

# Wellington Bike Network Plan – Draft Programme Business Case Refresh

16 May 2022



Bike network plan  
2021-2031

An essential step  
towards Te Atakura  
and great places  
for everyone.

# Paneke Pōneke

**Absolutely Positively  
Wellington City Council**

Me Heke Ki Pōneke

Version	Date	Author	Changes
1.1	11/01/2022	Transport Strategy	First draft
1.2	14/02/22	Transport Strategy	Additions following initial review by Waka Kotahi investment advisors
1.3	8/04/22	Transport Strategy	Recasting by NBC
1.4	29/04/22	Transport Strategy	TPP Board inputs
1.5	11/05/22	Transport Strategy	Peer Review Inputs

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# Executive Summary

This programme business case updates the approved 2015 Programme Business Case to reflect the current strategic context and changes made to the network through the Council's approved strategic document 'Pāneke Pōneke - Bike Network Plan'. It considers the impact of lessons learned from cycle infrastructure delivery since adoption of the 2015 business case. It identifies a new indicative programme and delivery plan to ensure that it remains optimal and continues to provide strategic alignment and value for money.

This document details an updated evidence base, problems and benefits, optioneering and economics. A refreshed programme for delivery is also proposed with an outline plan on how the Council proposes to manage delivery moving forward.

## Strategic Bike Network



Figure 1 Strategic Bike Network

The strategic bike network was adopted on 10 March 2022 following public consultation in late 2021. Primary and secondary network definitions follow the national One Network Framework guidance and have been applied by starting with the central area, suburban centres and locations of schools. The primary network connects the main centres and the central city, and the secondary network extends the primary network to near schools. The total centreline length of the strategic network is 166 km.

The primary network (C1) has a centreline length of 74 km which is 45 percent of the strategic network. The draft secondary network (C2) has a centreline length of 82 km which is 55 percent of the strategic network.

At December 2020, 23 km (14%) of the strategic network was in place.

### Network Assessment

The Wellington Bike Network Model was used to provide a high-level view of the uplift in cycling volumes and benefits that

result from changes in Wellington City's cycle network in each of the nine areas.

The creation of the network is conservatively estimated to increase safety and more than double cycling numbers.

WCC's portion of the network is 110km and is estimated to cost \$350 million to deliver. At this price point, the Council's programme has a benefit cost ratio of 2.1.

Applying the Waka Kotahi 2021-24 Investment Prioritisation Method<sup>1</sup>, the programme has been assessed as having a profile Very High / High / Low (Priority 2).

<sup>1</sup> <https://www.nzta.govt.nz/planning-and-investment/planning-and-investment-knowledge-base/202124-nltp/2021-24-nltp-investment-prioritisation-method/determining-the-priority-order-of-an-activity-or-combination-of-activities/>

## **Network Delivery**

Let's Get Wellington Moving is responsible for delivering most of the routes to and through the city centre. The Council is responsible for the remainder.

Evaluation of strategic delivery approaches has demonstrated that a programme prioritised on achieving the most uptake first is preferred.

The preferred programme approach has a five-year focus on accelerating network development with our refreshed approach to delivery having four key elements:

- finishing what we have started
- a rapid transition programme
- longer-term street transformations
- complementary initiatives.

Our approach focuses on the new 'transitional' delivery method that delivers 'temporary' schemes to test, build support, and refine designs for future changes, allowing us to move faster. This is supported by a small programme of agile investments to allow us to respond to unplanned or unknown (at this time) opportunities through:

- build back better
- other smaller improvements.

An indicative delivery programme has been proposed over fifteen years to align with the budget made available in the Councils 2021-31 Long-term Plan. The indicative programme will be regularly updated to reflect the developing circumstances.

# Purpose of this document

This programme business case refresh:

- reviews and updates the approved 2015 business case to reflect the current strategic context and changes made to the network through the Council's approved strategic document 'Pāneke Pōneke - Bike Network Plan' (adopted 10 March 2022 following public consultation in late 2021)
- considers the impact of lessons learned from cycle infrastructure delivery since adoption of the 2015 Programme Business Case and embeds and tests the adopted programme and delivery plan to ensure that it remains optimal and continues to provide strategic alignment and value for money.

This document details an updated evidence base, problems and benefits, optioneering and economics. A refreshed programme for delivery is also proposed with an outline plan on how council proposes to manage delivery moving forward.

# Strategic Case

## 2015 Programme Business Case

The 2015 Wellington Cycle Network Programme Business Case (PBC2015) proposed investment in cycling infrastructure, education and promotion aimed at:

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

At the time of developing the PBC2015 the Government, through the National Land Transport Fund (NLTF) and Urban Cycleway Fund administered by Waka Kotahi New Zealand Transport Agency, provided an additional \$100 million of funding for urban cycleways with the aim of accelerating completion of urban cycle networks to support a step-change in cycling participation. The PBC was developed based on utilising the Urban Cycleway Programme funding source over the 2015-2018 period.

### Context to the 2015 PBC

In 2015 Wellington City had more than 25,000 school children, 20,000 businesses employing over 100,000 workers, and 200,000 residents who require transport options within a geographically and spatially constrained city. In addition, transport connections and enhanced mode choice between Porirua, Hutt Valley and the central city were seen as critical for visitors, tourists, residents and workers alike. With the transport network over capacity during peak periods it was considered important to improve the quality of mode choices to increase the number of people who bike and thus contribute towards creating an efficient transport network.

PBC2015 identified three key problems and benefits. The problems were:

1. Poor uptake due to the perception that cycling is unsafe and inconvenient is reducing cycling's contribution to the transport system.
2. Unforgiving infrastructure and poor road user behaviour is resulting in significantly higher than average rates of harm to people on bikes.
3. An unappealing environment for people on bikes is reducing transport and recreation choices for Wellingtonians.

The three benefits of investments were identified as:

1. Greater transport network efficiency, effectiveness and resilience.
2. Wellington is a more sustainable, liveable and attractive city.
3. Improved safety for people on bikes.

From these problems and benefits five investment objectives were developed which guided the PBC development:

- Achieve a high Level of Service for cyclists within an integrated transport network.
- Improve cycling infrastructure and facilities so that cycling makes a much greater contribution to network efficiency, effectiveness and resilience.
- Cycling is a viable and attractive transport choice.
- The crash rate, number, and severity of crashes involving people on bikes are reduced.



- Provide transport choices by increasing the opportunity for people to ride bikes so as to improve the sustainability, liveability and attractiveness of Wellington.

Through the PBC process and accompanying master planning (endorsed at the September 2015 Transport and Urban Development committee meeting) the cycle network was agreed to consist of a range of infrastructure, facilities and non-asset investments to improve participation in cycling and safety issues concerning cycling in Wellington. The cycling transport infrastructure would involve a range of solutions (i.e. protected lanes or shared paths outside the road corridor) as well as supporting facilities such as bike corrals within the CBD or other higher density areas.

The PBC identified six geographical and catchment areas (north, south, east, west, CBD and Wellington Hutt corridor) which were identified and used as the basis for understanding the current and potential demand for cyclists. PBC2015 identified a broad range of interventions including policy, education and infrastructure improvements developed through the catchment and corridor (within catchment area) based approach. In total, a long list of 12 programme options (summarised below) were assessed with the options made up of different investment scenarios involving the six geographic catchments, different timeframes and including the following complementary activities:

- Minor safety improvements – aimed at high-risk crash sites across the full network;
- Wrap around infrastructure:
  - End-of-trip amenities;
  - Cycle parking facilities;
  - Promotion and education to increasing awareness of cycle safety and user benefits;
  - Bike hire schemes;
  - Ability to take bikes on Public Transport; and
  - Potential ‘cycle central’.

Table 1 PBC2015 Options

Option	Name	Description	Indicative cost (un-escalated) for 21 year programme
1	Do-minimum	Targeted minor safety works across network	\$29 mill
2	Minor capital improvements	Minor cycleway infrastructure delivered by Council only	\$57 mill
3A	Equitable areas	Provides routes balanced across catchment areas	\$101 mill
3B	Prioritised packages by area	Progressive delivery of routes by catchment areas	\$101 mill
3C	Prioritised packages by Level of Service	Routes prioritised by level of service deficiencies	\$101 mill
3D	Centres and neighbourhoods	Provides routes based on servicing centres, schools, amenities and increasing demographic uptake	\$101 mill
3E	Weighted prioritisation	Cycle network developed using a prioritisation of the following: 1. Strategic routes (main corridors within the catchment area), 2. Level of Service gaps and deficiencies, 3. Equity	\$101 mill
4	Accelerated programme	Prioritised routes based on ability to implement full network within nine years	\$101 mill
5	Level of Service deficiencies	Based on Wellington City Council prioritisation of Level of Service deficiencies	\$101 mill
6	Minimum network upgrades	Initial network wide upgrade to minimum standard then upgrade over time	\$120 mill

Option	Name	Description	Indicative cost (un-escalated) for 21 year programme
7	Promotion and education	Targeted minor safety works across the network supported by intensive education and marketing campaign	\$76 mill
8	High Level of Service upgrade	Delivers very high-quality Level of Service cycling infrastructure across the network	> \$200 mill

Through a multi-criteria assessment against investment objectives and an assessment of strategic fit, effectiveness and benefits and costs Option 3E was adopted as the preferred approach. Option 3E was selected because:

- it aligned with the principles of the Urban Cycle Programme - as its aim was to identify and implement infrastructure and activities to increase cycling participation along high priority transport corridors and cycling as a more attractive transport mode.
- it addressed current Level of Service gaps and deficiencies along high priority transport corridors. Whilst not providing all of the planned infrastructure along these corridors it was expected that the investment during the three-year period of the Urban Cycle Programme the improvements would be considerable and that other corridors and catchments could be treated in future years.

PBC2015 envisaged that the cycle network for Wellington could be completed over the next two decades and consist of primary, secondary and tertiary routes as well as shared road space likely resulting in over 200 kilometres of network.

The adopted programme has a short-term focus on the planning, design and construction of cycleways in the following areas:

- CBD to Ngauranga transport corridor (as part of the Wellington to Hutt Valley cycleway);
- Wellington CBD transport corridor; and
- Wellington eastern transport corridor.

It then prioritises investment in cycling infrastructure based on the following three aspects, with further work on developing a programme to respond to those aspects left to subsequent business case phases:

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. Considerations regarding this aspect will include, but not be limited to the following:
  - Current and potential number of people who bike;
  - Number of bike kilometres travelled (network efficiency);
  - Number of people who bike on the route and the percentage of travel on this route on bikes;
  - Increased access to appropriate transport mode choice;
  - Key connections between residential areas schools, local centres, employment, sport and recreation, hospitals and other high usage areas of the city; and
  - Closing network gaps between strategic routes.
2. Level of Service gaps and deficiencies: Addressing the most severe and largest gaps in the desired level of service:
  - Function;
  - Hierarchies of levels of service; and

- Deficiencies in inconvenience and safety (non-provision or inadequate).
3. Equity: A principle to be applied when prioritising catchment areas, focusing on spreading investment in a reasonably equitable manner across catchment areas:
- Equity of access; and
  - Equity of coverage across the city's urban areas.

The level of funding envisaged for the programme is as shown in Table 2 below.

Table 2 2015 PBC forecast budget

Programme Component		NLTF	Urban Cycleway Fund	Wellington City Council	Total
2015 - 2018	<b>Ngauranga to CBD</b>	\$2,880,000	\$3,000,000	\$3,120,000	<b>9,000,000</b>
	<b>CBD Package</b>	\$4,320,000	\$4,500,000	\$4,680,000	<b>\$13,500,000</b>
	<b>Eastern Package</b>	\$1,920,000	\$2,000,000	\$2,080,000	<b>\$6,000,000</b>
	<b>Island Bay</b>			\$1,500,000	<b>\$1,500,000</b>
	<b>Minor Works</b>	\$2,277,000		\$2,467,000	<b>\$4,745,000</b>
	<b>Sub Total</b>	<b>\$11,397,000</b>	<b>\$9,500,000</b>	<b>\$13,847,000</b>	<b>\$34,745,000</b>
<b>2018-2025 (years 4-10)</b>		<b>\$11,020,000</b>		<b>\$11,939,000</b>	<b>\$22,959,000</b>
<b>2015 to 2025 – 10 year sub total</b>					
		<b>\$23,137,000</b>	<b>\$9,500,000</b>	<b>\$25,066,000</b>	<b>\$57,703,000</b>
<b>2025-2036 (years 11-21)</b>		<b>\$22,000,000</b>		<b>\$21,297,000</b>	<b>\$43,297,000</b>
<b>2015 to 2036 – Programme Total</b>		<b>\$45,137,000</b>	<b>\$9,500,000</b>	<b>\$46,363,000</b>	<b>\$101,000,000</b>

The next steps envisaged following support of the PBC, as shown in the figure below, was to:

- Prepare three Indicative Business Cases and Detailed Business Cases for the CBD, Ngauranga to CBD (Hutt) and Eastern Urban Cycle Programme packages, commencing October 2015.
- Confirm the preferred communications strategy, commercial strategy and consenting approach for implementation of the programme, noting that this should be integrated with the promotional and educational elements of the programme.
- Further development of the Master Plan.
- Commence preparation of the Indicative Business cases for the northern, southern and western catchments in 2017/18.

# Wellington Cycle Network – Urban Cycleways Programme

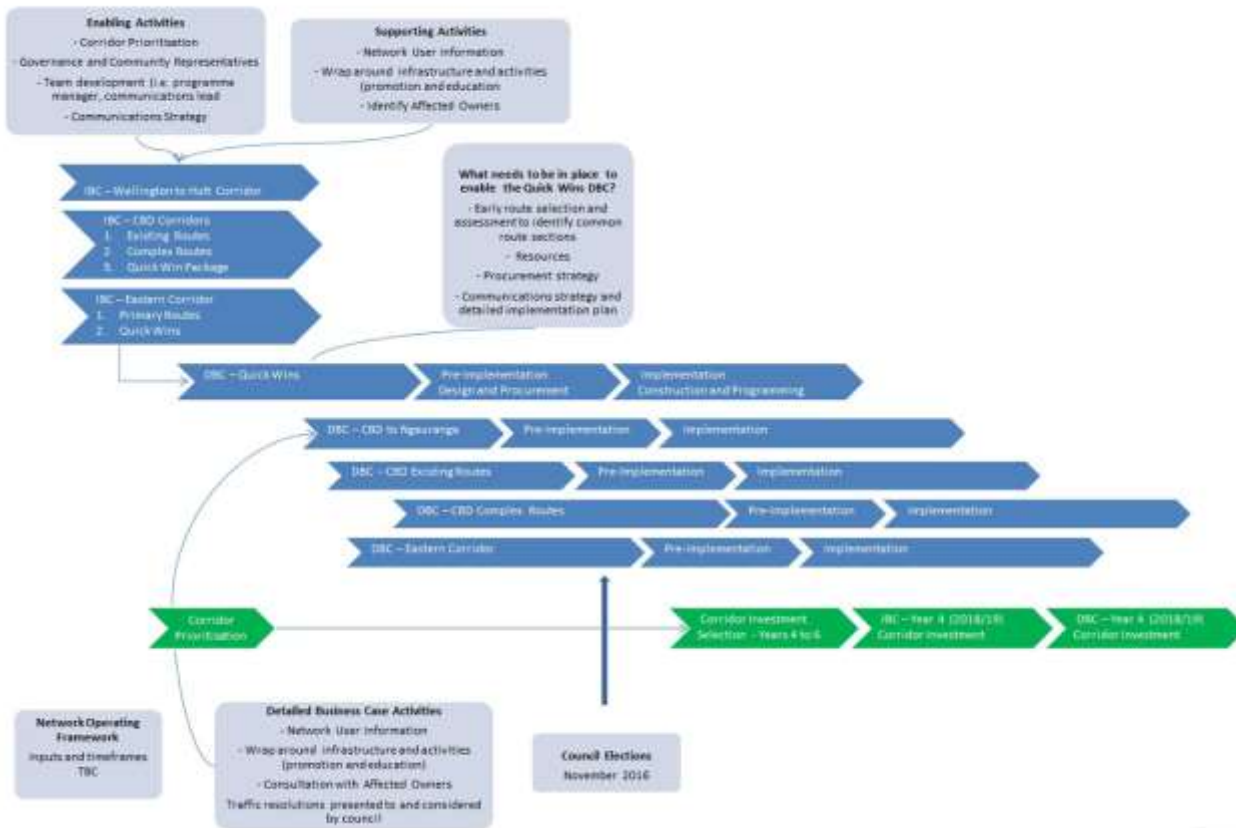


Figure 2 PBC 2015 Delivery Programme

# Changes since the 2015 PBC

This section of the PBC refresh summarises the key changes that have occurred since 2015 which have triggered the desire to revisit the PBC.

Key changes affecting the PBC since 2015 include:

- Bike network refreshed and updated
- Strategic changes in national and regional direction, particularly in relation to climate change and greenhouse gas emissions reduction with a heightened focus on the value and importance of a lower carbon economy and society.
- An increased uptake in cycling but not at a pace to support climate change goals
- A significant uptake in e-mobility
- Despite urban cycleway programme opportunities, business as usual project delivery has led to slower than anticipated project development and delivery
- Uncertainties around Let's Get Wellington Moving scope impacted the overall direction for roll-out of the cycle programme
- Cost increases due to scope creep
- New ability to apply tactical urbanism approaches to project delivery
- WCC's adoption of a new Spatial Plan which confirms urban densification aligned to the National Policy Statement on Urban Development. This has significant implications for urban development and mobility.

These issues are discussed further in the following sections.

## Bike network refresh

Wellington's strategic bike network was originally defined in the 2015 Cycleways Master Plan and Programme Business Case (Figure 3) and a stylised version was developed to show indicative delivery staging in 2018 (Figure 4).

An issue with the 2015 network map is that there was significant uncertainty, beyond the core routes, on the appropriate priority for cyclists on undefined parts of the network. Hence in the current update of the network map we have nominated streets which complete the network. In doing so, we have applied network definitions from the One Network Framework for primary and secondary strategic connections as shown in the following table.

Table 3 One Network Framework Definitions for Cycling

Cycling

Class	Strategic Significance	Description
C1	Primary strategic cycling network, intended to support high volumes of cyclist movement	The primary strategic cycle network provides the backbone of the overall cycle network catering for higher volumes of cycle movement, longer and more efficient journeys (connecting across townships or between suburbs), and connecting to key locations of employment and education.
C2	Secondary strategic cycling network, providing key connections to schools, community facilities, employment or to public transport.	The secondary strategic cycle network provides the collector function within the network, joining local streets and roads to the primary strategic cycle routes. They also support key local cycle movement providing connections to schools, local shopping centres, suburban workplaces and public transport. This class can also be applied to off-road cycling routes such as cycle paths through parks where the route fulfils the function of a secondary cycling corridor.
C3	Every other street or path that forms part of the completed cycling network but is not part of the primary or secondary network. Localised cycling movement along and across residential streets, first/last kilometre to provide link to primary and secondary cycling networks.	This class covers all other routes that could form part of a completed cycling network but are not identified as primary or secondary strategic networks. This class includes residential streets where the volume and average speed of traffic can create a safe environment for cycling. This class may also include any off-road routes, such as paths through parks where cycling is permissible but not part of the strategic cycling network. The type of journey undertaken on these routes is primarily utility cycling for the purpose of getting to an activity at the journeys end.
CR	Cycling Regional: These are rural cycling routes that can be used for either utility cycling providing connections between settlements linking to key destinations, or for recreation or tourism purposes such as road cycling and cycle tourism. NZ Cycle trails. Excludes specialist cycling facilities such as mountain bike parks.	These routes occur mostly in the rural context and provide for longer cycle journeys that can be utility cycling to school or work, or cycling activity that is undertaken for the purpose of recreation or tourism, i.e. to experience the journey rather than to reach the destination. These routes include all the off-road sections of the NZ cycle trail, as well as the touring stages of that network, the pieces of the road network that provide link between the off-road portions. This class can also be used for routes known to be popular as training circuits with road cyclists. Excluded from this class and from inclusion in the cycle network overall are specialist cycling facilities such as the trails within mountain bike parks.

