one of four key transport corridors identified in the Corridor Strategies section of the Wellington Regional Land Transport Plan (2015) by GWRC. The N2A corridor begins at the Ngauranga interchange, continuing through the Wellington CBD to Newtown, the eastern suburbs, and Wellington International Airport (as shown in Figure 11). It includes SH1, the local road network, the rail network terminating at Wellington station, and key routes for passenger transport, walking, and cycling.

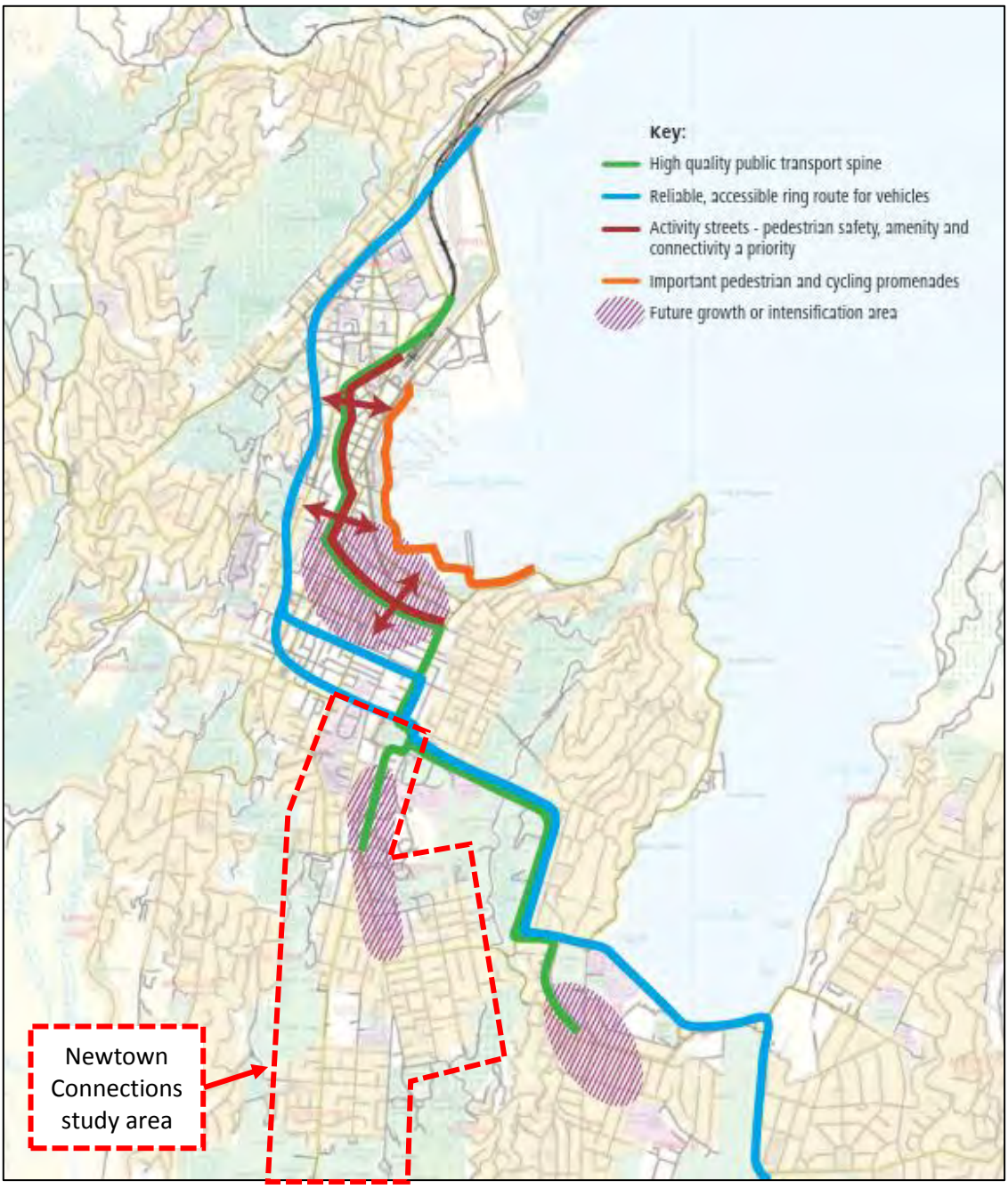


Figure 11 – Ngauranga to Airport Corridor: Strategic principles[27]

[27] Greater Wellington Regional Council. (2015). *Wellington Regional Land Transport Plan*. Wellington, New Zealand.

The strategic principles for development of the N2A transport corridor are:

- A high quality and high frequency passenger transport 'spine';
- A reliable and accessible 'ring' or bypass route for vehicles;
- Inter-connected, safe, and convenient local street, walking, cycling and passenger transport networks; and
- Highly accessible and attractive 'activity' or shopping streets.

Specific to the Newtown Connections project, proposed N2A improvements include duplicating the Mount Victoria Tunnel, addressing conflicting transport demands at the Basin Reserve, and developing a high-frequency public transport spine from Newtown to the central city. These improvements are likely to affect travel times for private vehicles and public transportation users along Adelaide Road and around the Basin Reserve. As a result traffic volumes and travel times on alternative routes, such as Taranaki Street and Tasman Street, may also be affected.

2.3.2 Let's Get Wellington Moving

An alliance was established between WCC, NZTA, and GWRC to develop an integrated multi-modal solution for Wellington's transport needs. The focus is on the area from Ngauranga Gorge to the Airport, encompassing the Wellington Urban Motorway and connections to Wellington Hospital and the eastern and southern suburbs. Called Let's Get Wellington Moving (LGWM), this alliance has a programme to develop and consult on recommended scenarios.

While this programme is being developed, previously planned improvements on key parts of the network have been placed on hold, including the Mount Victoria Tunnel duplication project. Improvements in the network, including improvements to the cycle network, may be affected by the outcome of LGWM. The volume of cyclists and motorists throughout the Newtown Connections study area may change if the outcome of the programme proposes improvements within the area. As a result, the Newtown Connections cycleway project may be informed by LGWM as further details of the project are confirmed.

2.3.3 Kilbirnie Connections

The Kilbirnie Connections improvement project will identify solutions to make it easier and safer for people to walk and bike within Kilbirnie and to adjacent suburbs, including Lyall Bay, Rongotai, Newtown, and the central city. The routes included in the Kilbirnie Connections network, and the extent of the Newtown Connection study area (in red) are shown below in Figure 12. Routes shown in solid lines are approved projects, while routes shown in dotted lines are proposals that are yet to be progressed. The Newtown Connections project will need to consider connections to the approved project on Wilson Street.

Figure 12 – Kilbirnie Connections cycleway routes[28]

2.3.4 The Parade, Island Bay

WCC councillors agreed on a redesign of The Parade in Island Bay, including bike paths. The concept design provides a consistent layout of the road, footpaths, and bike paths from just north of Reef Street to just south of Dee Street, with some variation through the main shopping area. The northern extent of the improvements at Dee Street will connect with the southern extent of the Newtown Connections study area. The location of the improvements along The Parade is shown below in Figure 13 and the existing layout is shown in Figure 14.

[28] Google. (2018). *Google Maps*.

Figure 13 – Island Bay cycleway project[29]

Figure 14 – Existing Island Bay cycleway layout

2.3.5 Central City Improvements cycleway projects

The Central City Improvements will identify upgrades to the cycle network within the central city. Cycling will be considered as part of the wider transport improvements options through LGWM. In the short term, $1.5 million has been allocated from the UCP to provide smaller improvements throughout the central city. The study area being considered for Central City Improvements is shown below in Figure 15.

[29] Google. (2018). *Google Maps*.

Figure 15 – Central Area Improvements cycleway project[30]

2.3.6 Rugby Street

As part of the central area improvements, a new one-way bike lane will be installed on Rugby Street in 2018. The 1.6-m-wide bike lane will be installed on the south side of Rugby Street from Adelaide Road to Tasman Street, as shown in Figure 16. The bike lane will improve safety for cyclists travelling from Adelaide Road towards the city by providing dedicated cyclist space.

[30] Google. (2018). *Google Maps*.

Figure 16 – Location of new bike lane to be installed on Rugby Street[31]

[31] Google. (2018). *Google Maps*.

3 Wellington City Council Plans and Policies

The following plans and policies provide the long-term direction for cycling in Wellington and support the development of a connected and integrated, high quality, safe cycle network that fits within the appropriate urban environment.

3.1 Wellington Cycleways Programme Master Plan (2015)

The Wellington Cycleways Programme Master Plan is a high-level guide for WCC on delivering new cycling infrastructure that best meets the community's needs and continues the growth of cycling as a practical mode of transportation in Wellington City. It outlines existing cyclist volumes, the level of support/demand for cycling, and the actual and perceived safety of cyclists in Wellington City. Specifically, 76% of people in Wellington City would consider cycling given safe and separated cycling infrastructure, and 75% of people (which includes many non-cyclists) support the development of cycleways. Figure 17 below indicates a significant increase in cyclist numbers once a safe, connected cycleway network is in place.

