

Wellington City Council

Cycle Network Development Programme Business Case

February 2016

Executive Summary

Introduction

The Wellington Cycle Network Programme Business Case outlines the need for investment in cycling infrastructure, education and promotion to improve the current levels of cycling in a safe and efficient environment. Enhancements and additions to the cycling network are critical to improving the overall transport network for the city and will need to be supported by a thorough promotion and education programme to maximise the outcomes of the investment.

The Wellington Cycle Network will contribute directly to the government's land transport objectives in relation to economic growth and productivity, safety, environmental mitigation and the provision of transport choice. Cycling is a low-carbon emission, healthy and sustainable mode of transport, ideal for short to medium distance trips which will also increase the resilience of the city's transport network. Investment in the proposed cycle network improvements and associated activities are aimed to:

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

Urban Cycleways Fund and Programme

Over the next three years there is a unique opportunity to maximise co-investment with central government through the National Land Transport Fund (NLTF) and Urban Cycleway Fund administered by the New Zealand Transport Agency.

The Urban Cycleways Programme announced in 2014 by the Prime Minister, is \$100 million additional funding for the Urban Cycleways Programme. The funding aims to accelerate completion of urban cycle networks and supports a step-change in cycling participation. It prioritises investment in key projects that will accelerate the completion of connected urban networks, leverages greater investment in cycling, and aims to achieve the most value and improve safety for all cyclists.

The Urban Cycleways Funding builds on the significant investments already being made in cycling. With significant additional funding available for cycling, councils are able to increase investment in cycling taking the opportunity to accelerate and deliver sooner on existing local and regional cycling initiatives.

The Programme options have been established around utilising the Urban Cycleway Programme funding source over the next three years. The short term focus is 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.

Three geographical catchments (packages) in Wellington are included in the Urban Cycleway Programme and are shown in Figure 1 below. These are aimed at accelerating cycling infrastructure and improving Levels of Service within the eastern and CBD catchments in Wellington City, as well as on the route between Lower Hutt and the Wellington CBD.

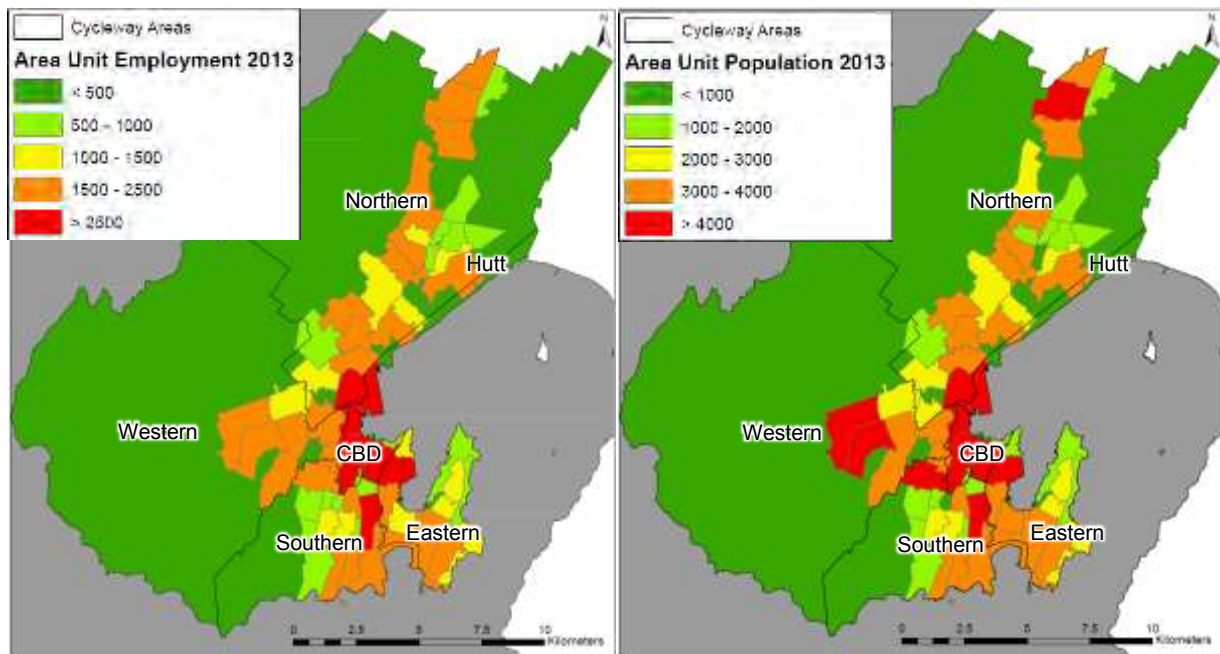


Figure 1 Distribution of Employment and Population in Wellington City

Programme Need and Justification

Wellington City has 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 choice are required between Porirua and Hutt Valley and the central city is required for visitors, tourists, residents and workers. The transport network is currently over capacity during peak periods with high levels of congestion throughout the city. It is important to improve the quality of mode choices to increase the number of people who bike and therefore help contribute towards creating an efficient transport network.

The Strategic Case for investment in Wellington’s cycling network was recently supported by the New Zealand Transport Agency. As part of the Strategic Case’s development an Investment Logic Mapping (ILM) exercise was undertaken in February 2015 with councillors, council officers and stakeholders. This process identified three key problems:

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 ILM process also identified three benefits of investments:

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.

A Master Plan was developed concurrently with this Programme Business Case to support the development of the programme options and to identify the scope, scale and type of interventions that could be developed into an investment programme. The Master Plan – the community facing document – will be progressively updated as the case for investment in cycling is developed through the indicative and detailed business case phases. The Master Plan was endorsed at the September 2015 Transport and Urban Development committee meeting.

Through the development of the Master Plan and Programme Business Case, 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.

Due to Wellington's topography and geographical structure six geographical and catchment areas (north, south, east, west, CBD and Wellington Hutt corridor) were identified and used as the basis for understanding the current and potential demand for cyclists. A need to develop a hierarchy of routes (primary, secondary and tertiary) was agreed with councillors and stakeholders with this occurring in the subsequent stages of the network's development.

Programme Options

This Programme Business Case identified a broad range of interventions including policy, education and infrastructure improvements developed through a catchment and corridor (within catchment area) based approach. The programme options were developed in collaboration with the project working group and evaluated in a specific workshop on 21 August 2015 involving a group of council's elected members, technical officers and New Zealand Transport Agency representatives. This group was also briefed on August 7 and August 19, 2015.

In total, a long list of 11 programme options were initially assessed, with an additional option (Option 3E) identified and evaluated as part of the workshop process. The programme options were made up of different investment scenarios involving the six geographic catchments, different timeframes and in combination with 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'¹.

Due to the various programme elements, there are a large number of potential programme options ranging from a Do-minimum approach (Option 1) to a very high level of investment in new and improved cycling infrastructure (Option 8). Several permutations relating to staging, timing and funding sources are also possible.

Ultimately, the long list of options summarised in Table 1 below were deemed suitable for assessment by the working group and provided sufficient information and variance to adequately assess the options against the assessment criteria. The indicative total cost is provided for the full programme to approximately 2036. The indicative cost for the programme has been estimated due to the estimated 21 year timeframe to deliver the whole cycle network in the Wellington City Council (The Council) area.

Table 1: Programme option summary

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
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

¹ 'Cycle central' is a one stop shop concept which provides bike parking, servicing, repair stations and trip end facilities such as changing rooms, showers and storage lockers.

Note - An important consideration is whether the programme, and hence its benefits, can be delivered in a shorter timeframe and councillors were favourably disposed to a 9 or 12 year programme. This would depend on future LTP and NLTP funding decisions.

Programme Option Assessment

The assessment methodology involved two elements. Firstly, the programme options were assessed against the five agreed investment objectives:

1. Achieve a high Level of Service for cyclists within an integrated transport network.
2. Improve cycling infrastructure and facilities so that cycling makes a much greater contribution to network efficiency, effectiveness and resilience.
3. Cycling is a viable and attractive transport choice.
4. The crash rate, number, and severity of crashes involving people on bikes are reduced.
5. Provide transport choices by increasing the opportunity for people to ride bikes so as to improve the sustainability, liveability and attractiveness of Wellington.

Assessment criteria ratings were applied to the programme options as per Table 2 below.

Table 2 Criteria ratings

Impact	Score
Does not meet investment objectives	X
Partially meets objectives	✓
Meets objectives	✓✓
Exceeds objectives	✓✓✓

Secondly, the programme options were assessed against the three New Zealand Transport Agency investment criteria which include:

Criteria 1: Strategic fit of the problem, issue or opportunity that is being addressed.

Criteria 2: Effectiveness of the proposed solution.

Criteria 3: Benefit and cost appraisal.

In accordance with New Zealand Transport Agency procedures, each of these criteria has been rated as H: high, M: medium or L: low to provide an overall assessment profile. Being at the programme level, these ratings are indicative only and will need to be confirmed in future business case phases.

Table 3 summarises the overall results of the long list option assessment with further commentary on the overall conclusions provided below.

In short, four out of the 12 programme options are recommended for short-listing including Options 1, 3C, 3E and 4. The descriptions of each programme option are listed above in Table 1.

Table 3 Programme evaluation summary

Investment objectives	Programme option											
	1	2	3A	3B	3C	3D	3E	4	5	6	7	8
1. Level of service	X	✓	✓✓	✓	✓✓	✓	✓✓	✓✓	✓✓	✓	X	✓✓✓
2. Network efficiency	X	✓	✓	✓	✓✓	✓	✓✓	✓✓	✓✓	✓	✓	✓✓
3. Cycle uptake	✓	✓✓	✓	✓	✓✓	✓	✓✓	✓✓	✓✓	✓	✓	✓✓
4. Cycle safety	✓	✓✓	✓	✓	✓✓	✓	✓✓	✓✓	✓✓	✓	✓	✓✓
5. Wellington city	X	✓	✓✓	✓	✓✓	✓	✓✓	✓✓	✓✓	✓	✓	✓✓
New Zealand Transport Agency criteria												
Strategic fit	L	M	M	M	H	L	H	H	H	M	M	L
Effectiveness	L	L	M	M	M	L	H	H	L	L	L	L
Benefit and Cost Appraisal	H ²	L	L	L	L	L	L	L	L	L	L	L
Recommended for short-listing	Yes	No	No	No	Yes	No	Yes	Yes	No	No	No	No

Long-List Discussion and Short-List Options

The best performing programme options (3C, 4 and 5), were discussed in further detail at the programme option assessment workshop as well as elements of some of the other options including an equitable approach to corridor planning and non-infrastructure approaches to improving safety and increasing cycling participation. The discussion was robust and covered a number of wide-ranging topics, the most critical to the evaluation of the options were:

- The ability of the option to achieve short term improvements in the uptake of cycling as well as addressing safety and convenience issues;
- The ability of improved or new infrastructure along transport corridors to increase rates of cycling as well as reduce safety and inconvenience perceptions;
- Likelihood the option would result in the development of the network in the shortest period of time; and
- Ability to justify increased investment in the medium term due to demonstrated economic and efficiency benefits.

As a result of this discussion the short Listed Options were confirmed as being:

- Option 1 – Do Minimum;
- Option 3C – Level of Service gaps and deficiencies prioritisation approach;
- Option 3E – Weighted Prioritisation, this option was developed in the workshop process; and
- Option 4 – Accelerated Delivery.

Recommended Programme

The Wellington City Council Transport and Urban Development Committee has endorsed Option 3E as the preferred option for further business case phases; this is a weighted prioritisation approach applying the principles of the business case approach to demonstrate a case for investment. This

² Assumed high Benefit and Cost Appraisal to reflect Minor Safety programme elements

option aligns with the principles of the Urban Cycle Programme as it aims to identify and implement infrastructure and activities to increase cycling participation along high priority transport corridors and cycling as a more attractive transport mode. This option will address current Level of Service gaps and deficiencies along these corridors, whilst it will not provide all of the planned infrastructure along these corridors it is expected that the investment during the three year period of the Urban Cycle Programme the improvements will be considerable. This option allows for the ability to provide infrastructure from year four to the other three catchments and geographical areas.

The recommended programme was preferred over the other shortlisted options for the following reasons:

- Option 1 does not provide sufficient investment to increase cycling rates to sufficient levels or improve safety for people on bikes;
- Option 3C will address Level of Service issues but will result in investments not being focused on the main catchment areas and therefore increasing participation levels as per the objective of the Urban Cycle Programme; and
- Option 4 is recommended if additional funding sources are available either from Wellington City Council or a similar programme to Urban Cycle Programme is available, however at this time this is not available.

The cycle network for Wellington is expected to be completed over the next two decades, possibly sooner if increased funding sources can be identified. The network will consist of primary, secondary and tertiary routes as well as shared road space and is likely to result in over 200 kilometres of network. This investment will also include education and other supporting infrastructure to encourage people of all ages and abilities to get on their bikes as a form of commuting and recreating.

It was agreed that if additional funding sources could be obtained for the programme from Year 4 onwards we would then seek to amend the city's Long Term Plan to match to additional funding available, as accelerating delivery of the benefits of the cycle network programme was seen as highly desirable. The weighted approach offers an outcome based programme that combines the most advantageous aspects of options 3A, 3B and 3C in order to best meet the investment objectives, resolve the stated problems and achieve the identified benefits.

Prioritisation of investment in cycling infrastructure will be based on the following three aspects:

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.

Strategic routes that target the corridors with the highest forecast demand, and the highest level of service gaps and deficiencies will be identified for each package/area within the Wellington city programme. The routes and gaps will then be evaluated using a Multi-Criteria Analysis that assesses them against the investment objectives and the other following factors: feasibility, affordability, public/stakeholder acceptability, safety, economy, environmental and social.

The recent commencement of the Island Bay cycleway was undertaken as a demonstration project which is part of the planned cycle network. Whilst the planning for the cycleway have been challenging the project is increasingly supported by the community. Wellington City Council has improved its understanding and planning capabilities in the successful delivery of the Urban Cycleway packages and the whole cycle network. The council including officers and councillors have a vastly improved understanding of the needs of cyclists and other transport users as a result of the Island Bay project and the current planning for implementing the Urban Cycle Programme for Wellington.

The package options will also consider the wider programme elements:

- Promotion and education, to improve driver behaviour, safety and increasing cycling across all ages and abilities;
- Other initiatives, such as speed reductions in town centres, CBD and areas which can improve movement for pedestrians as well as cyclists;
- Ability to undertake minor works (approximately \$1 million per annum) to improve safety issues across the whole network; and
- Wrap around investments or policy changes, e.g. new buildings are to have appropriate end of trip facilities, cycle parking in town centres or CBD locations, and cycle hire schemes.

The weighted prioritisation approach will be developed further in the early stages of the Indicative Business Case phase, and subsequently refined in the development of the Detailed Business Case process, to the requirements of the funding parties. Below is a potential application of the prioritisation approach based on the three aspects described above and to be confirmed at the commencement of the Indicative Business Case stage).

Table 4- Wellington Cycle Network – Potential Investment Prioritisation

Category	When (for UCP)	What	Prioritisation Aspects
Corridor Prioritisation	November 2015 Prior to or at the commencement of the Indicative Business Case	Programme level assessment	Strategic Route, Equity, Level of Service
Route Selection	Early 2015 Indicative Business Case	Catchment area assessment	Strategic Route, Level of Service
Programming Prioritisation	Mid to Late 2016 Detailed Business Case	Time and achievability	Strategic Route, Level of Service and assessments of achievability and sequencing with other works

Figure 2 provides a high level overview of the programme planning and implementation timeline for the initial three years to deliver on the requirements of the Urban Cycle Programme.

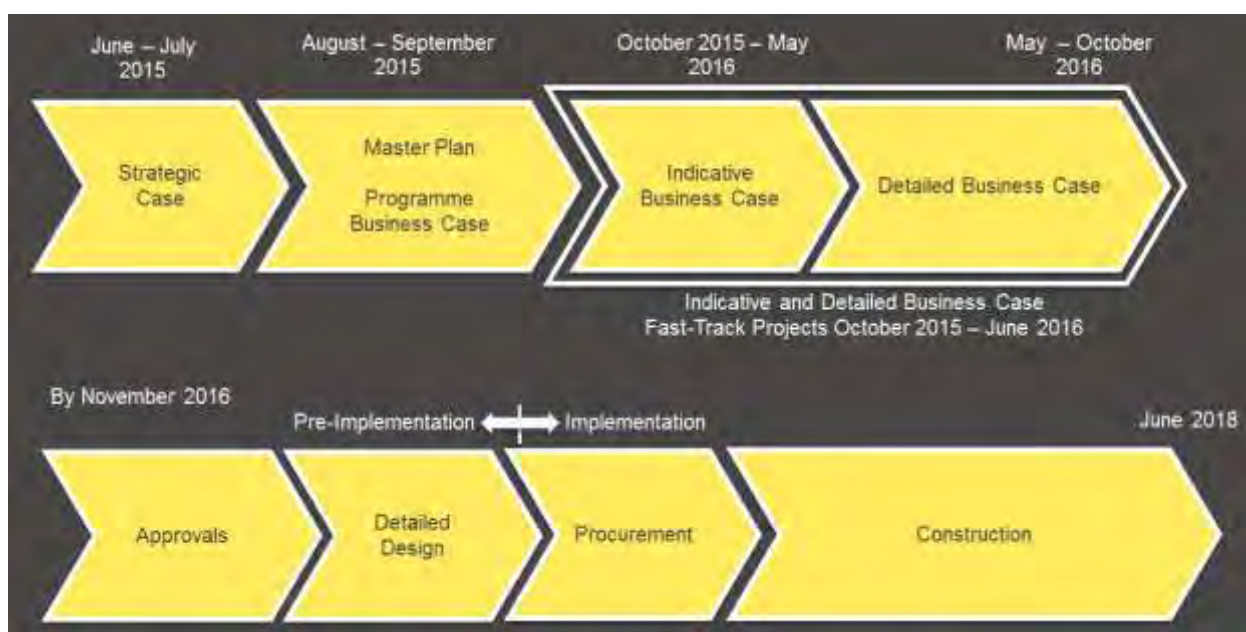


Figure 2 Programme plan for years 1 to 3

Programme Cash Flow

The indicative programme cash flow is shown in Table 5 below. This cash flow is indicative and is to be confirmed with the New Zealand Transport Agency during the subsequent Indicative and Detailed Business Cases.