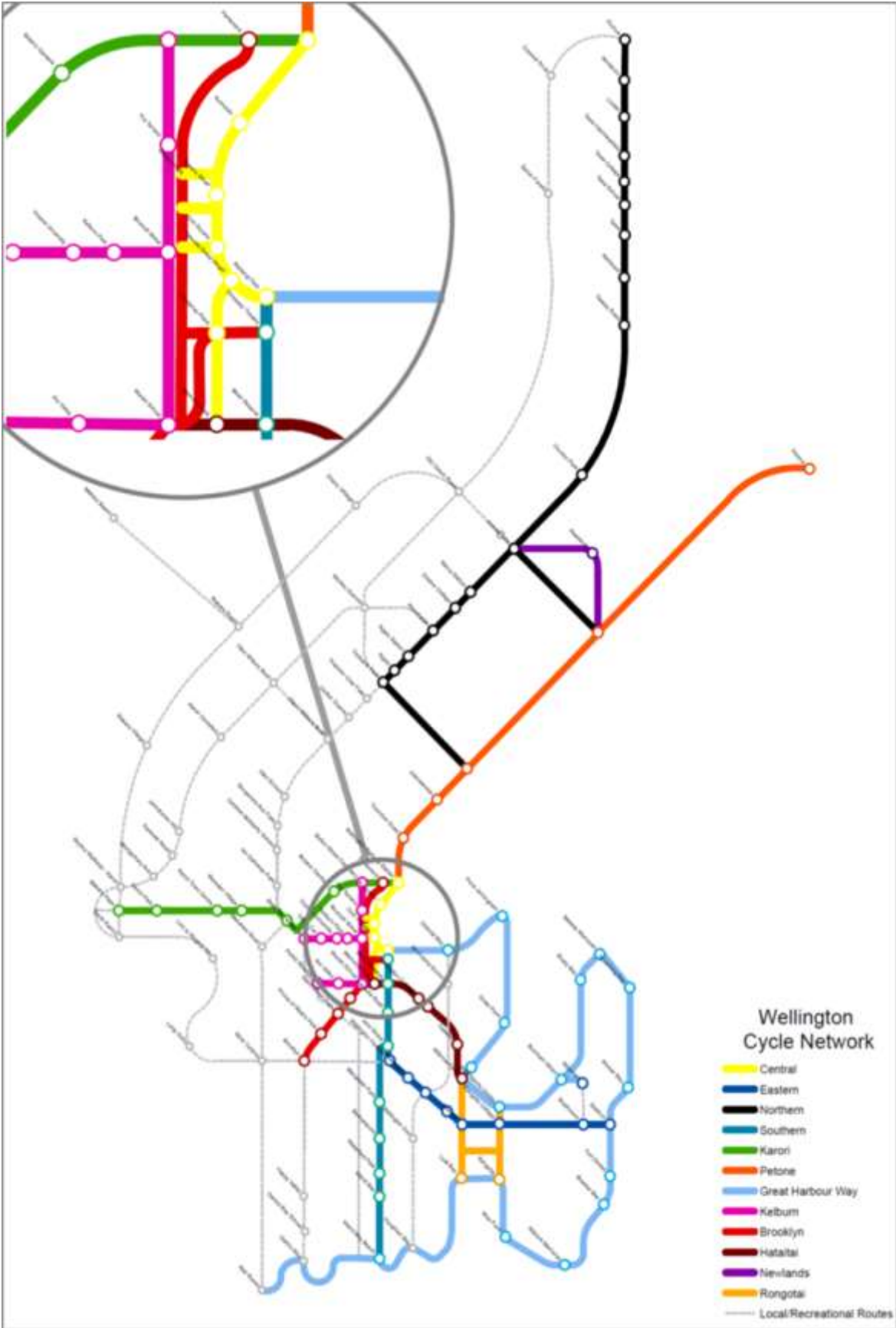


Figure 3 Wellington Cycle Network Map 2015

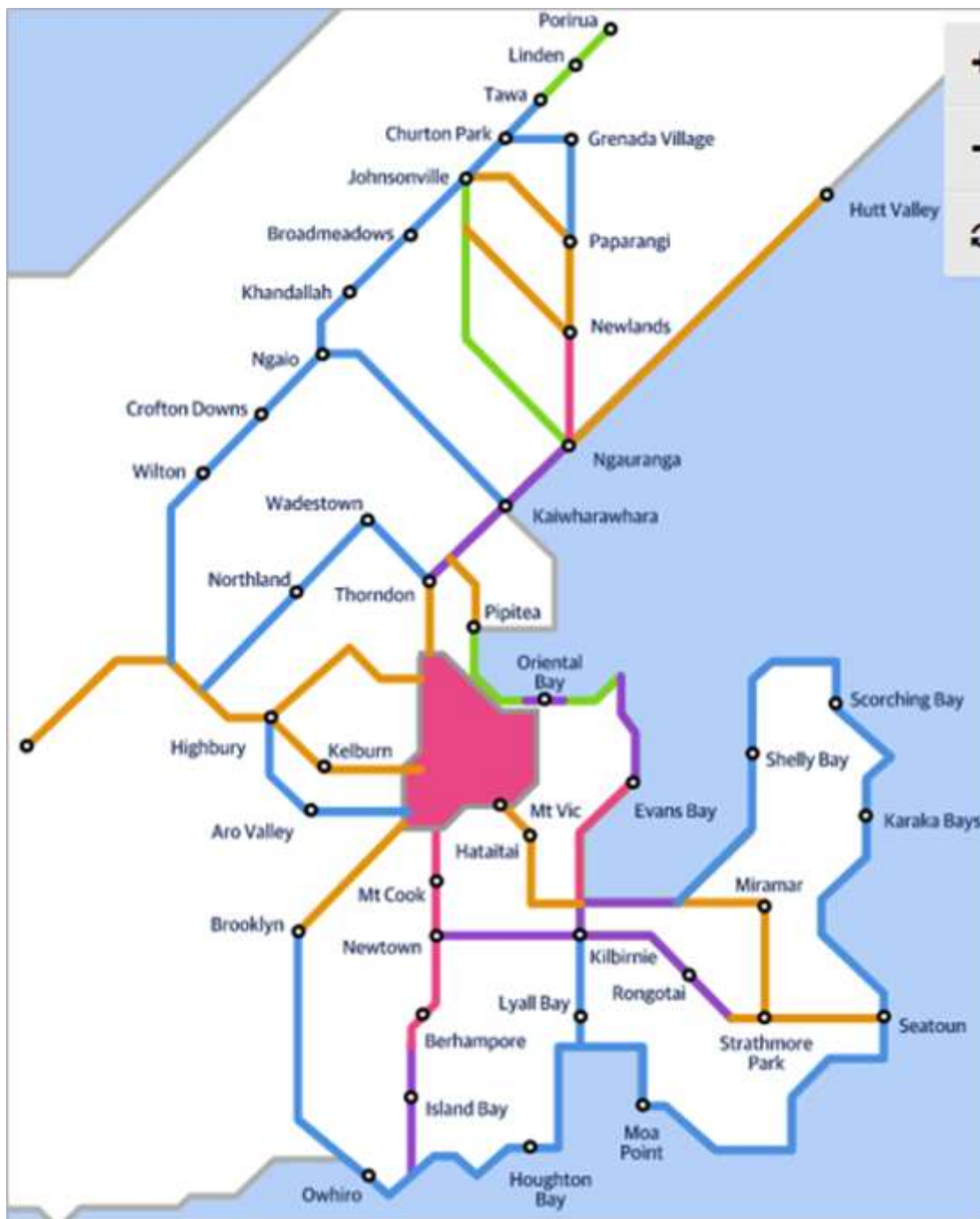
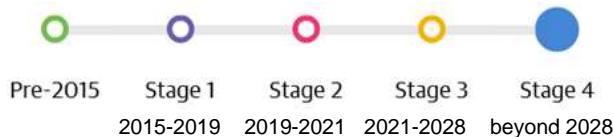


Figure 4 Stylised Network Map 2018 showing staging

The network definitions have been applied by starting with the central area, suburban centres and locations of schools. The primary network was applied to connect the main centres and the central city, and then the secondary network to extend the primary network to near schools. The total centreline length of the strategic network is 166 km.

The primary network (C1) has a centreline length of 74 km which is 45 percent of the strategic network. The draft secondary network (C2) has a centreline length of 82 km which is 55 percent of the strategic network.

At December 2020, 23 km (14%) of the strategic network was in place.



A tertiary network has not been applied to the rest of the network, however these are the links that connect the strategic network to all destinations within the city. Figure 5 shows the updated Strategic Bike Network which was adopted by Council on 10 March 2022.

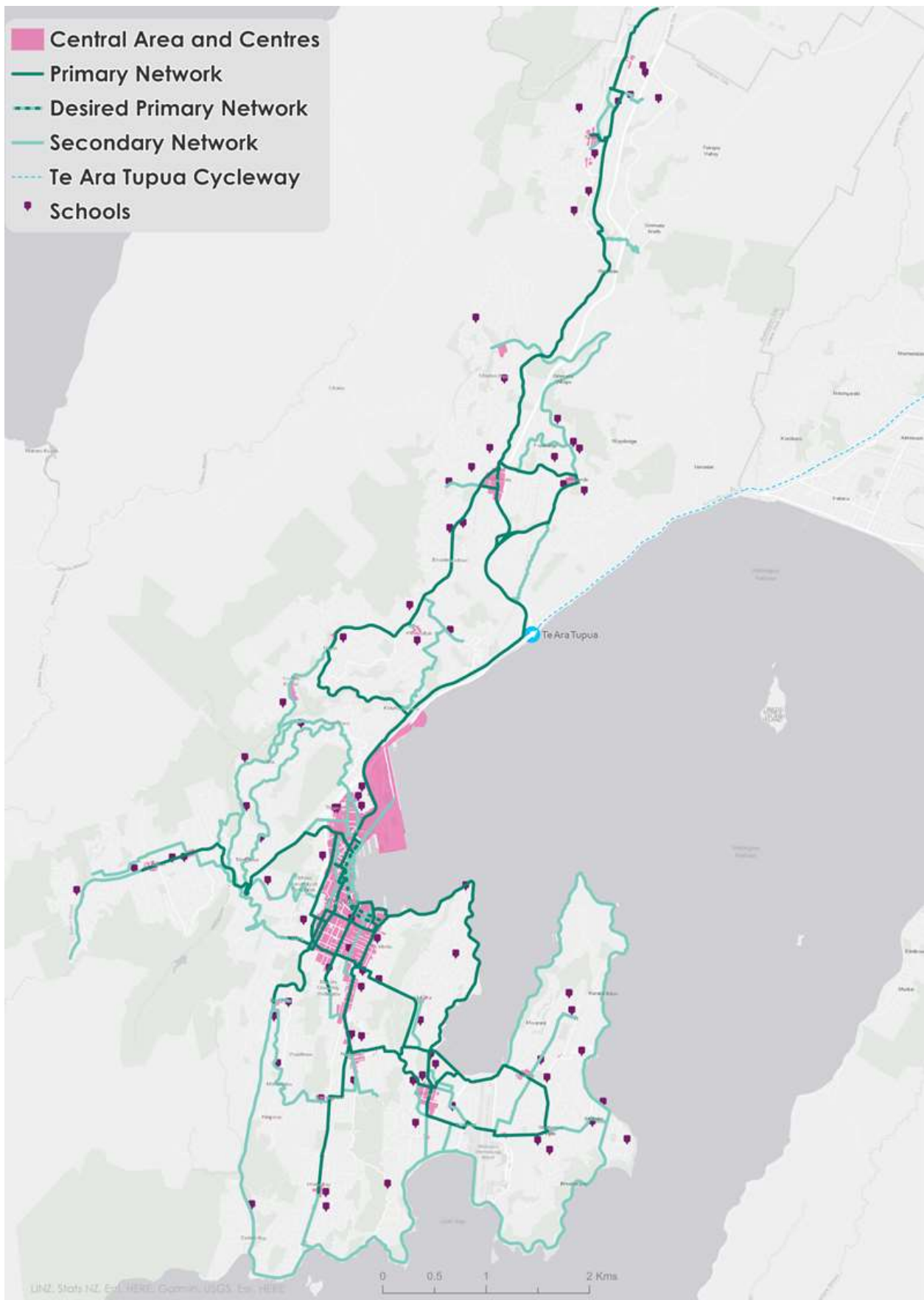


Figure 5 Wellington Strategic Bike Network (March 2022)

# National Policy Shifts

There are a number of key national policies and strategies which provide an updated direction for the cycle network PBC. These policies and strategies include:

- Transport Outcomes Framework and Government Policy Statement on land transport 2021<sup>2</sup>: guides transport investment in the land transport network. The Government sees that the purpose of the transport system is to improve people's wellbeing, and the liveability of places. It does this by contributing to five key outcomes:
  - Inclusive access: Enabling all people to participate in society through access to social and economic opportunities, such as work, education, and healthcare.
  - Economic prosperity: Supporting economic activity via local, regional, and international connections, with efficient movements of people and products.
  - Healthy and safe people: Protecting people from transport-related injuries and harmful pollution and making active travel an attractive option.
  - Environmental sustainability: Transitioning to net zero carbon emissions, and maintaining or improving biodiversity, water quality, and air quality.
  - Resilience and security: Minimising and managing the risks from natural and human-made hazards, anticipating, and adapting to emerging threats, and recovering effectively from disruptive events.

The GPS 2021 proposes to prioritise transport investment in safety; better travel options in our towns and cities; greenhouse gas emission reductions and improved freight connectivity.

Supporting the GPS investment priorities, Waka Kotahi have outlined additional detail through other strategies and plans such as:

- *Arataki*<sup>3</sup> – is the Waka Kotahi ten-year view of what is needed to deliver on the Government's current priorities with a focus on improving urban form, transforming urban mobility and significantly reducing harms as well as tackling climate change and supporting regional development.
- *Emissions Reduction Plan*<sup>4</sup> – is the Government's plan that will set out how New Zealand will meet its first emissions budget (2022-2025) and set the path towards meeting our long-term climate targets. It is a key step in the country's transition to a low emissions future.
- *The National Policy Statement on Urban Development (NPS-UD)*<sup>5</sup> - aims to ensure that New Zealand's towns and cities are well-functioning urban environments that meet the changing needs of our diverse communities.
- *Keeping Cities Moving: A plan for mode shift*<sup>6</sup> – is the Waka Kotahi plan to deliver on social, environmental, and economic outcomes by growing the share of travel by public transport, walking and cycling. As a key deliverable of this national plan, Waka Kotahi has recently led the development of a Wellington regional mode shift plan, with input from key central and local government partners.

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<sup>2</sup> <https://www.transport.govt.nz/multi-modal/keystrategiesandplans/gpsonlandtransportfunding/gps-2021/>

<sup>3</sup> <https://www.nzta.govt.nz/planning-and-investment/planning/arataki>

<sup>4</sup> <https://www.mpi.govt.nz/consultations/emissions-reduction-plan/>

<sup>5</sup> <https://www.hud.govt.nz/urban-development/national-policy-statement-on-urban-development/>

<sup>6</sup> <https://www.nzta.govt.nz/walking-cycling-and-public-transport/keeping-cities-moving/>

The updated cycle network and programme goals of reducing reliance on the car by providing attractive cycling alternatives remains very well aligned to the transport system outcomes and strategic priorities sought by Government.

## Climate Change

Since the completion of the 2015 PBC Wellington City Council has declared a state of climate and ecological emergency, adopting Te Atakura blueprint (2019) and associated implementation plan (2020). The blueprint and plan commit WCC to ensuring Wellington City becomes a net zero carbon city by 2050 – including more than halving carbon emissions by 2030. Land transport emissions are responsible for one third of Wellington’s emissions – thus is a key action area. Making it safe and easy to cycle, walk, and use public transport for everyday trips will be a key part of reducing emissions in Wellington.

## An increased uptake in cycling but not at a pace to support climate change goals

Updated analysis of the impact and role of cycling has been undertaken to inform this PBC refresh. The different ways Wellington commuters chose to travel to work in 2018 are shown in Figure 6.

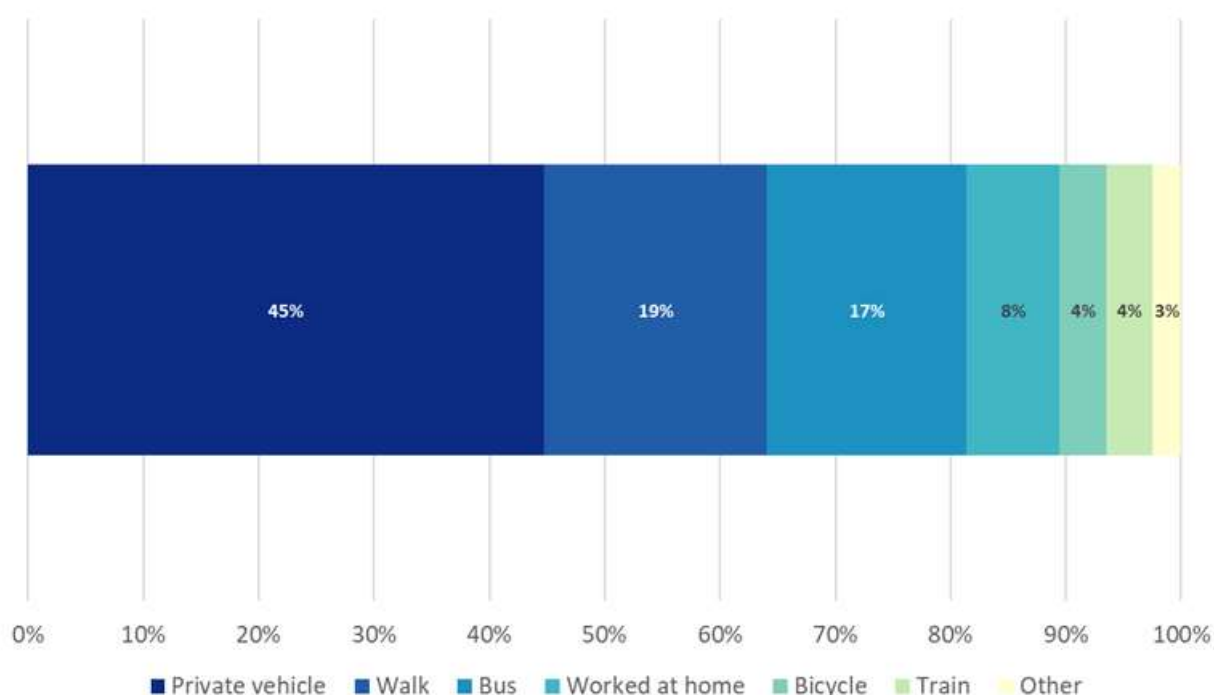


Figure 6 Journey to Work Mode Share (2018 Census)

Figure 6 shows that while driving in a private vehicle was the most used mode of travel by Wellingtonians for commuting in 2018, more people overall used other modes or worked from home.

The number of people cycling as their main means of commuting to work has increased from 3.54 percent in 2013<sup>7</sup> to 4.02 percent in 2018.<sup>8</sup>

A 2021 residents’ monitoring survey shows that about 10 percent of children aged 5 to 15 cycle to school at least once a week. According to the 2018 Census, slightly more than half of the people who use cycling as their main means of travel to education fall in the under-15 age range. The data

<sup>7</sup> Statistics New Zealand, Census data, 2013

<sup>8</sup> Statistics New Zealand, Census data, 2018

show a gender disparity among children cycling, with nearly three boys to every girl biking to school. This is a strong indicator that network quality continues to be a barrier to use.

Without significant improvements to existing cycling infrastructure, cycling use has been growing steadily over the past 20 years. However, this pace of change is not the big change required within the context of our climate emergency.

Transport monitoring surveys carried out across the central city have observed a strong increasing trend in the number of people on bikes in most corridors. The trend suggests the number of people cycling will further increase with Wellington’s forecast growth. However, improved cycling infrastructure is needed to make sure this growth accelerates and protects health and safety.

**Cycling trends**

15% annual growth 2020–2021

41% growth 2012–2021

Figure 7 Growth in Bikes to and from the CBD



## e-mobility is having an impact

E-bikes have accelerated the uptake of cycling because people can much more easily ride longer distances, up hills and in windy weather. They also encourage more women to cycle.<sup>9</sup> Imports of e-bikes have increased<sup>10</sup> and anecdotal evidence from local cycle shops shows growing sales. Demand surveys from three key Wellington corridors in 2020 identified that up to 50 percent of bikes on these routes are now electric.<sup>11</sup>

## The uptake of cycling is not consistent across the city

Knowing where and how Wellingtonians live, work, shop, study, take part in recreational activities and travel currently will help us to reassess how the programme can support future cycle growth and ensure the bike network enhances the wider transport network and supports growth and good connections along existing routes.

Main corridors into the city from suburbs, including Thorndon, Newtown, Ngauranga, Kilbirnie and Kelburn, have been monitored annually to find out how many people are cycling along these

<sup>9</sup> Speed surveys of powered transport devices, Via Strada 2021 (completed for Waka Kotahi)

<sup>10</sup> <https://www.stuff.co.nz/dominion-post/wellington/121625298/number-of-ebike-imports-hits-record-high-could-soon-overtake-new-cars>

<sup>11</sup> Speed surveys of powered transport devices, Via Strada 2021 (completed for Waka Kotahi)

routes. An increasing number of people on bikes are entering the city via these corridors, as shown in Figure 8. Note that the dips seen in 2020 were impacts from the first Covid-19 lockdown, and 2021 saw record highs on the Thorndon, Kilbirnie and Newtown routes. 2022 surveys were cancelled due to the Covid Omicron outbreak.