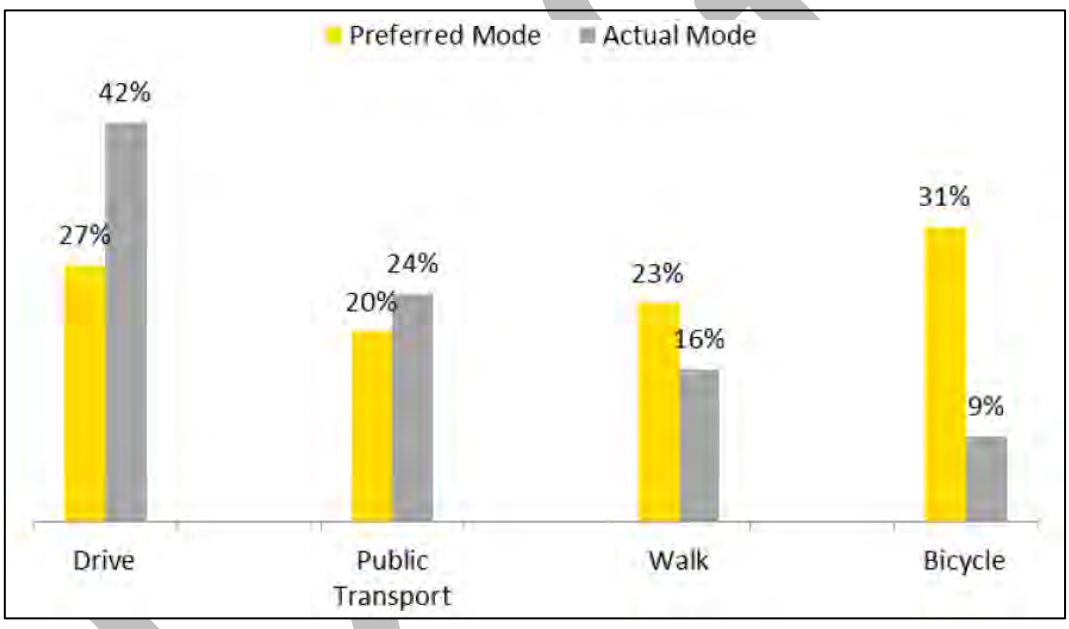


Figure 17 – Preferred and actual travel mode used in Wellington[32]

3.2 Wellington City Cycle Network Strategic Case (2015)

The Wellington City Cycle Network Strategic Case outlines the strategic context and case for investment in the Wellington cycleway network. It states that investment in cycling would improve safety for cyclists, increase transport choice, and lessen environmental impact and traffic congestion by reducing the number of vehicles on the road. As a result, the cycleways programme has high strategic fit with stakeholder partners, including WCC, Greater Wellington Regional Council (GWRC), and New Zealand Transport Agency (NZTA), in terms of economic growth, urban regeneration, and improved accessibility.

The strategic case was provided in support of an application to NZTA for funding to develop a programme business case for the Wellington City cycle network.

[32] Wellington City Council. (2015) *Wellington Cycleways Programme Master Plan*. Wellington, New Zealand.

3.3 Wellington Cycle Network Programme Business Case (2016)

The Wellington Cycle Network Programme Business Case further outlines the need for investment in cycling infrastructure, education, and promotion to improve the current levels of cycling in a safe and efficient environment. Key problems identified in the Strategic Case were confirmed and the following investment objectives were identified:

- Provide a high Level of Service for people who bike within an integrated transport network;
- Improve cycling infrastructure and facilities so that cycling makes a much greater contribution to network efficiency, effectiveness and resilience;
- Ensure cycling is a viable and attractive transport choice;
- Reduce the crash rate, and the number and severity of crashes involving people on bikes; and
- Improve Wellington's sustainability, liveability, and attractiveness.

Programme options were identified and assessed against the investment objectives. The assessment process identified Weighted Prioritisation (Option 3E) as the preferred option for investment. As per the weighted prioritisation approach, prioritisation of investment in cycling infrastructure will be based on the following three aspects[33]:

1. Strategic routes (main corridors within catchment areas): Those corridors that are able to make the biggest contribution to network efficiency, effectiveness, and resilience based on forecast/potential demand;
2. Level of Service gaps and deficiencies: Addressing the most severe and largest gaps in the desired level of service; and
3. Equity: A principle to be applied when prioritising catchment areas, focusing on spreading investment in a reasonably equitable manner across catchment areas.

The programme business case was provided in support of an application for funding to the NZTA to develop indicative and detailed business cases for elements of the Wellington City cycle network.

3.4 Wellington City Council Cycling Framework (2015)

The WCC Cycling Framework provides design guidelines and design principles for the implementation of a cycling network (i.e. what, where, when, how). The framework outlines the proposed citywide cycle network and describes the cycleway options (i.e. quiet routes, shared zones, protected lanes, and alternative paths) and their typical locations. Furthermore, it sets out decision-making thresholds for the delivery of each aspect of the cycle network. The Newtown Connections study area falls within the Southern section of the citywide cycle network.

[33] Wellington City Council. (2016). *Cycle Network Development Programme Business Case.* Wellington, New Zealand.

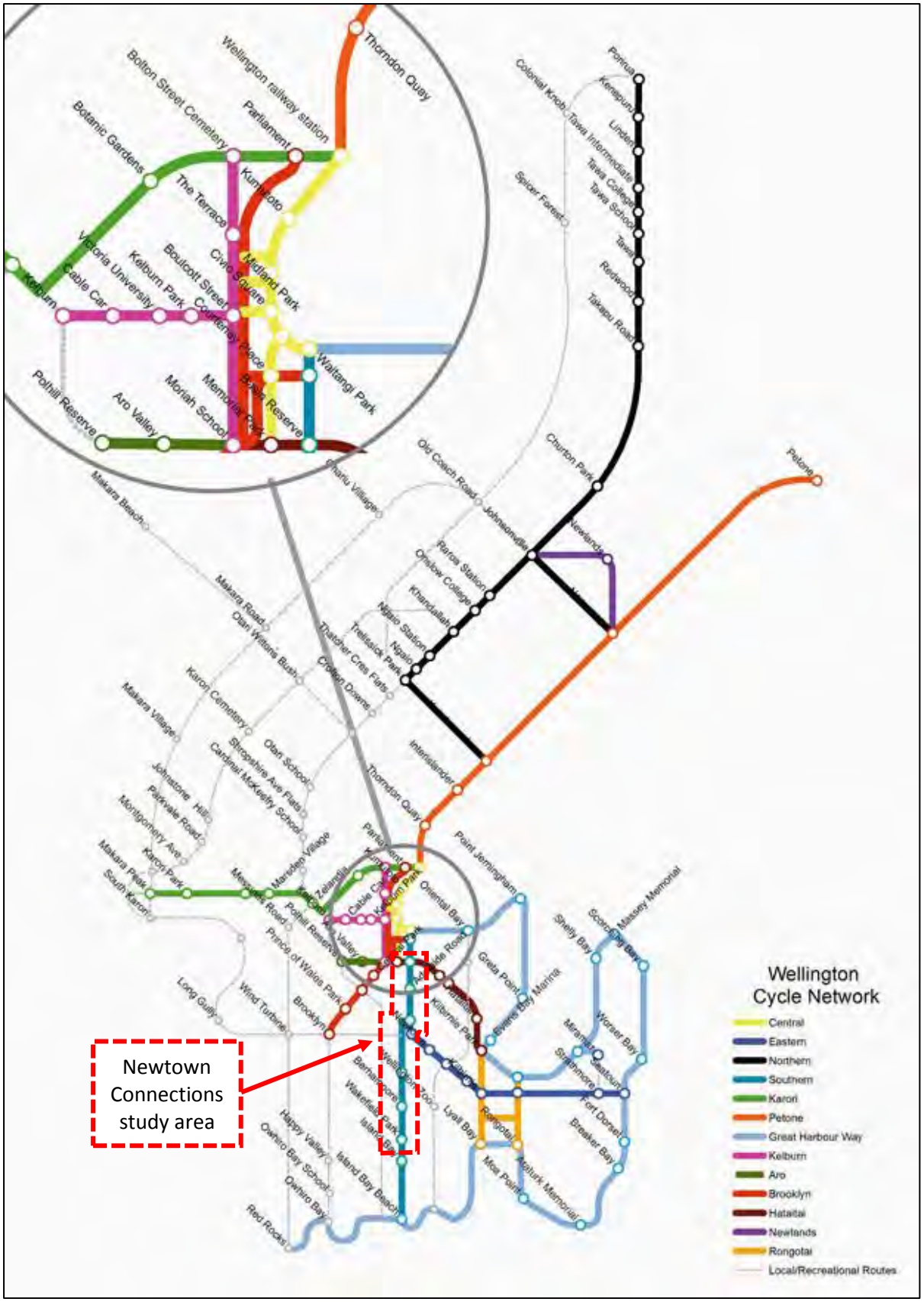


Figure 18 – Proposed Wellington cycleway network and study area[34]

[34] Wellington City Council. (2015). *Cycling Framework*. Wellington, New Zealand.

3.5 Wellington City Council Centres Policy (2008)

The WCC Centres Policy sets out a hierarchy of town and neighbourhood centres in Wellington City. A number of centres are located in or adjacent to the Newtown Connections study area, as detailed below and shown in Figure 19:

- Central Wellington, on the northern edge of the study area, serves as the centre for the whole city/region;
- Newtown, in the east of the study area, is identified as one of the four Town Centres in Wellington;
- Berhampore, in the south of the study area, and Constable Street, Newtown, on the eastern edge of the study area, are identified as Neighbourhood Centres; and,
- Adelaide Road, in the north of the study area, and Newtown South, in the east of the study area, are identified as Live/Work Areas.