Table 5 Indicative Programme Cash Flow

Year Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Financial Year	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36
Hutt - Ngauranga to Wellington CBD	1	1.5	5																		
City Centre	1	2	7.3																		
Eastern	0.5	1	3.3	1	2	2	1	2	2	2	2	2	1	1	2	2	1	2	2	2	2
Western			0.5																		
Southern	1.5		0.5																		
Northern			0.5																		
Minor Safety Works	1.5	1.5	1.745	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.5	1.5	1.5	1.5	1.7	1.7	1.7	1.7	1.7	1.7	1.7
End of trip and parking facilities	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.4	0.4	0.4
Promotion and Education	0.8	1	2	0.1	0.1	0.15	0.2	0.2	0.2	0.2	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.3	0.35	0.4	0.4
Annual Total	6.5	7.2	21.05	2.5	3.5	3.55	2.6	3.6	3.6	3.6	3.95	3.95	2.95	2.95	4.25	4.25	3.25	4.3	4.45	4.5	4.5
Cumulative Cash Flow		13.7	34.75	37.25	40.75	44.3	46.9	50.5	54.1	57.7	61.65	65.6	68.55	71.5	75.75	80	83.25	87.55	92	96.5	101

Proposed Funding Arrangements

The funding arrangements for the recommended programme are outlined in Table 6 below.

Table 6 Proposed funding arrangements

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

Risks

There are a number of risks to this programme of works that are being assessed with the individual programme elements. These risks will need to continue to be managed and assessed during subsequent business case stages. The key programme risks are shown in Table 7.

Table 7 Summary of Identified Key Risks

Risk	Description	Treatment Strategy
Technical		
Threat – Cycleway at bus stops	Bus patrons will need to cross the cycleway in order to get on the bus, which could create problematic interfaces, resulting in user injury and reputational damage.	Ensure consistency across network. Use best practice designs. Prepare training/safety materials prior to 'go live' date.

Operational		
Threat – Lack of business case resources	Inadequate available resources results in failure to deliver the large programme of works within a short timeframe, causing late deliverables, late completion, cost overruns, and inability to secure Urban Cycleway Programme funding.	<p>Revision of procurement strategy to allow expedited procurement is in progress; to be agreed with NZTA.</p> <p>WCC discussing with NZTA around procurement.</p> <p>Governance arrangements to be finalised.</p> <p>Programme management by WCC Programme Team (currently being established).</p>
Threat – Lack of agreement at Wellington City Council on cycleway routes	Differing viewpoints on the best option to proceed with in sections of the city may cause elected Wellington City Council members to not be able to reach agreement on preferred options or individual routes, resulting in delay to the approval process and delay to the Detailed Business Case phase.	<p>Working Groups to be established in each area. Prepare high-quality briefing material for the Working Group.</p> <p>Ensure good communications to manage queries received from Working Groups.</p> <p>Fall-back options developed if original option does not proceed.</p>
Threat – Wellington City Council political risk	A change in council direction following local elections will create political influence changes to the programme resulting in programme delay.	<p>Establish Working Groups as liaison between project team and WCC.</p> <p>Provide robust information to public and candidates during the election campaign.</p> <p>Frequent workshops.</p> <p>Briefing paper for new council members November 2016.</p> <p>Robust Programme Business Case and masterplan.</p>
Financial		
Threat – Business cases are not sufficiently developed to obtain Transport Agency funding in time	Quality of business case deliverables and, results in delays to approvals and failure to fully utilise Urban Cycleway Programme funding in the three year time limit.	<p>Build sufficient ‘float’ into programme.</p> <p>Steering Group meetings with NZTA.</p> <p>Ensure sufficient resources applied. Build Agency confidence through early engagement and quality of deliverables.</p> <p>Commence work on some routes (Hutt Rd) prior to funding approval being received.</p>

Stakeholder/Public		
Threat – Delay to statutory approvals (traffic resolution)	As the scope of physical works has not been determined and key planning approval constraints have not been identified, this could cause planning approvals for physical works, especially traffic resolutions, and parking issues to significantly delay construction, resulting in delays to the programme.	Build traffic resolution approval timeframes into the programme, with 'float' to allow for any unknowns. Identify champions. Manage political process; test requirements with Working Groups / WCC to assess appetite for proposed changes.
Threat – Pressure from negative publicity	Residents, drivers or pedestrians express negative views of the projects, causing changes in design or the works programme, resulting in a change in direction of the project in order to address negative comments.	Prepare public consultation and communications plans. Establish working groups. Engagement with champions. Good data collection to inform public. Streamline delivery to get network in place ASAP.
Threat – Large changes to on-street parking	Cycleways will reduce availability of on-street parking, creating negative publicity, resulting in public opposition and pressure on elected members.	Detailed graphs to illustrate existing parking levels, and expected parking levels following construction. Construction of community car parking may occur if parking impact is particularly high. Parking management techniques (pricing, time of day, restrictions) to maintain appropriate occupancy levels.
Environmental and social responsibility		
No Extreme risks were identified for this category.		
Design (Safety)		
Threat – Cycleways do not meet safety Level of Service	Poor driving or design issues could cause a motorist to hit a cyclist using the cycleway, resulting in cyclist injury, public reaction and reputational damage.	Follow recommended design guidelines for target LOS and reduce potential for compromises during the design process Improve communication and education to reduce safety perception issues.
Economy		
No Extreme risks were identified for this category.		

Next Steps / Recommendations

Critical to the success of the programme will be the planning, consultation and coordination of the consenting approach to reduce risk from a lack of community support or delays in the consenting process.

In addition to the abovementioned programme partners, there are a large number of stakeholders who are to be consulted throughout the programme and involved at various stages of planning and development of projects within the programme. These stakeholders include community groups, utilities, transport providers, and other representative bodies.

It is recommended that the following activities are undertaken to continue the progression of the project and collaborative approach by the programme partners to date.

1. 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.
2. 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.
3. Further development of the Master Plan.
4. Commence preparation of the Indicative Business cases for the northern, southern and western catchments in 2017/18.

Indicative Business Case Scope

It is proposed that there be three Indicative Business Cases commenced in October 2015 to support the three package areas identified for the Urban Cycleway Programme. In addition there are to be a number of common activities and actions that need to be undertaken for the preparation of these and to assist in the delivery of the subsequent stages of the programme. It is expected that the Indicative Business Cases will cost between \$150,000 and \$300,000 depending on the level of design and economic analysis required prior to progress to the Detailed Business Cases.

There are also opportunities to identify packages of works that can be undertaken earlier to reduce the potential issues associated with undertaking a large amount of construction in the final 12 months of the 3 year investment programme.

Figure 3 also illustrates the timeframe and interdependencies that will need to be considered and managed for the successful delivery of the programme.

Wellington Cycle Network – Urban Cycleways Programme

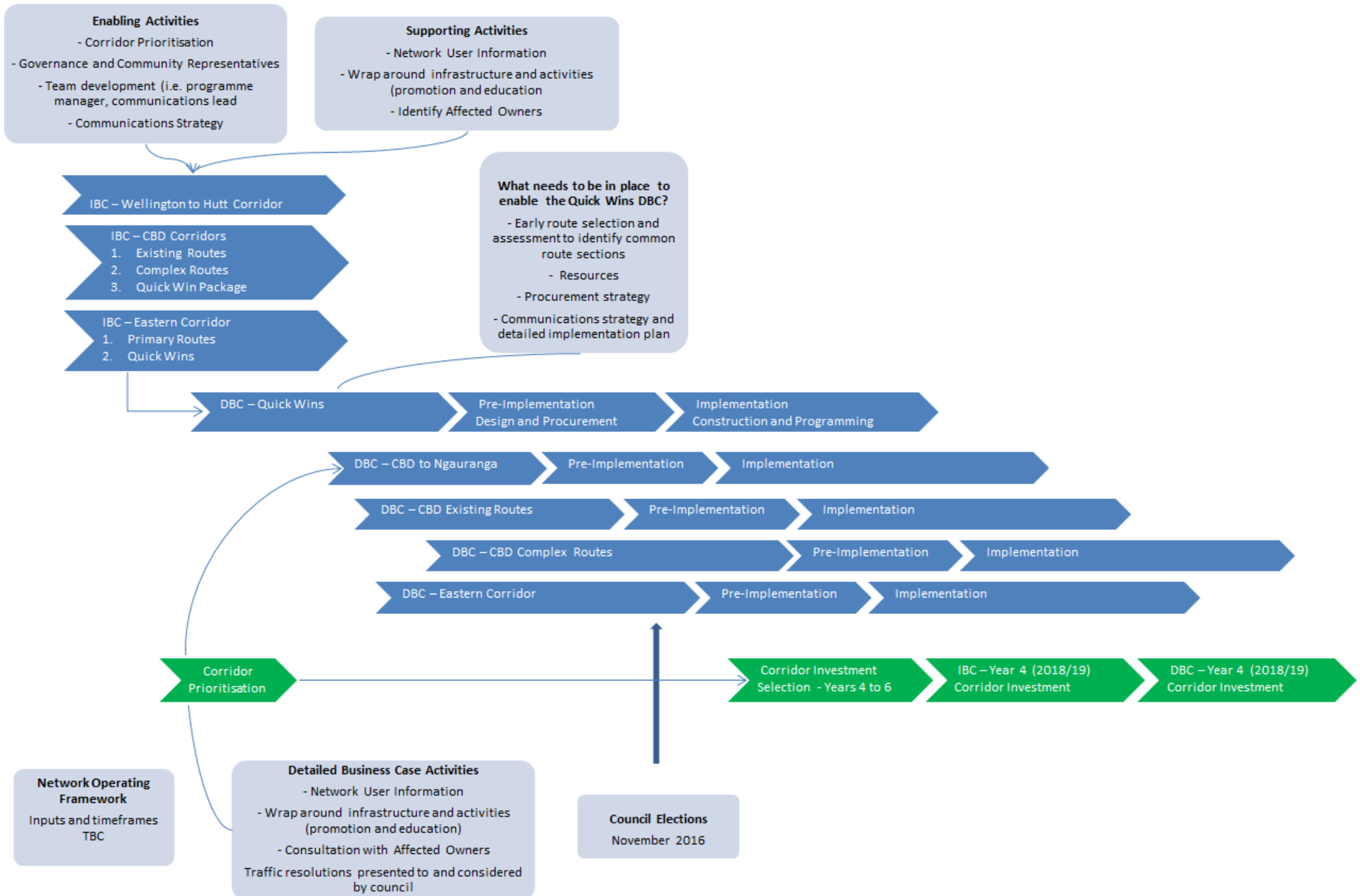


Figure 3 Overview of delivery process and supporting/enabling components

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Part A – The Strategic Case

1. Introduction

This assessment outlines the strategic context for the investment proposal and the case for change. It seeks approval to develop a proposal for investment in cycling infrastructure, education and promotion to improve the current levels of cycling in a safe and efficient environment in Wellington City. This Programme Business Case report for the Wellington Cycle Network infrastructure programme supports the strategic case for taking this investment into an indicative business case process.

Over the next three years there is a unique opportunity for Wellington City Council (The Council) to maximise co-investment with central government through the National Land Transport Fund (NLTF) and Urban Cycleway Fund administered by the New Zealand Transport Agency. As such, this programme has been developed in collaboration between The Council and the New Zealand Transport Agency.

This Programme Business Case assessment:

- Outlines the strategic context and fit for the proposed investment;
- Reconfirms the key problems identified in the strategic case;
- Identifies programmes of strategic interventions to address the problems and deliver on the benefits;
- Determines timeframes, potential benefit realisation returns, costs, risks and dis-benefits;
- Confirms the strategic fit and indicative efficiency and benefit cost appraisal; and
- Recommends a programme of activities and a way forward for further development of the investment proposal.

2. Programme Context

2.1 Geographic and Environmental Context

As the second largest city and capital of New Zealand, Wellington City has a strong business and commercial hub. A considerable portion of the volume of people cycling in Wellington City is generated by people commuting to work. This demonstrates the need for providing effective connections between residential areas where high demand occurs, and the CBD where the majority of workplaces are situated.

The existing connections between residential catchments and the CBD are generally restricted to several main urban corridors. These corridors act as capacity constraints on the network, adversely affecting travel efficiency and reliability, in addition to creating conflict between modes where there is insufficient space for all road uses to safely occur simultaneously. As they connect centres across Wellington's topographical constraints, these corridors often have significant grades, further deterring active transport modes.

The Wellington central city is relatively compact with a diameter of two kilometres, providing the opportunity for active transport to be a viable travel choice within the central city.

The six catchments (geographic areas) within the Wellington City Council region and included within the programme are:

1. CBD
2. CBD to Ngauranga (Hutt) as part of the Wellington to Hutt Cycleway
3. Northern
4. Western
5. Southern
6. Eastern

2.2 Social Context

In addition to commuters, the provision of cycling as a viable travel option is also of particular importance to recreational users, the young, those on lower incomes and visitors to the city. It is important to create a network that caters for the experienced cyclist as well as beginners and those who lack confidence to cycle. Wellington city's population is young with 55.9% aged 18 - 49 years (2006) compared with 45.1% in New Zealand generally. Wellington region has the highest proportion of working age population.

If cycling is to make an increasing contribution to mitigate the costs of congestion, it also needs to be able to attract these users who do not currently consider cycling as a viable travel choice for short to medium distance trips. A study was conducted in 2014 by The Council to better understand the characteristics of the population of Wellington City as it relates to cycling. The relative size of each group is shown in Figure 4. The 'target audience' for modal shift are the safe cyclists, likely cyclists, recreational cyclists and hesitant cyclists.

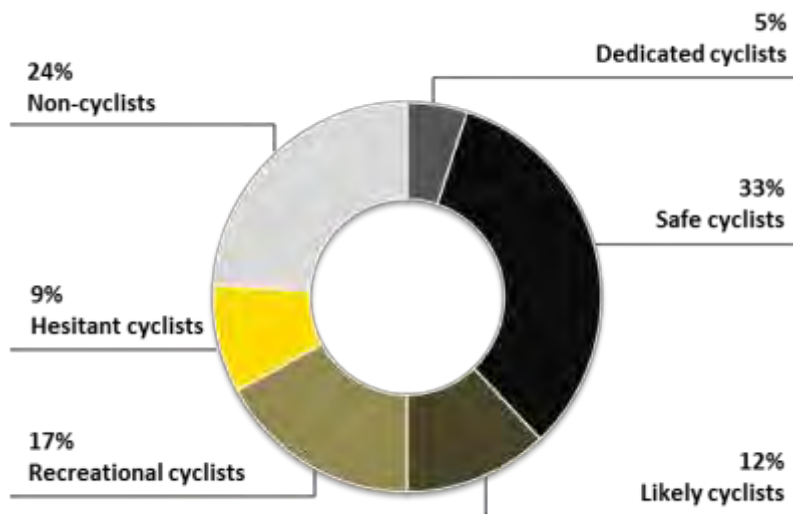


Figure 4 Cycling Demand Analysis Wellington City Council 2014

2.3 Economic Contexts

Wellington City accounts for \$17.5 billion, or 8.4% of total national GDP, with approximately 150,000, or 6.9% of total national filled jobs. Wellington City is the third most populous urban area in New Zealand and accounts for 41% of the region's population and 5% of New Zealand's overall population. The Wellington City Council Urban Growth Plan 2015 seeks to facilitate economic growth by keeping the city compact, walkable and supported by an efficient transport network. It recognises cycling as the second highest transport priority after pedestrians.

Wellington City contained 56% of all jobs within the region in 2011. Over 60% of regional employment growth and 70% of regional population growth is forecast to occur in Wellington City. Employment growth of approximately 10% is forecast between 2013 and 2025 under a 'medium growth' scenario. The Wellington regional strategy is focused on building world class infrastructure and being open for business with a focus on developing the priority sectors of Screen and Digital, Information and Communication Technologies, High Value Manufacturing, and Primary Industry.

These regional and local economic productivity goals align with the problem statements that are concerned with cycling's contribution to the transport system and travel choices. The anticipated benefits from investment of a more attractive city with a more efficient, effective and resilient network also contribute towards the regional and local economic goals.

2.4 Transport Context

Within Wellington City, arterial routes provide access between outlying suburbs and Wellington's CBD, with buses and general traffic sharing many of these routes with pedestrians and cyclists. These connections effectively act as natural pinch-points and capacity constraints on the network as road users are funnelled through these routes. Therefore disruption along one of these corridors, especially during peak periods, can have potentially far-reaching effects across the network.

Evidence from the New Zealand Transport Agency congestion monitoring surveys and the Greater Wellington Regional Council Annual Monitoring Report suggest that travel times on

many of the state highway and urban arterials are relatively slow and variable at peak times. This is contributed to by capacity constraints, side friction effects, and interactions with other road users. Within urban areas there is also more interaction of general traffic with buses as services tend to be concentrated in urban areas for local routes.

Wellington City's forecast population growth of more than 50,000 over the next 30 years will place additional pressure on the existing transport network in the form of increased modal conflict and congestion. To provide Wellingtonians with improved transport options and alleviate congestion on the transport network through mode shift, a comprehensive, safe cycle network is proposed in conjunction with associated promotional and safety initiatives. The Cycleways Programme is part of a multi-modal Wellington transport network that aims to enable people to travel and access the CBD and key amenities easily.

Other high profile projects that will significantly alter the transport network within Wellington City have been identified, and will need to be considered during later business case phases when selecting and designing individual routes. This includes the Bus Rapid Transit project, which is likely to create modal conflict where the public transport and cycle networks intersect. The interaction with State Highway 1N within urban areas also needs to be considered, including the Aotea to Ngauranga Smart Highway, and any planned improvements as part of the Wellington Urban Roads of National Significance.

3. Partners and Key Stakeholders

3.1 Investment Partners

The delivery of cycling is a collaborative exercise across The Council, the Greater Wellington Regional Council and the New Zealand Transport Agency. The link with Greater Wellington Regional Council is important because of the necessary integration of Public Transport (PT) alongside cycleways in relation to road space allocation as well as broader transport planning across all modes.

3.1.1 Wellington City Council

Wellington City Council is the Road Controlling Authority for the majority of the roads forming the cycling network and has responsibility for planning, operations, management and maintenance of these roads.

The Council is also responsible for land-use planning in Wellington City. It prepares and updates various area plans, to give effect to the relevant strategic directions for transport planning for the city.

The Council has established a dedicated planning and development team which will be resourced to deliver the Wellington City Cycle Network. The team includes planning and design officers who will work closely with the existing road network management team to develop and deliver integrated solutions for all modes. The team also engages with Greater Wellington Regional Council public transport planners and various New Zealand Transport Agency project managers as required. Responsibility for the behavioural change initiatives also sits with the team, such as the 'Bikes in Schools' programme³.