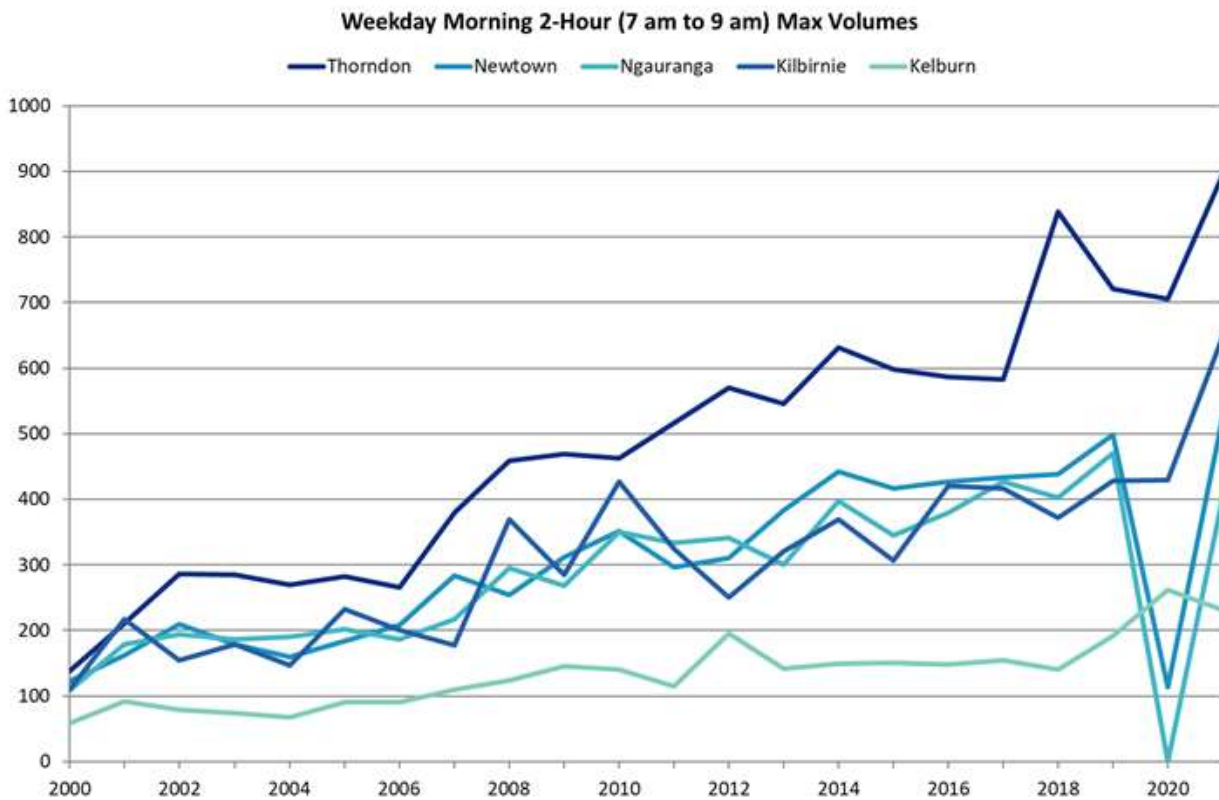


Figure 8 Growth in cycling on key corridors to the CBD

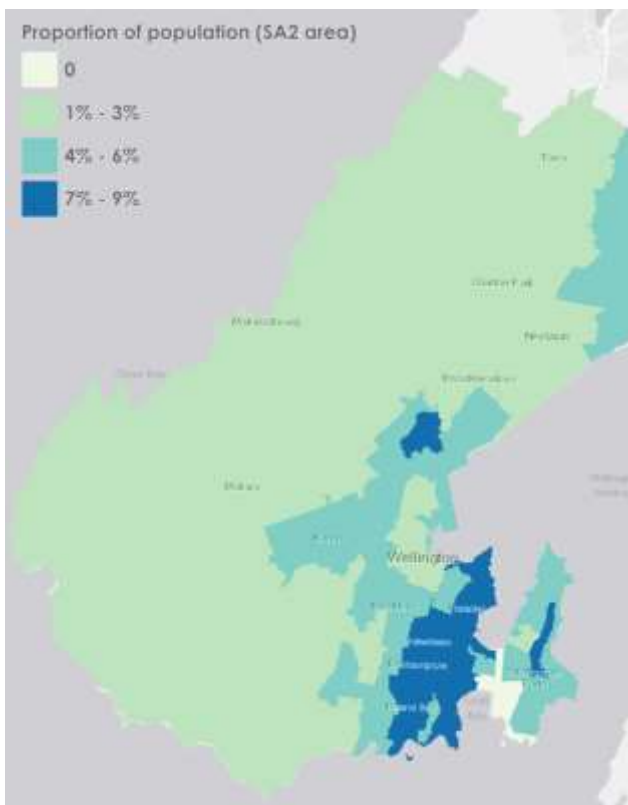
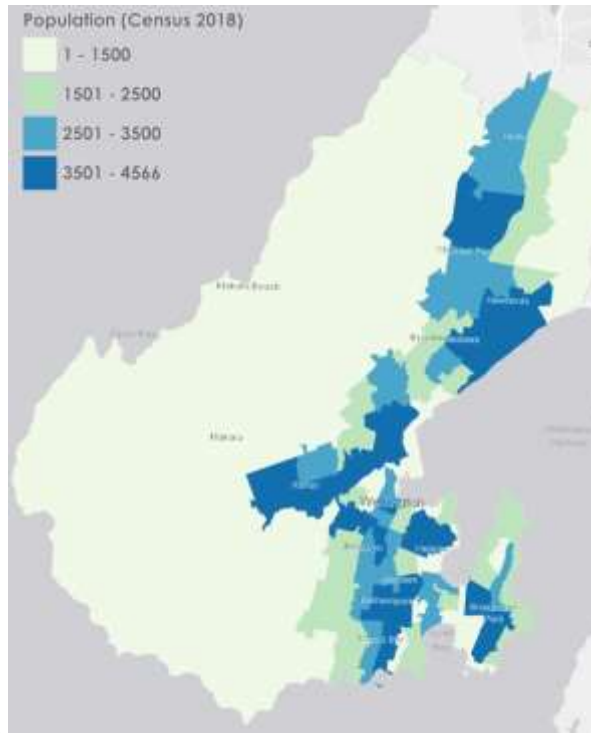


Figure 9 shows the areas to the south and east of the central city that have high numbers of residents who cycle to work. As New Zealand’s capital and third-largest city, Wellington has a strong business and commercial hub. A large portion of the number of people cycling in Wellington is made up of those who cycle to work. This shows there is a need to provide effective connections between residential areas where there is high demand and the central city where most workplaces are based.

Figure 9 Proportion of population who bike to work (2018 Census)

Figure 10. The suburbs within and surrounding the central city have the highest levels of residency, along with Karori and Tawa. Suburbs within the southern and eastern areas also have relatively



high residency levels.

Figure 10 Distribution of Wellington's population (2018 Census)

Figure 11 Locations of employment (2018 Census)

There are about 121,000 employed residents in Wellington.<sup>12</sup> Where they work is shown in Figure 11.

The areas within and surrounding the central city — including Wellington central, and Te Aro have high levels of employment. The Mt Cook, Newtown, Miramar, Kilbirnie, Ngauranga and Johnsonville areas also have relatively high employment levels.

With three universities, three polytechnics, and a number of private training establishments, Wellington has a large tertiary student population. While this sector is currently suffering from the impact of Covid-19, we anticipate a strong recovery.

The highest numbers of students live in Wellington central, Te Aro and Mt Cook. Aro Valley and Kelburn also have a relatively high number of students.

## Safety remains a critical issue

Barriers to cycling remain, most notably poorly designed or maintained infrastructure and unsafe motorist behaviour. Safety for people who cycle remains a main priority, with the number of reported road crashes involving people on bikes continuing to remain unacceptably high in Wellington (Figure 12).

<sup>12</sup> Statistics New Zealand, Census data, 2018

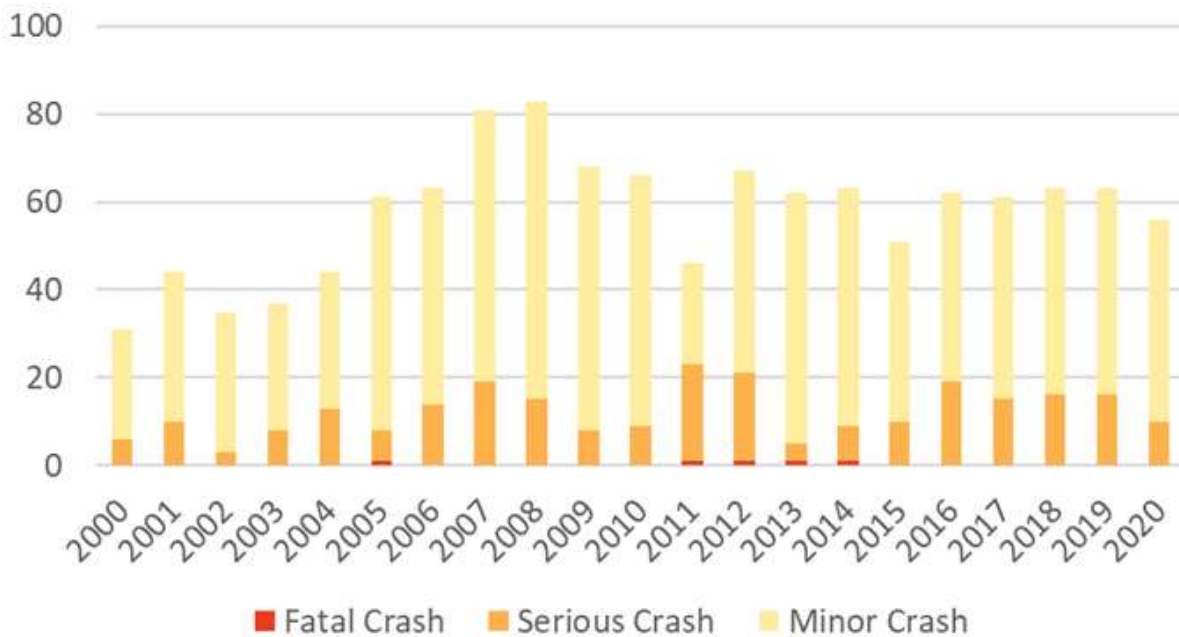


Figure 12 Annual injury crashes involving cyclists (CAS)

In 2020 there were 56 reported traffic crashes involving people on bikes, with 10 serious injuries and 46 minor injuries. It should be noted that many cycle crashes are unreported.

A Transport Perceptions study carried out by Greater Wellington Regional Council in 2019 revealed that only about 28 percent of the respondents from Wellington City reported feeling safe while cycling, as shown in Figure 13. This compares poorly to the 64 percent perception of positive safety for pedestrians.

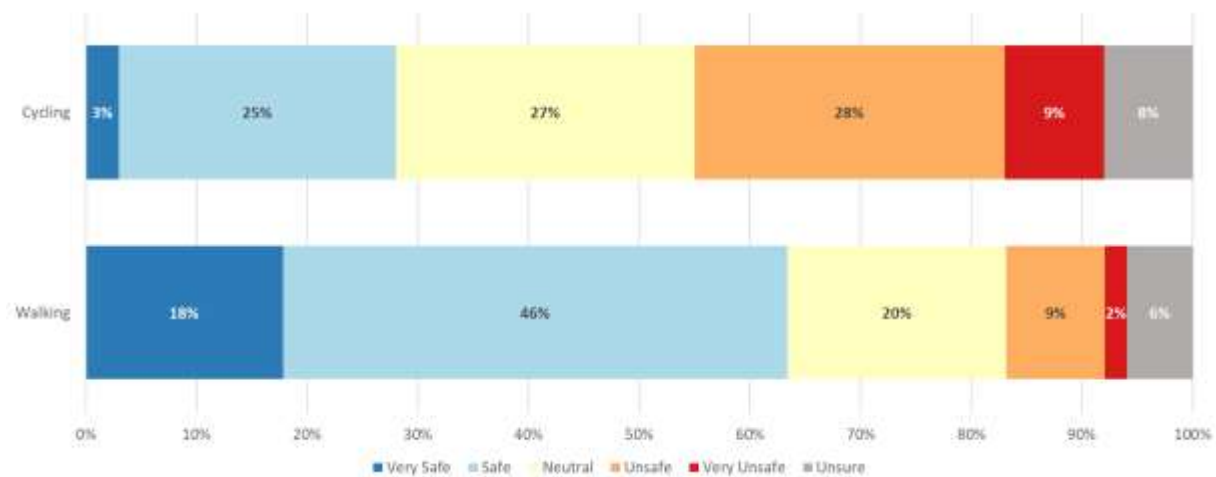


Figure 13 Perceptions of walking and cycling safety (GWRC)

Furthermore, a 2021 Residents Monitoring Survey revealed that only 23 percent of participants agreed that cycling in the city was safe for themselves, and even worse, just seven percent agreed that cycling in the city was safe for their children. Men were about twice as likely to agree that they felt safe cycling compared to women. The survey also revealed that children aged 5-15 were more likely to walk, scooter, or skateboard to school than ride a bike.

## **Business as usual project delivery has led to slower than anticipated project development and delivery - requiring a new approach**

The 2015 PBC preferred option envisaged delivering significant levels of infrastructure along three key corridors to address level of service gaps and deficiencies along these corridors. While it would not provide all of the planned infrastructure along the subject corridors it was expected that the investment during the three-year period of the Urban Cycle Programme would be considerable. The preferred programme then allowed for the ability to provide infrastructure from year four to the other three catchments and geographical areas.

In the period since the PBC 2015 levels of delivery and anticipated outcomes from the cycle programme have not been as anticipated due to:

- Slower than envisaged project development and delivery
- Project costs increasing above initial estimates
- A fragmented and unconnected network – e.g.:
  - Hutt Road is still separated from the CBD by Thorndon Quay
  - Evans Bay is not yet half complete, so is unable to fully leverage the other investments made on Cobham Drive and throughout Kilbirnie
  - Very little bike-friendly network exists within the CBD as yet

This has occurred in part due to:

- Consultation on a project-by-project basis leading to a misalignment and lack of line-of-sight back to the confirmed strategic network and long-term plan which in turn has introduced significant political risk which often slowed progress.
- Business-as-usual processes for project development taking longer than expected due to the protracted and somewhat repetitive consultation processes that were used, and to a lesser extent protracted decision-making.
- Constraints on contractor resources and difficulties in getting contractors resources committed to project delivery.
- Scope creep from that envisaged by the PBC, an example of this was the rock revetment work added to the Cobham Drive project.

As a consequence of the slower delivery there is insufficient data and evidence to confidently demonstrate that projects will deliver the claimed uptake in benefits and safety outcomes.

In 2018 Waka Kotahi established the Innovating Streets for People programme to trial a new way of designing and delivering transportation infrastructure to help deliver the government's goals to create liveable cities and thriving regions and was a flagship programme for the national mode shift action plan.

The programme was the first in New Zealand targeted at building capability in the rapid reallocation of street space using a technique called tactical urbanism. It has enabled councils, with the support of Waka Kotahi, to speed up projects that would normally take years to implement. The programme aims to make it easier for councils to deliver:

- temporary, or semi-permanent, physical changes to streets
- improvements that test a permanent fix and prototype a street design
- activations that help communities re-imagine their streets.

The Brooklyn Hill cycleway was trialled in 2021 as part of the programme. Using a tactical urbanism approach the project team was able to deliver temporary changes to the corridor relatively quickly and provide a basis for determining a pathway to permanence. This approach has shown that adopting a more agile pathway to permanence can have a significant impact on the rate at which street space can be reallocated and benefits realised much sooner than might otherwise be achieved. It is expected that this approach will reduce the time needed to plan and consult on the permanent changes thereby accelerating the pathway to permanence.



# Uncertainties around Let's Get Wellington Moving scope impacted the overall direction for roll out of the cycle programme

With the CBD being a key destination providing cycle connections too and through the CBD is a critical component of the overall cycle network. However, since 2015 given the complex interaction of all parts of the transport system, it has been difficult to establish clear accountabilities between stakeholders and partners for their respective responsibilities for delivering parts of the transport system.

Let's Get Wellington Moving (LGWM) is a joint initiative between Wellington City Council (WCC), Greater Wellington Regional Council (GWRC), and Waka Kotahi NZ Transport Agency (Waka Kotahi). The vision for LGWM is to build **a great harbour city, accessible to all, with attractive places, shared streets, and efficient local and regional journeys**. To realise the vision, the LGWM partners are working together to deliver a transformational city-shaping transport investment programme focused on enabling efficient and effective movement by moving more people with fewer vehicles. Since the Programme Business Case (PBC) was published in June 2019 and wish subsequent work on specific Indicative Business Cases, including City Streets (which represents a substantial programme of investment in public transport, walking, cycling and amenity/place making to provide enhanced travel choice with a strong focus on the central city and effective and efficient connections between the central city and key sub-urban centres) there is now greater clarity of what components of the cycle network will be led by LGWM and which by Council.

LGWM's City Streets programme will address most routes leading to and thorough the central area with either the Mass Rapid Transit and Strategic Highway or City Streets programmes delivering parts of the connections to the south. The programme is also expected to address Mt Victoria and the link to the east. In total LGWM is responsible for delivering 33 km (20%) of the network. WCC is responsible for the remaining 110 km (66%) as shown in Figure 14 below.

We note that Waka Kotahi have recently approved the WCC transitional cycleways on two city streets routes to ensure early gains are enabled prior to the consideration of this updated programme business case.

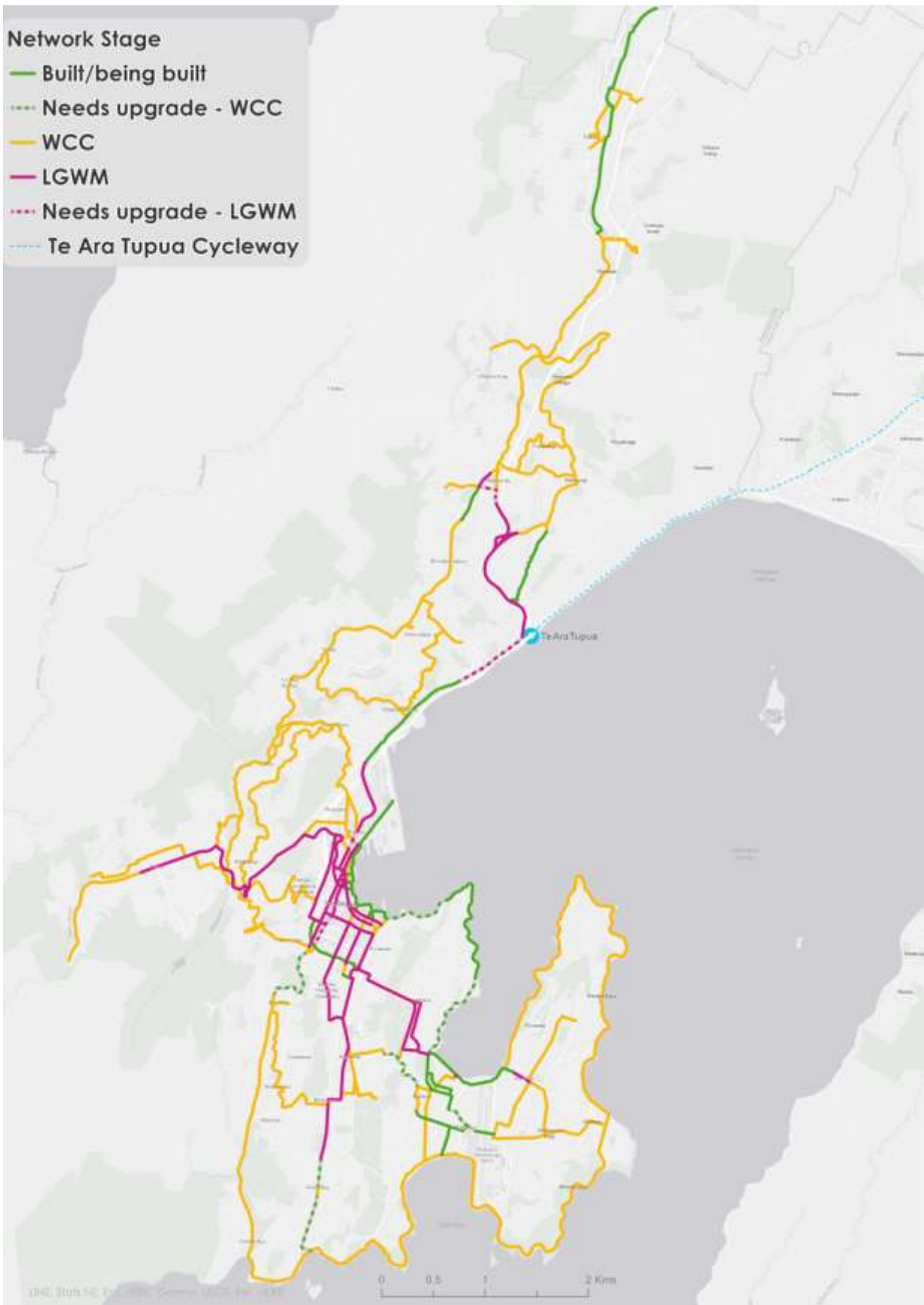


Figure 14 LGWM and WCC delivery responsibilities

## Conclusion

What experience shows us since adoption of the 2015 PBC is that the original programme was developed based on a 'plan it and build it once' approach. In constrained urban environments with competing modes and functions (place versus movement), the approach to developing cycle infrastructure is timely and complex with often many compromises which, on a project-by-project basis either lead to scope and cost increases to address additional demands, and/or led to deferral or protracted planning while complexities were worked through.