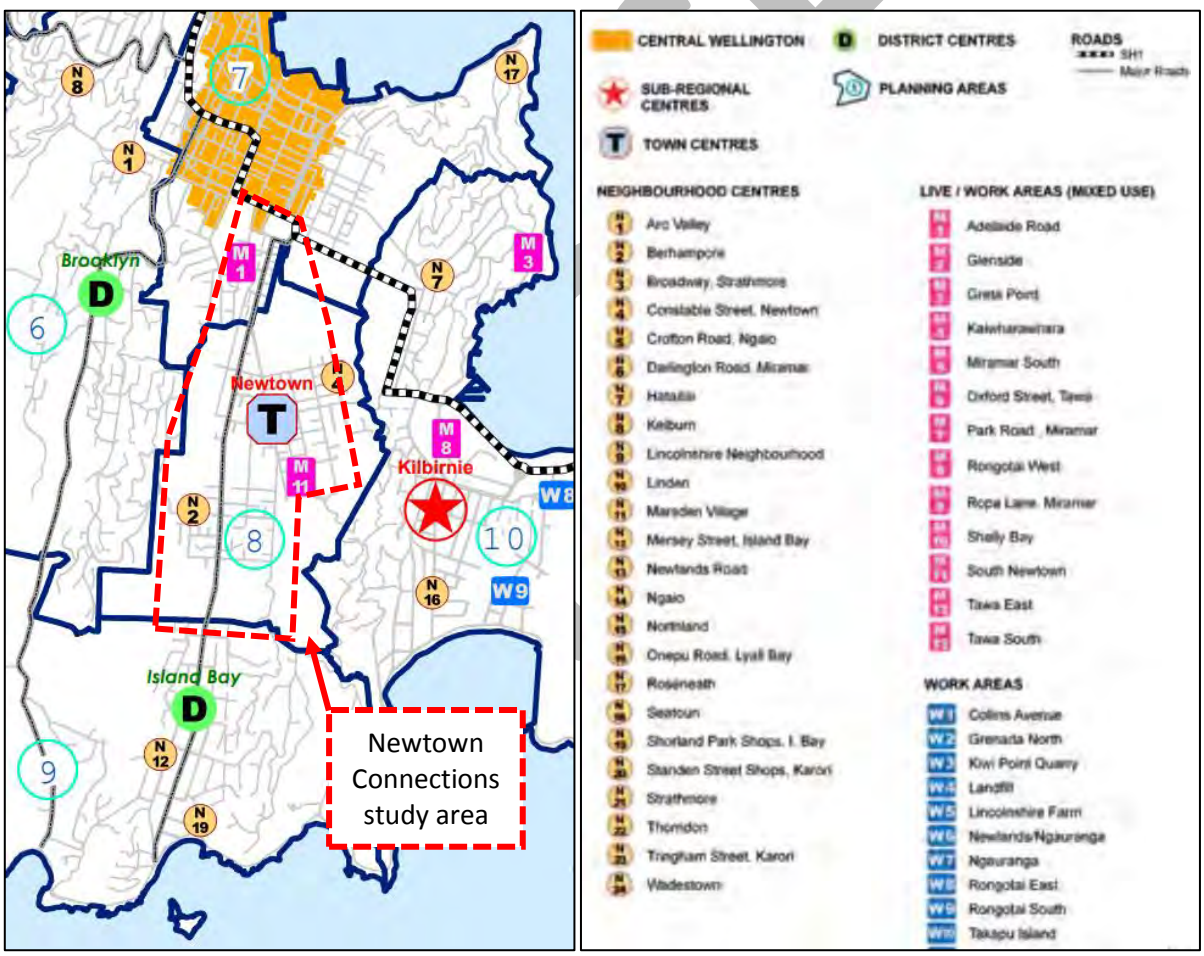


Figure 19 – Hierarchy of Centres map[35]

One of the main objectives set out in the Centres Policy (Objective 7) is to improve the urban design quality of all centres and build on their sense of place. This objective should be considered during the design of Newtown Connections cycleway route through and connecting these centres with each other and the central city.

[35] Wellington City Council. (2008). *Centres Policy*. Wellington, New Zealand.

3.6 Wellington Urban Growth Plan (2015)

The Wellington Urban Growth Plan provides a framework to manage Wellington City's future growth while protecting the environment and heritage and building on the things that make the city special. The plan identifies real transport choices as a key aspect to improving conditions for walking, cycling, and public transport; improving the road network; and managing parking more efficiently. The Newtown Connections study area will support the aim to increase uptake of cycling by providing a safe cycling connection between the southern suburbs and the central city.

3.7 Hierarchy of Roads (2012)

The study area is bounded to the north by the State Highway 1 (SH1) motorway. Principal roads within the study area include Adelaide Road, Constable Street, and Riddiford Street (north of Rintoul Street). Collector roads within the study area include Britomart Street, Hutchison Road, John Street, Luxford Street, Mansfield Street, Riddiford Street (south of Rintoul Street), Rintoul Street, Russell Terrace, Taranaki Street, and Wallace Street. All other roads within the study area are local roads within the District Plan.

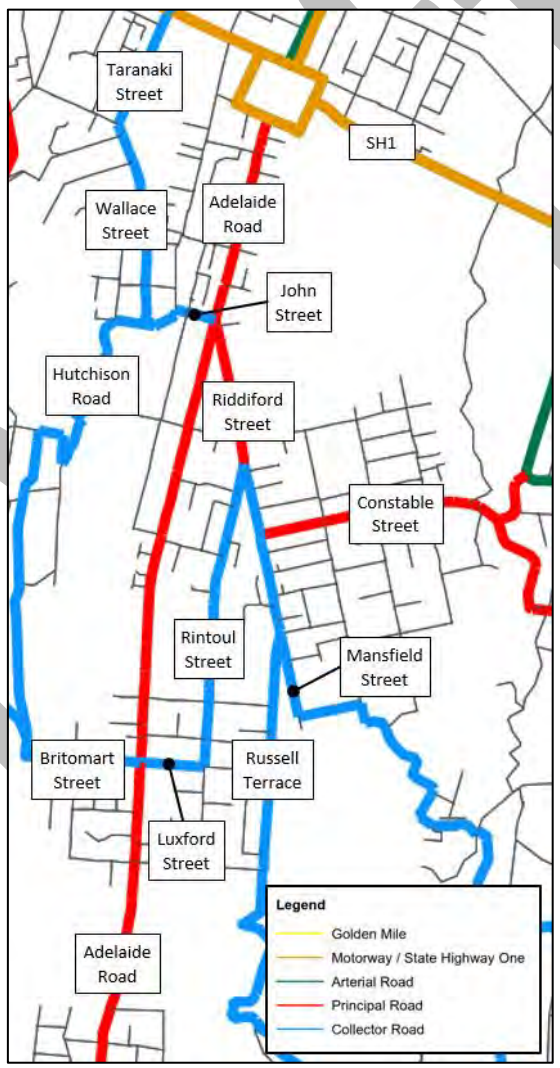


Figure 20 – Hierarchy of roads[36]

[36] Wellington City Council. (2012). *The Wellington City Council District Plan*. Wellington, New Zealand.

The definition of these road categories is as outlined below[37]:

- **Arterial Road:** High standard limited access roads designed to carry long distance through traffic (primary road). Design traffic volume >7,000 vehicles per day (vpd).
- **Principal Road:** Roads that provide access to motorways and to arterial roads having a dominant through-traffic function and carrying the major public transport routes (primary road). Design traffic volume 3000 – 7000 vpd.
- **Collector Road:** Roads that distribute traffic between and within local areas and form the link between principal and secondary roads (secondary road). Design traffic volume 1000 – 3000 vpd.
- **Sub-collector Road:** Roads that distribute traffic within the local area and form the link between collector and local roads (secondary road). Design traffic volume 500 – 1000 vpd.
- **Local Road**: Roads that provide direct access to properties fronting the road and include both long and short cul-de-sacs (secondary road). Design traffic volume 250 – 500 vpd.

3.8 Consenting Requirements

3.8.1 Wellington City Council District Plan (2017)

The WCC District Plan identifies activity areas and overlays within the Wellington City boundaries. Figure 21 shows the District Plan zoning along the study routes. The proposed Newtown Connections cycleway is assumed to be provided within the road reserve. For activities within the road, the District Plan provisions of the area where the road is located apply.

The zones within the Newtown Connections study area are largely identified as either 'Centre' or 'Inner Residential'. There are also some sections of the route within the 'Central Area,' 'Institutional Precinct,' 'Business 1,' 'Open Space B,' and 'Open Space C' zones. There is potential that the proposed Newtown Connections cycleway route will require off-road sections, such as connections through Berhampore Golf Course, Macalister Park, or Martin Luckie Park. These zones are identified as 'Open Space C' and further information is necessary to understand the extent to which existing tracks form part of potential routes.