3.1.2 New Zealand Transport Agency

The New Zealand Transport Agency is the crown entity responsible for planning and investing in land transport networks, managing the state highway network and providing access to, and use of, the land transport system.

With some of the cycling packages crossing State Highway boundaries there will need to be full integration with the New Zealand Transport Agency Highways Networks and Operations division who will be closely involved in planning with The Council.

In addition to having responsibility for the allocation of funding under the National Land Transport Programme (NLTP), the Transport Agency also administers Government investment in cycling via the Urban Cycleways Programme, which is key to the effective delivery of the Wellington cycle network programme.

3.1.3 Greater Wellington Regional Council

Greater Wellington Regional Council is the organisation primarily responsible for overall regional planning and Public Transport planning. Greater Wellington Regional Council is also responsible for the Public Transport network and delivering Public Transport services across

³ The Bikes in Schools programme is a Wellington City Council initiative that provides bicycles, helmets, and infrastructure to encourage students to be confident and competent on bikes.

Wellington. It undertakes asset management, planning, including for new works, manages the operation of the network, is responsible for arranging funding and contracts for service delivery.

Greater Wellington Regional Council hosts a cycling and walking journey planner on its website which is supported by The Council and other territorial authorities in the region.

3.2 Community and Key Stakeholders

The Wellington public have demonstrated a strong interest in cycling at both a strategic and local level. It is the Council's intention to work closely with the public, and directly affected residents, 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 specialised consultation and stakeholder strategy is currently under development. This will also look at how engagement with key stakeholders and communities can extend to incorporate the promotional and educational elements of the programme.

The current list of project stakeholders includes:

- Cycle Aware Wellington;
- Cycle Advocates Network;
- Wellington Employers' Chambers of Commerce;
- Wellington Residents Associations;
- Automobile Association;
- Iwi;
- Public Transport Users Association;
- Road Transport Forum (consideration of freight impacts); and
- Carpark owners/developers.

Table 8 below outlines the dates and activities that will interact with the community and stakeholder engagement.

Table 8 Summary of Stakeholder Interaction

Project Stage	Stakeholder / Community	Communication / Engagement
Indicative Business Case	Community Representatives	Engagement and inclusion in working groups to develop robust and supported route solutions and analysis of options
Detailed Business Case	All affected owners	Detailed consultations and community engagement
	Various	Varying levels depending on need
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
Po-Implementation (Monitoring)	User groups and general community	Ongoing communication to confirm if the activities undertaken have been successful or improved

4. Strategic Assessment – Outlining the need for Investment

This section sets out the case for investment in the Wellington cycleway network. It considers the nature of the problem, the benefits of investing in cycling infrastructure, and the merits of investing now.

The underlying problem is that cycling is perceived as unsafe so people who would prefer to cycle don't. Evidence demonstrates that Wellington has higher than average rates of harm for people travelling on bikes. Perception and increased relative risk means that Wellington residents do not view cycling as a viable travel choice for work or recreation. This misses an opportunity to reduce congestion by reducing the number of car trips occurring on the Wellington City network.

4.1 Defining the Problem

A facilitated Investment Logic Mapping (ILM) exercise was held in March 2015 with representatives from The Council, New Zealand Transport Agency, Cycle Aware Wellington, the Automobile Association and Wellington Employers' Chamber of Commerce.

The Investment Logic Map is attached as Appendix A. The group identified the following three problems and relative importance weightings:

1. Poor uptake, due to the perception that cycling is unsafe and inconvenient, is reducing cycling's contribution to the transport system (45%).
2. Unforgiving infrastructure and poor road user behaviour is resulting in significantly higher than average rates of harm to people on bikes (15%).
3. An unappealing environment for people on bikes is reducing transport and recreation choices for Wellingtonians (40%).

These problems are current issues that are expected to be exacerbated by population growth, which is forecast to increase from 200,000 to approximately 250,000 over the next 30 years. Evidence supporting these problems is shown in sections 4.5, 4.6, and 4.7.

The three problems were later confirmed at a Wellington City Council workshop on 7 August 2015 attended by Council's project working group.

4.2 The Benefits of Assessment

During the ILM, the following significant benefits from investment in cycling infrastructure were identified:

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.

The Benefits Map is shown in Appendix B.

All three benefits are linked to increased cycle participation and achieving greater mode share for travel by bike. This has wider transport benefits for Wellington city including:

- Reduced levels of congestion along main urban routes during peak periods, with subsequent improvements in trip reliability for public transport, freight and general traffic;
- Greater (and affordable) transport choices for road users undertaking short to medium distance trips in the city, including better access to employment, shops, education and other facilities;
- Reduced motor vehicle emissions and improved health and fitness associated with a higher uptake in active modes;
- Helping cater for future growth by maximising the use and capacity of road corridors; and
- Improved cyclist safety by impacting driver attitudes and behaviour through increased expectation and awareness of cyclists.

At the Council workshop held on 7 August 2015, the three benefits were linked to a set of desired outcomes and investment objectives, which are discussed further in section 4.8 below.

4.3 Alignment to Existing Strategies/Organisational Goals

Investment in the Wellington cycling network is well aligned to the high-level strategic direction of Central Government as outlined in the Government Policy Statement 2015. It will also support the objectives of The Council and Greater Wellington Regional Council of economic growth, urban regeneration and improved accessibility.

This section outlines how investment in cycling fits within the existing strategies and plans of The Council and its partner organisations.

4.3.1 Central Government and the Ministry of Transport

The Government Policy Statement sets out the Government's high-level strategic direction for investment in the land transport network and priorities for expenditure from the NLTF over the next 10 years. The 2015 Government Policy Statement continues and reinforces the Government's focus on increasing economic growth and productivity as the primary objective for land transport expenditure. The Government Policy Statement also identifies, for the first time, a number of national objectives for a land transport system that:

- Addresses current and future demand for access to economic and social opportunities;
- Provides appropriate transport choices;
- Is resilient;
- Is a safe system, increasingly free of death and serious injury;
- Mitigates the effects of land transport on the environment; and
- Delivers the right infrastructure and services to the right level at the best cost.

The importance of alternative modes of transport including cycling is highlighted in the foreword to the Government Policy Statement:

“Alternative modes of transport can make a positive contribution to health, social and environmental goals and support the overall transport task. The Government has allowed for

*continued growth in funding for public transport and active modes. In addition, we are committing \$100 million from outside of the National Land Transport Fund for urban cycleways, to be invested in accordance with advice from an investment panel”.*⁴

Cycling is a key contributor to the Government Policy Statement 2015 national objectives. Investment in Wellington cycling infrastructure will improve safety and reduce risk for cyclists. Investment in cycling will also support the Government Policy Statement objectives by directly mitigating the effects of vehicles on the environment by providing real mode choice for network users, reducing the number of vehicles on the road, and improving transport network resilience from low impact events. In addition, by addressing existing safety issues within Wellington City, investment is aligned with the Government Policy Statement strategic priority of a “safe land transport system, increasingly free of death and serious injury”.

Over the next three years there is a unique opportunity for The Council to maximise co-investment with central government through the NLTF and Urban Cycleway Fund. The Prime Minister and the Minister of Transport announced a further 41 projects nationally for 2015/16 to 2017/18 in June 2015 as part of the Urban Cycleways Programme on top of 13 Cycleways projects that had already been announced in January. Three of these projects are in Wellington aimed at accelerating cycling facilities on the eastern and CBD catchment areas in Wellington City, as well as on the route between Melling and Wellington CBD. These three Wellington packages are key elements of the overall cycle network programme.

Safer Journeys: New Zealand’s Road Safety Strategy 2010 – 2020 identifies a priority area of safe cycling. ‘Safer Journeys’ by 2020 is aiming to have a safe road environment that encourages more people to cycle and a culture of sharing the road.

The vision set out in the National Infrastructure Plan 2011 is that “by 2030 New Zealand’s infrastructure is resilient and coordinated and contributes to economic growth and increased quality of life”. From a transport perspective, a key focus is on “creating the most efficient mix of transport options to benefit all New Zealanders and visitors”. There is further a goal in place to have “a continued reduction in the number of accidents, deaths and serious injuries that occur on the network”.

4.3.2 NZ Transport Agency

The New Zealand Transport Agency is responsible for implementing the strategic direction set out in the Government Policy Statement. It administers the NLTF, is responsible for planning and funding of the State Highway network and provides funding to local and regional authorities for approved transport projects.

Consistent with the Government Policy Statement, the strategic focus of the New Zealand Transport Agency (as set out in its 2015-19 Statement of Intent) is on delivering improved transport services that contribute to economic and productivity growth. It is also required to meet the objectives set out in the Government Policy Statement, which relate to addressing current and future demand, providing transport choice, ensuring a reliable, resilient and safe transport system and mitigating the effects of land transport on the environment.

One of the Transport Agency’s six short-term strategic priorities is “making urban cycling a safer and more attractive transport choice”. Another priority is “predictable journeys for urban

⁴ Honourable Simon Bridges – Minister of Transport

customers". Cycling improvements are an important part of achieving this priority. These short term priorities are reflected in the Urban Cycleways Programme. The expected benefits from investment in a cycle network outside of the Urban Cycleways Programme contribute towards the New Zealand Transport Agency medium term objectives of:

- Integrate land uses and transport networks to shape demand at national, regional and local levels;
- Integrate national and local transport networks to support strategic connections and travel choices;
- Implement the Safe System approach to create a forgiving land transport system that accommodates human error and vulnerability;
- Incentivise and shape safe and efficient travel choices using a customer-focused approach;
- Deliver consistent levels of customer service that meet current expectations and anticipate future demand; and
- Align investment to agreed national, regional and local outcomes and improve value for money in all we invest in and deliver.

4.3.1 Greater Wellington Regional Council

Economic development is the overarching objective of the Wellington Regional Strategy, developed by Greater Wellington Regional Council in 2012, in which The Council is represented on the committee. Improving the quality of infrastructure, including transport, is an important enabler that will assist the region in achieving its economic growth potential. The Wellington Regional Strategy implementation plan (2013) includes a short term objective of benchmarking of regional infrastructure against international practices to assess infrastructure gaps. It also includes related medium to long term actions of Monitoring infrastructure improvements over time, and provides analysis and advice on infrastructure investments that provide greatest economic benefit for the region.

The 2015 Wellington Regional Land Transport Programme (RLTP) is the region's blueprint for a network that will keep the Wellington region vibrant, on the move and enable it to grow and meet future needs. The RLTP identifies a number of regional pressures, including traffic congestion and network capacity constraints, reliability of the transport network and mode share. It also sets out a number of objectives for land transport including economic growth, consistent with the Government Policy Statement direction, along with wider objectives such as improved safety, resilience and liveability. Cycling and the provision of cycling infrastructure will contribute to meeting these goals.

The RLTP includes the Ngauranga to Airport (N2A) Corridor Strategy. Improving the Wellington cycling network is a key strategic response identified in this multi-modal strategy, and forms part of the N2A programme being managed in a collaborative manner by The Council, Greater Wellington Regional Council and the New Zealand Transport Agency.

The RLTP includes a Regional Cycling Network (see figure 5 below) which includes a number of routes within Wellington City.



Figure 5: Wellington City section of the Regional Cycling Network (RLTP page 105), Source: Greater Wellington Regional Council, RLTP 2015

The RLTP includes a programme of all the land transport activities in the region seeking funding over the next six years. The Council's project 'Road Space Reallocation Corridor Programme', described below, is ranked ninth in the RLTP:

Managing the strategic road corridors in Wellington in order to cater for the competing demands of all modes and to consider specifically cycleway planning and bus priority improvements. The cycling programme element focuses on making the city's transport network safer and more reliable for all modes through improved road design.

4.3.2 Wellington City Council

The Council's vision for Wellington is set out in its overarching strategy Wellington towards 2040: Smart Capital, revolves around building a smart, resilient Capital 'where talent wants to live'. To facilitate this, smart urban design which will contribute to Wellington's compact urban form and low carbon footprint, is encouraged.

This vision for Wellington is reflected in the Urban Growth Plan 2015 which builds on, updates and replaces the existing urban development and transport strategies. It seeks to:

- Maintain the city's liveability;
- Keep the city compact, walkable and supported by an efficient transport network;
- Protect the city's natural setting; and
- Make the city more resilient to natural hazards such as earthquakes and the effects of climate change.

The Urban Growth Plan 2014-2043 sets out The Council's sustainable transport hierarchy which recognises in priority order: pedestrians, cyclists, public transport, moving freight and private vehicles. To support this, the Urban Growth Plan includes a number of specific transport initiatives, including the provision of transport routes that provide real choice, with a plan to increase the proportion of people cycling supported by a comprehensive cycling network.

In June 2015, The Council adopted the Cycling Framework 2015. The Cycling Framework includes a network plan and principles which set out decision-making thresholds for the delivery of each aspect of the network. The cycle way investment programme has also been approved by Council and included in the Long Term Plan 2015-25.

Cycling will help achieve a number of The Council's objectives – in particular, economic growth, urban regeneration and improved accessibility. Investment in a cycle network will play an important city-shaping role to help The Council achieve the redevelopment and land-use patterns that it envisages.

4.4 Issues and Constraints

4.4.1 Issues

Due to the current broad outline of the proposed cycleway programme it is too early to identify specific issues or constraints that could affect the individual projects. Nevertheless, in terms of uncertainties, the following examples are given:

1. Consideration of how best to incorporate cycling within the design of Bus Rapid Transit and the inner city Roads of National Significance is a key aspect of the work currently being undertaken by The Council and its partners, Greater Wellington Regional Council and the New Zealand Transport Agency under the Ngauranga to Airport programme. This will need to consider both the allocation of road space across modes as well as priority at key intersections. The review of the Wellington Network Operating Framework will be a key opportunity to consider how road space and intersection priority is allocated (or assigned) to cycling alongside other modes.
2. There is potential for the first cycle way projects to be prioritised to ensure integration with the core bus network as it extends beyond the public transport spine to Karori, Johnsonville and Island Bay. The fourth arm of the potentially expanded Bus Rapid Transit routes to the eastern suburbs currently has a reasonable level of service for cycling that would be improved upon with the Transport Agency's proposed Mt Victoria Tunnel duplication and Ruahine Street and Wellington Road upgrades.

3. Road space reallocation may result in public opposition, and the public and stakeholder consultation process will need to be robust to minimise adverse impact, in addition to optimising investment. This process is still being developed by the project working group.
4. Given the relatively high-level nature of the Programme Business Case analysis there is an inherent lack of certainty and detail around particular projects, specific interventions and their associated costs and benefits. This inevitably results in a degree of uncertainty regarding the individual projects and routes within the programme at this point in its development. This uncertainty can be further reduced and eliminated as a result of detailed investigations yet to be carried out as part of subsequent business case processes (i.e. Indicative and Detailed Business Cases).

4.4.2 Constraints

Several programme level constraints have been identified during the Programme Business Case process including:

1. The timeframes for Urban Cycleways Programme funding are relatively fast. Completion of the three Urban Cycleways Programme routes by June 2018 will likely require several project phases to be accelerated.
2. As the Urban Cycleways Programme routes represent a significant proportion of the programme investment within a short timeframe, it is likely that intense construction will occur simultaneously within Wellington City. The overall temporary traffic management impact on the transport network may result in network wide disruption. The need to manage these disruptions may result in protracted construction timeframes.
3. In addition, accelerated construction of a significant amount of infrastructure may exceed the workload of locally available contractors. It is possible that the construction procurement process will require contractors from outside the Wellington region in order to achieve the Urban Cycleways Programme timeframes.
4. The cycleways are likely to be constructed within existing road corridor space, which is predominantly built areas within Wellington City. The need to reallocate limited road corridor space in order to construct the cycleways may result in compromised designs that cannot achieve desired cycleway level of service.
5. The project requires political support to implement improvements, with funding from the Urban Cycleways Fund and from The Council being associated with recent political discussion. There is a need to secure commitment to the programme and agreement on the specific routes in a timely manner, with positive public perception, before political movement could reduce available funding.

4.5 Problem One – Poor Cycling Perception

Poor cycling uptake, due to the perception that cycling is unsafe and inconvenient, is reducing cycling's contribution to the transport system.

4.5.1 The Evidence

In Wellington City, cycling accounts for 4.3 percent of journey to work trips. This is low relative to other urban centres such as Christchurch which has a 7.0 percent cycle mode share⁵, and highlights the existing gap where Wellington could be.

Census results show that Wellington has experienced strong growth in cycling (73 percent over the period 2006 to 2013). This is from a very low base, and only reflects a 1.7 percent change in overall mode share of journeys to work in Wellington City (from 2.6 to 4.3 percent).

In 2012, the Greater Wellington Regional Council Transport Perceptions Survey (TPS) found that over half (52 percent) of respondents felt that cycling in Wellington is unsafe. Only 20 percent thought it was safe to cycle in Wellington City compared to a 73 percent rating for walking, as presented in Table 9. This is a declining trend with the proportion of respondents believing it is safe to cycle in the Wellington Region (20 percent) being lower than that for 2008 (27 percent).

Table 9 Transport Perceptions Survey - opinions about cyclists' safety in Wellington City

Mode	Very unsafe	Unsafe	Neither safe, nor unsafe	Safe	Very safe	Don't know
Biking	15%	37%	25%	18%	2%	3%
Walking	3%	7%	17%	57%	16%	0%

The survey also asked respondents to consider how 'hassle-free' it was to travel around Wellington by cycling. Figure 6 below shows that, although 25 percent of respondents believed it was 'hassle-free' to cycle, a significantly higher proportion believed it was not 'hassle-free' (43 percent). Again, this compares poorly to walking or travelling by private vehicle.