The importance of cycling has continued to be recognised by the Council. In March 2022 the Council adopted a new strategic bike network plan which recognised more than the primary routes identifying a secondary network of key connectors and enablers of cycle journeys.

In the time since 2015, whilst the demand for cycling and e-mobility has increased, the need to accelerate the availability and attractiveness of alternatives to the private car has become more pressing with the adoption of urgent national and city climate goals. Since 2015 there has been a negligible impact on the safety (perceived or actual) which remains a significant barrier to the uptake of cycling.

Positively, since 2015, Waka Kotahi has introduced a more flexible and enabling approach to infrastructure provision through its Streets for People programme<sup>13</sup>. Trials of the tactical urbanism approach on Brooklyn Hill have shown that a new approach to delivery can provide quick and effective changes coupled with a longer-term pathway to permanence.

For these reasons it is considered appropriate to reflect on the 2015 PBC approach to ensure that it is fit for the challenges ahead.

Council's level of maturity around significant programme management has also advanced over the last few years. A corporate Project Management Office has been established and an Investment Delivery Framework, which aligns with the better business case approach, has been created and is now being used for all projects.

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<sup>13</sup> <https://www.nzta.govt.nz/roads-and-rail/streets-for-people/>

# Investment objectives & KPIs

## Updated Investment Objectives

The original 2015 PBC problem statements and investment objectives have been reviewed and updated to capture the changes and lessons learnt since 2015. The most important change is the addition of a focus on carbon emissions reduction achieved through modal shift reflecting Council's adoption of Paneke Poneke - Bike Network Plan (March 2022). The original and updated problem statements and investment objectives are presented below.

Significantly, the original investment objectives have been replaced with a single overarching investment objective as shown in Table 5. This is supported by an extensive suite of key performance indicators which are aligned to Waka Kotahi benefits framework which capture the specific outcomes to be delivered by the programme. The relationship between the 2022 investment objective and KPI's is outlined in subsequent sections.

Table 4 Updated problem statements

2015 Problem Statements	2022 Problem Statements
Poor uptake due to the perception that cycling is unsafe and inconvenient is reducing cycling's contribution to the transport system. (45%)	Poor road user behaviour and poor-quality infrastructure is resulting in significantly higher than average rates of harm to people on bikes (20%)
Unforgiving infrastructure and poor road user behaviour is resulting in significantly higher than average rates of harm to people on bikes. (15%)	The lack of appropriate infrastructure and slow delivery to create a cohesive/complete cycling network is reducing the uptake of cycling (40%)
An unappealing environment for people on bikes is reducing transport and recreation choices for Wellingtonians. (40%)	Low cycling mode share is negatively affecting carbon reduction and public health goals. (40%)

Table 5 Updated Investment Objectives

2015 Investment Objectives	2022 Investment Objectives
Achieve a high Level of Service for cyclists within an integrated transport network.	Create a strategic citywide network of connected bike routes in order to improve safety for people on bikes, increase the role of cycling in the transport network, and improve environmental and health outcomes.
Improve cycling infrastructure and facilities so that cycling makes a much greater contribution to network efficiency, effectiveness and resilience.	
Cycling is a viable and attractive transport choice.	
The crash rate, number, and severity of crashes involving people on bikes are reduced.	
Provide transport choices by increasing the opportunity for people to ride bikes so as to improve the sustainability, liveability and attractiveness of Wellington.	

## Updated KPIs and weightings

Since completion of the 2015 PBC Waka Kotahi has developed the Benefits Framework tool to allow for consistent identification, measurement and monetisation of benefits throughout the National Land Transport Programme (NLTP) and, as it is aligned with the Treasury's Living Standards Framework, can also be applied to crown-funded initiatives. It is a requirement of Waka Kotahi to adopt the benefits framework in seeking co-investment from the NTLTP.

Consequently, the 2015 KPIs have been updated to align to the framework with baseline data collected to reflect current values. The KPIs and their alignment to the Investment Objective are shown in the table below along with baseline and target information.<sup>14</sup>

Table 6 Key Performance Indicators

Investment Objective		Waka Kotahi Benefit (ref. no)	Baseline	Target
Create a strategic citywide network of connected bike routes in order to improve safety for people on bikes, increase the role of cycling in the transport network, and improve environmental and health outcomes.	...strategic citywide network of connected bike routes...	Percentage completion of the strategic cycle network (10.2.3)	16% (Dec 2020)	100% (Dec 2036)
	...Improve safety for people on bikes...	Reduction in annual fatal and serious injury crashes (1.1.3)	76 DSI involving people on bikes (2017-2021)	68 DSI involving people on bikes (2037-2041)
		Improvement in perception of safety and ease of cycling (2.1.1)	28% (2019)	Outcome measure only
	... increase the role of cycling in the transport network...	Increase in throughput of cyclists (10.1.6)	2900 (March 2021)	4700 (2036)
		Increase in cycling mode share (10.2.1)	3.4% (March 2021)	Outcome measure only
		Number of people living within 500m of a high-quality cycling facility (10.2.4)	38,861 (2018)	151,300 (2018)
	... improve environmental and health outcomes	Physical health benefits from active modes (3.1.1)	\$0 (Dec 2020)	\$1403 m (2062)
		Reduction of annual tonnes of CO <sub>2</sub> equivalent emitted (8.1.1)	0t (June 2021)	282,550 t (2062)

In accordance with Waka Kotahi's advice, some targets timeframes for the purpose of measuring the benefits, have been set nominally five years after the planned completion of the strategic network to allow for a lag in full uptake that has been seen in other locations in NZ.

Target values have not been set for two performance measures. We propose to monitor outcomes for these measures annually.

The target for safety is conservatively based on a 10 percent reduction in crashes. This is based on a broad factor obtained from the Monetised Benefits and Costs manual and is the same factor utilised in the cost benefit analysis.

The target for throughput is conservatively based on the increase in cycling attributable to the delivery of the LGWM network which primarily delivers access to and through the central area. Base throughput is 62 percent higher under this scenario.

<sup>14</sup> Target values have not been set for DSI crashes, perceptions of safety, increase in cycle throughput or mode share. It is proposed to monitor outcomes annually for these measures.

# Updating the Economic Case

## Introduction & baseline network assumptions

The optioneering work carried out for the previous PBC focussed on options for the delivery of the full cycle network with an emphasis on leveraging off the urban cycleways programme funding as a 'kick start' in the short term.

A significant amount of work went into developing the full network and similarly for the updated network as adopted by Council in March 2022 and discussed in previous chapters.

The economic case therefore focuses on:

- an updated presentation of the outcomes and costs delivered by implementation of the new bike network in full; and
- an assessment of options for staging and delivery incorporating considerations of strategic approaches (similar to those considered in the 2015 PBC) as well as new approaches now available to Council leveraging of lessons learned.

Given the dynamic and everchanging nature of the transport system in Wellington, to assess the new bike network it has been necessary to make several assumptions about the baseline network for the purpose of assessment. These have been made in consultation with Waka Kotahi and are:

- The bike network is as built as at December 2020 plus all Evans Bay as complete - given that this is in the final stages of a SSBC
- Te Ara Tupua (Petone – Ngauranga) is in place - given that this is a committed project in the NLTP
- LGWM City Streets corridors are in place - given recent approval of the IBC
- LGWM MRT corridors are in place - given the high expectation for this investment by the LGWM partners
- LGWM Mt Victoria Tunnel-Ruahine St-Wellington Rd is NOT in place – given that the PBC signalled this investment was likely to follow MRT investment (this is being reviewed as part of the current IBC work)

## Outcomes from the full strategic network

The Wellington Bike Network Model was used to provide a high-level view of the uplift in cycling volumes and benefits that result from changes in Wellington City's cycle network in each of the nine areas. The model responds only to infrastructure and population changes; it does not account for societal changes, such as:

- the normalisation of cycling in Wellington over the years
- the increase in e-bike usage
- changes to public transport crowding, pricing, or traffic congestion
- changes in employment or education patterns, such as remote working/learning
- changes in parking availability and cost.

Accounting only for infrastructure and population changes is likely to represent a substantial underestimate of demand since, in recent years, cycling mode share has increased steadily in the absence of substantial improvements in cycle facilities.

In contrast, using only strategic corridors rather than every street likely leads to an overestimate of demand and benefits for corridors that undergo changes. Therefore, the model strikes a balance between overestimating and underestimating the predicted demand and benefits.

The model, its inputs, and key assumptions were peer reviewed in May 2021 by Flow Transportation Specialists in Auckland. The peer review process confirmed that the model is fit-for-

purpose as is but in addition identified several opportunities for model improvement. These have either been implemented where possible and practicable in advance of the analysis outlined below or earmarked for future model improvement.

Table 7 shows the costs, outcomes and monetised benefits for the revised strategic bike network with a more detailed breakdown by are in Table 8. Safety benefits assume a 10% reduction in crashes involving people on bikes based on guidance from the MCBM. A fuller explanation of methodology and key assumptions is set out in Appendix 7.

Table 7 Bike network costs & outcomes

Network description	Total Network	LGWM Network	WCC Network
Network Delivered (km)	166	33	110
Kilometres of corridor changes per added daily cycle trips	0.011	0.004	0.016
Added daily cycle trips per km of corridor changes	95	269	62
Implementation Cost (\$m/2022)	Not applicable	Not applicable	<b>\$350.4m</b>
<b>Programme KPI</b>			
<b>Percentage completion of the strategic cycle network</b>	100%	20%	66%
<b>Reduction in annual fatal &amp; serious injury crashes involving bikes</b>	1.15	0.35	0.66
<b>Improvement in perception of safety and ease of cycling</b>	Outcome measure only		
<b>Increase in throughput in cyclists (#)</b>	15,737	8865	6872
<b>Increase in cycling mode share (%)</b>	Outcome measure only		
<b>Number of people living within 500m of a high-quality cycling facility</b>	151,300	Not applicable	Not applicable
<b>Physical health benefits from active modes (\$m)</b>	1403.67	728.69	674.84
<b>Reduction of annual tonnes of CO<sub>2</sub> equivalent emitted</b>	4923	2519	2405
<b>Other indicators</b>			
Change in daily cycling trips relative to base	110%	62%	30%
Added daily cycle distance (km)	153,139	78,343	74,797
Change in daily cycling distance relative to base	133%	68%	39%
Total emissions (tonnes CO <sub>2</sub> ) over evaluation period	282,550	144,540	138,000
Annual CO <sub>2</sub> emissions as % of Wellington City land transport emissions recorded in 2019	1.3%	0.7%	0.7%
<b>Monetised benefits</b>			
User benefits from improved facility	\$343.24m	\$183.48m	\$159.77m
Health benefits from added cycling	\$1403.67m	\$728.69m	\$674.84m
Crash cost savings	\$24.44m	\$8.19m	\$13.24m
<b>Total benefits</b>	<b>\$1771.35m</b>	<b>\$920.36m</b>	<b>\$847.85m</b>
<b>Summary outputs</b>			
Net benefits (benefits - costs)	Not applicable	Not applicable	\$446.35m
Benefit Cost Ratio	Not applicable	Not applicable	2.1

The assessed benefit cost ratio (BCR) of 2.1 for WCC's part of the strategic bike network is considered conservative because:

- large scale on-street parking removal has not been included into the push factors that will help facilitate the mode shift sought by the plan – this would likely increase benefits

- decongestion benefits resulting from mode shift has not been assessed – this would likely increase benefits
- monetised benefits for carbon reduction have not been calculated – this would be relatively small but positive
- crash cost savings only assume a 10% reduction in crashes involving people on bikes – the significant multi-modal corridor transformations sought by the programme, coupled with the co-benefits from the future, complementary speed management programme mean we expect safety benefits will likely be significantly more positive
- we have not assessed co-benefits resulting from improved walking, bus priority and urban amenity changes that will also be delivered as part of this transformative programme – these would likely increase benefits.

Table 8 shows a breakdown of the benefits and costs across the nine outer areas of the city's strategic bike network. This shows the area BCRs ranging from 7.6 to 0.2 when a disaggregated view of the costs and benefits is used.



Table 8 Bike network costs & outcomes by area

Network description	North	Ngaio Gorge	Northwest	Central southwest	Eastern suburbs	Northeast	Southern Bays	Ohiro Rd	Eastern Bays
Network Delivered (km)	9.7	5	19.6	12.6	13.2	8.9	5.4	7.5	16.1
Kilometres of corridor changes per added daily cycle trips	0.007	0.010	0.014	0.015	0.015	0.026	0.054	0.060	0.218
Added daily cycle trips per km of corridor changes	146	97	73	68	66	38	18	17	5
Implementation Cost (\$m/2022)	\$28.48m	\$10.46m	\$33.17m	\$28.56m	\$27.42m	\$18.44m	\$19.09m	\$13.71m	\$48.27m
<b>Programme KPI</b>									
Percentage completion of the strategic cycle network	6%	3%	12%	8%	8%	5%	3%	5%	10%
Total fatal & serious crashes involving bikes over 10 years	1	6	11	14	3	1	4	4	4
Reduction in annual fatal & serious injury crashes involving bikes	0.01	0.06	0.11	0.14	0.03	0.01	0.04	0.04	0.04
Improvement in perception of safety and ease of cycling	Not calculated – lag measure								
Increase in throughput in cyclists (#)	1,415	486	1,437	852	875	339	99	124	74
Increase in cycling mode share (%)	Not calculated – lag measure								
Number of people living within 500m of a high-quality cycling facility									
Physical health benefits from active modes (\$m)	\$214.24m	\$38.53m	\$131.03m	\$52.06m	\$80.16m	\$33.20m	\$8.27m	\$8.00m	\$8.54m
Reduction of annual tonnes of CO <sub>2</sub> equivalent emitted	810	126	460	159	279	136	27	25	32
<b>Other indicators</b>									
Change in daily cycling trips relative to base	6%	2%	6%	4%	4%	1%	0%	1%	0%
Added daily cycle distance (km)	25,203	3,923	14,294	4,955	8,692	4,215	847	777	981
Change in daily cycling distance relative to base	13%	2%	7%	3%	4%	2%	0%	0%	1%
Total emissions (tonnes CO <sub>2</sub> ) over evaluation period	46,500	7,240	26,370	9,140	16,040	7,780	1,560	1,430	1,810
Annual emissions as % of Wellington City land transport emissions recorded in 2019	0.2%	0.0%	0.1%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%
<b>Monetised benefits</b>									
User benefits from improved facility	\$33.43m	\$10.38m	\$32.76m	\$18.68m	\$22.01m	\$6.73m	\$2.47m	\$2.56m	\$1.99m
Health benefits from added cycling	\$214.24m	\$38.53m	\$131.03m	\$52.06m	\$80.16m	\$33.20m	\$8.27m	\$8.00m	\$8.54m
Crash cost savings	\$0.33m	\$1.09m	\$2.07m	\$2.55m	\$0.80m	\$0.61m	\$0.70m	\$0.71m	\$0.80m
<b>Total benefits</b>	<b>\$248.00m</b>	<b>\$50.00m</b>	<b>\$165.86m</b>	<b>\$73.28m</b>	<b>\$102.96m</b>	<b>\$40.55m</b>	<b>\$11.43m</b>	<b>\$11.27m</b>	<b>\$11.34m</b>
<b>Summary outputs</b>									
Net benefits (benefits - costs)	\$215.41m	\$38.03m	\$127.91m	\$40.60m	\$71.59m	\$19.44m	-\$10.42m	-\$4.42m	-\$43.90m
BCR	7.6	4.2	4.4	2.2	3.3	1.9	0.5	0.7	0.2

## Sensitivity testing

Sensitivity tests using Waka Kotahi standard variables have been undertaken and presented in Table 9 below.

Table 9 – Sensitivity tests

Sensitivity Test	Discounted Benefits	Discounted Costs	BCR
6% Discount Rate	\$483.13m	\$287.39m	1.7
+20% Costs	\$847.85m	\$481.13	1.8
<b>Default (Base costs, 4% discount rate)</b>	<b>\$847.85m</b>	<b>\$400.94</b>	<b>2.1</b>
-20% Costs	\$847.85m	\$320.76	2.6
3% Discount Rate	\$1259.12m	\$427.28m	2.9

## Economics peer review

A peer review of the economic analysis has not been commissioned. This is because the cost of such a review is considered to outweigh the benefits to the PBC refresh given:

- significant cost / timing uncertainty over the 15-year programme duration
- the key driver for investment prioritisation is the activities very high GPS alignment
- the updated programme BCR of 2.1 is comparable to the original PBC BCR of 2.5.
- sensitivity tests of cost and discount rate have no impact on overall priority or BCR range.

## Strategic options for delivery

A long list of six strategic options were considered for the overarching approach to developing the full bike network as outlined in Table 10 below.

The approach to identifying and assessing the long list consisted of a high level sift of options based on a qualitative assessment, by experts within Wellington City Council, of whether an option was likely to deliver the desired outcomes effectively and efficiently, and be acceptable to stakeholders and the public.

Table 10 Long list of strategic delivery options

Option	Description	Shortlist	Discussion
1. Primary-Secondary	All primary corridors followed by all secondary corridors	Yes	Assumes a lag in uptake as a less comprehensive network is delivered initially.
2. Area based	Delivery of (primary and secondary network simultaneously on an area basis, areas being: <ul style="list-style-type: none"> <li>○ Eastern suburbs (Miramar, Rongotai, Kilbirnie)</li> <li>○ Central southwest (Brooklyn, Aro, Kelburn, Karori)</li> <li>○ Northwest (Northland, Wilton, Ngaio, Khandallah, to Johnsonville)</li> <li>○ Ngaio Gorge</li> <li>○ North (Tawa-Johnsonville, Johnsonville centre)</li> </ul>	Yes	Assumes maximum uptake is generated because a high-quality, connected bike network is delivered in the area and is linked to the central area by LGWM projects delivered in a similar timeframe.

	<ul style="list-style-type: none"> <li>○ Northeast (Paparangi, Newlands)</li> <li>○ Eastern Bays (Motu Kairangi-Lyall Bay)</li> <li>○ Southern Bays (south coast)</li> <li>○ Ohiro Rd (Owhiro Bay to Brooklyn)</li> </ul>		
3. Safety first	Address routes with the highest crash rates first	Yes	Assumes a significant lag in uptake as the network is not developed in a well-connected way due to the focus on addressing safety issues.
4. Low complexity first	Defined as greater than 10 metres wide with low on-street parking activity.	No	This would initially only deliver 10 km (7%) of the network in disconnected and generally lower uptake locations.
5. Popular first	Defined as areas with likely more support for a bike network (identified qualitatively)	No	Nearly all areas require significant street space reallocation so will generally be unpopular with neighbours. Popular neighbourhoods are likely to correlate with areas of highest potential uptake so are covered by the area-based option (Option 2).
6. Delivery through renewals	Deliver through street reseals and kerb renewals programme only.	No	<p>This would take too long as kerb replacement is 50-80 years scheduled to address relatively short sections in poor condition, so on its own would lead to a very disconnected network.</p> <p>This approach is included in the 'build back better' delivery concept explained in the Delivery Approaches section below.</p>

## Assessment of short-listed Strategic delivery Options

An assessment of the short-listed strategic options was undertaken using a simplified multi-criteria assessment (MCA).

An option analysis using Waka Kotahi MCA tools such as EAST or MCA template<sup>15</sup> were not considered appropriate as they are largely designed for assessing the outcomes and effects of different infrastructure and service alternatives and options and are not as helpful for assessing alternative strategic delivery options.