[37] For design traffic volumes refer Table 1, WCC Code of Practise for Land Development, December 2012

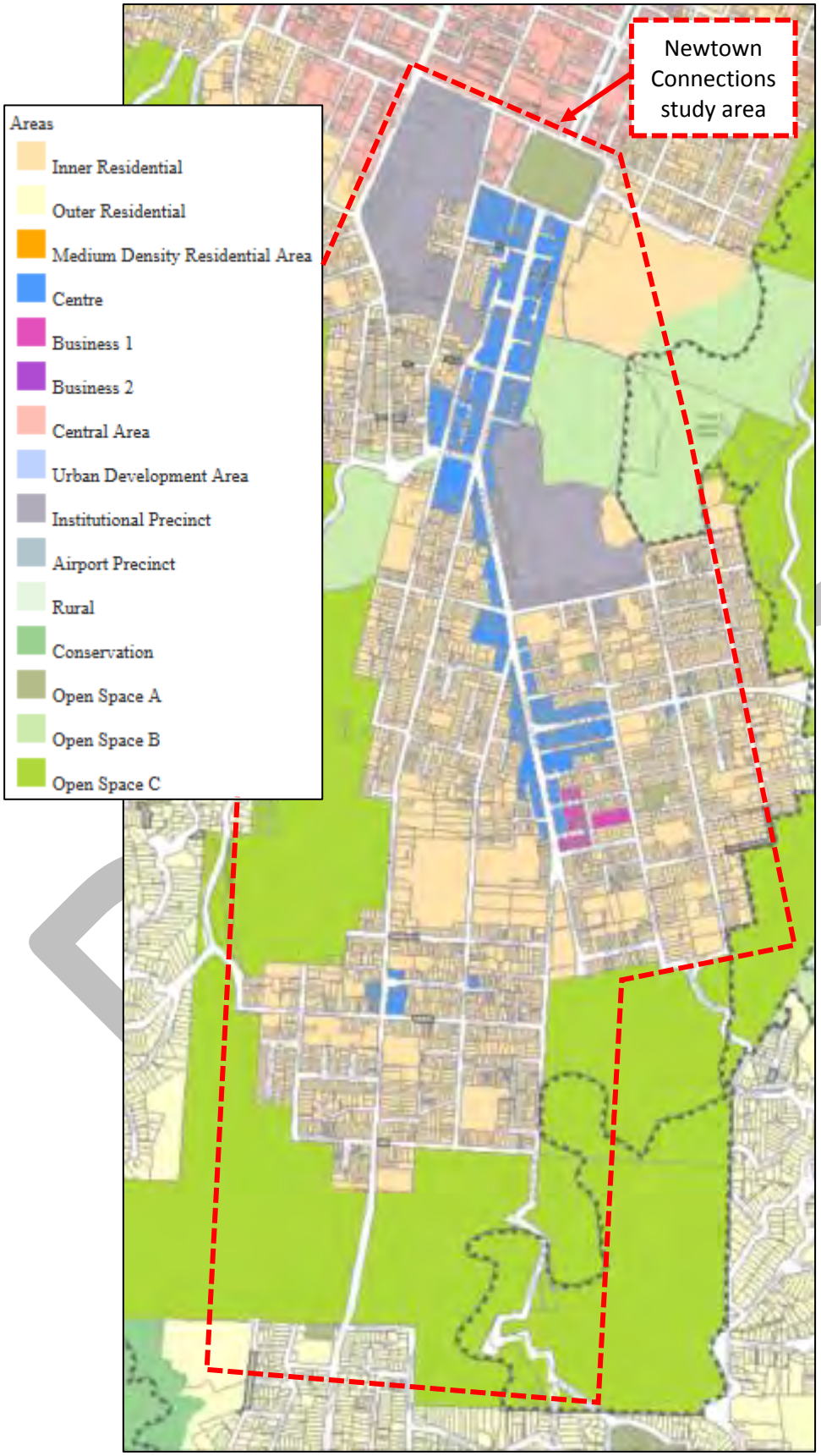


Figure 21 – District Plan zoning[38]

[38] Wellington City Council. (2017). *The Wellington City Council District Plan*. Wellington, New Zealand.

There are a number of sites adjacent to the road that are identified in the Selected Land Use Register (SLUR). These sites have, or may have, been used for activities or industries included in the Hazardous Activities and Industries List (HAIL). A map highlighting these sites is provided below in Figure 22 for reference. Martin Luckie Park is identified on GWRC's SLUR database as a contaminated site (ex landfill, reference SN/05/019/02). This has implications for any soil disturbance necessary for track construction on this site and requires an assessment to be made against the National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health (NES Soil).

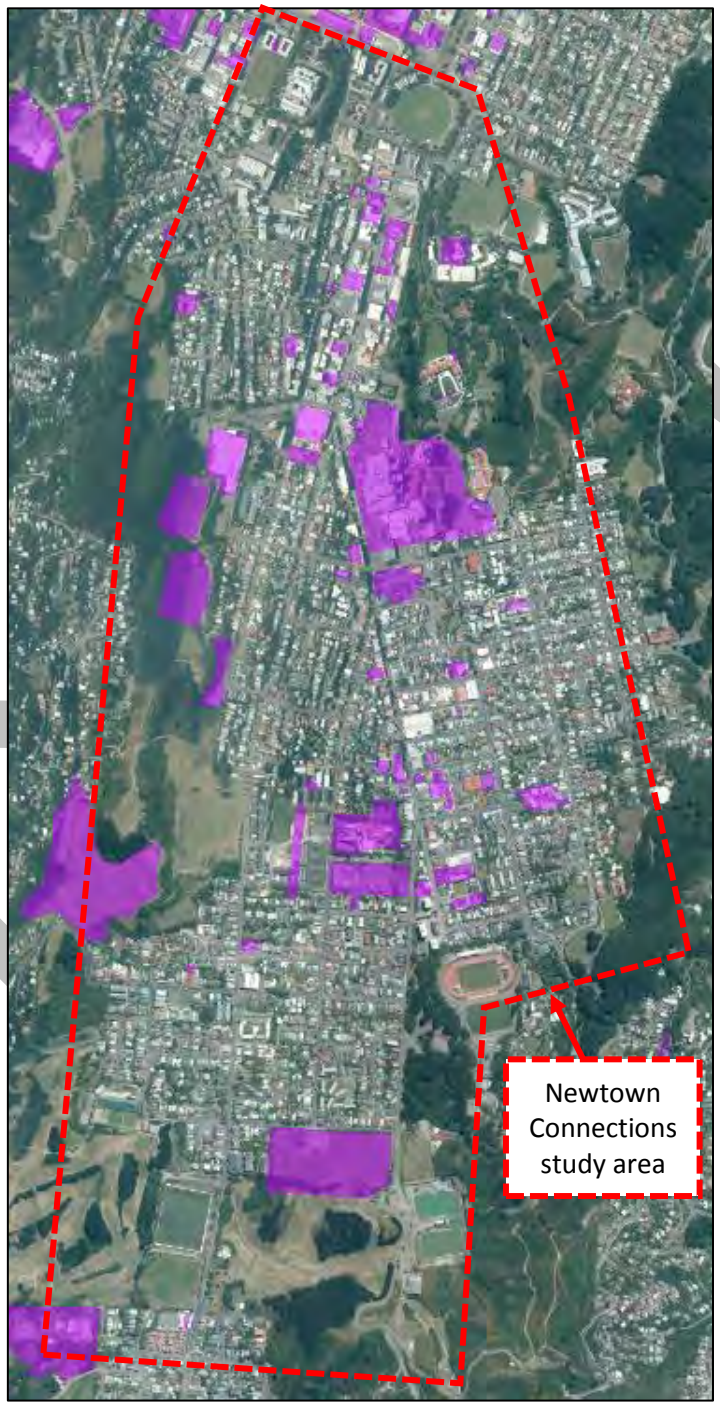


Figure 22 – Land in the Selected Land Use Register[39]

[39] Greater Wellington Regional Council. (2018). *Selected Land Use Register*. Wellington, New Zealand.

3.8.1.1 Works within the road reserve

A preliminary assessment of the study area suggests that, with the exception of work within the Berhampore Heritage Area, activities associated with upgrading the cycleway/pedestrian route in the road reserve could be undertaken without resource consent. This should be confirmed with WCC planners when there is greater confidence in preferred options.

- Any activity relating to the upgrade and maintenance of the existing formed public road and public access ways[40], including associated earthworks, is a Permitted Activity in the following zones - Residential Area (Rule 5.1.5), Centres (Rule 7.1.2), Institutional Precinct (Rule 9.1.4),Central Area (Rule 13.1.1A) Open Space Areas (Rule 17.1.14), Business Area (Rule 34.1.4).
- Signage is provided for as a Permitted Activity in the Residential Area (Rule 5.1.13), Centres (Rule 7.1.6), Institutional Precinct (Rule 9.1.1.7), Central Area (Rule 13.1.3) and Business Area (Rule 34.1.8) provided that conditions are met. The most restrictive of these conditions is the requirement that the maximum area does not exceed $5m^2$ and the sign is no more than 2m in height, illuminated signs must not flash and that signs are for the purpose of the cycleway. In Open Space areas interpretive or directional signage is a Permitted Activity provided that the area does not exceed $4m^2$ or 4m in height (Rule 17.1.4.1).
- A number of heritage items (District Plan references 43, 202, 259, 261) and heritage trees (District Plan references 219, 65, 66) are located on sites adjacent to the road in areas where the cycle way route is proposed. Provided the works are not within the dripline of these heritage trees and these heritage items are not damaged or removed as a result of the works, there will be no consenting requirements. It appears that the works will not be within the dripline of these trees, but this would need to be confirmed as the design develops.