⁵ 2013 Census data from Statistics NZ

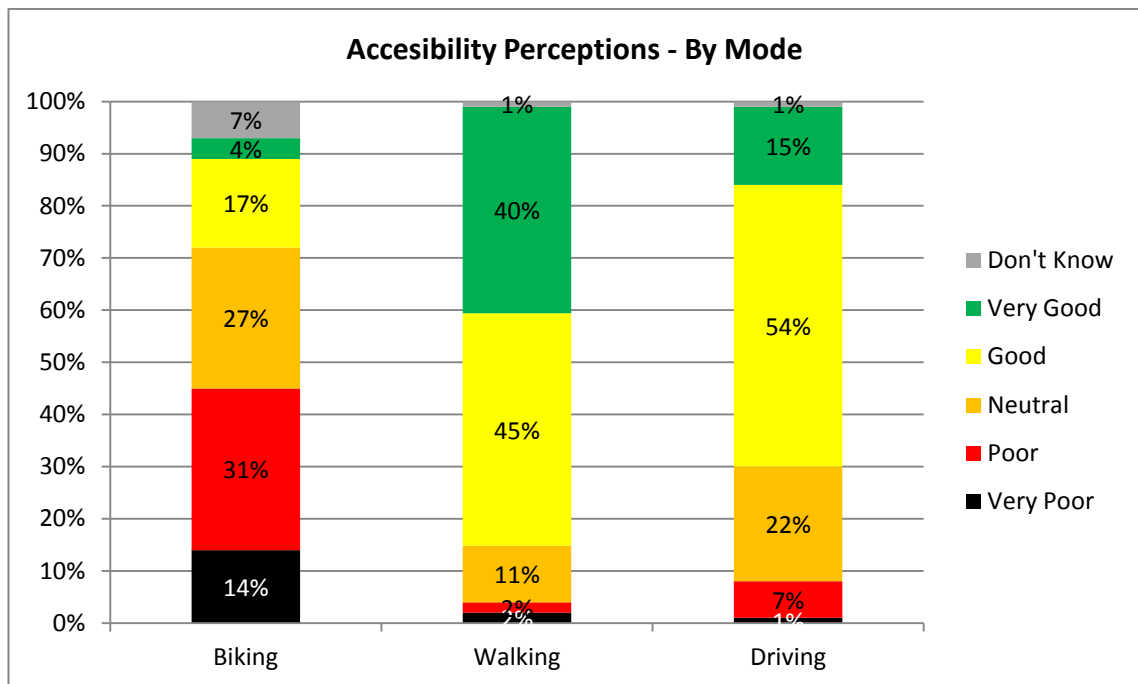


Figure 6 TPS 2012, Wellington City 'hassle-free' travel perceptions

The results for 2012 highlighted a worsening trend for 'hassle-free' bike travel perceptions, with significantly fewer respondents believing it was 'hassle-free' to travel around the Wellington Region by cycling (25 percent in 2012 compared with 38 percent in 2008). This is in contrast to walking where there has been a significant increase in 'hassle-free' perceptions (81 percent in 2012 compared with 68 percent in 2008).

4.5.2 Implications of the Evidence

As presented in the 2015 Wellington Regional Land Transport Plan (RLTP), there is a strong correlation between the public perception of safety and uptake of cycling. People's perception of safety is noted as a more important determinant of uptake than the actual risk of injury. In addition, cyclists perceived that some level of separation from other traffic improved safety.

Investment targeted at improving actual levels of cyclist safety is assumed to impact perceived safety. While actual safety is likely to be a significant component, it is possible that some aspects of actual safety risk do not translate to perceived safety risk. As such, later business cases will need to consider consultation, stakeholder feedback, and promotional campaigns in maximising both the perceived and actual safety deficiencies for individual routes.

In short, poor perceptions that cycling is unsafe and inconvenient, is limiting the potential to increase the cycle mode share further. In turn, this means that the benefits of cycling for Wellington City are not being fully realised.

4.6 Problem Two – Unappealing Environment

An unappealing environment for people on bikes is reducing transport and recreation choices for Wellingtonians.

4.6.1 The Evidence

Poor provision for people on bikes creates an unsafe and unappealing environment, in both perception and reality. This means many people shy away from biking as a realistic choice for their daily travel needs. Evidence from The Council Residents’ Monitoring Survey (RMS) in 2014 suggests there is a significant latent demand for uptake of cycling. Of the 603 people surveyed, 76 percent said they would consider cycling if safe and separated infrastructure was provided.

The 2012 TPS measured respondents’ opinions about the level of service (defined in terms of it being ‘easy, safe and pleasant’ to get around) for cyclists in Wellington City. The survey highlighted that significantly more respondents believed the level of service for cyclists was poor (44 percent) than it was good (18 percent). This does not compare well to walking and driving where the level of service was satisfactory for 93 percent and 92 percent of respondent’s respectively, as shown in Figure 7.

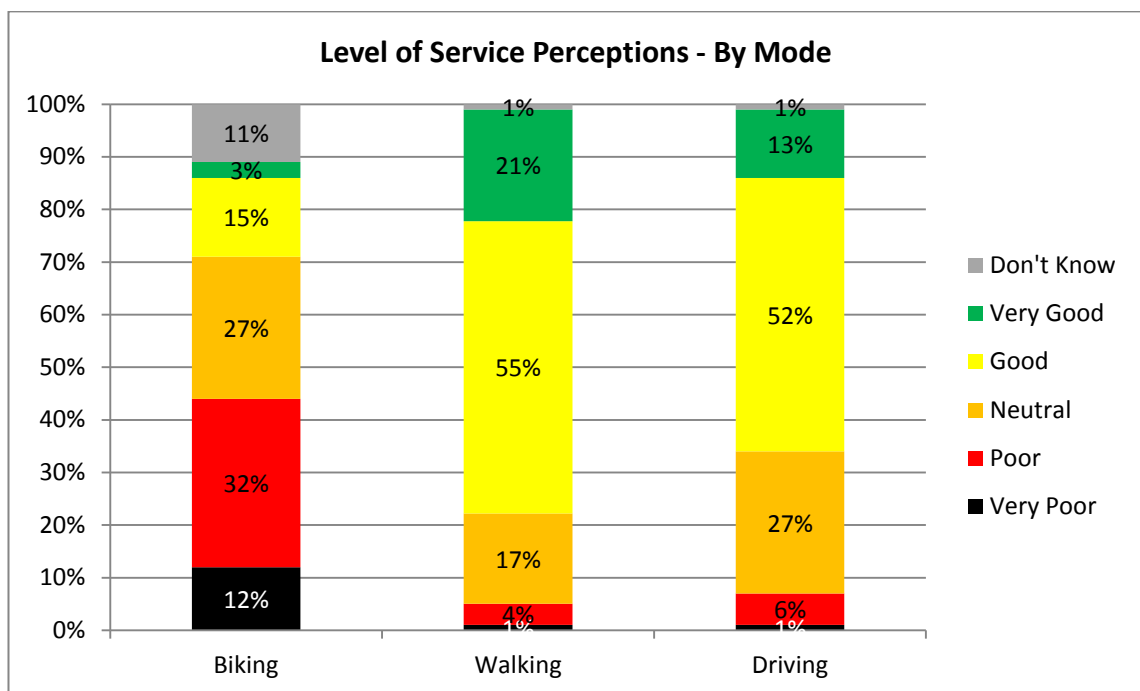


Figure 7 TPS 2012, Wellington City level of service perceptions

Figure 8 below illustrates results from the annual Wellington City RMS. The proportion of people satisfied with the safety of Wellington cycle ways dropped from 40 percent in 2011-2013 to 16 percent in 2014. This declining trend is consistent with data from the TPS, which highlighted that respondents’ believing the level of service for cyclists was good dropped from 29 percent in 2008 to 20 percent in 2012.

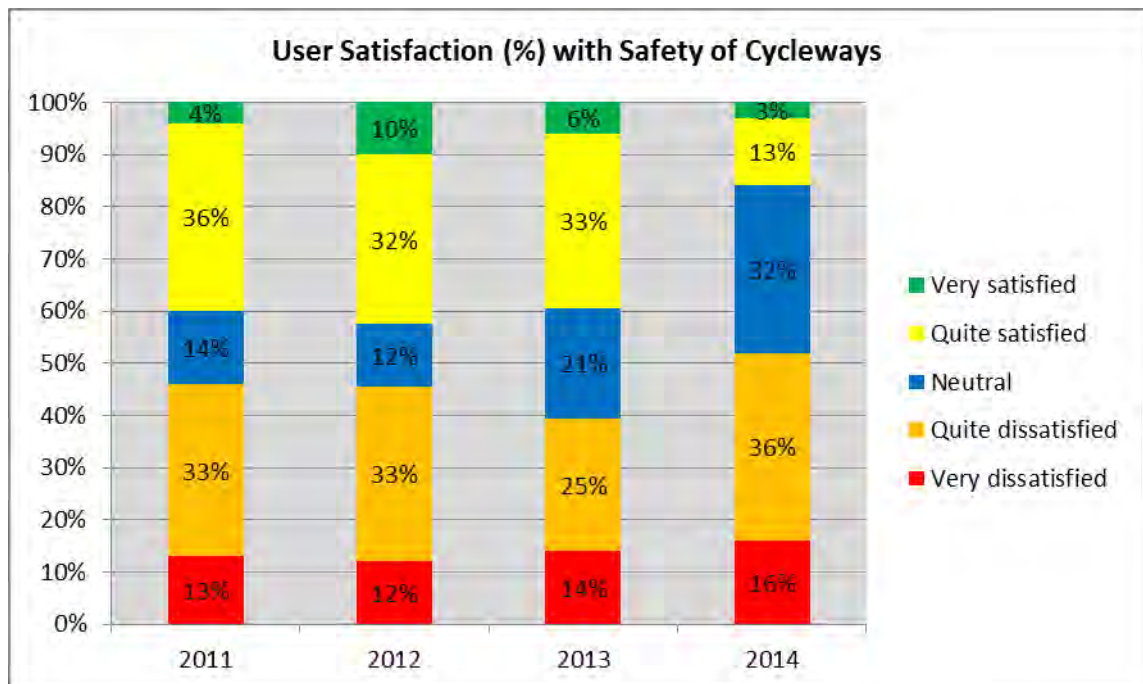


Figure 8 RMS user satisfaction with safety of cycleways

Many Wellington residents do not consider that cycling is currently a viable travel choice. The Council's 2014 RMS survey identified that the chief barrier to cycling in Wellington is a lack of safe cycle infrastructure and concern about driver behaviour. The 2014 survey found:

- Cycle ways that separate cyclists from other road users could potentially double cycling uptake growth rates;
- A preference for direct and relatively flat routes; and
- While 42 percent of respondents drove, there was a strong preference expressed for using other modes, particularly bikes. Despite having the lowest mode share, cycling has the highest rated preference amongst the various travel mode choices, as shown in Figure 9 below.

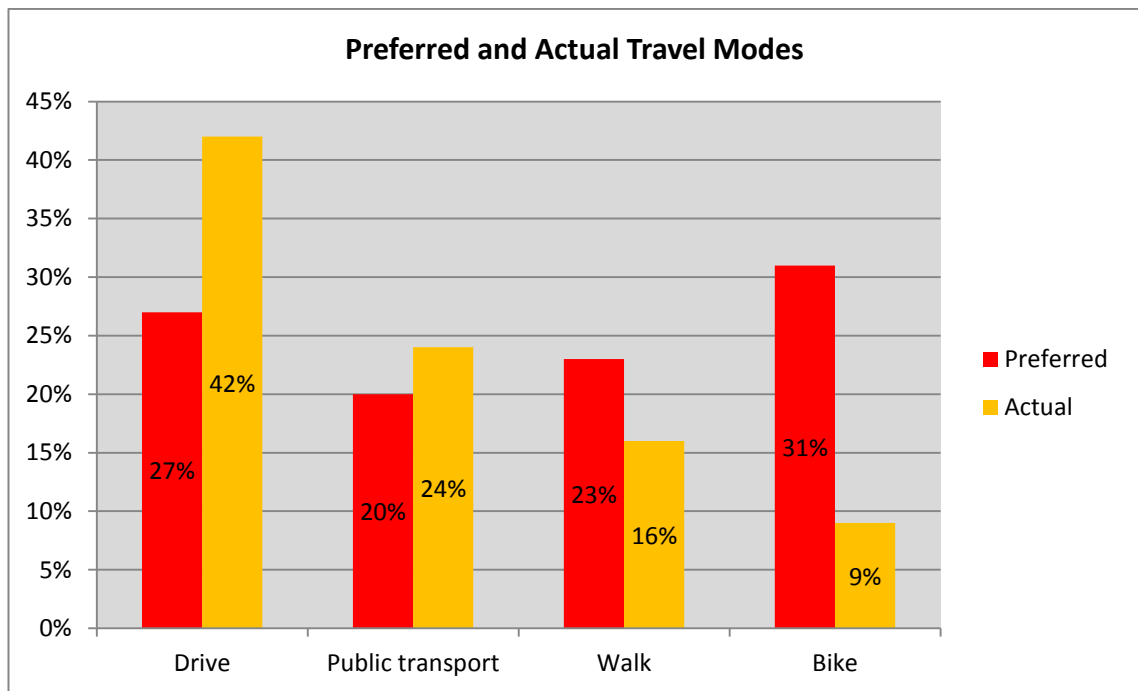


Figure 9 RMS 2014, Wellington City travel modes

The results of the Wellington RMS are consistent with opinions expressed during the 2012 TPS. When questioned about the feasibility of using different modes to get to and from work and study, cycling compared poorly against driving and walking. Figure 10 shows that 37 percent of respondents believed that cycling was a good option for 'none' of the trips they made. A significantly lower proportion of respondents (13 percent) believed cycling was a good option for 'all' or 'most, but not all' of the trips they made to work.

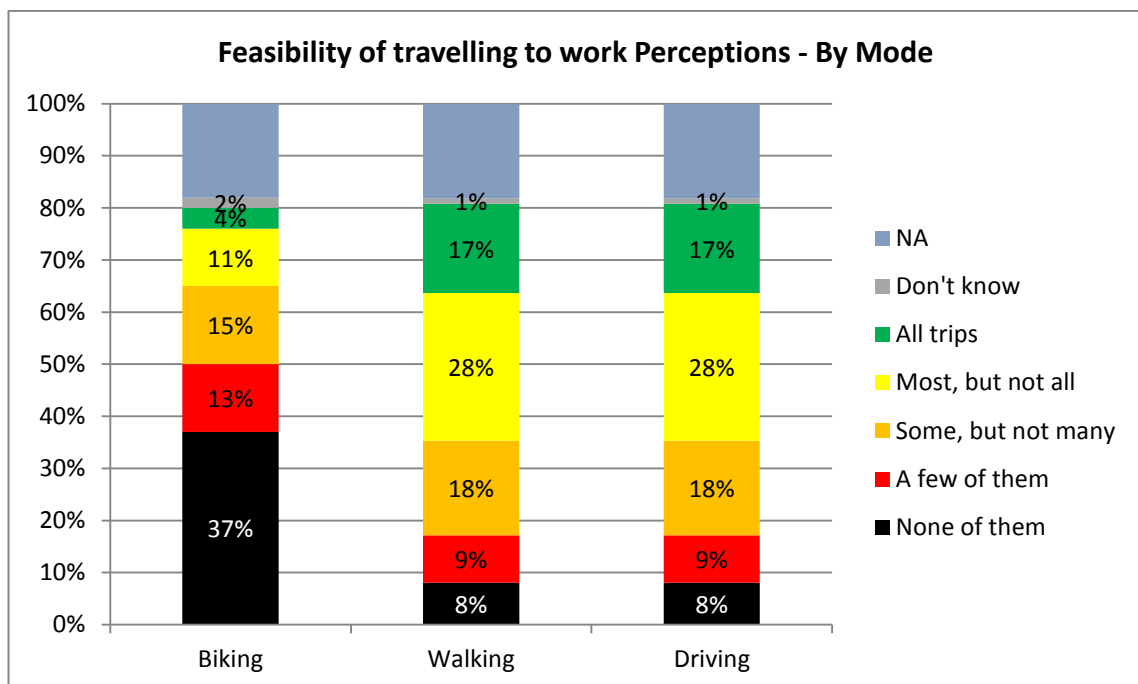


Figure 10 TPS 2012, Wellington City work travel feasibility perceptions

4.6.2 Implications of the Evidence

Many Wellington residents do not consider that cycling is currently a viable travel choice, which is detrimental to the desired strategic outcome of more people cycling. Lack of choice does not allow for the most efficient and optimised use of the transport network, with more people using motor vehicles for short and medium trip lengths that could potentially be served by bike.

It is important to note that while there is evidence that a large number of road users would prefer to travel by bicycle, these stated preference surveys do not account for hypothetical bias. In addition, the role that wrap around facilities play in creating modal shift has not been captured within the existing evidence base.

4.7 Problem Three – High Crash Risk

Unforgiving infrastructure and poor road user behaviour is resulting in significantly higher than average rates of harm to people on bikes.

4.7.1 The Evidence

Increased use of the road corridor by all modes, the current number of on-street car parking spaces, and the lack of dedicated space for cyclists, means there is ongoing conflict between vulnerable road users and vehicles, which have greater speed and mass. The number of bike injuries in Wellington is unacceptably high with nearly 70 people being hurt in traffic related cycle crashes every year. This number has approximately doubled since 2000.

Results for 2014 from the New Zealand Transport Agency Crash Analysis System (CAS) shown in Figure 11 below record a total of 69 reported injury crashes involving cyclists in Wellington City, resulting in one fatality, nine serious, and 59 minor injuries. It is worth noting that many minor crashes involving cyclists do not get reported, with the New Zealand Transport Agency Economic Evaluation Manual typically applying a minor injury under-reporting factor of 2.75 in 50 km/h areas. This high incidence rate is similar to the rate of injuries in recent years, although not as high as the number of injuries reported in 2007 and 2008.

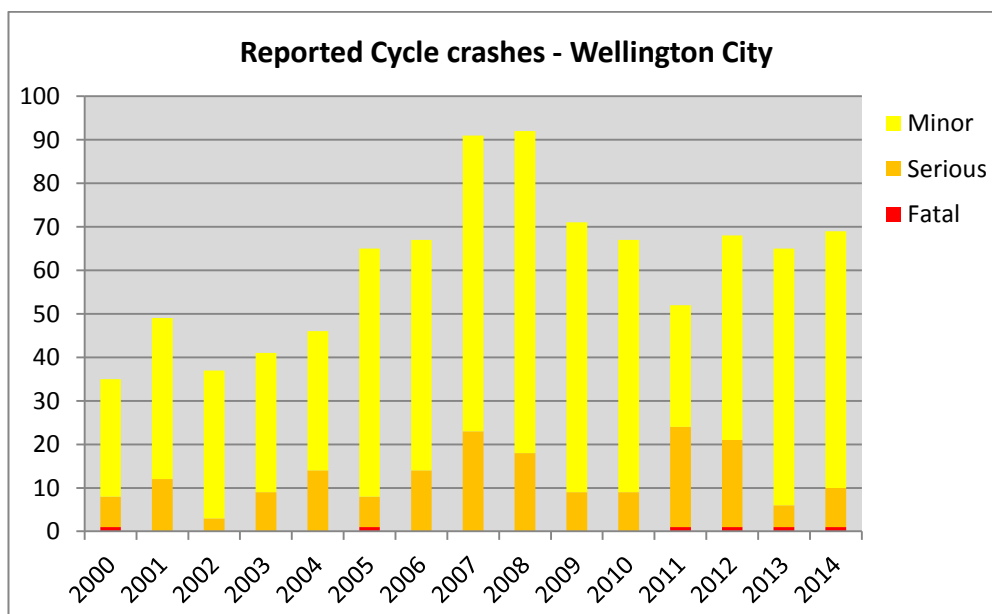


Figure 11 Reported injury crashes involving cyclists in Wellington

As noted in the RLTP, cyclists in Wellington have a greater than average risk of being killed or seriously injured whilst riding on bikes. The New Zealand Transport Agency Communities at Risk Register identifies Wellington as having the second highest level of personal risk after the Auckland region. Wellington City itself is the part of the region where cyclists statistically have the highest risk of injury, which ranks as the third highest area in New Zealand. The relative risk of a fatality or serious injury for cyclists in the city is approximately eight times the national average, as shown in Figure 12.