Therefore, a simplified MCA was developed and adopted using four criteria with each criterion scored on a scale from +3 (Major positive impacts resulting in substantial long-term improvements or enhancements of the existing environment) to -3 (Impacts with serious, long term and possibly irreversible effects leading to serious damage, degradation or deterioration of the physical, economic, cultural or social environment. Required major rescope of concept, design, location and justification, or requires major commitment to extensive management strategies to mitigate the negative effects.). The four evaluation criteria are shown in Table 11 below.

<sup>15</sup> <https://invest.nzta.govt.nz>

Table 11 MCA criteria for strategic delivery options

MCA Criteria	Weight	Assessment
Impact on user safety	20%	Qualitatively assessed, supported by crash statistics per area. This MCA criteria covers two of the investment benefits namely impact on safety and impact on perceptions of safety.
Impact on user experience of transport system	50%	Qualitatively assessed, supported by cycle demand modelling. This criterion covers many investment benefits based on forecast uptake, which in turn drives outcomes for mode choice, greenhouse gas emissions reductions and physical health benefits.
Technical difficulty and risks	15%	Qualitatively assessed considering complexity of projects.
Whole of life costs	15%	Qualitatively assessed considering cost differential between options.

Each delivery option was scored against the MCA criteria by subject matter experts within Wellington City Council. The table on the following page shows the results of the MCA assessment. The best shortlist option was option 2 - area based prioritised on uptake. This formed the basis for a more detailed delivery programming exercise.

Table 12 MCA for shortlist strategic delivery options

MCA Criteria	Weight	Assessment	Short List Option 1 - Primary then Secondary		Short List Option 2 - Area based prioritised based on uptake		Short List Option 3 - Safety first (areas)	
Impact on user safety	20%	Qualitatively assessed, supported by crash statistics per area. This MCA criteria covers two of the investment benefits namely impact on safety and impact on perceptions of safety.	0.2	Scored 1 - Focus on primary and then secondary network will mean DSI hotspots may take longer to address.	0.4	Scored 2 - Will address DSI hotspots earlier than Option 1.	0.6	Scored 3 - Phasing of areas by highest DSI rates.
Impact on user experience of transport system	50%	Qualitatively assessed, supported by cycle demand modelling. This criterion covers many investment benefits based on forecast uptake, which in turn drives outcomes for mode choice, greenhouse gas emissions reductions and physical health benefits.	1.5	Scored 3 - Enables earlier uptake benefits realisation.	1.5	Scored 3 - Enables earlier uptake benefits realisation.	1	Scored 2 - Will not enable earlier uptake benefits realisation.
Technical difficulty and risks	15%	Qualitatively assessed considering complexity of projects.	-0.2	Scored -1 - Higher number of complex projects in the early years.	0	Scored 0 - Mix of project complexities throughout the delivery period.	0	Scored 0 - Mix of project complexities throughout the delivery period.
Whole of life costs	15%	Qualitatively assessed considering cost differential between options.	0	Scored 0 - There is no cost differential between the options because each option will deliver the same network, just in a different order.	0	Scored 0 - There is no cost differential between the options because each option will deliver the same network, just in a different order.	0	Scored 0 - There is no cost differential between the options because each option will deliver the same network, just in a different order.
Total weighted score			1.55		1.9		1.6	

The conclusion from the above qualitative analysis of strategic delivery options is that area-based delivery prioritised on uptake is considered the optimal overall approach.

## Applying the uptake approach

With the strategic approach selected, our approach to developing the delivery programme took account of completing projects which are underway including completing the Tahitai route around Evans Bay to connect Miramar and the central city. It also includes the interim upgrade of The Parade in Island Bay. Work on these projects has been in the planning phase for some years and we expect to complete these improvements over the next year or two.

Given the CBD is at the heart of the cycle network and ultimately connects much of the wider cycle network our second priority is to complete the central area network where not covered by the LGWM programme. In some cases, we are proposing to accelerate the delivery of the central network where LGWM timeframes leave CBD network disconnected for over 5 years.

Finally, an assessment of the new bike network has been undertaken broken down by 14 delivery areas, as shown in Figure 15 below, prioritised on uptake normalised to kilometres of cycle network delivered as shown in Table 13 below. Details on the 67 projects forming the programme are contained in *Appendix 4: Programme projects*.

Table 13 Delivery sequencing by area/catchment

Priority	Area	Area Description	No. projects	Length Treated (km)	Added daily cycle trips per km of corridor changes
Delivery areas not prioritised as they are either underway or central city					
1	Early central city	Central city (LGWM advanced by WCC)	5	10.2	-
2	Current Pipeline – Evans Bay	Evans Bay	2	2.2	-
3	Current Pipeline – Island Bay	The Parade upgrade	1	1.6	-
4	Non-LGWM Central - CBD & Newtown	CBD & Newtown not covered by LGWM	7	5.5	-
5	Non-LGWM Central – Thorndon	Molesworth and Murphy/Mulgrave	2	2.6	-
Delivery areas prioritised based on forecast potential uptake					
6	North	Tawa, Johnsonville	8	9.7	146
7	Ngaio Gorge	Ngaio Gorge	4	5.0	97
8	Northwest	Johnsonville to Karori	7	19.6	73
9	Central – Southwest	Brooklyn, Aro Valley, Raroa, Karori West	8	12.6	68
10	Eastern Suburbs	Miramar, Kilbirnie	9	13.2	66
11	Northeast	Newlands, Papurangi, Grenada Village	3	8.9	38
12	Ohirō	Brooklyn – South Coast	3	7.5	17
13	Southern Bays	Southern Bays (Lyal – Ohirō)	1	5.4	18
14	Eastern Bays	Eastern Bays (Miramar – Lyall)	7	16.1	5

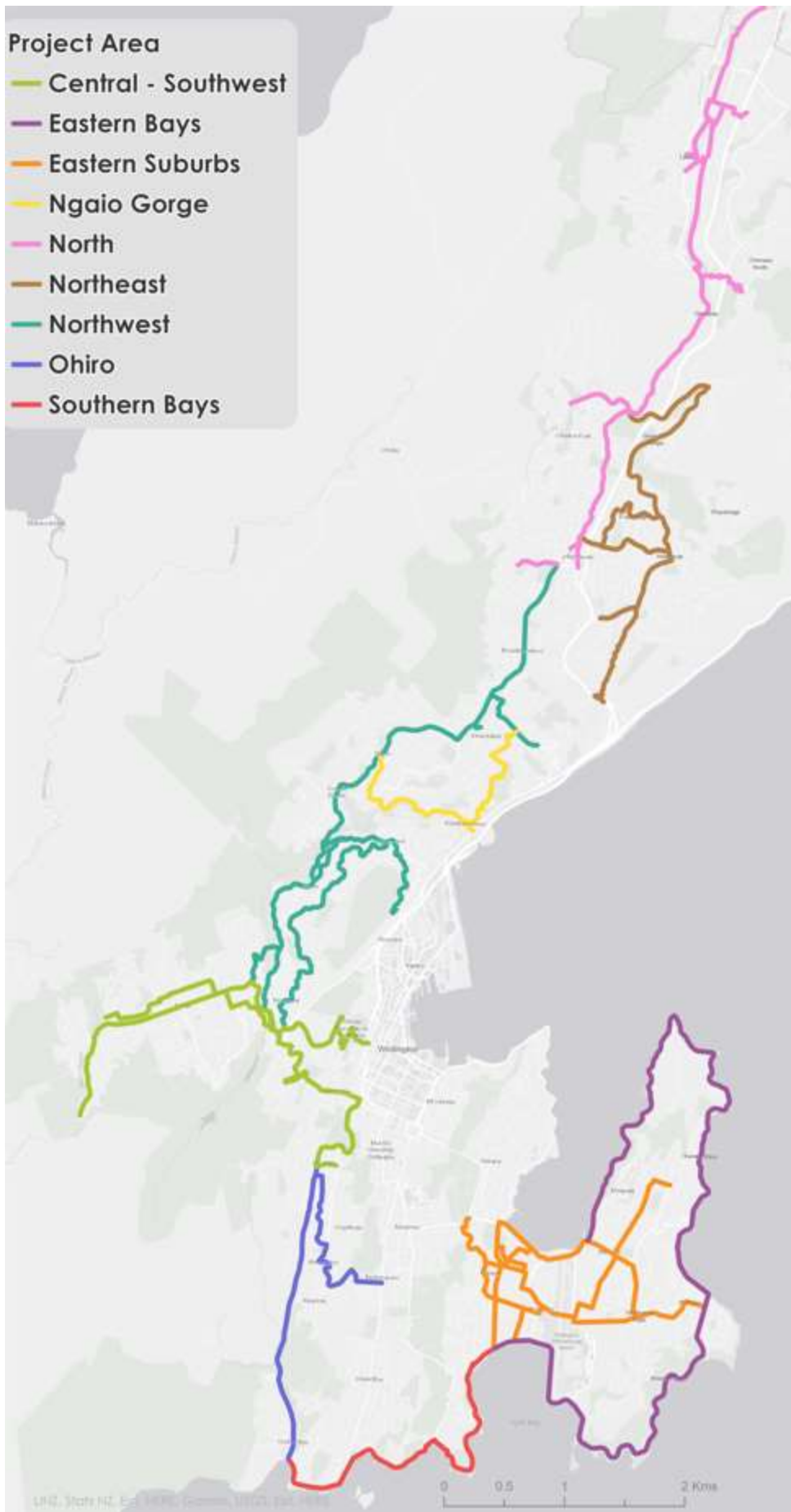


Figure 15 PBC catchment/delivery areas

# Reviewing the delivery approach and implications for programming

As noted in the review of the strategic context, the ‘plan it and build it once’ approach adopted for the 2015 PBC in a constrained urban environment is timely and complex leading to frequent scope and cost increases and delay in delivery. With pressure to provide for bikes on a more competitive footing with the private motor vehicle as a key component of the City’s environmental goals, it is essential that we think differently about how we approach delivery for the refreshed programme.

Waka Kotahi Streets for People programme<sup>16</sup> has led our thinking in how we go about developing the network differently. Our preferred programme approach has a five-year focus on accelerating network development with our refreshed approach to delivery having four key elements:

- finish what we have started
- a rapid transition programme
- longer-term street transformations
- complementary initiatives.

Our approach focuses on the new ‘transitional’ delivery method that delivers ‘temporary’ schemes to test, build support, and refine designs for future changes, allowing us to move faster. This is supported by a small programme of agile investments to allow us to respond to unplanned or unknown (at this time) opportunities through:

- build back better
- other smaller improvements

These are more fully explained below.

## Finish what we started

This work involves completing the Tahitai route around Evans Bay to connect Miramar and the central city. It also includes upgrading The Parade in Island Bay. Work on these projects has been in the planning phase for some years and we expect to complete these improvements over the next year or two.

## Transition programme

Our transition programme, led by Wellington City Council and alongside LGWM, will take a new approach to community engagement and installation to help increase the pace of change. By using lower-cost materials that can be adjusted once they are in place, we can install an interim bike network and gain feedback in real time. This will also inform future permanent changes while gaining benefits earlier.

We’re looking to make changes around the city from 2022 – protected bike lanes (that can also be used by scooters) with walking and bus improvements where possible and events and community activations. These changes will be monitored and evaluated, then adapted based on insights from data, observations and public feedback.

The programme will include support and partnership programmes to complement the street changes and to make sure people understand what’s happening, how they can get involved and provide feedback, and what resources are available for people along the routes to make the most of the new travel options.

This approach will mean we can get more of the planned bike network and connections in place relatively cheaply and quickly providing practical solutions for the time being.

On many routes, these changes will be replaced in years to come with more transformational improvements that will happen as part of LGWM or other Council projects and upgrades. The first

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<sup>16</sup> <https://www.nzta.govt.nz/roads-and-rail/streets-for-people/>



two transitional projects have targeted critical central connections within LGWM, that were not due for early delivery and would leave gaps in connectivity for the bike network if not adapted early.

## **Transformation programme (Permanent works)**

The long-term rearrangement of street space which enables people to use more sustainable modes of transport will be developed over the next 15 years. Many of these changes will happen as part of LGWM and will often build on the transition programme. We will engage with communities to improve interim schemes and make enduring changes that reflect the local area.

## **Complementary initiatives**

In addition to physical infrastructure, we also have a range of complementary initiatives to support the uptake and safety of cycling. These include:

- speed management (separate programme)
- bike parking and fix-it stands
- maps and other information
- active travel to school activities
- workshops
- cycle skills training, including Bikes in Schools
- community-based activities
- events
- safety campaigns
- support for car share transition.

Alongside other changes, lower speed limits will make the city's streets safer and more pleasant for walking and biking. The Council's 2021-31 Long-term Plan has allowed for a review of citywide speed limits from 2023–2024. Separate funding will be sought for this activity as part of the Road to Zero programme.

The Government has recently consulted on proposed new rules for setting speed limits and the Council will consider how best to go about making changes once the new rules come into effect. We currently expect to provide advice to the Council in mid-2022, subject to the new rules coming into effect.

## **Build back better**

When significant renewal work is happening around the city, such as kerb replacements and street resealing, this work can include making other street changes that improve conditions for walking, cycling and public transport. This approach will enable coordinated changes which minimise disruption to customers and provide efficiencies for overall transport investment through reduced traffic management and other implementation costs which would otherwise be doubled-up.

While this approach will lead to some disconnected biking facilities initially, over time the network improvements will join up to create the connected network we need.

Further consideration is required by Waka Kotahi on how this activity could be funded. If in general, these opportunities are less than \$2m to design and implement the additional cycling interventions then these could be funded from low-cost low risk (see smaller improvements). For more expensive activities, these could potentially be front-loaded by Council with FAR recouped from Waka Kotahi when the permanent works are commenced. This would require the city to recognise the financial risk were Waka Kotahi not to co-fund projects.

## **Smaller improvements**

Through the city's minor works programme, localised safety issues and connections can be addressed. This programme enables council to invest in small, low risk, incremental changes which support its sustainable transport objectives. Scope includes provision of trip end facilities. This activity meets Waka Kotahi's low cost, low risk criteria.

## **Programme delivery**

Applying the transitional approach followed by permanence over 15 years results in the programme shown in Figure 16 below.



Figure 16 Bike Network Plan delivery programme

This programme has resulted in the following draft delivery profile with delivery building up over the next three years. This indicative programme will be regularly updated to reflect the developing circumstances.

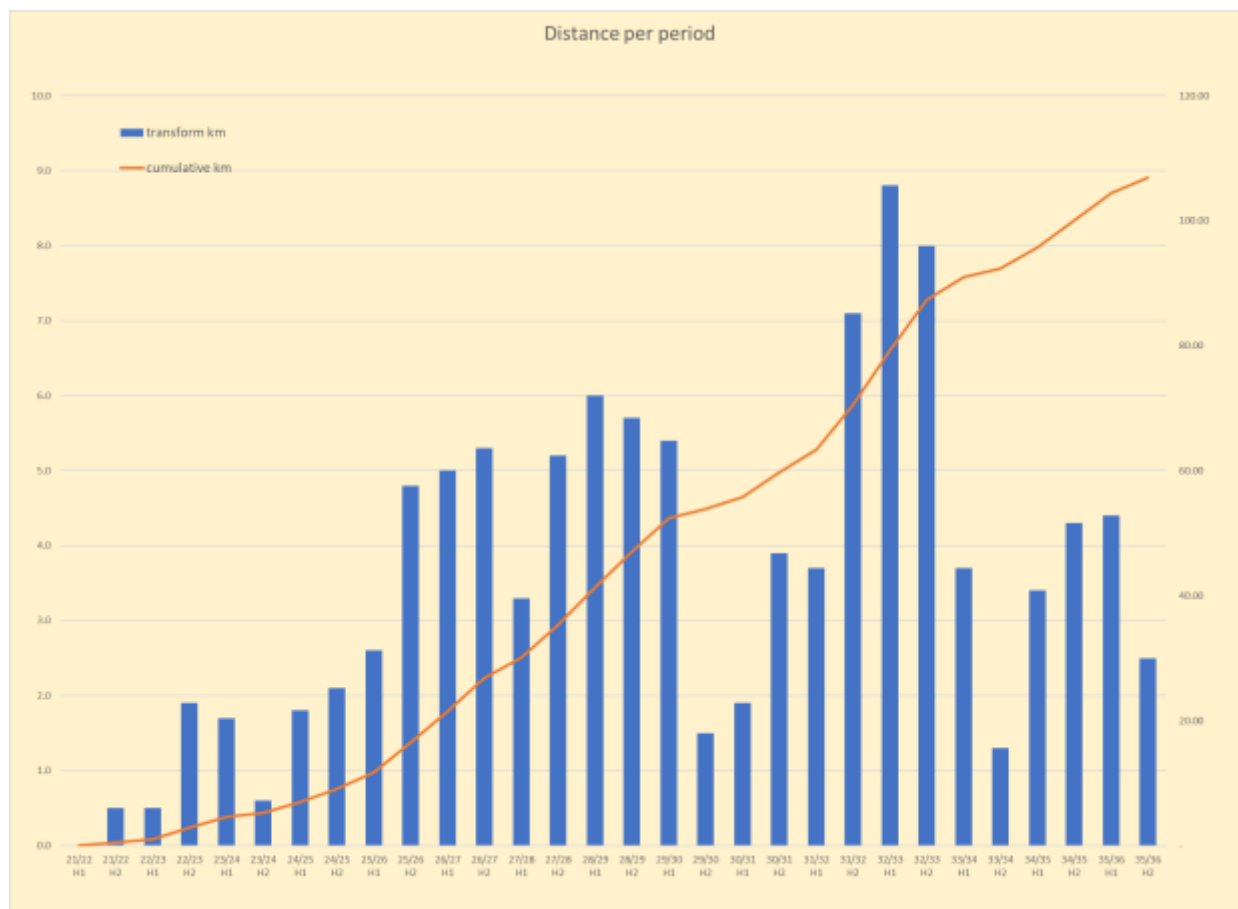


Figure 17 Bike network delivery profile (km delivered per half year)

## Investment prioritisation

The bike network programme has an indicative benefit cost ratio of 2.1.

Applying the Waka Kotahi 2021-24 Investment Prioritisation Method<sup>17</sup>, the programme has been assessed as having a profile Very High / High / Low (Priority 2).

As a cycle programme within the Capital city of New Zealand the programme has been assessed as having a Very High GPS alignment by providing better travel options and forms a significant part of the regions network as shown in the 2021 RLTP (p127)<sup>18</sup>.

The interdependency of the programme has been assessed as high as commencing the delivery of the programme in the 2021–24 NLTP would have a significant impact on realising the estimated benefits of the programme/package. The programme is also rated as high in terms of criticality as there is a need to commence delivery of the programme to prepare for the remainder of programme/package and leverage of Council approved funding over the coming decade.

<sup>17</sup> <https://www.nzta.govt.nz/planning-and-investment/planning-and-investment-knowledge-base/202124-nltp/2021-24-nltp-investment-prioritisation-method/determining-the-priority-order-of-an-activity-or-combination-of-activities/>

<sup>18</sup> <https://www.gw.govt.nz/assets/Documents/2021/10/Wellington-Regional-Land-Transport-Plan-2021web.pdf>

# Financial Case Update

This section outlines:

- Cost assumptions including the capital expenditure and operating assumptions used.
- City Streets package costs and cashflow

## Capital cost assumptions

A high-level rough-order cost estimation approach has been adopted for the PBC. This approach is based on:

- Applying a centreline kilometre unit rate of \$1.6 million based on Waka Kotahi Cycle facility cost estimation tool<sup>19</sup>:
  - WCC's strategic bike network is predominantly urban with relatively high traffic volumes and speeds. This will generally require protected bike lanes to provide a good level of service. The ideal layout will usually be uni-directional bike lanes, Shared paths will generally be unacceptable solutions in our highly urban and intensifying city.
  - From the tool therefore, appropriate facility types will most likely be mix of cycle lanes (1B) and separated cycleways (1C) and mostly the latter.
  - Wellington's relatively narrow carriageways will tend toward widening carriageways, new kerb and channel on one side, parking retained on both sides with standard cycle lanes (Intervention 1B Option 2 at \$1.4m/km including 40% design fees and 30% contingency) and removing parking on one side to provide separated uni-directional cycleways on each side (Intervention 1C Option 3 at \$1.5m/km including 40% design fees and 30% contingency). More expensive and higher levels of service (e.g. Widen carriageway as above plus street enhancement with build outs and trees) are considered to be generally inappropriate for most of the streets in Wellington's strategic bike network. Thus, \$1.6m/km was adopted as a starting place for the rough-order cost estimate allowing for escalation since the tool was published, a baseline design fee and contingency.
- A percentage allowance for complexity – An additional percentage ranging between 0% and 2000% (for Evans Bay stage 1) has been applied on a project-by-project basis. This is to allow for items such as significant known earthworks or retaining structures where these were judged likely to be needed to achieve an adequate level of service.
- A fixed additional cost allowance for major intersections – It is known that more complex solutions are required to provide adequate levels of service through major intersections. Therefore, an allowance of \$480,000 for these has been made on a project-by-project basis based on the number of major intersections.