A section of the potential cycleway routes could be on Rintoul Street within the Berhampore Heritage Area[41]. If the earthworks in this area exceed 10 m^3 or a surface area of 10 m^2, then resource consent will be required as a Restricted Discretionary Activity (Rule 21B.2.3).

It is also noted that to the north is a designation for a state highway (Arthur Street/Buckle Street) and NZTA is the requiring authority. It is unlikely that the potential routes fall within this designation. However, if the design of the cycleway is such that work will be required within this designated area, then written approval from NZTA will be required.

A section of the project study area, between Riddiford Road and Daniell Street and along Adelaide Road between Riddiford Road the Basin Reserve, is within the Hazard (Ground Shaking) Area. This has no relevant consenting implications.

The District Plan maps identify the Newtown Development Precinct (M76), adjacent to potential routes through Newtown, and Te O (M73), a noteworthy site adjacent to a potential route on Hanson Street, as being within the Maori Precinct Boundary. Ngati Toa and Taranaki iwi have advised that consultation should be taken with iwi on all cycleway routes, as there may be additional sites of significance to Maori not shown on District Plan Maps that could be affected by any proposed works.

[40] The definition of 'public access ways' cites pedestrian access but not cyclist access; therefore the interpretation and applicability of this would need to be confirmed. Regardless, the works along existing streets are expected to be within the formed public road, based on the current information available.

[41] **Berhampore (Rintoul Street) Shopping Centre Heritage Area – shops, verandas and buildings 1896-1900 at:** 193 Rintoul Street (Lot 1 DP 1010), 195 Rintoul Street (Lot 1 DP 823), 199 Rintoul Street (Lot 1 & Pt Lot 2 DP 823), 201 Rintoul Street (Pt Lot 2 DP 823), 207 Rintoul Street (Lot 3 DP 823), 218 Rintoul Street (Pt Sec 1022 Town of Wellington).

3.8.1.2 Off-road connections

With regard to potential off-road connections in the potential routes through zones classified as 'Open Space C':

- Any activity relating to the upgrade and maintenance of an existing formed roads or public accessways, including associated earthworks, is a Permitted Activity (Rule 9.1.4). The applicability of this rule will need to be assessed once information regarding the extent to which any existing tracks form part of the proposed cycleway/pedestrian route is known. As noted previously, whether the definition of public accessway means this rule applies to the proposed works will also need to be confirmed.

If the development will require the establishment of new cycleway/pedestrian facilities, then the following rules are applicable:

- Recreation activities are Permitted Activities in the 'Open Space C' zone, provided that they comply with the following conditions:
  - Noise emission levels measured at the conceptual boundary of the activity must not exceed 45dB Leq (15min).
  - Dust is managed—this is likely to be achieved through route surfacing.
  - Lighting of outdoor areas not to exceed 8 lux at windows of residential buildings within any Residential areas. The route must have a lighting at a minimum of 10 lux and no line of sight between any light source and a street or Residential Area—compliance is assumed as this is a design matter.
- Earthworks
  - Earthworks for the purpose of constructing or maintaining walking or cycling tracks in the Open Space C zone is a Permitted Activity if the track surface width does not exceed 1.5m (Rule 30.1.1.1(d)). If the width of the cycleway will exceed 1.5 m, resource consent will be required as a Restricted Discretionary Activity (Rule 30.2.1).
- Soil disturbance on contaminated land
  - Subsurface investigations of contaminated and potentially contaminated land are a Permitted Activity (Rule 32.1.1).
  - The remediation, use, development, and subdivision of any contaminated land, or potentially contaminated land is a Restricted Discretionary activity (Rule 32.2.1).
  - If soil disturbance exceeds 25 m^3 per 500 m^2, more than of 5m^3 per 500m^3 of soil is taken away from the site during the course of the activity, or the activity will be for a duration of longer than two months on a piece of contaminated land, resource consent will need to be applied for under the NES Soil, as a Controlled or Restricted Discretionary Activity.

3.8.1.3 District Plan Restrictions on Access

No access restrictions have been identified on the Wellington City District Plan maps.

3.8.2 Greater Wellington Regional Council Regional Plans

There are two relevant regional plans:

- Regional Freshwater Plan for the Wellington Region (RFP)
- Proposed Natural Resources Plan for the Wellington Region (PNRP)

3.8.3 Operative Regional Freshwater Plan (RFP) for the Wellington Region

The GWRC GIS Viewer indicates a WCC-administered watercourse in Martin Luckie Park. No surface water is evident in this area, which is a sports field/grassed area. More information may be required to determine where any rules apply to this waterbody, which may be piped.

During construction, stormwater discharges will be a Permitted Activity provided that the discharge does not originate from an area of bulk earthworks greater than 0.3 ha (Rule 2).

3.8.3.1 Proposed Natural Resources Plan (PNRP) for the Wellington Region

The PNRP is not operative, however many of the rules have immediate effect on notification as they relate to the protection of water, historic heritage, and areas of significant indigenous fauna. The following relevant features were identified in the plan:

- The GWRC GIS Viewer indicates a River Class 2 water body in Martin Luckie Park. No surface water is evident in this area, which is a sports field/grassed area. More information may be required to determine where any rules apply to this waterbody, which may be piped.
- During construction, stormwater discharges are expected to meet the Permitted Activity conditions of Rule R99 if the discharge does not originate from a contiguous area of earthworks more than 3,000 m^2.
- It is expected that operational stormwater will discharge into the existing stormwater network, which is being consented separately by Wellington Water under R49.
- It is assumed that WCC already holds relevant resource consent(s) for discharges from Martin Luckie Park.

3.8.4 Summary of consent requirements

- The areas of the cycleway within the road reserve will generally be permitted and resource consents are unlikely to be required. An assessment may be required for potential works within the Berhampore Heritage Area to determine whether a resource consent would be required for this potential section of the proposed cycleway.
- For potential off-road connections, works to existing paths may be a Permitted activity but the applicability of this rule and the interpretation of 'public accessways' will need to be confirmed. If new routes need to be constructed and they are of a width greater than 1.5 m, a resource consent will be required from WCC.
- Should works extend beyond the road reserve, an assessment will need to be made against provisions for contaminated land. A number of contaminated sites are identified adjacent to the road where the cycleway is proposed. The NES Soil as well as the District Plan may apply.
- In addition, site investigations are recommended if works traverse Martin Luckie Park as this is a contaminated site and resource consent from WCC is required for development of contaminated land. An assessment would be needed to determine whether the thresholds for soil disturbance in the NES Soil could be met. Otherwise, a resource consent would also be required from WCC under these regulations.
- Once further information is available regarding the scope and nature of the proposed works, the regional consent requirements will need to be reassessed.

3.9 Wellington City Council Low Carbon Capital Plan (2016)

The Low Carbon Capital Plan[42] sets out what WCC is doing to enable Wellington to thrive in a future of growing carbon constraints and climate impacts. The plan sets out how WCC intends to take action to reduce Wellington's greenhouse gas emissions and minimise the city's vulnerability to extreme weather events and rising sea levels, specifically with the following three pillars of climate change action for Wellington:

1 Greening Wellington's Growth

Wellington already has the country's highest proportion of people walking, cycling, and using public transport for journeys to and from work. This, together with other factors such as the city's compact urban form, contributes to Wellington's lower carbon footprint. The action plan aims to ensure that these positive features of Wellington are maintained and enhanced as the city develops.

2 Changing the way we move

There has been a rise in the number of people cycling in the city despite the current lack of supporting infrastructure. The action plan outlines WCC's commitment to investment in cycling and the importance of it in relation to other modes, as set out in the Sustainable Transport Hierarchy and the accompanying Long Term and Annual Growth Plans. It aims to provide safe and efficient alternate transport options to further reduce the current dependence on private vehicles.

3 Leading by example

WCC owns, manages, and provides a range of services that directly or indirectly produce greenhouse gas emissions. The action plan outlines a target of an 80% reduction in emissions by 2050, by investing in energy savings, supporting education programmes, encouraging staff behaviour change and carbon management.

3.10 Structures

WCC maintains and regularly inspects retaining wall assets along the project extent. Opportunities to integrate pedestrian and cycling improvements into any upgrade or renewal works for these assets should be investigated in the short-term forward works programme.

[42] Wellington City Council (2016). *Low Carbon Capital: A Climate Change Action Plan for Wellington 2016–2018*. Wellington, New Zealand.

4 Existing Situation

4.1 Demographics

4.1.1 Population

The population of the suburbs served by the Newtown Connections cycleway project has been increasing. The total population increased by 20% between 1996 and 2013, from 20,505 to 24,261. The fastest growing suburb was Mount Cook, which saw a 66% increase. The slowest growing suburb was Island Bay, with an 8% increase. The population growth broken down by suburb is shown in Figure 23.