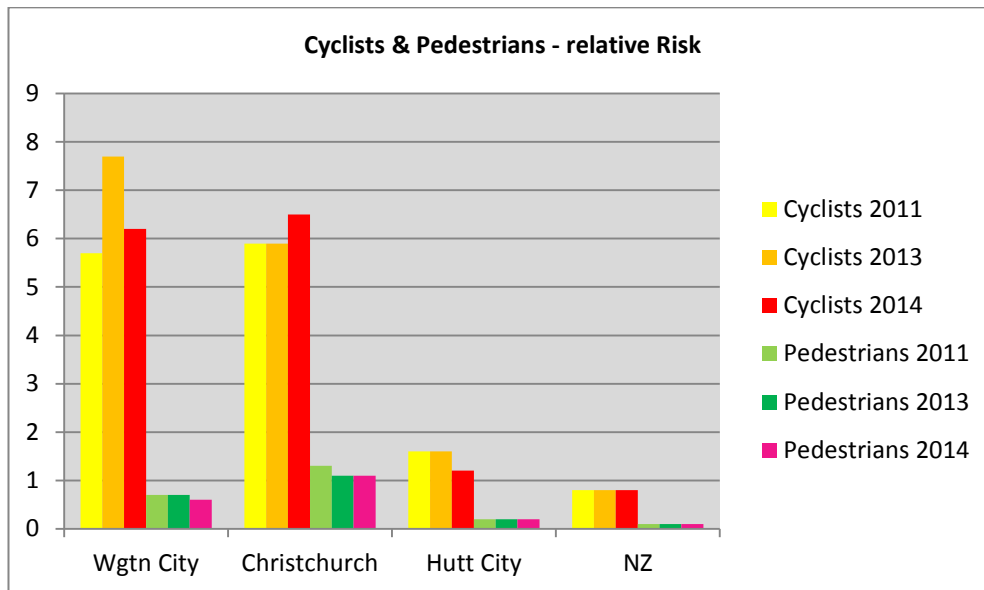


Figure 12 Relative risk of a fatal or serious injury

When comparing to distance travelled using other travel modes, people on bikes in the Wellington region are roughly 23 times more likely to be injured in road crashes compared to private vehicle occupants, and three times more likely than people walking, as shown in Figure 13 below. Based on time spent travelling, people on bikes are roughly seven times more likely to be injured in road crashes compared to other vehicle occupants and people walking. Wellington City accounts for 60% of these cyclist casualties in the region.

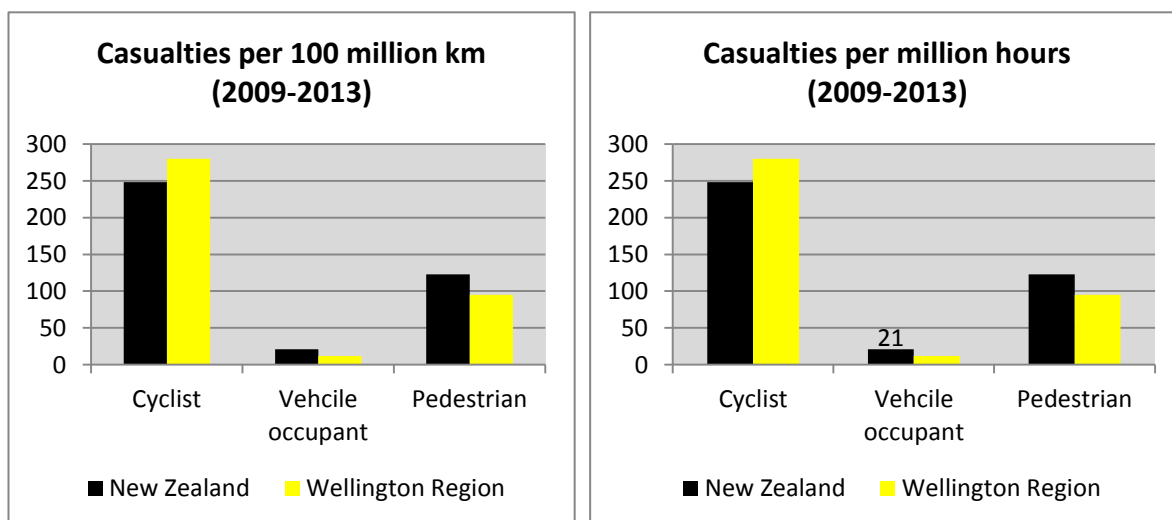


Figure 13 Comparable risk of casualties in Wellington

4.7.2 Implications of the Evidence

Cyclists are recognised as vulnerable road users due to their relative ‘unprotected’ state and difference in mass between any colliding motor vehicle opponents. Being vulnerable means cyclists are more susceptible to higher severity injuries when involved in a crash.

The evidence demonstrates that Wellington City is over-represented in terms of crashes involving cyclists and personal risk when travelling by bike. This real data, combined with the perceived safety issues of the community creates an obstacle to increasing cycling participation. As stated in the New Zealand Cycling Safety Panel report, *the most important feedback effect in NZ’s cycling system at the moment is that any increase in cycling leads to greater reporting of injuries and deaths, with a strong dampening effect on further growth.*

Without improved cycling infrastructure, Wellington may see increases in cycling related fatalities and serious injuries if more people choose to cycle. There is a belief that improving both the real and perceived safety of cycling will increase cycling participation, which as well as safety benefits has wider benefits for the community.

While there is strong evidence tracking the current safety performance of Wellington City, there is little evidence in establishing causation of unforgiving infrastructure and poor road user behaviour. However, as safety operates within a system of factors, it is likely that by addressing the issues of safe drivers, and safe roads and roadsides, overall cyclist safety will improve.

4.8 Benefits and Investment Objectives

The Key Performance Indicators (KPIs) identified as part of the Benefits Investment Logic Mapping are shown below (and are attached as Appendix B).

For **benefit one** - Greater transport network efficiency, effectiveness and resilience:

- KPI 1: Better facilities and infrastructure; and
- KPI 2: Increased contribution to network efficiency.

For **benefit two** - Wellington is a more sustainable, liveable and attractive city:

- KPI 1: Improved environment;
- KPI 2: Greater health and wellbeing; and
- KPI 3: Improved economic performance.

For **benefit three** - Improved safety for people on bikes:

- KPI 1: Reduced actual cycle deaths/serious injury; and
- KPI 2: Improved perception of cycling safety.

The Benefit Map was revisited at the Wellington City Council workshop on 7 August 2015. During this workshop investment objectives were discussed and agreed to assist in the development and assessment of programme options, as outlines in Table 10 below.

Table 10 Investment Objectives Summary

Investment Objective	Draft KPIs and Measures
Achieve a high Level of Service for cyclists within an integrated transport network	Increased customer satisfaction with Level of Service, across a diverse range of ages and abilities % of the network (catchment areas) that is completed to target Level of Service
Improve cycling infrastructure and facilities so that cycling makes a much greater contribution to network efficiency, effectiveness and resilience	Increased contribution to network (journey time) reliability and efficiency Reduced Vehicle Operating Costs Overall economic benefit
Cycling is a viable and attractive transport choice	Increased cycling as a transport mode (Mode Share from 4.3% in 2014 to X% in 2024) Localised trip movements, across a diverse range of ages and abilities School trips (school travel survey)
The crash rate, number and severity of crashes involving people on bikes is reduced	Reduced actual deaths, serious injury and crashes Crash rate per km reduced from X to Y (regional statistic) Improved perception of cycling safety (level of service perception survey)
Provide transport choices by increasing the opportunity for people to ride bikes so as to improve the sustainability, liveability and attractiveness of Wellington.	Greater health (Health benefits) Improved wellbeing (Quality of life) Increased visitor satisfaction Reduced CO ₂ emissions

Figure 14 shows the integration between the Identified Benefits and the Investment Objectives. Together with the KPIs and performance measures, these will help monitor progress towards the agreed outcomes and objectives set out by Wellington City. It is noted that the benefits map will be updated concurrently with the development of the Indicative Business Case. This will confirm the KPIs, measurable targets, monitoring tools, and base line measures.

Wellington Cycle Network Programme Business Case

Benefit Map

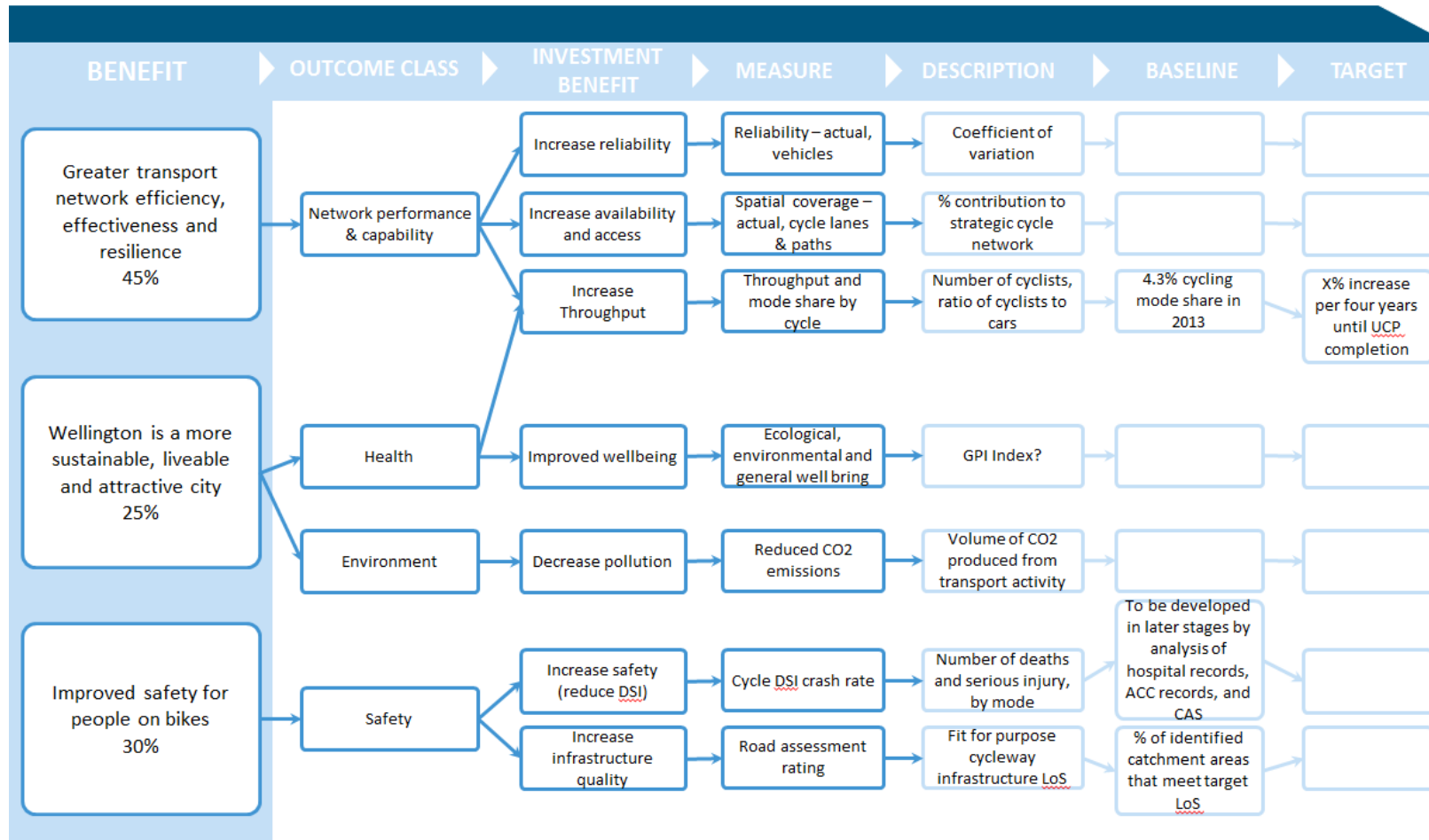


Figure 14 Integration between benefits and investment objectives

Part B – Developing the Programme

5. Alternatives and Options

No viable land transport alternative to investing in the Wellington City cycle network has been identified. Recent growth in cyclist numbers, a public desire for cycling to be a viable transport choice for short to medium distance trips, an urban transport network that is forecast to become increasingly congested, and existing safety issues for cyclists on the transport network all point toward a current need to invest. It is noted that investment across all modes will continue as part of an overall integrated regional land transport strategy.

5.1 Alternative and Option Generation

5.1.1 Identified Strategic Interventions

Programme options were developed collaboratively by the project partners and stakeholders. The strategic interventions that were identified included groupings of network routes into six catchment areas, Ngauranga to Wellington CBD (Hutt), City Centre, Eastern, Western, Southern, and Northern. Three of these geographic packages form part of the Urban Cycleway Programme, the Ngauranga to Wellington CBD (Bunny Street) Package, the Wellington CBD package, and the eastern package. In addition, minor safety improvements, end of trip facilities, parking infrastructure, and promotion and education interventions were identified as necessary to support the uptake of the cycle network.

Several different permutations of these strategic interventions were considered that resulted in a long list of twelve investment programmes. The different investment categories and approaches to increasing people on bikes that were considered to create these twelve programmes included:

- Minor safety improvements;
- Promotion and education;
- Primary, secondary and other routes within corridors;
- Funding sources and availability;
- Staging and timing of the programme elements including acceleration and deceleration of investment;
- A 'patchwork' approach providing minimum Levels of Service then upgrading over time;
- Prioritising route implementation by various methods including level of service gap, efficiency, equity between geographic areas, and school and community routes; and
- High investment (world's best standard commuter and recreational infrastructure and amenity) in cycling level of service.

It is important to note here that prioritisation refers to the timing and order in which the cycle routes are implemented and does not define the type of cycleway (or facility), that will be provided. For example, a high priority strategic cycle route may be a protected cycleway or a shared zone cycleway.

5.2 Long List of Options

In total, a long list of 11 programme options were initially assessed, with an additional option (Option 3E) identified and evaluated as part of the workshop process. The programme options were made up of different investment scenarios involving the six geographic packages described earlier in section 5, combined with the following complimentary activities:

- Minor safety improvements – aimed at high risk crash sites across the full network; and
- Wrap around investment:-
 - End-of-trip amenities and cycle parking facilities;
 - Promotion and education to increase awareness of cycle safety and user benefits;
 - Cycle hire schemes;
 - Ability to take bikes on Public Transport; and
 - Potential ‘cycle central’⁶.

Due to the various programme elements, there are a large number of potential programme options ranging from a Do-minimum approach (Option 1) to a very high level of investment in new and improved cycling infrastructure (Option 8). Several permutations relating to staging, timing and funding sources are also possible.

Ultimately, the long list of options summarised in Table 11 were deemed suitable for assessment by the working group and provided sufficient information and variance to adequately assess the options against the assessment criteria. The indicative total cost is provided for the full programme to 2036. More details of the individual programme options are attached in Appendix C.

Table 11 Programme option summary

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

⁶ ‘Cycle central’ is a one stop shop concept which provides bike parking, servicing, repair stations and trip end facilities such as changing rooms, showers and storage lockers.

3E	Weighted prioritisation	Cycle network developed using a weighted prioritisation of the following: 1. Strategic routes (main corridors), 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
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

5.2.1 Programme One – Do Minimum

The Do-minimum programme scenario, referred to as Option 1, is described as the necessary expenditure to maintain a minimum level of service on the existing cycle network. This is essentially a 'business as usual' approach to investment in cycle infrastructure based on delivering minor safety improvements across the existing network. The programme would be limited to addressing localised deficiencies on a priority basis using a combination of customer feedback and reported crash data, with a small allowance for education and marketing activities.

It is important to note that the Do-minimum option is not designed to achieve Council's investment objectives and will not receive any national funding support from the Urban Cycleways Programme. Rather, the Do-minimum is employed as a baseline scenario against which other programme options can be compared against to evaluate their performance.

5.2.2 Programme Two – Minor Capital Improvements

This option is based on a Council only delivery approach without accessing the Urban Cycleways Fund or National Land Transport Fund. Detaching from the three year Urban Cycleways Programme framework allows a more 'relaxed' programme of activities initially focused on minor infrastructure upgrades in the Hutt and/or Island Bay areas, with low cost improvements to the rest of the network carried out in the medium to long term.

5.2.3 Programme Three – Short Term Urban Cycleways Programme Delivery Followed by Medium to Long Term Network Upgrades

The Programme three options have been established around utilising the Urban Cycleways Programme funding source over the next three years. The short term focus is 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.

Following the initial delivery of these core areas, five different programme scenarios have been identified for the medium to long term implementation of the remainder of the network. These scenarios are described as follows:

Option 3A – Equitable areas: This programme prioritises delivery of the primary cycle network for the three remaining package areas (Western Southern and Northern) before reinvesting through the whole network with secondary and tertiary routes.

Option 3B – Prioritised packages by area: This programme is focused on completing one package area at a time. The prioritisation of packages would be determined by a detailed efficiency and effectiveness assessment.

Option 3C – Prioritised packages by Level of Service: This programme is determined by a level of service analysis to prioritise projects that address the biggest deficiencies in the network.

Option 3D – Centres and neighbourhoods: This programme is planned to provide routes that service schools, community centres and local amenities. The focus is on increasing the local demographic uptake of bike trips, as opposed to targeting commuters on main urban corridors.

Option 3E – Weighted prioritisation: This programme was an additional option identified during the workshop process, developed specifically in response to some of the shortcomings deliberated over Options 3A, 3B and 3C. Rather than using a single tool for prioritisation, Option 3E is a weighted prioritisation designed to use a combination of strategic routes (main corridors, level of service gaps and deficiencies and equity of access and facilities to prioritise investment across the network.