A project-by-project cost breakdown is provided in *Appendix 4: Programme projects*.

Actual costs are likely to vary from these rough-order cost estimates for a variety of reasons, including hard-to-predict local cost factors like utility relocation and decisions to implement different levels of service. Actual costs will be derived as areas and projects are taken through the next, more detailed, stage of business case development. However, at a programme level, these costs are considered an appropriate estimate for this stage. Project cost changes will be managed through the normal cost scope adjustment processes.

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<sup>19</sup> Costs based on Waka Kotahi research CNG Task 19 Facility Cost Estimate Tool. <https://www.nzta.govt.nz/assets/Walking-Cycling-and-Public-Transport/docs/cycling-network-guidance/Cycle-Facilities-ROC-Estimation-Tool-V04.xlsx>

## Property costs

It has been assumed that the programme and projects can be developed to fit within the road reserve and hence no property costs are assumed for the programme. This will of course be further tested through the next stages of the scheme development process and represents a cost and scope risk for the programme.

## Project revenues

No project revenues are anticipated from the programme although efficiencies and cost savings could be obtained through co-ordinating works with other WCC, LGWM or utility providers activities.

## Operating and maintenance costs

Operating and maintenance costs have been assumed based on 1.5% of the capital costs per annum over 40 years. 1.5% is considered a reasonable allowance for additional maintenance because most of the network assets will be street assets managed under the normal operations, maintenance and renewals processes.

## Cost peer review

A peer review of the cost estimates has not been commissioned. This is because the cost of such a review is considered to outweigh the benefits to the PBC refresh given:

- Overall significant cost uncertainty (e.g. inflation, escalation, design levels of service) over the 15-year programme duration
- Waka Kotahi cost guidance has been utilised as a baseline for cost estimates which include contingency and from which a high base cost of \$1.6m/km has been adopted
- Additional complexity factors (largely 30%) were applied by Wellington City Council officers where it was considered there was additional geo-technical/earthworks risk

On balance, what may be considered an over-estimation in relation to the contingencies and complexity factors as applied is considered, at this PBC level, to offset against the overall long term cost escalation pressures that are likely to occur over the duration of the programme.

Greater certainty of estimates will be more apparent through the subsequent specific area and project SSBC development phases coupled with the periodic review of the overall programme which will consider performance against delivery, outcomes and affordability.

## Cost estimate & cashflow forecast

The Bike Network Plan Programme has a forecast rough order capital cost estimate of \$350.4m.

Table 14 shows the cashflow forecast by NLTP period, by phase, of the rough order capital cost estimate for the recommended programme in base year values (\$2020) and do not account for inflation or discounting. The cashflow forecast is based on the timing of activities as presented in the Economic Case, Figure 16. Table 15 shows the current NLTP position for comparison. If approved a reconciliation of the updated Bike Network Programme with Waka Kotahi Transport Investment Online will be undertaken. A more detailed breakdown of activity phasing and timing by area/activity is included in *Appendix 5: Cashflow by NLTP period, phase and area/activity*.

The phasing of costs outlined below is based on:

- 10:90 nominal split between Transition activities and Transformation activities
- Transition activities nominally apportioned:
  - 5% SSBC
  - 15% Pre-Implementation

- 80% Implementation
- Transformation activities nominally apportioned:
  - 10% SSBC
  - 5% Pre-Implementation
  - 85% Implementation
- Low-cost low-risk expenditure of \$1m per annum based on the current budget provision.
- Supporting TDM / Behaviour Change Activities at 2% of total programme

## **Cost certainty**

Cost estimates are of a rough-order and indicative based on a generic unit rate modified for known complexities on a percentage basis. There are therefore risks associated with the indicative/preliminary cost estimates adopted for the PBC. Certainty can only be improved as solutions are developed and cost estimates are refined through the next stages of the design process. Project cost changes will be managed through the normal cost scope adjustment processes.

Table 14 – Pre-Implementation / Implementation costs for recommended programme

Cost source	NLTP Period					Total expected programme (\$m)
	2021-24	2024-27	2027-30	2030-33	2033-36	
<b>SSBC</b>						<b>\$28.2m</b>
Transition SSBC (WC452)	1.1	0.4				\$1.5m
Transformation SSBC (WC452)	7.1	2.8	6.0	7.1	3.8	\$26.7m
<b>Pre-Implementation</b>						<b>\$22.2m</b>
Transition Pre-Implementation (WC452)	3.1	1.3				\$4.4m
Transformation Pre-Implementation (WC452)	7.9	1.4	3.0	3.5	1.9	\$17.8m
<b>Implementation</b>						<b>\$271.3m</b>
Transition Implementation (WC452)	22.0	16.6				\$38.6m
Transformation Implementation (WC452)	43.0	49.7	49.0	50.0	41.0	\$232.7m
<b>Low Cost Low Risk (WC341)</b>	<b>9.0</b>	<b>9.0</b>	<b>3.0</b>	<b>1.0</b>		<b>\$22.0m</b>
<b>Supporting TDM / Behaviour Change Activities (WC421)</b>	<b>1.7</b>	<b>1.6</b>	<b>1.2</b>	<b>1.2</b>	<b>0.9</b>	<b>\$6.7m</b>
<b>Total Programme Cost</b>	<b>115.9</b>	<b>91.5</b>	<b>62.1</b>	<b>62.8</b>	<b>47.6</b>	<b>\$350.4m</b>

Table 15 – Current NLTP Allocations

Cost source	NLTP Period				
	2021-24	2024-27	2027-30	2030-33	2033-36
<b>Approved Activities</b>					
Transformation SSBC (WC452)	0.6				
Transformation Pre-Implementation (WC452)	1.4				
Transformation Implementation (WC452)	9.1				
Transition Implementation (WC452)	6.0				
<b>Under review</b>					
<b>Included - Probable</b>					
Transition SSBC (WC452)	0.6				
Transformation SSBC (WC452)	0.4				
Transition Pre-Implementation (WC452)	5.0				



Cost source	NLTP Period				
	2021-24	2024-27	2027-30	2030-33	2033-36
Transformation Pre-Implementation (WC452)	6.7				
Transformation Implementation (WC452)	8.2				
<b>Included - Possible</b>					
Transition Implementation (WC452)	12.7				
Transformation Implementation (WC452)	18.4				

## Council’s financial commitment to the programme

The Council has currently provided \$226 million in its 2021-31 Long-term Plan for the delivery of this programme. As a first step, we are in the process of refreshing the programme masterplan which includes updating the delivery programme and cost estimate.

The cost estimate to complete WCC’s part of the network is \$350.4 million. Waka Kotahi’s full share, based on a 51% financial assistance rate, would be approximately \$178.8 million over 15 years.

Analysis of the draft programme shows annual total funding requirements range from approximately \$8 million (in 2021/22) to \$52 million (2024/25), with an average annual requirement of approximately \$23 million over 15 years.

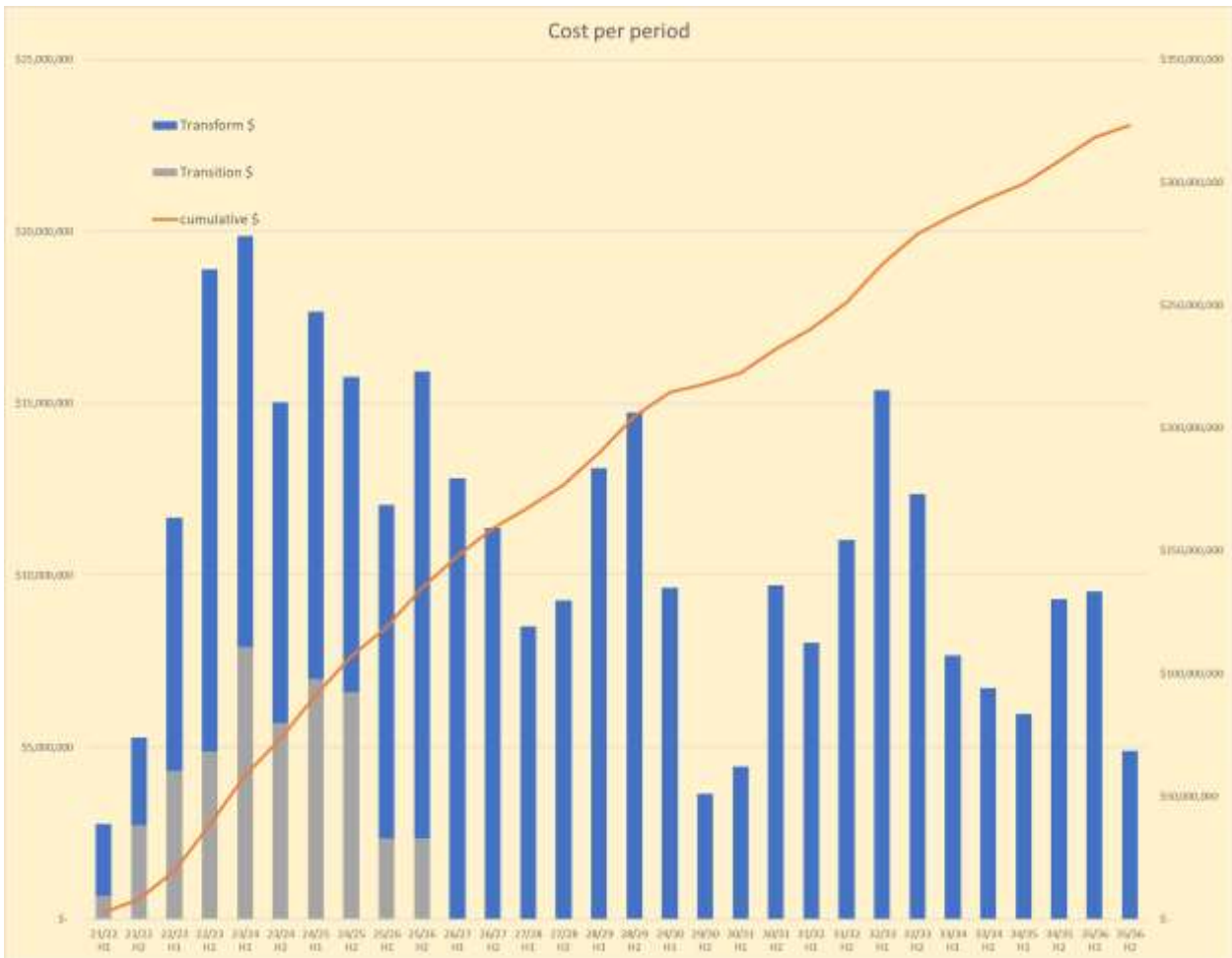


Figure 18 Forecast delivery cost profile per half year (excluding minor works, build back better, transition top up and behaviour change)

# Updating the Commercial Case

This section provides a preliminary and high-level assessment of the potential for professional services and contractors to deliver the infrastructure improvements associated with the Bike Network Programme. A more detailed consideration of the scale and nature of procurement will be undertaken in conjunction with the Programme Plan being developed by Wellington City Council as part of the next stage of programme delivery. Further details on this are contained in the Management Case.

The 2015 PBC contained no Commercial Case, and so this section has been developed specific to this version of the programme.

## Commercial considerations

The Bike Network Programme is reasonably generic in nature and comparable to other cycling, walking and amenity improvements that have been delivered in Wellington. The transitional approach adopted by the programme is still in its infancy of being adopted in New Zealand. As such carefully considered procurement of professional services to deliver this aspect is a key consideration. In general, however, no capability constraints are envisaged.

There is a relatively high probability of there being market constraints within Wellington if the programme is not programmed and procured within the wider context of activity happening across the region, in particularly Let's Get Wellington Moving.

## Procurement approach – next phase

As noted earlier, whilst the transformational activities forming the programme are relatively standard in nature the transitional approach remains relatively new.

Presently, the council is working to establish new panels for consultants and contractors to enable the efficient design and delivery of this programme and other council work programmes with an indicative timeframe as set out in Table 16 below. The council is also giving consideration to how best to manage the commercial relationships e.g. alliancing, traditional or other forms of partnering. In developing the process Wellington City Council commercial arrangements and procurement strategies have been followed and is in accordance with the Waka Kotahi approved procurement strategy.

Table 16 – Process and timeframes for new supplier panels

Panel	Process stage	Timeframe
Professional Services	Develop specification	May-Jun 2022
	Seek statements of capability and unit rates	Jul-Aug 2022
	Evaluate statements	Sep 2022
	Confirm panel	Oct 2022
	Panel commences	Oct 2022
	Panel expires	tbc
Construction	Develop specification	Complete
	Seek statements of capability and unit rates	Mar-Apr 2022
	Evaluate statements	May 2022
	Confirm panel	June 2022
	Panel commences	June 2022
	Panel expires	tbc

Whilst the panels are established there is impetus for Council to continue to deliver on its transitional programme. To do this, Wellington City Council are utilising the professional services supplier panel that has been competitively tendered to support the LGWM City Streets programme. Within that tender process, tenderers capability and experience in applying a transitional approach was explicitly tested providing confidence of the supplier's capability to perform well in this relatively new area.

# Management Case

## Governance structure and project roles

An internal restructure of the Chief Planning Officer’s group was implemented in January 2022 to provide clear accountability and additional human resources to better enable delivery of this ambitious programme. A summary of the internal structure is shown below.

The Transport and Place Planning Programme Board consists of the Chief Planning officer, Chief Infrastructure Officer and the business unit managers of City Design, Transport and Infrastructure, Parking Services; and Parks, Sport and Recreation. The Chief Planning Officer is the Senior Responsible Officer accountable for the planning and budget management of the whole programme, and for the design of the transition programme. The Chief Infrastructure Officer is accountable for the detailed design of the transformation programme and for all construction activities.

Given the importance of this programme to the Council from both political and management perspectives, two Executive Leadership Team members and four business unit managers are active in the programme board.

A Bike Network Programme Manager will oversee the programme and ensure coordination of the three sub-programmes as well as integration with LGWM. The sub-programmes each have several project managers and other positions reporting to them, made up of a mix of permanent and fixed term positions, and covering all the inputs necessary for successful projects, including having the primary relationships with consultants and contractors.

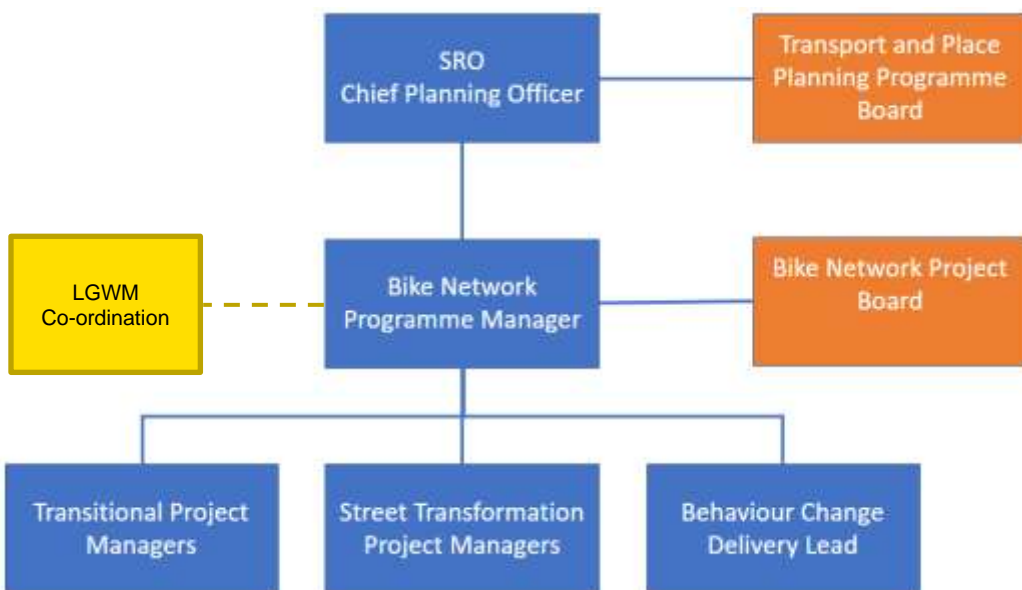


Figure 19 WCC structure accountable for bike network planning and delivery

## Indicative programme and next steps

An indicative programme has been included in the Economic Case - Figure 16. To deliver on this ambitious programme, and maintain momentum around our ongoing projects as well as support the LGWM programme with transitional activities the immediate next steps are outlined in Table 17 below.

Table 17 – Setting up the next phase of Bike Network implementation

Activity	Completion	Accountability
<b>PBC &amp; Funding Approvals</b>		
IQA	May 2022	
Council & Waka Kotahi PBC Refresh Approvals and Endorsement	May – August 2022	City Insights Manager
Funding Approval	Rolling as part of NLTF process	Bike Network Programme Manger
<b>Transitional Programme</b>		
Team resources established	Nov 2021	Transitional Programme Manager
Rolling delivery programme from Nov 2021	2026	Transitional Programme Manager
<b>Transformational Programme</b>		
Team resources established	May 2022	Street Transformation Manager
Area-based business cases from Jul 2022	2036	Street Transformation Manager
Rolling programme of project delivery (underway)	2036	Street Transformation Manager

The above programme is based on the overall programme and a project development approach based on:

- Developing an SSBC-lite for each transition project under \$2 million
- The ‘transition programme’ combining the pre-implementation and implementation phases as this is integral to the overall transitional approach.

We will work with Waka Kotahi’s investment advisors to confirm the appropriate pathways (e.g. exploring efficiencies through combining projects within areas etc) for each element of the transformation programme, noting that much of the programme will be initiated through the transition process set out above.

The business casing approach for the transitional projects e.g. SSBC lite, should be regarded as pre-implementation funding for transformation business cases that will eventually follow.

## Adapting to change

Over the anticipated timeframe for the role out of the programme it is highly likely some of the assumptions underpinning the programme will change — particularly in relation to costs and benefit realisation. Where material change occurs, the programme will need to be appropriately adjusted to reflect the materiality of the change(s) that have occurred.

Through ongoing monitoring and reporting of the key performance indicators (KPIs) and other measures included in the benefits realisation, the project team will be able to provide advice to Council and Waka Kotahi to consider what adjustments are necessary to achieve the programme outcomes, and their significance including advice around expanding or reducing the programme. It is recommended that the programme undergo a formal review every 6-years as a precursor to long term plans and alternate RLTPs.

## Stakeholder engagement

The Wellington public have demonstrated a strong interest in cycling at both a strategic and local level. It is Council’s intention to work closely with the public, and directly affected residents and businesses, in relation to planning and delivery of the Wellington cycle network. In order to effectively interact with the key stakeholders who will likely have an influence on the project outcomes within the relatively short project timeframes. A consultation and stakeholder strategy will be developed as an adjunct to the Programme Management Plan. This will look at how engagement with key stakeholders and communities can extend to incorporate the promotional and educational elements of the programme.

Table 18 below broadly outlines the activities that will interact with the community and stakeholders and include engagement.

Table 18 – Summary of stakeholder interaction

Project Stage	Stakeholder / Community	Communication / Engagement
SSBC	Community Representatives	Engagement and inclusion in working groups to develop robust and supported route solutions and analysis of options
Pre-Implementation	Various	Depending on route planning and design impacts (i.e. Public Transport Users Association)
Implementation	Affected parties	Depending on route planning and design impacts
Post-Implementation (Monitoring)	User groups and general community	Ongoing communication to confirm if the activities undertaken have been successful or improved

## Engagement for transitional activities

As we are using a new way of implementing these infrastructure changes our comms and engagement strategy is key to the success of the transitional projects. Our strategy will consist of the following four phases:



## Iwi Partnerships

The Council will be using the Iwi Partnerships process established by Let's Get Wellington Moving for all transport related conversations including those within the scope of the bike network plan.

As each project/activity is developed close engagement with iwi will occur to ensure that there is appropriate consideration and provision for mana whenua perspectives. Of particular interest will be how the activities incorporate mana whenua values. This may include, for example, how mana whenua values are incorporated into the design of particular improvements and how pre-European history of place can be better expressed.

## Project Management

### Cost management

Financial management shall be undertaken in accordance with the relevant Wellington City Council procedures.