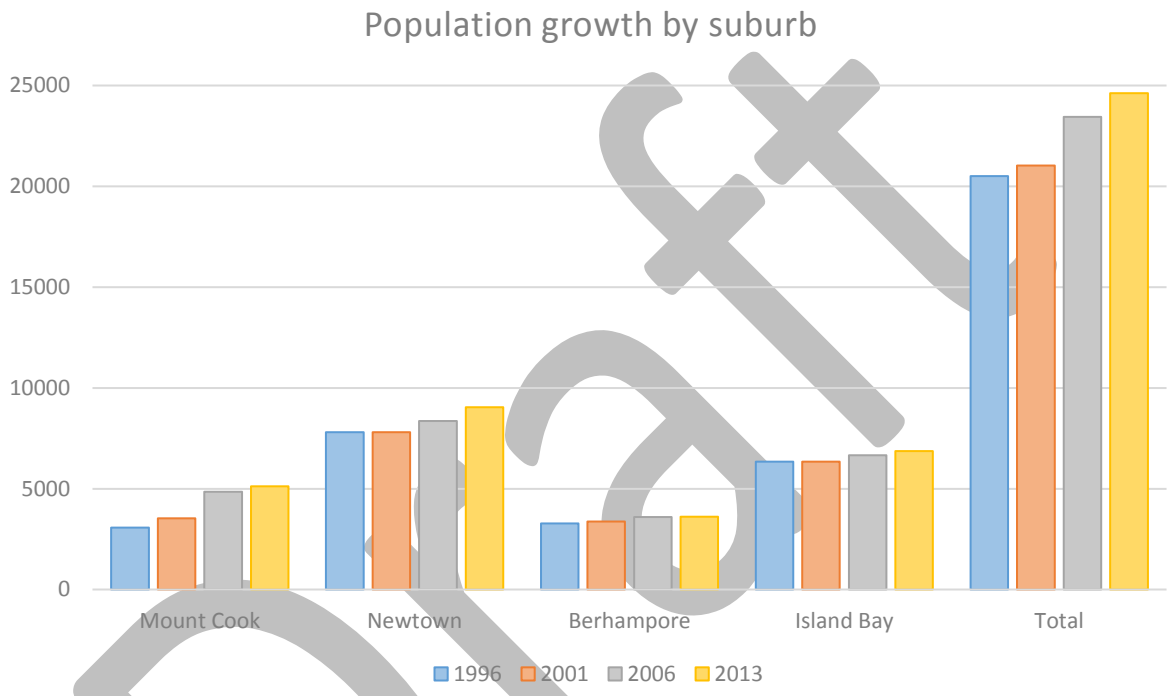


Figure 23 – Population growth in the study area by suburb, 1996-2013[43]

Since 2001, 20–24 year olds have been the largest age group in the study area. This age group made up 12% of the population in 1996 and 16% in 2013. In July 1999, Massey University established its Wellington campus in Mount Cook. In the following years, three apartment blocks were built in Mount Cook to accommodate students[44]. As a result, between 1996 and 2006 the number of 15–24 year olds in the southern suburbs area increased by 48%. In Mount Cook specifically, the number of 15–24 year olds increased by 169%. The age distribution from 1996 to 2013 is shown in Figure 24.

In 2013, 47% of the working-age population[45] were employed, 20% were studying, 27% were not in the labour force[46], and 6% were unemployed. The breakdown of work status by suburb in 2006 and 2013 can be seen in Figure 25.

[43] Data retrieved from Stats NZ: nzdotstat.stats.govt.nz

[44] Massey University (2016). *Massey University Timeline*. Retrieved from: www.massey.ac.nz/massey/research/library/archives/massey-timeline.cfm

[45] The working-age population is defined as the usually resident, non-institutionalised, civilian population of New Zealand aged 15 years and over who live in private dwellings. (stats.govt.nz)

[46] Not in the labour force is defined as anyone in the working-age population who is neither employed nor unemployed This includes, but is not limited to, people who are retired, have personal or family responsibilities, are permanently unable to work due to physical or mental disabilities, or are not actively seeking work. (stats.govt.nz)

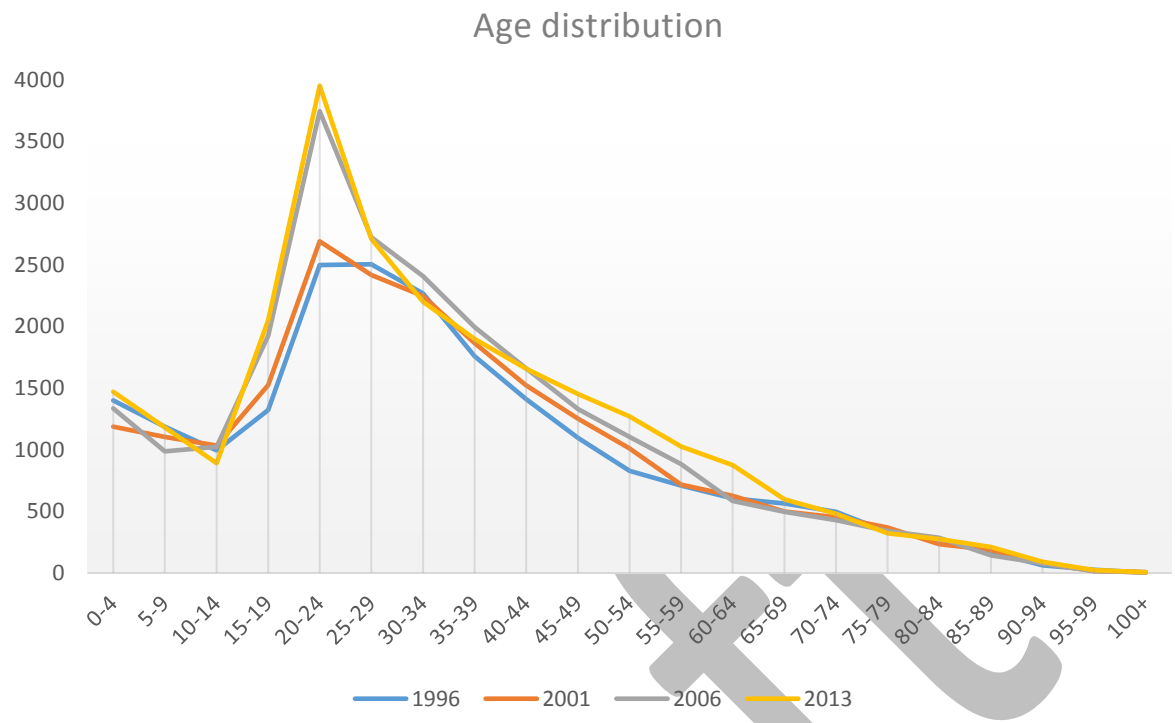


Figure 24 – Age distribution in the study area; 1996, 2001, 2006, and 2013[47]

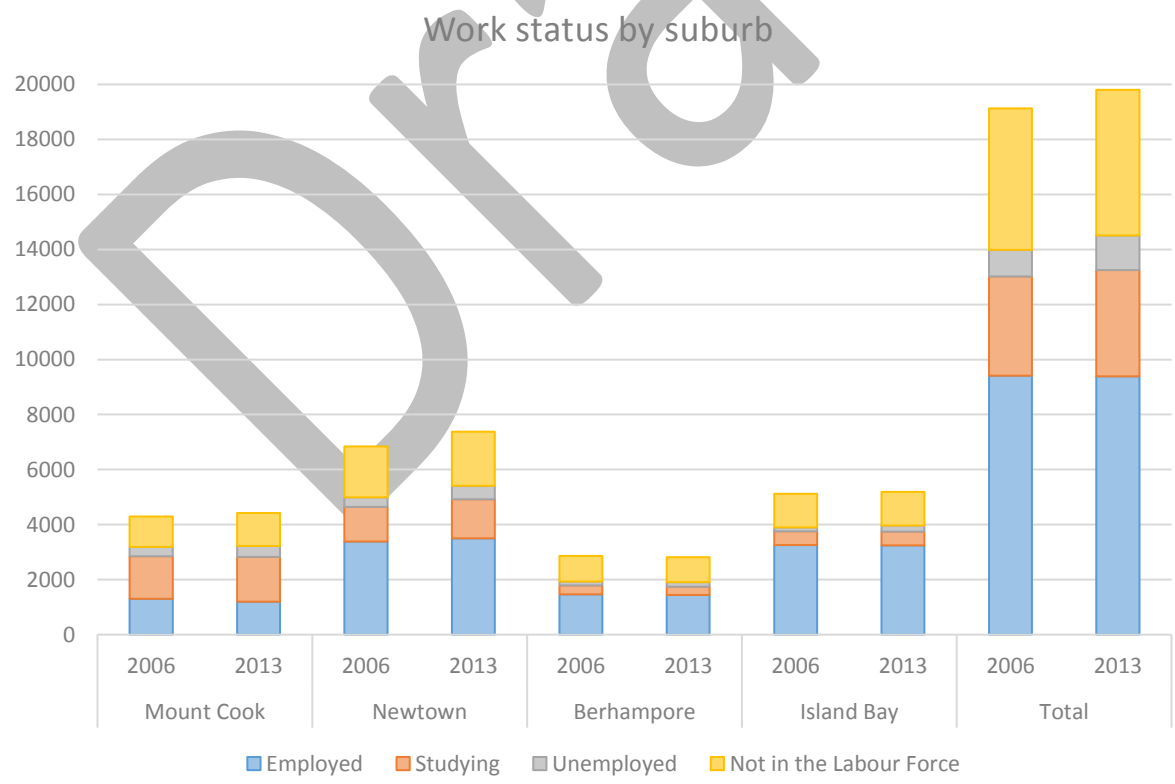


Figure 25 – Work status in the study area by suburb; 2006 and 2013[48]

[47] Data retrieved from Stats NZ: nzdotstat.stats.govt.nz
[48] Data retrieved from Stats NZ: nzdotstat.stats.govt.nz

4.1.2 Transport

In 2013, more than 10,500 people who live in the study area regularly commuted for work or study. In the same year, more than 7,500 people regularly commuted to the study area. The main means of travel for people living and for people working or studying in the study area are shown below in Figure 26. The majority of people who usually commuted by motor vehicle were travelling to a place of work or study in the study area. For all other modes of transport, the majority of commuters were commuting from the study area.