5.2.4 Programme Four – Accelerated Delivery

Option four is developed around an accelerated programme that implements the full cycle network by 2025. The programme is prioritised by the ability to construct the full network in a nine year timeframe, and assumes a further roll-out of national urban cycleways funding beyond the initial 2015-18 programme. This funding assumption introduces a programme risk that would require regular review.

5.2.5 Programme Five – Deficiency Driven

Programme five is not dissimilar to Option 3C in that it is driven by a level of service analysis to prioritise projects that address the biggest deficiencies in the network. The key difference is that Programme five is based on a Council led delivery approach and will not necessarily follow the Wellington Urban Cycleways Programme projects identified in the first three years. Although this provides The Council with a greater mandate (and more flexibility) in decision-making, there is an obvious trade-off with less Urban Cycleways Programme funding which would need to be reallocated from Council's Long Term Plan budget.

5.2.6 Programme Six – Minimum Network Upgrades

This option involves a pared-down approach to upgrading the network. In the short to medium term, the primary focus is on improving the whole network to a minimum standard. Areas would then be re-visited in the longer term to provide a gradual improvement in the quality of cycle infrastructure over time. This philosophy allows for high coverage across the full network early in

the programme, at the expense of a lower level of service for cyclists. Similar to Programme five, this scenario would also limit the amount of Urban Cycleways Programme funding support.

5.2.7 Programme Seven – Promotion and Education

This programme involves no major investment in cycling infrastructure, but utilises increased spending in other ‘soft’ measures such as communications, education, events and marketing campaigns to support cycling skills and awareness. This programme would contribute, in part, to addressing the problems identified, however it would be unlikely to adequately address the investment objectives.

5.2.8 Programme Eight – High Quality Upgrades

Programme eight is designed to deliver high quality cycle infrastructure on all routes across the network. This will be achieved by a combination of capital works and minor safety projects. The short term focus is on the planning, design and construction of the three Wellington Urban Cycleways Programme projects (Ngauranga to CBD, CBD and Eastern packages) prior to high investment in the remaining route infrastructure. Increased spending is allowed for in ‘soft’ measures including local connections to connect schools to the wider cycleway network. This is the most expensive and comprehensive programme identified.

5.3 Preliminary Assessment

At the workshop on the 21 August 2015, the long list of programme options was subject to a preliminary assessment. The aim of the assessment at this stage was to provide a structured approach for comparing options rather than undertaking a detailed assessment of the programme itself. The key aim of workshop participants was to identify and agree a short list of options to take forward into more detailed assessment.

The assessment framework involved two elements. Firstly, the programme options were assessed against the five agreed **Investment Objectives**, these being:

Level of Service: Achieve a high level of service for cyclists within the transport network.

Network Efficiency: Greater transport network efficiency, effectiveness and resilience as a result of implementing cycling infrastructure.

Cycling Uptake: The number of cyclists and cycle trips is increased over the next 10 years.

Cycle Safety: The crash rate, number and severity of crashes involving cyclists is reduced.

Wellington City: Wellington is a more sustainable, liveable and attractive city.

Assessment criteria ratings were applied as follows:

Table 12 Criteria ratings

Impact	Score
Does not meet investment objectives	X
Partially meets objectives	✓
Meets objectives	✓✓
Exceeds objectives	✓✓✓

Secondly, the programme options were assessed against the three New Zealand Transport Agency investment criteria which include:

- Strategic fit of the problem, issue or opportunity that is being addressed;
- Effectiveness of the proposed solution; and
- Benefit and cost appraisal.

In accordance with New Zealand Transport Agency procedures, each of these criteria has been rated as H: high, M: medium or L: low to provide an overall assessment profile. Being at the programme level, these ratings are indicative only and will need to be confirmed in future business case phases.

5.3.1 Assessment Results

Table 13 summarises the overall results of the long list option assessment with further commentary on the overall conclusions provided below. The detailed assessment tables are included in Appendix C. In short, four out of the 12 programme options are recommended for short-listing including Options 1, 3C, 3E and 4.

Table 13 Programme evaluation summary

Investment objectives	Programme option											
	1	2	3A	3B	3C	3D	3E	4	5	6	7	8
1. Level of service	X	✓	✓✓	✓	✓✓	✓	✓✓	✓✓	✓✓	✓	X	✓✓✓
2. Network efficiency	X	✓	✓	✓	✓✓	✓	✓✓	✓✓	✓✓	✓	✓	✓✓
3. Cycling uptake	✓	✓✓	✓	✓	✓✓	✓	✓✓	✓✓	✓✓	✓	✓	✓✓
4. Cycle safety	✓	✓✓	✓	✓	✓✓	✓	✓✓	✓✓	✓✓	✓	✓	✓✓
5. Wellington city	X	✓	✓✓	✓	✓✓	✓	✓✓	✓✓	✓✓	✓	✓	✓✓
New Zealand Transport Agency criteria												
Strategic fit	L	M	M	M	H	L	H	H	H	M	M	L
Effectiveness	L	L	M	M	H	L	H	H	L	L	L	L
Benefit and Cost Appraisal	H ⁷	L	L	L	L	L	L	L	L	L	L	L
Recommended for Short-listing	Yes	No	No	No	Yes	No	Yes	Yes	No	No	No	No

Option 1 – Do minimum: This option does not deliver on the investment objectives but is retained as a baseline from which to compare the performance of other short-listed options.

Option 2 – Minor capital improvements: This programme will ultimately deliver approximately half of Wellington City’s planned cycle network. It will not provide high quality infrastructure and is seen as a missed opportunity in optimising funding support from the Urban Cycleway Programme. For these reasons, this option is not recommended for short-listing.

Option 3A – Equitable areas: The equity based programme is not recommended for short-listing due to the short-term compromises in delivering an efficient and safe network. Although the overall investment objectives will eventually be delivered, the equitable approach loses its effectiveness in addressing high-risk/ low level of service areas and achieving a good safety outcome.

Option 3B – Package areas: Similar to Option 3A, this approach loses its effectiveness in addressing high-risk/ low level of service areas across the network. There was also considered

⁷ Assumed high Benefit and Cost Appraisal to reflect Minor Safety programme elements

to be a high degree of delivery risk and stakeholder acceptability issues, particularly for those communities 'left out' until the latter years of the programme. For these reasons, this option is not recommended for short-listing.

Option 3C – Level of service driven: This programme is determined by a level of service analysis to prioritise projects that address the biggest deficiencies across the cycle network. The application of a deficiency driven methodology is likely to target a combination of busy strategic corridors and known safety impediments. There is an acknowledged risk that this option may result in some network connectivity gaps over an extended period, as well as overlooking improvement in less 'equitable' areas. However, the option is recommended to be retained for the short-list.

Option 3D – Centres and neighbourhoods: This programme will not deliver on the New Zealand Transport Agency's strategic outcomes of an increased level of cycling uptake or network efficiency. This option is also not reflective of the Urban Cycleways Programme investment criteria around primary urban corridors. As such, there is both an Urban Cycleways Programme and NLTP funding issue and associated affordability risk in delivering programme. The centre and neighbourhoods programme is not recommended for short-listing.

Option 3E – Weighted (hybrid) prioritisation approach: As described earlier, the weighted approach offers an outcome based programme that combines the advantages of the 3A-3C options. The evidence driven method is considered to provide a highly effective and balanced programme of packaged work and is recommended as the preferred option for more detailed assessment.

Option 4 – Accelerated delivery: The accelerated programme presents the most ambitious plan for implementing the Wellington City's cycle network. The programme will fully deliver on the investment objectives, possibly exceeding demand and initial need for infrastructure. This introduces a value for money and affordability constraint. However, at this stage the current budget was not considered an obstacle to prevent further exploration. The accelerated programme is therefore retained for the short-list.

Option 5 – Deficiency driven: This programme is not recommended for short-listing due to the major constraint in not accessing the Urban Cycleways Programme funding. The associated risks and political fallout of this investment scenario discounts this option from further consideration.

Option 6 – Minor capital improvements: This programme is not recommended for short-listing due to the major constraint in not accessing the Urban Cycleways Programme fund. This programme is not expected to sufficiently address actual and perceived level of service deficiencies in order to achieve programme objectives, particularly around unsafe parts of the cycle network.

Option 7 – Promotion and education: This programme is not recommended for short-listing as it has a very minor impact on infrastructure level of service. Benefits from promotion and education, and resulting increased critical mass are unlikely to be sufficient to fully achieve programme objectives.

Option 8 – High quality upgrades: This programme includes investment in sections of network with relatively low efficiency, reducing the overall programme efficiency, and is not recommended for short-listing. It was considered that targeted investment can achieve programme objectives without jeopardising value for money.

6. Programme Options Development and Assessment

This section outlines the process utilised to assess programme short list options.

6.1 Programme Development

The Programme Business Case including investment justification, option development and evaluation has been undertaken through a number of activities including, but not limited to:

- Research including literature review and previous Wellington City Council reports and investigations;
- Economic analysis;
- Meetings and communication with the New Zealand Transport Agency; and
- Workshops with working party member to identify and assess options with regard to the New Zealand Transport Agency investment criteria and those developed and agreed by Wellington City Council.

Working Group Members

The working group members include:

- Councillor Free;
- Councillor Lee;
- Councillor Foster;
- Councillor Lester;
- Councillor Peck;
- Councillor Sparrow;
- Councillor Woolf;
- Councillor Young;
- Paul Barker - Council Officer;
- Dougal List – New Zealand Transport Agency;
- Phillip Eyles – New Zealand Transport Agency; and
- Amy Kearse – New Zealand Transport Agency.

Working Group Briefing 1

This briefing was provided project team and held on the 30th of July 2015 and attended by the working group. This briefing provided an overview of the Urban Cycleways Programme and the proposed planning and implementation to be undertaken by Wellington City Council over the next three years.

Working Group Workshop 1

This workshop was facilitated by the project team and held on the 7th of August 2015 and attended by the working group. This workshop was critical to developing the founding principles and outcomes that are to be achieved through the development of Wellington's Cycle Network. The Master Plan captures the outcomes of this workshop.

Working Group Briefing 2

This briefing was provided project team and held on the 19th of August 2015 and attended by the working group. This briefing provided information relating to the Investment Objectives and assessment criteria and provided the working group with information in preparation for Workshop 2 at which the programme options would be assessed.

Working Group Workshop 2:

This workshop was facilitated by the project team and held on the 21st of August 2015 and attended by the working group. The workshop included a summary of the outcomes of Workshop 1 and the draft Master Plan to inform and discuss prior to the assessment of the Long List and Short List of options. The Long List assessment is outlined in Section 5.3 of this report. The Short List assessment is outlined below.

6.2 Short List Option Assessment

The programme options were developed in collaboration with the project working group and evaluated in a specific workshop on 21st August 2015 involving a group of council's elected members, technical officers, and New Zealand Transport Agency representatives. Full Council were briefed on the workshop outcomes on 26 August 2015 and a paper was presented to the Transport and Urban Development Committee on 9 September 2015.

The best performing programme options (3C, 4 and 5), were these discussed in further detail at the programme option assessment workshop as well as elements of some of the other options including an equitable approach to corridor planning and non-infrastructure approaches to improving safety and increasing cycling participation. The discussion was robust and covered a number of wide-ranging topics, the most critical to the evaluation of the options were:

- The ability of the option to achieve short term improvements in the uptake of cycling as well as addressing safety and convenience issues;
- The ability of improved to or new infrastructure along transport corridors to increase rates of cycling as well as reduce safety and inconvenience perception; and
- Likelihood the option was to result in the development of the network in the shortest period of time as a result of being able to justify increased investment in the medium term due to demonstrated economic and efficiency benefits.

Table 14 Short List Option Assessment

Option	Short term uptake, safety and convenience improvements	Investment Objectives	NZTA assessment criteria	Overall Assessment
Option 1 – Do minimum	Minimal improvement in uptake arising from minor safety improvements addressing some perceived issues and small amount of education and promotion. Minimal contribution to safety by minor improvements.	Poor level of service improvements, network efficiency or improvements for a Liveable Wellington.	Low strategic fit and effectiveness. High benefit and cost appraisal due to low level of investment.	Not preferred as it does not maximise the opportunity for investment available or meet WCC or NZTA’s aim of increasing cycling as a viable transport mode.
Option 3C – Level of service driven	Notable improvement in uptake by creating Urban Cycleways Programme routes. Prioritising by actual level of service may not deliver improvements that affect perception sufficiently to create modal shift.	Meets all investment objectives.	High strategic fit and effectiveness. Low benefit and cost appraisal due to not addressing high priority routes in the short term.	Whilst this is a good investment approach it will not meet the short term objectives. Elements of this option were included in the Preferred option.
Option 3E – Weighted (hybrid) prioritisation approach	Notable improvement in uptake by creating Urban Cycleways Programme routes. Prioritising investment with strategic routes and equity is expected to result in significant increases in visibility of cycling infrastructure, and corresponding shifts in perception.	Meets all investment objectives.	High strategic fit and effectiveness. Low benefit and cost appraisal.	This is the recommended option due to its ability to perform well against all investment objectives and achieve a high strategic fit and effectiveness. It will allow flexibility in the implementation of this programme which has many investment aspects and projects.
Option 4 – Accelerated delivery	Notable improvement in uptake by creating Urban Cycleways Programme routes. Creation of the greater cycle network in an accelerated timeframe is expected to increase the profile of cycling and short term uptake quickly.	Meets all investment objectives.	High strategic fit and effectiveness. Low benefit and cost appraisal due to over investment in the medium term.	The accelerated investment timeframe may outpace modal shift, however if funding is available and uptake is high this is a viable approach.

7. Recommended Programme

The Urban Cycleways Fund, announced in 2014 by the Prime Minister, is \$100 million additional funding for the Urban Cycleways Programme. The funding aims to accelerate completion of urban cycle networks and supports a step-change in cycling participation. It prioritises investment in key projects that will accelerate the completion of connected urban networks, leverages greater investment in cycling, and aims to achieve the most value and improve safety for all cyclists.

The Programme options have been established around utilising the Urban Cycleways Programme funding source over the next three years. The short term focus is 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.

Three catchment areas (packages) in Wellington are included in the Urban Cycleways Programme that are aimed at accelerating cycling infrastructure and improving Levels of Service within the eastern and CBD catchment areas in Wellington City, as well as on the route between Lower Hutt and Wellington CBD.

The recommended option as a result of the option assessment is Option 3E; this is a weighted prioritisation approach based on the current funding arrangements. It was agreed that if additional funding sources could be obtained for the programme from Year 4 onwards we would then seek to amend the city's Long Term Plan to match to additional funding available. The weighted approach offers an outcome based programme that combines the most advantageous aspects of options 3A, 3B and 3C in order to best meet the investment objectives, resolve the stated problems and achieve the identified benefits.

Prioritisation of investment in cycling infrastructure will be based on the following three aspects:

1. Strategic routes (main corridors): 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 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 considering like routes/corridors, focusing on spreading investment in an equitable manner across catchments/suburbs:-
 - Equity of access; and
 - Equity of coverage across the city's urban areas.

Strategic routes that target the corridors with the highest forecast demand, and the highest level of service gaps and deficiencies will be identified for each package/area within the Wellington city programme. The routes and gaps will then be evaluated using a Multi-Criteria Analysis that assesses them against the investment objectives and the other following factors: feasibility, affordability, public/stakeholder acceptability, safety, economy, environmental and social.

The best performing strategic routes and gaps will then be grouped into package options, identifying the improvements within years 1-3, 4-5, 6-10, and beyond.

The package options will also consider the wider programme elements:

- Promotion and education, to improve driver behaviour, safety and increasing cycling across all ages and abilities;
- Other initiatives, such as speed reductions in town centres, CBD and areas which can improve movement for pedestrians as well as cyclists;
- Ability to undertake minor works (approximately \$1 million per annum) to improve safety issues across the whole network; and
- Wrap around investments or policy changes, e.g. new buildings are to have appropriate end of trip facilities, cycle parking in town centres or CBD locations, and cycle hire schemes

The recent commencement of the Island Bay cycleway was undertaken as a demonstration project which is part of the planned cycle network. Whilst the planning for the cycleway have been challenging the project is increasingly supported by the community. Wellington City Council has improved its understanding and planning capabilities in the successful delivery of the Urban Cycleway packages and the whole cycle network. The council including officers and councillors have a vastly improved understanding of the needs of cyclists and other transport users as a result of the Island Bay project and the current planning for implementing the Urban Cycle Programme for Wellington. The package options will also consider the wider programme elements:

- Promotion and education, to improve driver behaviour, safety and increasing cycling across all ages and abilities;
- Other initiatives, such as speed reductions in town centres, CBD and areas which can improve movement for pedestrians as well as cyclists;
- Ability to undertake minor works (approximately \$1 million per annum) to improve safety issues across the whole network; and

- Wrap around investments or policy changes, e.g. new buildings are to have appropriate end of trip facilities, cycle parking in town centres or CBD locations, and cycle hire schemes.

The weighted prioritisation approach will be developed further in the early stages of the Indicative Business Case phase, and subsequently refined in the development of the Detailed Business Case process, to the requirements of the funding parties. Below is a potential application of the prioritisation approach based on the three aspects described above and to be confirmed at the commencement of the Indicative Business Case stage).

Table 15- Wellington Cycle Network – Potential Investment Prioritisation

Category	When (for UCP)	What	Prioritisation Aspects
Corridor Prioritisation	November 2015 Prior to or at the commencement of the Indicative Business Case	Programme level assessment	Strategic Route, Equity, Level of Service
Route Selection	Early 2015 Indicative Business Case	Catchment area assessment	1 - Strategic Route, 2 – Level of Service
Programming Prioritisation	Mid to Late 2016 Detailed Business Case	Time and achievability	Strategic Route, Level of Service and assessments of achievability and sequencing with other works

7.1 Indicative Programme Implementation Timeframes

In order to achieve Urban Cycleways Programme timeframes, the first three years of the programme will be high intensity due to the relatively high rate of investment. An overview of possible programme implementation timeframes for the first three investment packages (including the three Urban Cycleways Programme routes) is shown in Figure 15 below.