## Change control and issues management

A change control and issues register shall operate as an extension to the risk register and track issues as they arise. Change control and issues management will be undertaken in accordance with:

- Wellington City Council's Significance Policy
- Wellington City Council's Corporate Risk Management Policies
- Conditions of contract for project specific issues

## Key Risks

The Council operates mature risk management processes. Project managers create and maintain project risk registers which is aggregated to provide a programme level view. Significant risks are escalated up the management hierarchy through to chief officer (executive) level. A Cycleways Programme Board meets monthly to review progress, risks and provide necessary direction.

The high-level risks for this programme are tabulated in *Appendix 6: Risk Register*.

The Council's corporate project management office also performs a review and reporting function for the Council's significant projects and programmes, of which this is one.

## Benefits Realisation and Lessons Learnt

An indicative monitoring regime to assess the benefits of the programme is set out in Table 19. Monitoring might evolve throughout the programme as technology options for monitoring evolve.

Lessons learned reviews will be undertaken at agreed times throughout the respective contracts and as part of the close-out reports for the activities. It will be the responsibility of the project managers to complete these reviews with the respective suppliers.



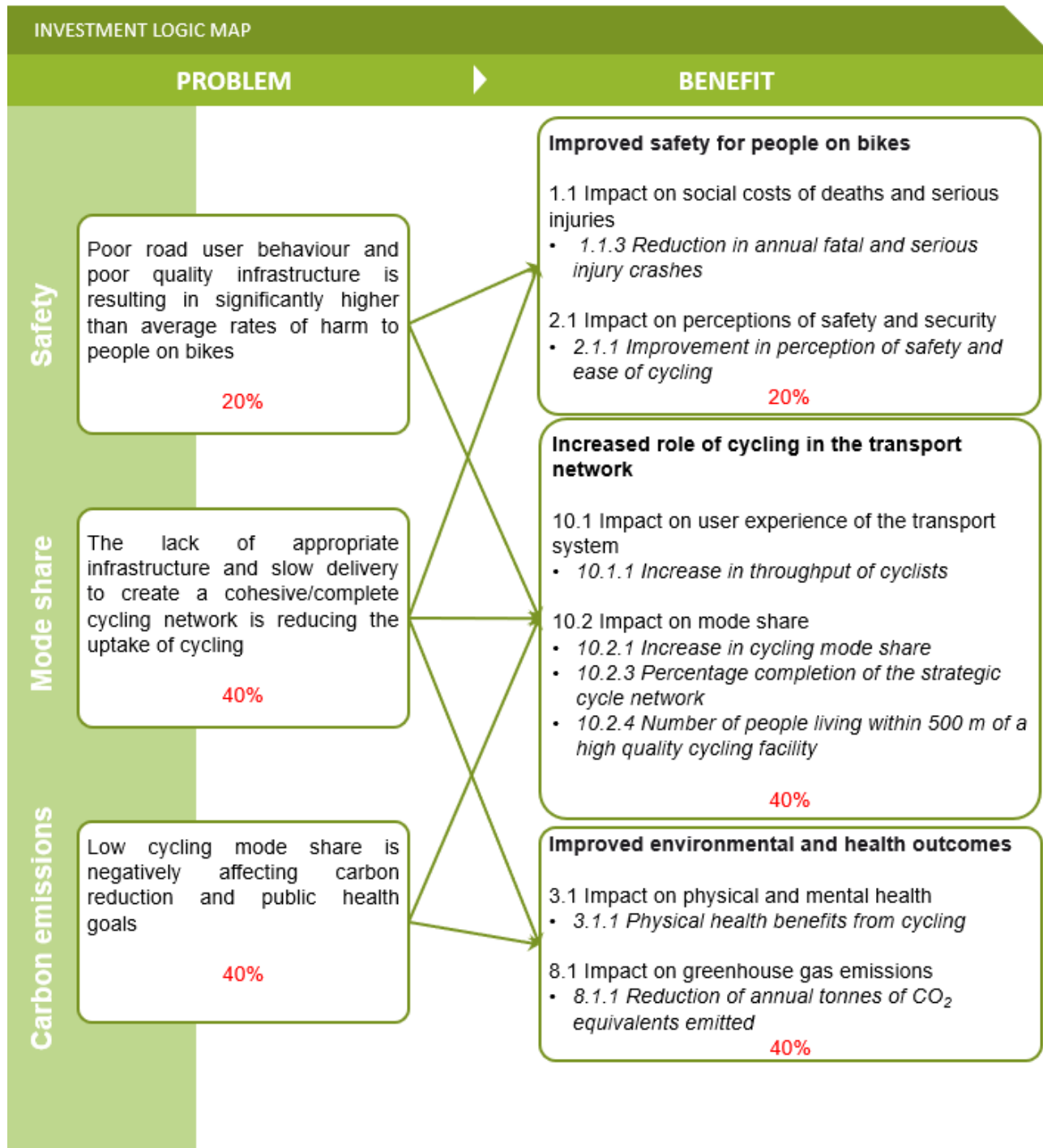
Table 19 - Benefits Realisation schedule

Investment Objective		Waka Kotahi Benefit (ref. no)	Approach	Frequency	Responsible Person
Create a strategic citywide network of connected bike routes in order to improve safety for people on bikes, increase the role of cycling in the transport network, and improve environmental and health outcomes.	...strategic citywide network of connected bike routes...	Percentage completion of the strategic cycle network (10.2.3)	Report from RAMM	Annually	City Insights Manager
	...Improve safety for people on bikes...	Reduction in annual fatal and serious injury crashes (1.1.3)	Report from CAS	Annually	City Insights Manager
		Improvement in perception of safety and ease of cycling (2.1.1)	GWRC perceptions survey	3-yearly	City Insights Manager
	... increase the role of cycling in the transport network...	Increase in throughput of cyclists (10.1.6)	WCC cordon counts	Annually	City Insights Manager
		Increase in cycling mode share (10.2.1)	Census	5-yearly	City Insights Manager
		Number of people living within 500m of a high-quality cycling facility (10.2.4)	GIS analysis	5-yearly	City Insights Manager
	... improve environmental and health outcomes	Physical health benefits from active modes (3.1.1)	Not monitored.		
		Reduction of annual tonnes of CO <sub>2</sub> equivalent emitted (8.1.1)	Carbon footprint monitoring	Annually	Manager Climate Change Response

# Appendix 1: Investment Logic Map

## Wellington Bike Network

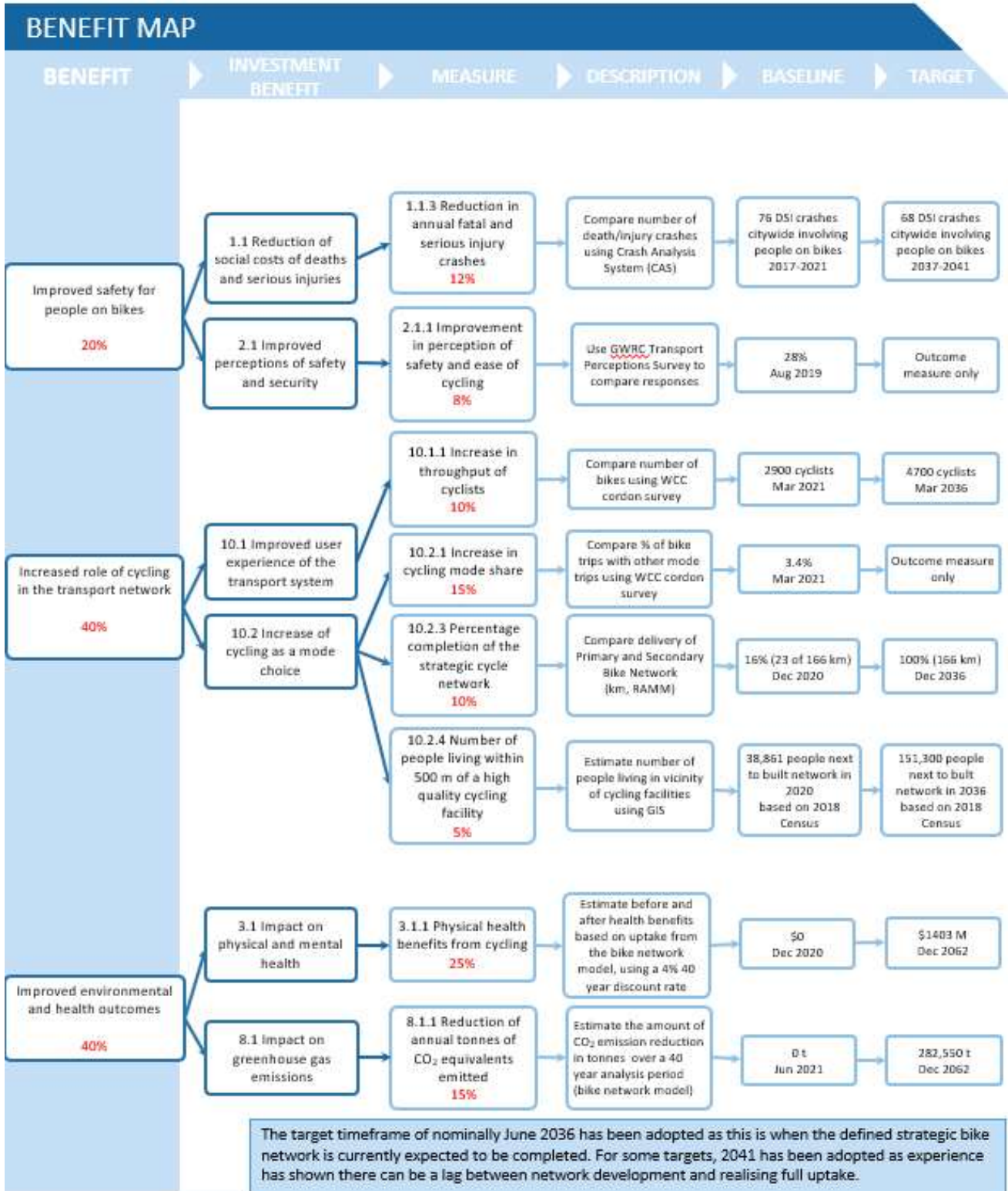
Bike Network Plan 2021



Business Problem Owner: Team Leader Transport Strategy, WCC  
Facilitator: Principal Investment Advisor, WK  
Accredited Facilitator:

Version no: 1.1  
Initial Workshop: July 2021  
Last modified by: WCC October 2021  
Template version: 5.0

# Appendix 2: Benefits Map

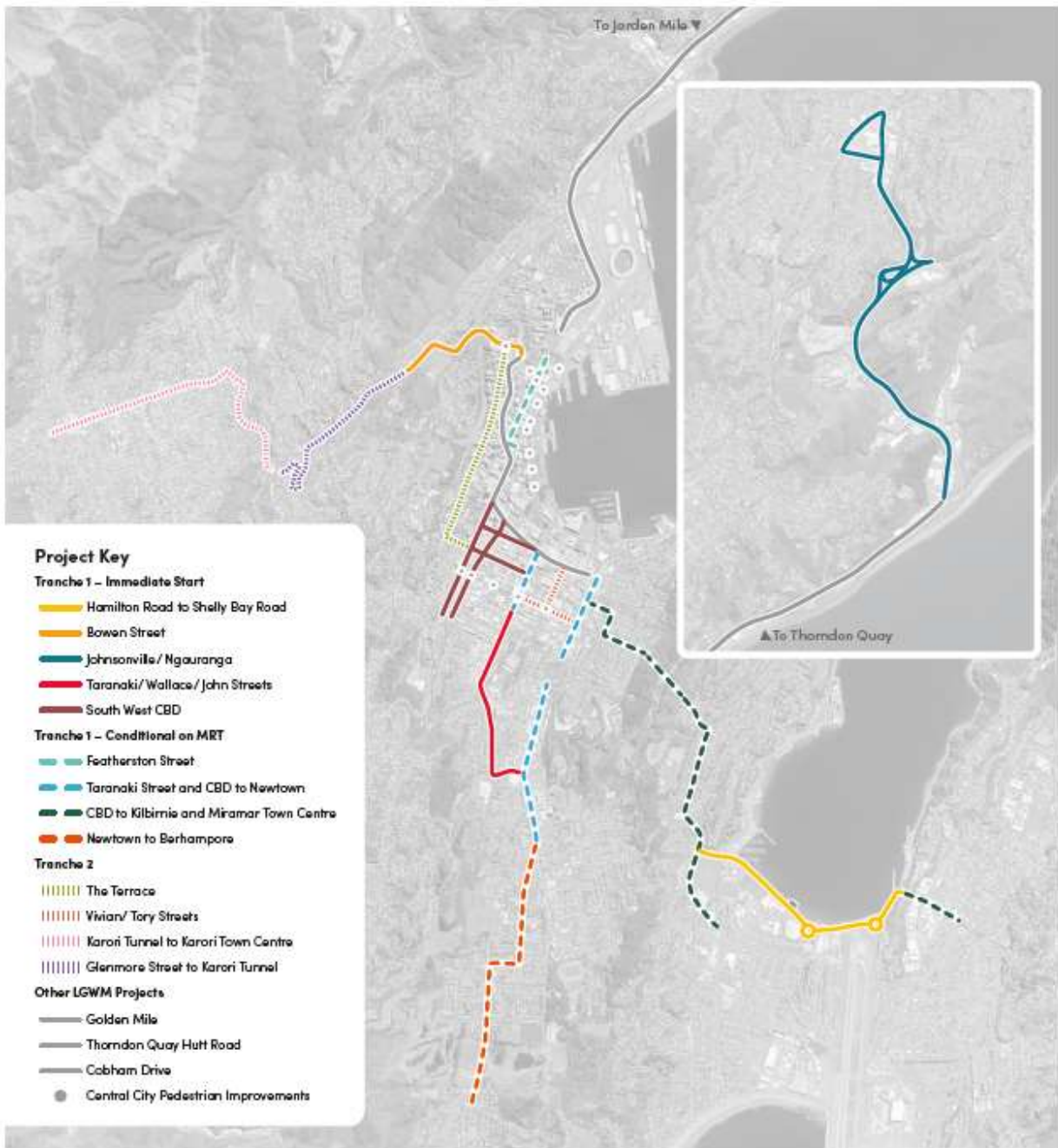


Business Problem Owner: Team Leader Transport Strategy, WCC  
 Facilitator: Principal Investment Advisor, WK  
 Accredited Facilitator:

Version no: 1.5  
 Initial Workshop: July 2021  
 Last modified by: WCC, March 2022  
 Template version: 1.0

# Appendix 3: Map of LGWM City Streets Corridors

## City Streets Projects



# Appendix 4: Programme projects

Area sub-Project	Length (km)	Transition Complexity & Risk High, Medium, Low	Transform Complexity & Risk High, Medium, Low	Addition to LTP	Change draft to final BNP	Bike Lanes (\$m/km)	Complexity Premium	Major Intersections (ea)	Rough Order Cost (\$m)
<b>Early central city</b>									
Waterfront to Botanic Gardens (7)	1.4	High/High							2.20
Waterfront to Newtown (MRT)	2.2	High/High							3.75
Botanic Garden to Karori Tunnel (18)	1.6	High/High				0.16	200%		0.77
Karori Tunnel to Karori Centre (17)	2.5	High/High				0.16	200%	1	1.68
Newtown-Berhampore to Island Bay (13)	2.5	High/High				0.16	200%	1	1.68
<b>Evans Bay</b>	<b>2.2</b>								<b>28.36</b>
Stage 1	0.5	N/A	High	yes		1.60	2000%		16.80
Stage 2	1.7	N/A	High			1.60	325%		11.56
<b>Island Bay</b>	<b>1.6</b>								<b>14.20</b>
<b>The Parade</b>	1.6	N/A	High			1.60	175%		14.20
<b>CBD &amp; Newtown</b>	<b>6.5</b>								<b>22.52</b>
Whitmore Street	0.3	N/A	High	yes		1.60		1	0.96
Newtown PMP									1.00
Kelburn	2.1	High/High	High	yes		1.60	50%	3	6.48
Tasman / Tory	0.5	N/A	Medium	yes		1.60			0.80
Orential Parade	1.0	N/A	Medium	yes	yes	1.60	100%		3.20
Courtenay to Waterfront	1.0	N/A	Medium	yes		1.60		4	3.52
Newtown centre to zoo and SWIS	1.6	High/High	High	yes	yes	1.60	100%	3	6.56
<b>Thorndon</b>	<b>2.6</b>								<b>8.48</b>
Tinakori Rd - Hill St	0.8	Medium/High	Low	yes		1.60		1	1.76
Molesworth and Murphy/Mulgrave	1.8	High/Medium	Medium			1.60	100%	2	6.72
<b>North</b>	<b>9.7</b>								<b>27.92</b>
<b>Middleton Rd</b>	2.5	N/A	Medium			1.60	200%	1	12.48

Area sub-Project	Length (km)	Transition Complexity & Risk High, Medium, Low	Transform Complexity & Risk High, Medium, Low	Addition to LTP	Change draft to final BNP	Bike Lanes (\$m/km)	Complexity Premium	Major Intersections (ea)	Rough Order Cost (\$m)
Middleton Rd	2.2	Low/Low	Medium			1.60	50%	1	5.76
Churton Park	1.1	N/A	Low		yes	1.60		2	2.72
Tawa centre	0.5	N/A	Low	yes		1.60			0.80
Tawa Pool to centre	0.9	N/A	Low	yes	yes	1.60		0.5	1.68
Tawa Intermediate	1.0	N/A	Low	yes	yes	1.60		1	2.08
Broderick Rd	0.6	N/A	Low	yes		1.60			0.96
Grenada North	0.9	N/A	Low	yes	yes	1.60			1.44
<b>Ngaio Gorge</b>	<b>5.0</b>								<b>10.26</b>
Kaiwharawhara Rd	0.5	Medium/High	Low			1.60			0.80
Ngaio Gorge	1.4	N/A	Low			1.60	30%		2.91
Kenya - Ottawa	0.8	Low/High	Medium			1.60	30%	1	2.14
Bridle Track	2.3	N/A	Low	yes	yes	1.60		1.5	4.40
<b>Central - Southwest</b>	<b>12.6</b>								<b>28.00</b>
Brooklyn Hill	1.7	N/A	Medium			1.60		3.5	4.40
Cleveland St	0.3	N/A	Low	yes		1.60			0.48
Aro centre	0.9	High/High	High			1.60	100%	1.5	3.60
Aro - Raroa	2.0	Medium/High	medium	yes		1.60		1	3.68
City - Kelburn	2.3	High/High	High	yes	yes	1.60		2	4.64
Karori west	2.2	Low/Medium	Low	yes	yes	1.60		1	4.00
Friend St	2.2	Low/Medium	Low	yes	yes	1.60			3.52
Birdwood St	1.0	Low/Medium	Low	yes	yes	1.60	100%	1	3.68
<b>Eastern Suburbs</b>	<b>13.2</b>								<b>26.88</b>
Miramar - Strathmore	1.1	Low/Low	Low			1.60		1	2.24
Seatoun	2.6	High/High	Medium			1.60		1	4.64
Seatoun - airport subway	1.6	High/High	Low			1.60		1	3.04
Miramar - airport subway	1.6	Low/Low	Low			1.60		1	3.04

Area sub-Project	Length (km)	Transition Complexity & Risk High, Medium, Low	Transform Complexity & Risk High, Medium, Low	Addition to LTP	Change draft to final BNP	Bike Lanes (\$m/km)	Complexity Premium	Major Intersections (ea)	Rough Order Cost (\$m)
Onepu Road	1.2	Low/Medium	Low	yes		1.60		3	3.36
Park Rd	1.5	Low/Medium	Medium			1.60			2.40
Newtown - Kilbirnie	2.3	N/A	High	yes		1.60		3	5.12
Coutts Street	0.8	Low/Low	Low			1.60		1	1.76
Tacy Street	0.5	Low/Low	Low	yes		1.60		1	1.28
<b>Northwest</b>	<b>19.6</b>					1.60			<b>32.52</b>
Johnsonville - Ngaio	4.6	Low/Medium	Medium			1.60		1	7.84
Cashmere - Onslow	0.9	Medium/Medium	High	yes	yes	1.60			1.44
Onslow Rd hill section	0.0	Medium/Medium	High	yes	yes	1.60	500%		-
Ngaio -Karori	5.0	Medium/Medium	Medium			1.60		3	9.44
Thorndon - Wadestown	3.5	Medium/Medium	Medium		yes	1.60			5.60
Wadestown - Northland	4.7	Medium/Medium	High		yes	1.60			7.52
Ian Galloway link	0.9	N/A	Low		yes	0.75			0.68
<b>Northeast</b>	<b>8.9</b>								<b>18.08</b>
Johnsonville - Newlands College	2.3	Low/Medium	Medium			1.60		3	5.12
Ngauranga - Newlands	1.5	Low/Medium	Medium	yes		1.60		2	3.36
Paparangi - Glenside	5.1	Low/Medium	Medium			1.60		3	9.60
<b>Ohiro</b>	<b>7.5</b>								<b>13.44</b>
Brooklyn - Happy Valley	3.2	Low/Low	Low			1.60		1	5.60
Brooklyn to Behampore	3.0	Low/Medium	Low	yes	yes	1.60		2	5.76
Happy Valley - South Coast	1.3	Low/Medium	Low			1.60			2.08
<b>Southern Bays</b>	<b>5.4</b>								<b>18.72</b>
Lyll Bay - Owhiro Bay	5.4	Medium/Medium	High			1.60	100%	3	18.72
<b>Eastern Bays</b>	<b>16.1</b>								<b>47.33</b>
Miramar - Shelly Bay	3.0	N/A	High	yes	yes	1.60	100%		9.60
Shelly Bay - Scorching Bay	3.0	Medium/Medium	High			1.60	100%		9.60