Figure 26 – Main means of commuting, comparison of those who live and those who work in the study area; 2013[49]

As of 2013, 24% of households in the study area did not own a motor vehicle and 49% owned only one motor vehicle[50]. The motor vehicle modal share has been decreasing for both commuters from and commuters to the study area since 2001. In contrast, walking/jogging and bicycle modal shares have both been increasing. The modal split trends for those who live in the study area and those who work in the study area are shown in Figure 27 and Figure 28, respectively, for 2001, 2006, and 2013.

[49] Data retrieved from Stats NZ: nzdotstat.stats.govt.nz
[50] Stats New Zealand. (2013). *2013 Census*. Retrieved from: nzdotstat.stats.govt.nz

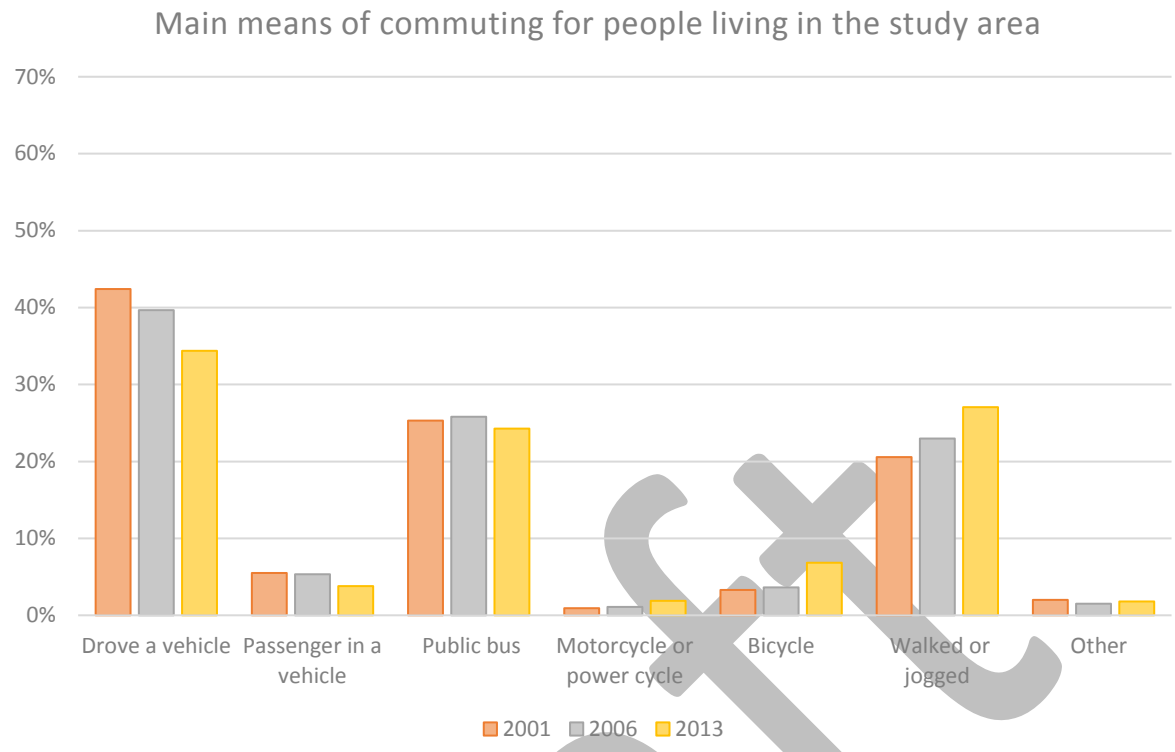


Figure 27 – Main means of commuting for those who live in the study area; 2001, 2006, and 2013[51]

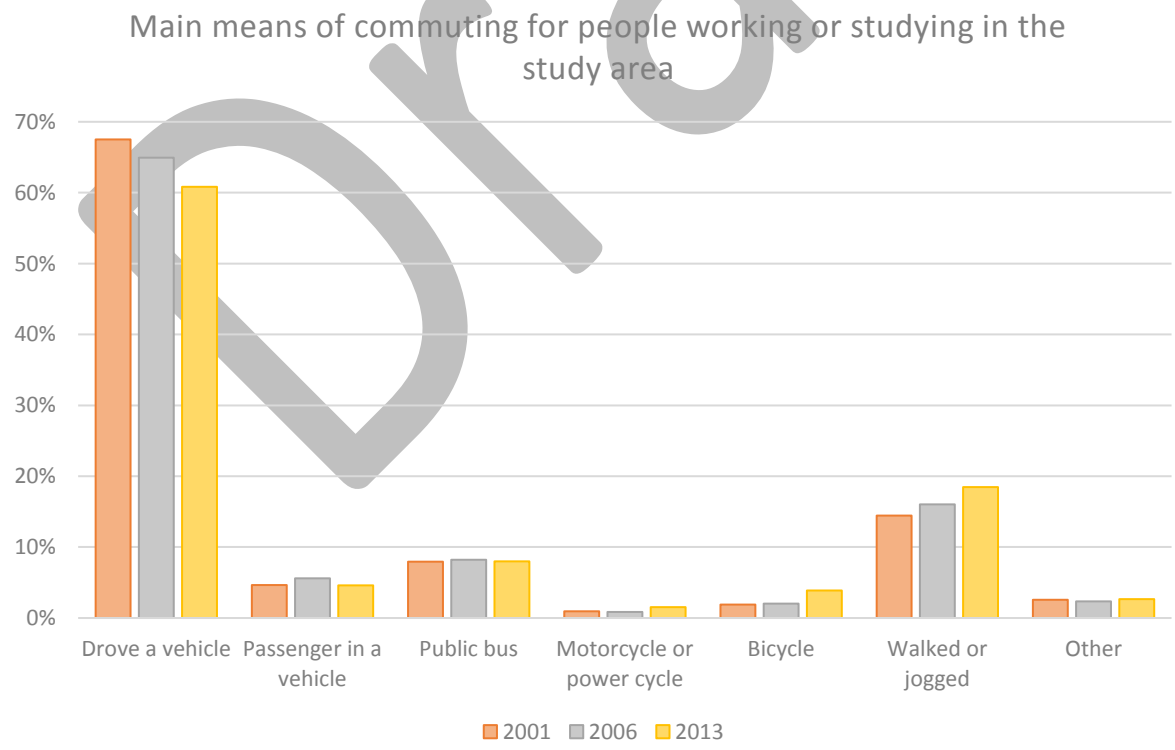


Figure 28 – Main means of commuting for those who work or study in the study area; 2001, 2006, and 2013[52]

[51] Data retrieved from Stats NZ: nzdotstat.stats.govt.nz
[52] Data retrieved from Stats NZ: nzdotstat.stats.govt.nz

4.2 Road Layout

The following section provides a summary of the road layout of the streets located within the study area. The typical minimum and maximum dimensions provided have been obtained from limited site investigations. A map that displays the amenities and activity nodes within the Newtown Connections study area are included in Appendix A. The map highlights centres of education, healthcare and recreation and supermarkets.

4.2.1 Adelaide Road

Adelaide Road is a principal road in the District Plan, providing a north/south route between the central city and the southern suburbs of Berhampore and Island Bay. High-volume intersections with Rugby Street, Hospital Road, John Street/Riddiford Street, Hall Street, Luxford Street, and Britomart Street/Herald Street are signalised. The intersection with Dee Street is controlled by a roundabout. The other intersections with lower volume side roads are priority controlled. The existing road environment on Adelaide Road is shown below in Figure 29 and Figure 30 and is described in Table 1 and Table 2.