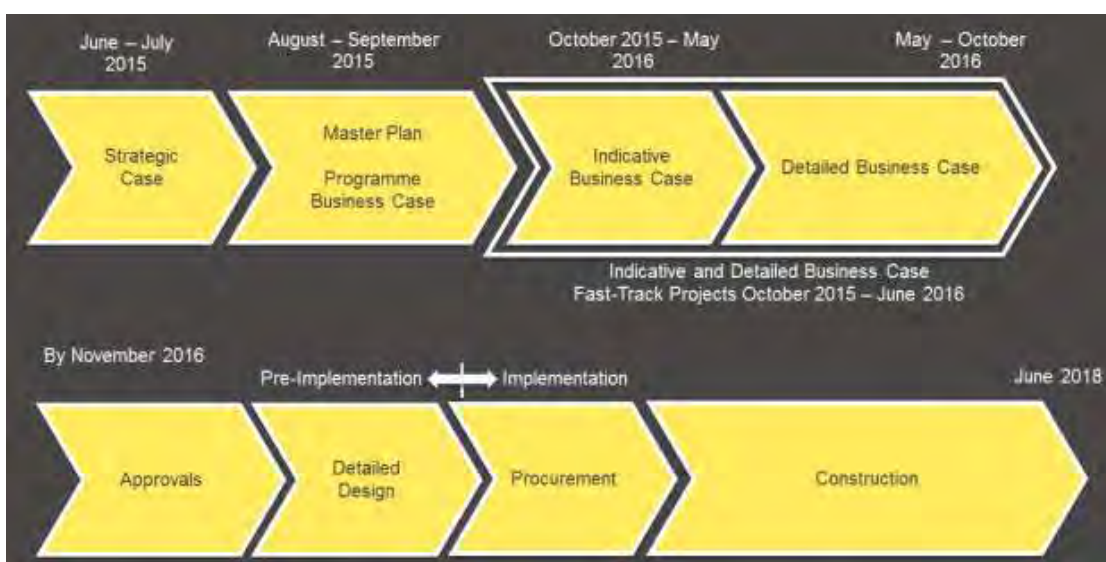


Figure 15 Programme plan for years 1 to 3

7.2 Programme Implementation and Trigger Points

7.2.1 Optimal Timing

The optimal project timing is ideally, as soon as possible. Existing cyclist safety issues and accrual of decongestion benefits produce greater benefit if realised sooner. There is a financial risk that Urban Cycleways Programme funding will not be fully utilised if construction is not completed by June 2018.

A key trigger for the Ngauranga to Wellington CBD route is the completion of the cycleways between Ngauranga and Petone, and Petone and Melling, which will result in a regional connection. Construction of the Bus Rapid Transit may also require that sections of cycleway are constructed in advance of the surrounding cycle network in order to capture the opportunity cost of a single road reconstruction. Expansion and/or development on the State Highway network may also trigger the need for parallel cycle facilities in order to minimise adverse traffic impacts.

7.2.2 Implementation Strategy

The Council will be responsible for the implementation of the programme, and a need has been identified for additional resource in order to manage the programme. Due to the short timeframes of the Urban Cycleways Programme, all elements of the programme could be considered critical until the three Urban Cycleways Programme routes have been completed. For this reason the business case process is being condensed.

Achieving the investment objectives is likely to require the completion of the majority of the programme and supporting elements due to the critical mass concept. More cyclists means a higher cycling profile, resulting in improved driver awareness and safety of cyclists, which can then encourage more cyclists. In order to create sufficient coverage, modal shift, and improvements in safety performance to meet the objectives, an almost complete cycle network will be required with coverage over most of Wellington City.

As such, the majority of safety related outcomes are expected to be attained as a result of investment in an attractive and efficient cycling network, rather than investment targeted at identified safety issues/locations.

7.2.3 Wellington City Council Endorsement

The Wellington City Council Transport and Urban Development Committee passed the following resolutions on the 9th of September 2015 in relation to the Cycling Master Plan and Programme Business Case.

1. Receive the information.
2. Agree that the investment objectives for the Cycle Network Development Programme are:
 - I. Achieve a high level of service for cyclists within an integrated transport network
 - II. Improve cycling infrastructure and facilities so that cycling makes a much greater contribution to network efficiency, effectiveness and resilience
 - III. Cycling is a viable and attractive transport choice
 - IV. The crash rate, number and severity of crashes involving people on bikes is reduced

- V. Provide transport choices by increasing the opportunity for people to ride bikes so as to improve the sustainability, liveability and attractiveness of Wellington.
3. Agree that Option 3E (Hybrid prioritisation) ⁸is the preferred option to be developed through the Programme Business Case and be described in the Master Plan.
4. Adopt the draft Wellington Cycle Network Master Plan (Programme Stage).
5. Delegate to the Chair of the Transport and Urban Development Committee and the Chief Executive the authority to approve any editorial or minor word changes to the Wellington Cycle Network Master Plan.

⁸ Hybrid prioritisation is now retitled as Weighted prioritisation.

8. Recommended Programme – Assessment

The recommended option has been developed by the project agencies through a partnership approach over the past eight weeks. Previously the three programme partners had been investigating their respective project elements through consultation with the community and with each other where necessary.

The outcomes from undertaking and successfully delivering this programme of works are far reaching and will reap benefits for many generations to come. This is a programme of works that highlights the need for intergenerational investment where economic and analytical assessment will not fully capture benefits to current and future generations. There are however, many quantifiable benefits to the community. The benefits which have been or are currently being assessed include:

- Greater transport efficiency, effectiveness and resilience;
- Wellington is a more sustainable, liveable and attractive city;
- Improved safety for people on bikes;
- Financial benefits – efficiency and effectiveness; and
- Health benefits.

The Recommended Programme has been developed to address the identified problems with success measured on resolving these problems as well as achieving the benefits which were agreed during the Investment Logic Mapping process. Table 16 discusses the programme benefits, how they will be achieved, and the responsible programme partner.

Table 16 Recommended Programme Outcomes

Benefit	Recommended Programme Contribution
Greater Transport Efficiency, Effectiveness and Resilience	By fully utilising the available funding from the Urban Cycleways Fund, three significant cycling routes can be created that will become a basis for the cycling network in their areas, as well as raising the profile of cycling. This can increase cycling contribution to the network through improved journey time reliability and efficiency arising from modal shift.
Wellington is a More Sustainable, Liveable and Attractive City	Improvements are to be prioritised by a combination of level of service deficiency, neighbourhood and community needs, and equality between different areas. Supported by a programme of education, promotion, and end of trip and parking facilities, perspective of cycling facilities and modal shift can be simultaneously maximised. Programme elements that continue to target school age children can ensure that investment benefits continue to accrue in the future.
Improved Safety for People on Bikes	Many routes within Wellington City do not have existing cycle infrastructure. The recommended programme will use a level of service gap deficiency analysis to support decision making in

	<p>selecting the appropriate infrastructure for each identified route. In addition, by addressing key conflict points between modes, the number of urban intersection crashes involving cyclist is likely to decrease.</p> <p>Increased numbers of cyclists and visibility of cycling infrastructure is also intended to increase driver awareness of cyclists.</p>
Financial Benefits – Efficiency and Effectiveness	<p>As previously mentioned, maximising the use of the Urban Cycleways Fund is expected to more quickly result in improved journey time reliability and efficiency arising from modal shift.</p> <p>By completing the strategic cycle network and addressing areas of highest level of service deficiency, cycling can quickly become a more attractive transport option for commuters, school children, and visitors to the city.</p>
Health Benefits	<p>The recommended programme is set up to create high visibility of significant cycling infrastructure, and then address network issues that represent the greatest barriers to cycling. In doing so, it is hoped to create significant initial modal shift and cycling perception.</p> <p>This modal shift creates health benefits from cycling as physical activity with less carbon emissions, as opposed to driving a motor vehicle.</p>

8.1 Programme Outcomes

The proposed works outlined in this Programme Business Case are aimed at meeting specific problems and to support achieving the identified benefits. Each of the project elements have been developed or are in the process of being refined and assessed to ensure they meet the intended outcomes of the Wellington Cycleways Programme Master Plan of:

- The city adapts and reflects the changing needs of society;
- The city is connected by a better, more efficient transport network by providing quality infrastructure for all modes, including cycling;
- Cycling is a part of why Wellingtonians love living here and why people are attracted to visiting Wellington;
- Wellington is a people centric city which encourages active modes of transport resulting in healthier, happier people;
- Appeals and encourages people of all ages and abilities to cycle or use more active transport; and
- Wellington is world renowned as a great place to be active within.

8.2 Programme Risk and Opportunity

There are a number of risks to this programme of works that are being assessed with the individual programme elements. These risks will need to continue to be managed and assessed during subsequent business case stages. It is recommended that ongoing risk assessment, including thorough risk identification, mitigation actions, and action owners, continue to be undertaken during the Indicative and Detailed Business Cases.

The risks for the programme include, but are not limited to:

Table 17 Summary of Identified Key Risks

Risk	Description	Treatment Strategy
Technical		
Threat – Cycleway at bus stops	Bus patrons will need to cross the cycleway in order to get on the bus, which could create problematic interfaces, resulting in user injury and reputational damage.	<p>Ensure consistency across network.</p> <p>Use best practice designs.</p> <p>Prepare training/safety materials prior to 'go live' date.</p>
Operational		
Threat – Lack of business case resources	Inadequate available resources results in failure to deliver the large programme of works within a short timeframe, causing late deliverables, late completion, cost overruns, and inability to secure Urban Cycleways Programme funding.	<p>Revision of procurement strategy to allow expedited procurement is in progress; to be agreed with NZTA.</p> <p>WCC discussing with NZTA around procurement.</p> <p>Governance arrangements to be finalised.</p> <p>Programme management by WCC Programme Team (currently being established).</p>
Threat – Lack of agreement at Wellington City Council on cycleway routes	Differing viewpoints on the best option to proceed with in sections of the city may cause elected Wellington City Council members to not be able to reach agreement on preferred options or individual routes, resulting in delay to the approval process and delay to the Detailed Business Case phase.	<p>Working Groups to be established in each area. Prepare high-quality briefing material for the Working Group.</p> <p>Ensure good communications to manage queries received from Working Groups.</p> <p>Fall-back options developed if original option does not proceed.</p>
Threat – Wellington City Council political risk	A change in council direction following local elections will create political influence changes to the programme resulting in programme delay.	<p>Establish Working Groups as liaison between project team and WCC.</p> <p>Provide robust information to public and candidates during the election campaign.</p> <p>Frequent workshops.</p> <p>Briefing paper for new council members November 2016.</p> <p>Robust Programme Business Case and masterplan.</p>
Financial		
Threat – Business cases are not sufficiently	Quality of business case deliverables and, results in delays to approvals and failure to fully utilise Urban Cycleways	Build sufficient "float" into programme. Steering Group meetings with NZTA. Ensure sufficient resources applied. Build Agency confidence

developed to obtain Transport Agency funding in time	Programme funding in the three year time limit.	through early engagement and quality of deliverables. Commence work on some routes (Hutt Rd) prior to funding approval being received.
Stakeholder/Public		
Threat – Delay to statutory approvals (traffic resolution)	As the scope of physical works has not been determined and key planning approval constraints have not been identified, this could cause planning approvals for physical works, especially traffic resolutions, and parking issues to significantly delay construction, resulting in delays to the programme.	Build traffic resolution approval timeframes into the programme, with 'float' to allow for any unknowns. Identify champions. Manage political process; test requirements with Working Groups / WCC to assess appetite for proposed changes.
Threat – Pressure from negative publicity	Residents, drivers or pedestrians express negative views of the projects, causing changes in design or the works programme, resulting in a change in direction of the project in order to address negative comments.	Prepare public consultation and communications plans. Establish working groups. Engagement with champions. Good data collection to inform public. Streamline delivery to get network in place ASAP.
Threat – Large changes to on-street parking	Cycleways will reduce availability of on-street parking, creating negative publicity, resulting in public opposition and pressure on elected members.	Detailed graphs to illustrate existing parking levels, and expected parking levels following construction. Construction of community car parking may occur if parking impact is particularly high. Parking management techniques (pricing, time of day, restrictions) to maintain appropriate occupancy levels.
Environmental and social responsibility		
No Extreme risks were identified for this category.		
Safety		
Threat – Cycleways do not meet safety Level of Service	Poor driving or design issues could cause a motorist to hit a cyclist using the cycleway, resulting in cyclist injury, public reaction and reputational damage.	Follow recommended design guidelines for target LOS.
Economy		
No Extreme risks were identified for this category.		

8.3 Value for Money

The Value for Money assessment for this programme is complex due to the various features of the problems being addressed and the benefits that can be achieved when successfully completed.

The programme of works will result in a wide range of benefits as outlined in Section 8 above. In addition to these the programme of works will support wider government objectives and positive outcomes for the community including:

- Cycling as a viable transport option within an integrated transport network of routes, facilities, and policy supported by a promotion and education campaign to further encourage modal shift;
- Improved safety for people on bikes, with reduced risk of death or serious injury;
- Improved operation and efficiency of the transport network as a whole, with benefits into the future; and
- Improved attractiveness of Wellington City for visitors and as a place to do business and improved health for people already living in Wellington City.

The success of the programme will be measured in the short, medium, and long term and its ability to achieve positive outcomes throughout these timeframes. Some of the success areas to be further developed in the business case process with clearly defined and measureable outcomes (as identified in the Benefit Management Plan, Appendix B) include:

- Actual level of service, level of service perception, and customer satisfaction with cycling infrastructure;
- Improved journey time reliability and efficiency for the transport network;
- Improved actual safety, and perception of safety, for cycling in Wellington City;
- Numbers of cyclists and cyclist mode share, both in general and among school aged children; and
- Improve health and wellbeing, through cycling as a form of physical activity and through reduce carbon emissions.

8.3.1 Benefit-Cost Analysis

To support the inclusion of the Wellington Cycling Programme activity⁹ within the RLTP, The Council undertook an initial programme level assessment of the transport related benefits of the proposed cycle network. This was based on Simplified Procedure 11 (SP11) for cycling projects as prescribed in the New Zealand Transport Agency Economic Evaluation Manual (EEM).

The procedure calculates the health, safety and environment benefits for cycle infrastructure, based on demand estimates of existing cyclists, projected new users and the future cycle growth rate. As presented in the Strategic Case, the initial estimates for these metrics have been determined at a network level using the Wellington Transport Strategic Model (WTSM) refined specifically for cycle demand analysis.

⁹ Included in the 2015 RLTP under the Road Space Reallocation Corridor Programme

Outputs from the WTSM were extracted for two scenarios; a 'Do Minimum' scenario without the cycle network in place, and a 'With Cycle Network' scenario. The scenarios were run for a base year of 2011 and a future year of 2031 for the AM peak period, with preliminary results shown in Table 18.

Table 18 Summary of forecast cycle network statistics

Annual results	2011 Do min	2011 Cycleways	2031 Cycleways
Bike trips (000s)	7,750	9,600	11,400
Bike kilometres (000s)	25,800	37,400	46,100
Average trip length (km)	3.3	3.9	4.1
Daily cycle trips	21,230	26,300	31,230

Key metrics indicate an immediate 24% increased uptake in bike trips with the cycle network in place, with continued growth out to 2031. The average trip length is also forecast to increase from 3.3 km to 3.9 km in 2011, to 4.1 km in 2031. Aside from the transport benefits associated with a mode shift, this will generate additional health benefits.

Input of the daily cycle trip metrics into the SP11 procedures resulted in the following benefit values. Note that these are net present values based on a 40 year evaluation period and six percent discount rate, assuming a 3.9 km trip length and a five percent annual growth rate as per existing growth observed in the city.

- Health and environment benefits for new cyclists = \$247 million; and
- Safety benefits for new and existing cyclists = \$46 million.

Based on an indicative programme cost of \$101 million, and allowing for additional annual operating costs for maintaining the cycle infrastructure, the indicative benefit cost ratio for implementing the cycle network programme has been conservatively estimated as 2.5 BCR (low efficiency). It is likely that improvement of some high priority routes would have higher efficiency. Further work and more detailed analysis will be undertaken as part of the next Indicative Business Case phase to refine this assessment. It is acknowledged that traffic decongestion benefits have not yet been estimated and will positively impact the Benefit Cost Ratio and therefore the addition of estimation of the travel time savings becomes more critical to the analysis undertaken.

8.4 Sensitivity Analysis

It is acknowledged that the determination of costs and benefits at the programme level involves a certain degree of uncertainty. Typical with SP11 procedures, the major contributor to the preliminary assessed benefits are related to health and environment benefits from mode change. This amount is sensitive to the estimated new users and growth rate.

A sensitivity analysis has been undertaken to demonstrate the effect on calculate health and environment benefits using a range of predicted demand and growth scenarios. The results are summarised in Table 19.

Table 19 Demand and growth rate sensitivity tests

Estimated new users	Health and environment benefits (\$mill)		
	2.0% growth rate	5.0% growth rate	8.0% growth rate
1000	37	49	61
2500	92	122	152
5068	187	247	307
7500	276	366	455
10000	369	487	606

It can be seen that there is a significant range in the mode change benefits from \$37 million to just over \$600 million depending upon the estimated demand of new cyclists using the proposed network over the 40 year evaluation period. More detailed work during the indicative and detailed business case phases will provide more robustness around these demand metrics.

The other key uncertainty at a programme level relates to forecasting of future capital costs, particularly in the medium to long term. However, the approved allocation of cycle investment funding in Council's Long Term Plan 2015-25, together with the Urban Cycleways Programme funding does provide a degree of confidence in total costs over the next three years.

8.5 Assessment Profile

When evaluating strategies, programmes, packages and projects, the Government Policy Statement requires both local government and the New Zealand Transport Agency to consider a number of matters, including achieving better value for money. Assessment using the Assessment Framework involves rating strategies, programmes, packages, projects and other activities across three factors, being the:

- Strategic fit of the problem, issue or opportunity that is being addressed;
- Effectiveness of the proposed solution; and
- Economic efficiency of the proposed solution.

The project was assessed using the New Zealand Transport Agency Investment Assessment Framework (IAF) resulting in an indicative assessment profile of **H/H/L** (approximately 2.5BCR).

8.5.1 Strategic Fit

This strategic fit assessment considers how the opportunity to invest in a cycling network within Wellington City aligns with the New Zealand Transport Agency's strategic investment direction. For the purposes of the Strategic Fit assessment the improvements are in the walking and cycling activity class and New Zealand Transport Agency work category 452: Cycling facilities.

A walking and cycling activity must only be given a high strategic fit rating if the problem, issue or opportunity is:

- Part of a primary corridor within a walking and/or cycling strategic network in a main urban area, for the purposes of utility cycling, including associated facilities to put the corridor into service; and
- Or on a corridor, or site, with a high walking and cycling crash risk.