Area sub-Project	Length (km)	Transition Complexity & Risk High, Medium, Low	Transform Complexity & Risk High, Medium, Low	Addition to LTP	Change draft to final BNP	Bike Lanes (\$m/km)	Complexity Premium	Major Intersections (ea)	Rough Order Cost (\$m)
Scorching Bay - Seatoun	2.9	Medium/Medium	High			1.60	100%		9.28
Seatoun - Breaker Bay	2.0	Medium/Medium	High			1.60	100%		6.40
Breaker Bay - Moa Pt	1.6	Medium/Medium	High			1.60	30%		3.33
Moa Pt - Lyall Bay	2.1	Medium/Medium	Medium			1.60			3.36
Lyall Pde	1.5	Medium/Medium	Medium			1.60	100%	2	5.76
<b>Project sub-total</b>	<b>110.9</b>								<b>296.70</b>
Build Back Better									12.00
Minor Works									10.00
									14.92
Behaviour Change									6.70
<b>Programme total</b>									<b>350.40</b>



## Appendix 5: Cashflow by NLTP period, phase and area/activity

Area/Activity	NLTP Phase	Work Category	NLTP Period (\$)					Phase sub-total	Area total
			2021-24	2024-27	2027-30	2030-33	2033-36		
Early central city	Transition SSBC	WC452	503,900					503,900	10,078,000
	Transition Preimp	WC452	1,511,700					1,511,700	
	Transition Imp	WC452	8,062,400					8,062,400	
	Transform SSBC	WC452						-	
	Transform Preimp	WC452						-	
	Transform Imp	WC452						-	
Evans Bay	Transition SSBC	WC452						-	28,360,000
	Transition Preimp	WC452						-	
	Transition Imp	WC452						-	
	Transform SSBC	WC452						-	
	Transform Preimp	WC452	4,254,000					4,254,000	
	Transform Imp	WC452	19,732,000	4,374,000				24,106,000	
Island Bay	Transition SSBC	WC452						-	14,196,000
	Transition Preimp	WC452						-	
	Transition Imp	WC452						-	
	Transform SSBC	WC452						-	
	Transform Preimp	WC452	140,000					140,000	
	Transform Imp	WC452	6,900,000		7,156,000			14,056,000	
CBD & Newtown	Transition SSBC	WC452	65,200					65,200	1,384,000
	Transition Preimp	WC452	195,600					195,600	
	Transition Imp	WC452	1,043,200					1,043,200	
	Transform SSBC	WC452	1,458,667	234,667	648,000	426,667		2,768,000	
	Transform Preimp	WC452							
			729,333	117,333	324,000	213,333			

Area/Activity	NLTP Phase	Work Category	NLTP Period (\$)					Phase sub-total	Area total
			2021-24	2024-27	2027-30	2030-33	2033-36		
	Transform Imp	WC452	3,316,000	6,328,000	4,860,000		2,560,000	17,064,000	22,520,000
<b>Thorndon</b>	Transition SSBC	WC452	42,400					42,400	
	Transition Preimp	WC452	127,200					127,200	
	Transition Imp	WC452	678,400					678,400	
	Transform SSBC	WC452	848,000					848,000	
	Transform Preimp	WC452	424,000					424,000	
	Transform Imp	WC452		6,360,000				6,360,000	8,480,000
<b>North</b>	Transition SSBC	WC452	28,800					28,800	
	Transition Preimp	WC452	86,400					86,400	
	Transition Imp	WC452	460,800					460,800	
	Transform SSBC	WC452	2,552,000	272,000				2,824,000	
	Transform Preimp	WC452	1,276,000	136,000				1,412,000	
	Transform Imp	WC452	2,425,455	20,682,545				23,108,000	27,920,000
<b>Ngaio Gorge</b>	Transition SSBC	WC452	14,720					14,720	
	Transition Preimp	WC452	44,160					44,160	
	Transition Imp	WC452	235,520					235,520	
	Transform SSBC	WC452	468,267	801,067				1,269,333	
	Transform Preimp	WC452	234,133	400,533				634,667	
	Transform Imp	WC452	2,929,600	3,368,000	1,760,000			8,057,600	10,256,000
<b>Central - Southwest</b>	Transition SSBC	WC452	79,600	36,000				115,600	
	Transition Preimp	WC452	238,800	108,000				346,800	
	Transition Imp	WC452	1,273,600	576,000				1,849,600	
	Transform SSBC	WC452	488,000	1,192,000	1,120,000			2,800,000	
	Transform Preimp	WC452	244,000	596,000	560,000			1,400,000	
	Transform Imp	WC452	4,148,000	4,494,000	12,846,000			21,488,000	28,000,000
<b>Eastern Suburbs</b>	Transition SSBC	WC452	108,800					108,800	
	Transition Preimp	WC452	326,400					326,400	
	Transition Imp	WC452	1,740,800					1,740,800	

Area/Activity	NLTP Phase	Work Category	NLTP Period (\$)					Phase sub-total	Area total
			2021-24	2024-27	2027-30	2030-33	2033-36		
	Transform SSBC	WC452		341,333	2,517,333			2,858,667	
	Transform Preimp	WC452		170,667	1,258,667			1,429,333	
	Transform Imp	WC452			20,416,000			20,416,000	26,880,000
<b>Northwest</b>	Transition SSBC	WC452	121,600	37,600				159,200	
	Transition Preimp	WC452	364,800	112,800				477,600	
	Transition Imp	WC452	1,945,600	601,600				2,547,200	
	Transform SSBC	WC452			928,000	2,346,000		3,274,000	
	Transform Preimp	WC452			464,000	1,173,000		1,637,000	
	Transform Imp	WC452			1,917,391	19,622,609	2,880,000	24,420,000	32,515,000
<b>Northeast</b>	Transition SSBC	WC452	42,400	48,000				90,400	
	Transition Preimp	WC452	127,200	144,000				271,200	
	Transition Imp	WC452	678,400	768,000				1,446,400	
	Transform SSBC	WC452			744,000	1,064,000		1,808,000	
	Transform Preimp	WC452			372,000	532,000		904,000	
	Transform Imp	WC452				13,560,000		13,560,000	18,080,000
<b>Ohio</b>	Transition SSBC	WC452						67,200	
	Transition Preimp	WC452	38,400	28,800				201,600	
	Transition Imp	WC452	115,200	86,400				1,075,200	
	Transform SSBC	WC452	614,400	460,800					
	Transform Preimp	WC452				1,344,000		1,344,000	
	Transform Imp	WC452				672,000		672,000	
	Transform Imp	WC452				10,080,000		10,080,000	13,440,000
<b>Southern Bays</b>	Transition SSBC	WC452		93,600				93,600	
	Transition Preimp	WC452		280,800				280,800	
	Transition Imp	WC452		1,497,600				1,497,600	
	Transform SSBC	WC452				1,872,000		1,872,000	
	Transform Preimp	WC452				936,000		936,000	
	Transform Imp	WC452				6,760,000	7,280,000	14,040,000	18,720,000

Area/Activity	NLTP Phase	Work Category	NLTP Period (\$)					Phase sub-total	Area total
			2021-24	2024-27	2027-30	2030-33	2033-36		
<b>Eastern Bays</b>	Transition SSBC	WC452		188,640				188,640	47,328,000
	Transition Preimp	WC452		565,920				565,920	
	Transition Imp	WC452		3,018,240				3,018,240	
	Transform SSBC	WC452	1,280,000				3,772,800	5,052,800	
	Transform Preimp	WC452	640,000				1,886,400	2,526,400	
	Transform Imp	WC452	3,584,000	4,096,000			28,296,000	35,976,000	
<b>Transition top up</b>	Transition Imp	WC452	5,302,000	9,620,000				14,922,000	14,922,000
<b>Build Back Better Minor Works</b>	Imp	WC341	6,000,000	6,000,000					12,000,000
	Imp	WC341	3,000,000	3,000,000	3,000,000	1,000,000			10,000,000
<b>Behaviour Change</b>	Imp	WC421	1,692,066	1,624,739	1,217,828	1,225,632	939,904		6,700,169
<b>Programme Total</b>								<b>350,395,168</b>	

# Appendix 6: Risk Register

Risk Description	Risk Cause(s)	Risk Consequence(s)	Current Risk Likelihood	Current Risk Consequence	Consequence Category	Current Controlled Risk Level	Planned Risk Treatment Actions	Residual (Target) Risk Likelihood	Residual (Target) Risk Consequence	Residual (Target) Risk Level
A lack of social licence for the programme compromises programme delivery.	Public confidence in the BNP package is undermined due to 'bikelash' from reallocating road space, especially from extensive removal of kerbside parking.	Projects are delayed by engagement or are unable to progress due to lack of buy-in to the solutions by the public and stakeholders.	Likely	Severe	Public/ Media	Critical	Comms and engagement to proactively engage with the public on the purpose of BNP and its outcomes. Utilise the Transition Delivery team to get significant sections of the network in place quickly, to demonstrate the benefits of the network.	Possible	Severe	High
BNP activities are not integrated with other WCC/LGWM/Utility providers improvements.	The package does not engage with infrastructure partners to understand their improvement programmes and outcomes to seek win-win value opportunities.	Potential rework and additional cost in remedying projects or integrating projects at a late stage with suboptimal outcomes.	Likely	Severe	Delivery	Critical	Liaise closely with stakeholders and partners on respective plans as projects progress. Utilise the forward works viewer to optimise scheduling for BNP projects.	Possible	Moderate	Medium
Project partners (WCC/WK) confidence in delivery of BNP is undermined through slow delivery.	Traditionally the delivery of cycling projects has been slower than expected.	If partners continue to perceive delivery as slow or poorly aligned to their organisational goals, they could choose to invest in other activities, thereby undermining the benefits anticipated from the BNP.	Likely	Moderate	Stakeholders	High	Establish a realistically resourced BNP package team and baseline programme and engage with partners on a regular basis on progress. Utilise the Transitional Delivery team to get significant sections of the network in place quickly to gain partner confidence.	Likely	Moderate	High

Risk Description	Risk Cause(s)	Risk Consequence(s)	Current Risk Likelihood	Current Risk Consequence	Consequence Category	Current Controlled Risk Level	Planned Risk Treatment Actions	Residual (Target) Risk Likelihood	Residual (Target) Risk Consequence	Residual (Target) Risk Level
Desired levels of service from BNP components may exceed what was envisaged by the IBC and allowed for in the indicative budget.	Council and stakeholder expectations of high quality for all investments raised as a result of other high-profile projects such as Evans Bay and Cobham Drive.	Undermined social licence if expectations not managed and/or project costs escalate in response to expanded scope either reducing the programme overall or increasing total programme costs.	Likely	Moderate	Cost	High	Ongoing communication with stakeholders and partners on the key assumptions underlining the BNP package and risks of scope creep. The scope of the SSBCs/SSBC-lites will be transparent about the LoS assumptions underpinning the IBC and expectations around moderate solutions up front.	Possible	Moderate	Medium
Upon commencing SSBCs/SSBC-lites, the envisaged improvements cannot be fitted into the road reserve.	No physical design has been undertaken as part of the prioritising of corridors for the IBC. Indicative assumptions about modal improvements have been made which might not be feasible when investigated at the next phase.	There may need to be level of service compromises or modal priority decisions taken which could delay projects or reduce the outcomes realised.	Likely	Moderate	Delivery	High	Projects will be guided by the Network Operating Framework and One Network Framework tools when resolving modal priorities. The SSBC scoping process will aim to consider this risk in setting out its requirements.	Likely	Minor	Medium
Slower than desired delivery of the BNP programme due to internal and external industry resource constraints.	There are existing pressures on the industry making it difficult to compete on attracting the right level of capability and skill both within the programme and professional services market.	Under resourced programme or consultancy team could lead to delay, churn and rework undermining the BNP package and partner/stakeholder confidence.	Likely	Moderate	Delivery	High	Commence WCC project team recruitment early. Develop a procurement strategy which takes cognisance of market pressures, amongst other considerations, to minimise the risk. Transition Programme utilising capacity available in the LGWM City Streets supplier panel.	Possible	Moderate	Medium

Risk Description	Risk Cause(s)	Risk Consequence(s)	Current Risk Likelihood	Current Risk Consequence	Consequence Category	Current Controlled Risk Level	Planned Risk Treatment Actions	Residual (Target) Risk Likelihood	Residual (Target) Risk Consequence	Residual (Target) Risk Level
Project level consultation on the BNP programme (alongside LGWM consultation) could be confusing and inconsistent to stakeholders and the public.	With a number of projects ongoing both in the LGWM programme and across partner organisations the public/stakeholders could become confused reducing the impact of key messaging.	BNP projects could be delayed due to the need to re-engage with the public/stakeholders to ensure messaging gets through and appropriate levels of involvement have occurred.	Likely	Moderate	Public/ Media	High	Comms and engagement managed to ensure it works alongside and is consistent with the LGWM comms and engagement strategy.	Possible	Moderate	Medium
Indicative solutions in IBC significantly under scoped when investigated during SSBC phase meaning IBC costs unrealistic.	The IBC has used a desk based 'sample' solution approach rather than detailed investigation of solutions with 'typical' unit costs.	The cost of projects is significantly underestimated leading to reduced scope or increased cost of the BNP projects.	Possible	Severe	Delivery	High	Significant contingency allowed for at the project and package level within the IBC.	Possible	Moderate	Medium
Changing Council priorities impact the timing and sequencing of delivery, undermining delivery of the optimal programme.	Issues of the day become a focus due to stakeholder / public pressures.	Regular sequencing reviews of the BNP package could undermine the optimal delivery of the programme costing money and time and reducing package outcomes.	Likely	Moderate	Delivery	High	It is expected that WCC Councillors will adopt the BNP in March 2022 including locking in the programme for delivery. Financial affordability will always be subject to annual review processes. By utilising the Transition programme approach, it is expected to demonstrate the benefits of the programme quickly to ensure ongoing support for the programme and to reduce the likelihood of unforeseen changes.	Possible	Moderate	Medium
SSBCs/SSBC-lites take longer than anticipated delaying delivery.	Projects become over scoped, or scope changes occur mid-business case or supplier capability is insufficient for the job at hand.	Delay and/or cost and/or sub-optimal business cases with additional risk passed to the pre-implementation phases.	Likely	Moderate	Delivery	High	Well scoped SSBCs with buy-in of partners locked in at the start. Clear change processes defined within the programme. Procurement focussed on quality of consulting teams.	Possible	Minor	Medium

Risk Description	Risk Cause(s)	Risk Consequence(s)	Current Risk Likelihood	Current Risk Consequence	Consequence Category	Current Controlled Risk Level	Planned Risk Treatment Actions	Residual (Target) Risk Likelihood	Residual (Target) Risk Consequence	Residual (Target) Risk Level
BNP enhancements need to go through a traffic resolution process. Individual projects may not be approved.	The Committee considers that the benefits of the traffic changes don't outweigh any perceived community disruption.	BNP projects are not implemented or implemented in the form proposed in the BNP.	Possible	Severe	Delivery	High	Early and regular engagement with Councillors on the scope of BNP projects. Adoption of the BNP by WCC included approval to a Programme level traffic resolution. Utilise the Transition programme (innovating streets) approach to demonstrate network benefits and provide an evidence base to reduce the perceived community disruption.	Unlikely	Moderate	Medium
Delayed delivery of LGWM will reduce uptake on WCC BNP projects.	BNP improvements are closely integrated with the LGWM Golden Mile, Hutt Road/Thorndon Quay and City Streets delivery to complete the network and maximise uptake. Most commuting routes are relying on the city end of the route to be delivered by LGWM.	The outcomes of BNP, Golden Mile and City Streets are undermined through lack of integration.	Possible	Severe	Delivery	High	WCC to work closely with the overarching LGWM programme integration team to align components and provide guidance and direction as necessary. Utilise the Transitional approach to establish a higher level of service option in the corridor before the Transformation projects will enable riders from new WCC BNP areas to complete their journeys.	Possible	Moderate	Medium



# Appendix 7: Methodology and Key Assumptions Used for the Benefits and CO<sub>2</sub> Assessments

## Introduction

The benefits and CO<sub>2</sub> assessments of the Bike Network Plan were predicted using the Wellington Bike Network Model. This model provides a high-level view of the uplift in cycling volumes and benefits that result from changes in Wellington City's bike network. The model responds only to infrastructure and population changes.

## Benefits Definitions

### User Benefits

Cycle user benefits are the benefits that both new and existing users derive from a more enjoyable journey. The user benefits that result from a project are calculated as the change in consumer surplus between the option case and do-minimum case.

Cycle user benefits are estimated using a 'logsum' measure of consumer surplus from improved facilities, of which the measure is derived from the random utility model used in forecasting. Logsum consumer surplus measures are increasingly commonly used in transport economics. A person's consumer surplus is the utility, stated in monetary terms, that they derive in a given choice situation. Each person is assumed to choose the alternative that delivers them the greatest utility.

### Health Benefits

Health benefits from increasing cycling activity are estimated based on *Monetised Benefits and Costs Manual* (MBCM) procedures. The total uplift in cycle kilometres is multiplied by the MBCM parameter for per-kilometre health benefits of cycling. Health benefits are calculated on a network-wide basis, rather than only for specific cycle facilities. This reflects the fact that cycle facilities often enable or encourage trips on the wider network, and health benefits are accrued across an entire journey.

### Greenhouse Gas Emission Reductions

The greenhouse gas emission reductions are calculated by first multiplying the model's prediction of the average annual cycle distance (km) resulting from changes to the base bike network by an estimated diversion rate from cars to cycling. This reduction in car km is then multiplied by a CO<sub>2</sub> emission factor for road traffic to estimate a reduction in annual greenhouse gas emissions (tonnes CO<sub>2</sub>), which in turn is multiplied by an estimated cycle volume growth factor over the modelled project evaluation period.

## Modelling Assumptions and Methodology Overview

The Bike Network Plan has been modelled using the following parameters, with the discount rates in alignment with MBCM guidance.

## Model Parameters

Valuation assumptions	Central	Lower bound	Upper bound
Discount rate	4%	6%	3%
Evaluation period (years)	40	40	40
Construction start year	2022	2022	2022
Start year for benefits	2023	2023	2023
End year for benefits	2100	2100	2100
Construction cost sensitivity	P50	P50	P50
Baseline demand growth (average annual growth)	2.1%	0.6%	3.0%
User benefit calculation approach	MBCM params	MBCM params	Logsum
Crash reduction assumption <sup>a</sup>	10%	0%	30%
Diversion rate from car to cycling <sup>b</sup>	50%	20%	75%
Calibration of opt out utility	exactly calibrated	exactly calibrated	exactly calibrated

<sup>a</sup> The 10% Central scenario is from the [Crash Estimation Compendium](#), Table 37, Treatment: On-road cycle lanes, Sub type: Standard, Crash Reduction Factor. The Lower bound and Upper bound assumptions are conservative estimates. The listed crash reduction assumption is applied for each type of crash (Fatal, Serious Injury Crash, Minor Injury Crash) in each modelled scenario.

<sup>b</sup> The diversion rates are estimates based on guidance from Tables 41 and 85 in [MBCM v1.5](#).

The following is a parameter used in the greenhouse gas emission reductions calculations.

CO <sub>2</sub> emission factors for road traffic
212.2 g/km <sup>c</sup>

<sup>c</sup> The CO<sub>2</sub> emission factor is from Table 14 of this [report](#).

The Wellington City Council portion of the Bike Network Plan was modelled using the parameters shown in the tables above, both for the entire WCC network as well as the WCC network based on the nine areas as specified in the Bike Network Plan.

A 2% increase has been added to the estimated costs for each area of the WCC network to allow for non-infrastructure activities like behaviour change and mode-shift promotion.

The Crash Analysis System parameters used in the Bike Network Plan modelling are as follows:

Variable	Value
Years	2012 to 2021
TLA	Wellington City
Vehicle Type	Cycle
Crash severity	All except Non-Injury Crash
On state highway	No
Urban or open speed zone	Urban



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