Figure 29 – Adelaide Road, north of John Street/Riddiford Street

Table 1 – Adelaide Road Layout (north of John Street/Riddiford Street)

Element	Width (m)		Description
	Min.	Max.	
Road reserve	21.0	25.5	-
Carriageway width	15.5	18.5	Carriageway restricted in locations by kerb buildouts and pedestrian refuges
Median strip	1.5	2.5	Varies; typically 2.0 m wide
East footpath	3.2	3.9	-
West footpath	2.5	3.5	-
Boundary			Local shops and businesses
Parking			Mixed time restricted (P10, P30, P60) and coupon
Zoning			Centre

Figure 30 – Adelaide Road, south of John Street/Riddiford Street

Table 2 – Adelaide Road Layout (south of John Street/Riddiford Street)

Element	Width (m)		Description
	Min.	Max.	
Road reserve	12.5	18.6	-
Carriageway width	7.9	13.5	Carriageway restricted in locations by kerb buildouts and pedestrian refuges
Median strip	0	2.5	Typically no median except at Wakefield Park
East footpath	1.5	4.0	-
West footpath	1.5	4.0	-
Boundary			Local shops, residential dwellings, Macalister Park, Wakefield Park, Berhampore Golf Course
Parking			Mixed time restricted (P10, P15, P30 P120), residents, and unrestricted
Zoning			Mostly Inner Residential with small amount of Centre (Berhampore Shops) and Open Space C (Macalister Park, Wakefield Park, and Berhampore Golf Course)

4.2.2 Basin Reserve Roundabout

The Basin Reserve roundabout is classified as a part of SH1 in the District Plan. It is a critical junction in Wellington, providing a connection between the eastern suburbs and the southern suburbs to the rest of the city out to Ngauranga Gorge. It has signalised intersections with Adelaide Road and Paterson Street and priority controlled intersections with Rugby Street/Sussex Street, Ellice Street, and Dufferin Street. The existing road environment around the Basin Reserve roundabout is shown below in Figure 31 and described in Table 3.

Figure 31 – Basin Reserve roundabout

Table 3 – Basin Reserve Roundabout Layout

Element	Width (m)		Description
	Min.	Max.	
Road reserve	10.0	20.5	-
Carriageway width	7.2	15.9	The number of traffic lanes in the roundabout varies from two to four lanes
Inner footpath	0	2.8	-
Outer footpath	0	3.0	-
Boundary			Basin Reserve, local shops and businesses, residential dwellings
Parking			Mixed time restricted (P10, P120) and coupon
Zoning			Central Area, Open Space A (Basin Reserve), Centre, and Inner Residential

4.2.3 Britomart Street

Britomart Street is a collector road in the District Plan, providing a connection to the west to Mornington and Vogeltown. At the east end of Britomart Street is a signalised intersection with Adelaide Road. The existing road environment on Britomart Street is shown below in Figure 32 and described in Table 4.

Figure 32 – Britomart Street

Table 4 – Britomart Street Layout

Element	Width (m)		Description
	Min.	Max.	
Road reserve	9.6	15.0	-
Carriageway width	6.5	9.8	Carriageway restricted in locations by kerb buildouts and pedestrian refuges
North footpath	1.5	2.8	-
South footpath	1.6	2.7	-
Boundary			Residential dwellings, Berhampore Primary School
Parking			Unrestricted
Zoning			Inner Residential

4.2.4 Constable Street

Constable Street is a principal road in the District Plan. High volume intersections with Coromandel Street, Owen Street, Daniell Street, and Riddiford Street are signalised; its intersection with Hiropi Street is priority controlled. The existing road environment on Constable Street is shown below in Figure 33 and described in Table 5.

Figure 33 – Constable Street

Table 5 – Constable Street Layout

Element	Width (m)		Description
	Min.	Max.	
Road reserve	14.2	19.8	-
Carriageway width	9.6	13.8	Carriageway restricted in locations by kerb buildouts
North footpath	2.4	3.0	-
South footpath	2.2	3.0	-
Boundary			Local shops, residential dwellings, church
Parking			Mixed time restricted (P10, P15, P20, P30), residents, and unrestricted
Zoning			Centre and Inner Residential

4.2.5 Daniell Street

Daniell Street is a local road in the District Plan. The high volume intersection with Constable Street is signalised; all other intersections are priority controlled. Low-profile speed humps encourage low vehicle speeds and reduce the attractiveness of this route for through traffic. The existing road environment on Daniell Street is shown below in Figure 34 and described in Table 6.

Figure 34 – Daniell Street

Table 6 – Daniell Street Layout

Element	Width (m)		Description
	Min.	Max.	
Road reserve	15.0	17.4	-
Carriageway width	9.2	10.8	Carriageway restricted in locations by kerb buildouts
East footpath	2.5	3.5	-
West footpath	2.5	4.0	-
Boundary			Residential dwellings, Newtown Community Hall
Parking			Mixed time restricted (P5, P30, P60), residents, and unrestricted
Zoning			Inner Residential

4.2.6 Donald Mclean Street

Donald Mclean Street is a local road in the District Plan. All intersections are priority controlled. Low-profile speed humps encourage low vehicle speeds and reduce the attractiveness of this route for through traffic. The existing road environment on Donald Mclean Street is shown below in Figure 35 and described in Table 7.

Figure 35 – Donald Mclean Street

Table 7 – Donald Mclean Street Layout

Element	Width (m)		Description
	Min.	Max.	
Road reserve	14.5	15.5	-
Carriageway width	9.0	9.5	-
North footpath	2.5	3.0	-
South footpath	2.5	3.0	-
Boundary			Local shops, residential dwellings, church
Parking			Unrestricted
Zoning			Centre, Business 1, and Inner Residential

4.2.7 Ferguson Street

Ferguson Street is a local road in the District Plan. The street runs between Donald Mclean Street and Rhodes Street. Its intersections with these two streets are priority controlled. There are no lane markings on the street. The existing road environment on Ferguson Street is shown below in Figure 36 and described in Table 8.

Figure 36 – Ferguson Street

Table 8 – Ferguson Street Layout

Element	Width (m)		Description
	Min.	Max.	
Road reserve	8.1	14.4	-
Carriageway width	5.7	9.1	-
East footpath	2.4	2.8	-
West footpath	0	2.5	No footpath on west side for approximately 30 m, north of Rhodes Street
Boundary			Residential dwellings, church
Parking			Unrestricted
Zoning			Business 1 and Inner Residential

4.2.8 Hanson Street

Hanson Street is a local road in the District Plan. An alternate north/south route for vehicles is available along Adelaide Road (to the east). Low-profile speed humps and a narrow carriageway reduce the attractiveness of the route for through traffic, creating a slow-speed environment for access to adjacent properties. The high-volume intersection with John Street is signalised. Other intersections with lower volume side roads are priority controlled. The existing road environment on Hanson Street is shown below in Figure 37 and described in Table 9.

Figure 37 – Hanson Street

Table 9 – Hanson Street Layout

Element	Width (m)		Description
	Min.	Max.	
Road reserve	12.5	15.1	-
Carriageway width	8.8	9.6	Carriageway restricted in locations by kerb buildouts and pedestrian refuges. South of Hall Street, parking reduces carriageway width to one traffic lane.
East footpath	2.6	3.0	-
West footpath	1.2	3.0	South of Hall Street footpath varies in width due to retaining structures and encroachments. In some locations footpath is set back and below carriageway. Berm south of Hall Street where footpath width reduced. Occupied in some locations by encroachments and small (<1.5m) retaining walls.
Boundary			Residential dwellings, Countdown supermarket at John Street, Macalister Park
Parking			Mixed residents and unrestricted
Zoning			Mostly Inner Residential, small amount of Centre (at John Street) and Open Space C (Macalister Park)

4.2.9 John Street

John Street is a collector road in the District Plan. High volume intersections with Adelaide Road and Hanson Street are signalised; other intersections are priority controlled. The existing road environment on John Street is shown below in Figure 38 and described in Table 10.

Figure 38 – John Street

Table 10 – John Street Layout

Element	Width (m)		Description
	Min.	Max.	
Road reserve	16.0	22.5	-
Carriageway width	12.0	15.9	Carriageway restricted in locations by pedestrian refuges.
Median	1.8	2.2	Varies
North footpath	1.8	3.1	-
South footpath	1.6	2.9	-
Boundary			Businesses, Countdown supermarket at Hanson Street, residential dwellings
Parking			Mixed time restricted (P15) and coupon
Zoning			Centre and Inner Residential

4.2.10 Luxford Street

Luxford Street is a collector road in the District Plan. At the west end of Luxford Street is a signalised intersection with Adelaide Road, with a free left turn. The existing road environment on Luxford Street is shown below in Figure 39 and described in Table 11.

Figure 39 – Luxford Street

Table 11 – Luxford Street Layout

Element	Width (m)		Description
	Min.	Max.	
Road reserve	18.2	18.5	-
Carriageway width	13.0	13.3	Carriageway restricted in locations by kerb buildouts and pedestrian refuges.
North footpath	1.8	2.5	-
South footpath	2.0	2.7	-
Boundary			Residential dwellings, businesses at Adelaide Road
Parking			Unrestricted
Zoning			Mostly Inner Residential, some Centre at Adelaide Road

4.2.11 Mein Street

Mein Street is a local road in the District Plan. At the west end of Mein Street is a signalised intersection with Riddiford Street; all other intersections are priority controlled. The existing road environment on Mein Street is shown below in Figure 40 and described in Table 12.

Figure 40 – Mein Street

Table 12 – Mein Street Layout

Element	Width (m)		Description
	Min.	Max.	
Road reserve	14.5	15.4	-
Carriageway width	8.6	9.4	Carriageway restricted in locations by kerb buildouts.
North footpath	2.5	3.0	-
South footpath	2.8	3.5	-
Boundary			Residential dwellings, Wellington Regional Hospital
Parking			Mixed time restricted (P10, P30), residents, and unrestricted
Zoning			Inner residential and Institutional Precinct