As Wellington City does not have a current ratified aspirational cycling network or hierarchy, the programme option development looked at strategic level connections between and within urban

centres. As such, these connections will include several primary corridors, in addition to the minor safety projects, end of trip facilities, parking infrastructure, promotion and education, and school connections that are necessary in supporting these new cycle corridors. In addition, the New Zealand Transport Agency Urban Cycleway Fund has already identified three routes within Wellington City that are likely to become primary corridors, and are included within this programme.

Wellington City has a relatively high cyclist crash rate with personal risk eight times the national average (2014 communities at risk register). In addition, Wellington City accounts for 7.5% of the national collective risk. At a strategic level, this Programme Business Case can make a significant contribution to the Government Policy Statement objectives of a land transport system that provides appropriate travel choices, and is increasingly free of death and serious injury.

The overall assessment rating for the ‘Strategic Fit’ of the programme of interventions is **High**.

8.5.2 Effectiveness

An indicative ‘high’ rating for Effectiveness is achieved on the basis the identified problems and potential investment meets the components of the criteria as follows:

Component	Explanation	Rating
Outcomes Focused	Investment can make a tangible change in addressing the problems of cyclist safety, as well as contribute to improved network resilience and economic productivity by providing appropriate travel choices. Consistency with levels of service is not applicable at this phase. The project working group has yet to determine a Level of Service gap evaluation method for application in further phases.	H
Integrated	The problem is consistent with current and future land use planning, and transport plans such as the RLTP, and the activities within this document, specifically those related to the Ngauranga to Airport corridor. Cycling is being progressing in an integrated way with an awareness of the potential trade-offs to be made across the network and working with key partners.	H
Correctly Scoped	Programme options were developed collaboratively by the project partners and stakeholders with strategic interventions of six geographic packages. As such, the scale of the response is tailored to the problems identified by the project partners and stakeholders. Other strategic interventions of minor safety improvements, end of trip facilities, parking infrastructure, and promotion and education, were identified in order to support the investment programme in order to create a functional cycle network. These programme options were developed into a long list of twelve investment programmes that ranged from do minimum to high investment, in addition to different permutations of staging, timing and	H

	<p>funding sources.</p> <p>At a strategic level, likely adverse impacts have already been identified as reallocation of road space creating level of service compromises for property access and movement of other modes. The exact nature of these trade-offs cannot be determined until later business case stages when specific routes are identified for investment.</p>	
Affordable	<p>There is opportunity to leverage Urban Cycleways Programme funding, and has been considered within several of the evaluated programme options. The programme options considered the different potential funding levels by project partners, and different project staging and timing.</p> <p>The project directly benefits the transport network users within Wellington City, and as such has considered funding from The Council, the National Land Transport Fund, and the Urban Cycleways Fund. The Council's share of funding is identified in its LTCCP and the New Zealand Transport Agency share is identified in the NLTP.</p>	H
Timely	<p>An accelerated business case process is being undertaken in order to enable construction completion within the Urban Cycleways Programme timing envelopes.</p> <p>The creation of a cycling network in Wellington City is highly likely to deliver enduring benefits for the foreseeable future. Recent growth in numbers of cyclist has coincided with a decreasing perception of the perception of cycling level of service in Wellington City.</p>	H
Confidence	<p>The council has good capability in place to monitor and manage risks. Project risks were identified at a working group meeting on 27th August 2015. These risks were further developed, with consideration of existing controls, treatments, and ownership at a working group meeting on 3rd December 2015.</p>	H
Overall	<p>Assessment based on lowest rating of all components</p>	H

8.5.3 Benefit and Cost Appraisal

As detailed in Section 8.3.1, The Council undertook an initial programme level assessment of the transport related benefits of the proposed cycle ways to support the inclusion of a Wellington cycling activity within the RLTP. The summary results of this initial assessment were:

- Health and environment benefits for new cyclists = \$247 million.
- Safety benefits for new and existing cyclists = \$46 million.

Based on an indicative programme cost of \$101 million, and allowing for additional annual operating costs for maintaining the cycle infrastructure, the indicative benefit cost ratio for implementing the cycle network programme has been conservatively estimated at 2.5 BCR (low-efficiency). It is likely that improvement of some high priority routes would have higher efficiency. Further work and more detailed analysis will be undertaken as part of the next

Indicative Business Case phase to refine this assessment. It is acknowledged that traffic decongestion benefits have not yet been estimated and will positively impact the Benefit Cost Ratio and therefore the addition of estimation of the travel time savings becomes more critical to the analysis undertaken.

9. Programme Financial Case

9.1 Funding Arrangements

The proposed programme of works and associated costs are considerable. The Council already has allocated funds for cycle network investment, with the 2015 Long Term Plan noting a 10 year capital gross expenditure of \$57.7 million. This business case process seeks to secure partial programme funding from the Urban Cycleways Fund and the NLTF. Each of the programme partners will need to revise these when more accurate cost estimates are confirmed during later business case stages. The proposed ten year funding profile is shown in Table 20.

Table 20 Proposed funding arrangements

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

9.1 Indicative Cost and Programme Cash Flow

An indicative, un-escalated programme cost has been estimated at approximately \$101 million (un-escalated). The breakdown by intervention type is shown in 20 below.

Table 21 Indicative Programme Cash Flow (un-escalated)

Year Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Financial Year	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31	2031/32	2032/33	2033/34	2034/35	2035/36
Hutt - Ngauranga to Wellington CBD	1	1.5	5																		
City Centre	1	2	7.3																		
Eastern	0.5	1	3.3	1	2	2	1	2	2	2	2	2	1	1	2	2	1	2	2	2	2
Western			0.5																		
Southern	1.5		0.5																		
Northern			0.5																		
Minor Safety Works	1.5	1.5	1.745	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.5	1.5	1.5	1.5	1.7	1.7	1.7	1.7	1.7	1.7	1.7
End of trip and parking facilities	0.2	0.2	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.3	0.3	0.3	0.3	0.4	0.4	0.4
Promotion and Education	0.8	1	2	0.1	0.1	0.15	0.2	0.2	0.2	0.2	0.25	0.25	0.25	0.25	0.25	0.25	0.25	0.3	0.35	0.4	0.4
Annual Total	6.5	7.2	21.05	2.5	3.5	3.55	2.6	3.6	3.6	3.6	3.95	3.95	2.95	2.95	4.25	4.25	3.25	4.3	4.45	4.5	4.5
Cumulative Cash Flow		13.7	34.75	37.25	40.75	44.3	46.9	50.5	54.1	57.7	61.65	65.6	68.55	71.5	75.75	80	83.25	87.55	92	96.5	101

Part C – Delivering and Monitoring the Programme

10. Planning and Delivery Overview

The planning and delivery of the three Urban Cycleways Programme geographical catchment areas (packages), Wellington CBD to Ngauranga, CBD, and the Eastern, represent the critical path for the first three years of the programme. Completion of the business case process and construction of these catchment areas is likely to streamline implementation of the remaining catchment areas, in design and planning considerations, engagement processes, and contractor experience.

These first three programme years represent a relatively high level of investment over a short period. As such, the different processes are proposed to be slightly staggered, so that the level of resource required is more consistent and manageable. Similarly, pre-implementation for the catchment areas that are not part of the Urban Cycleways Programme will need to commence prior to completion of the Urban Cycleways Programme catchment areas, so that the level of construction activity is more consistent following construction of the three Urban Cycleways Programme catchment areas.

Consideration to the inputs and outcomes of the proposed Network Operating Framework also need to be understood and incorporated into the planning process at the earliest possible time.

Figure 16 shows an overview of the implementation timeline and the activities that enable and support each component.

Wellington Cycle Network – Urban Cycleways Programme

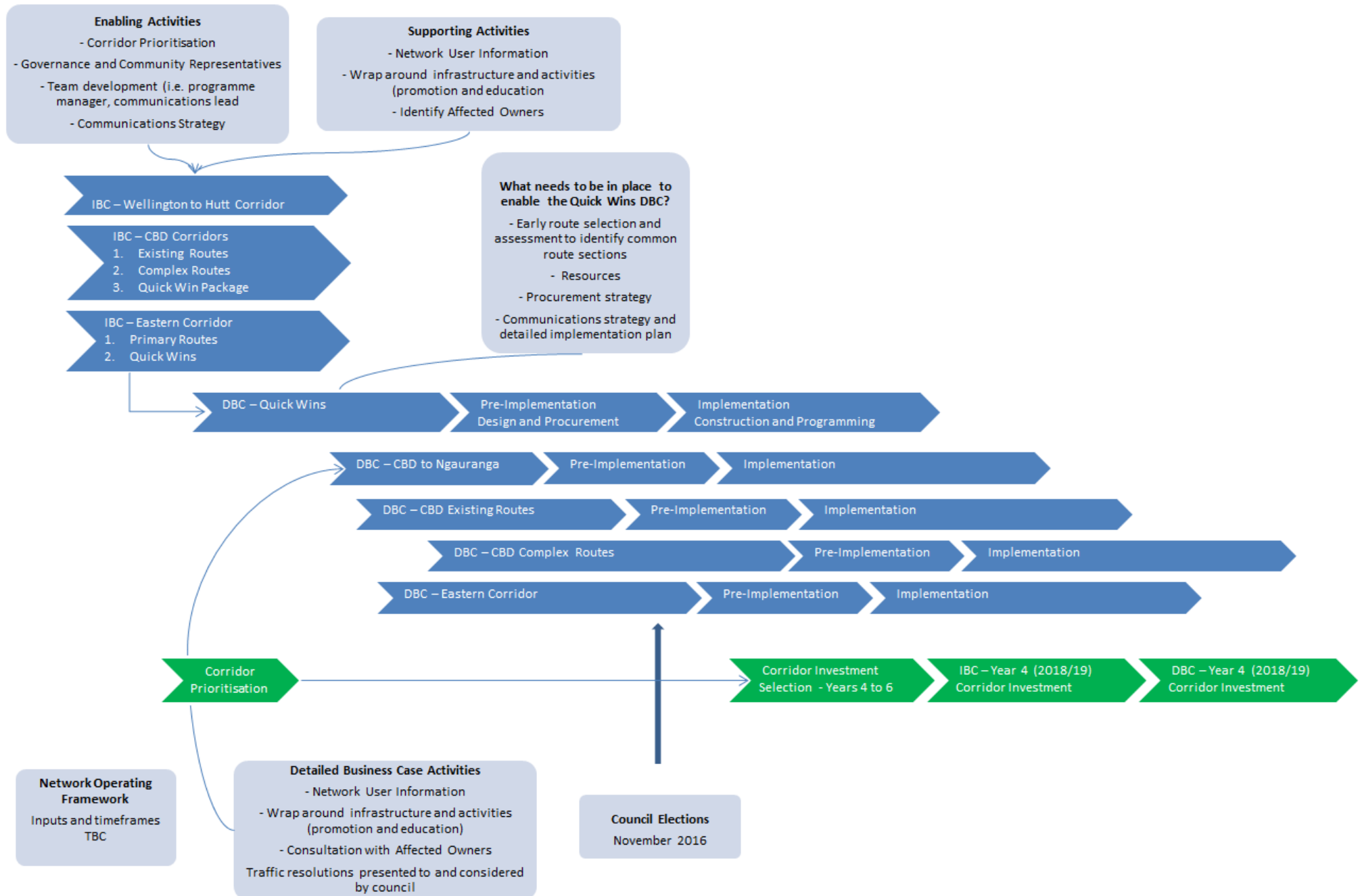


Figure 16 Overview of delivery process and supporting/enabling components

10.1 Indicative Business Cases

The Indicative Business Cases for the three Urban Cycleways Programme geographical catchment areas are the first component of the programme.

Enabling Activity

In order to enable the Indicative Business Cases, a prioritisation methodology will need to be developed and ratified by the project steering group so that route selection can be undertaken. This will be informed by and inform the development of the Network Operating Framework and therefore these decisions may need to be undertaken in workshops with suitable representatives to reduce risk to the potential impact on project timeframes. In addition, Council resource will need to be identified for the delivery team. The completion of the communications strategy, and identification of governance and community representatives, will also be required to enable the indicative business cases.

Supporting Activity

Some supporting activities will need to be undertaken in parallel to the Indicative Business Cases. This includes gathering information on current and anticipated network use and users through consultation, traffic survey, and other data capture processes, and identifying properties affected by the selected routes. There will also need to be creation of a strategy and set of policies for the scale and nature of wrap around infrastructure and activities. It is likely that this process will need to capture learnings from current cycling strategies in schools, and consultation feedback, in addition to a review of best practice and current approaches to improving the number and level of people using bikes.

10.2 Detailed Business Cases

Enabling Activity

The enabling activities for the Detailed Business Cases include organisation of a delivery team, procurement strategy, communications strategy, and implementation plan.

Supporting Activity

The activities that support the Detailed Business Case development include gathering baseline information for performance and outcomes monitoring, and undertaking detailed topographical survey if required for improvements on any given route. The investment in wrap around infrastructure and activities will need to be developed further, with identification of where to add infrastructure investment into the detailed design process, and identification of where to acquire, and how to procure, resource for the promotion and education aspects. Consultation with affected property owners/occupiers and preparation and presentation of traffic resolutions to council will also need to be undertaken during the Detailed Business Case process.

10.2.1 Quick Win Detailed Business Cases

Once route selection has been undertaken during the Indicative Business Case process, it is possible that some routes will either be consistent among all options or have a level of certainty around what improvements are to be implemented. Progressing sections of routes as early 'quick win' Detailed Business Cases will assist in a more consistent level of resource

requirements for both pre-implementation and implementation phases. This will require development of an earlier delivery team, procurement strategy, and communications strategy and implementation plan; but will assist in minimising overall programme timeframe and resource risks.

10.3 External Support Requirements

As shown in Figure 17, project delivery will require both internal resource, and the procurement of external resources and contractors. A data gathering specialist will be needed for the data capture and monitoring tasks. External support will also be required for the engineering design, estimation, economic assessment, and construction management and surveillance. Ongoing risk assessment and management will likely require both internal and external action. In addition, planning requirement identification and consenting may require external support. In addition, option identification, prioritisation and assessment will likely require external input.

Wellington Cycle Network Programme Business Case

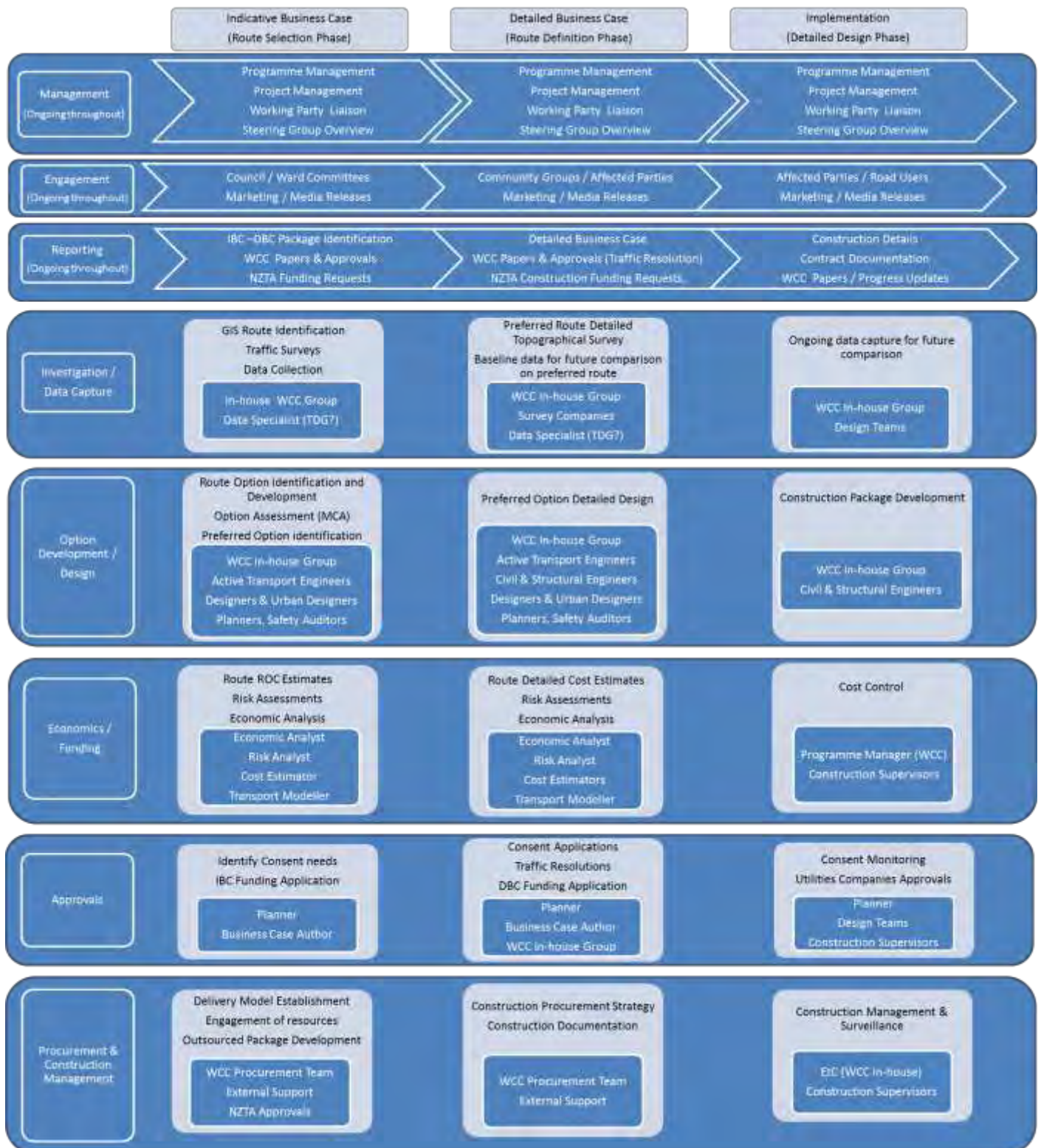


Figure 17 Potential resource requirements for delivery

11. Management Case

11.1 Programme Governance and Reporting

Figure 18 outlines the necessary activities required and the resources likely necessary to deliver the next IBC(s), DBC(s), approvals, detailed design and construction related activities. It is acknowledged that the time in which these activities must commence in order to deliver the Urban Cycleways Programme within the required timeframe will result in the need to rapidly change the available resource and the skill sets of that resource.

Figure 18 provides a potential organisational chart for the planning and delivery of the Wellington Cycle Network during the following three years and potentially beyond.

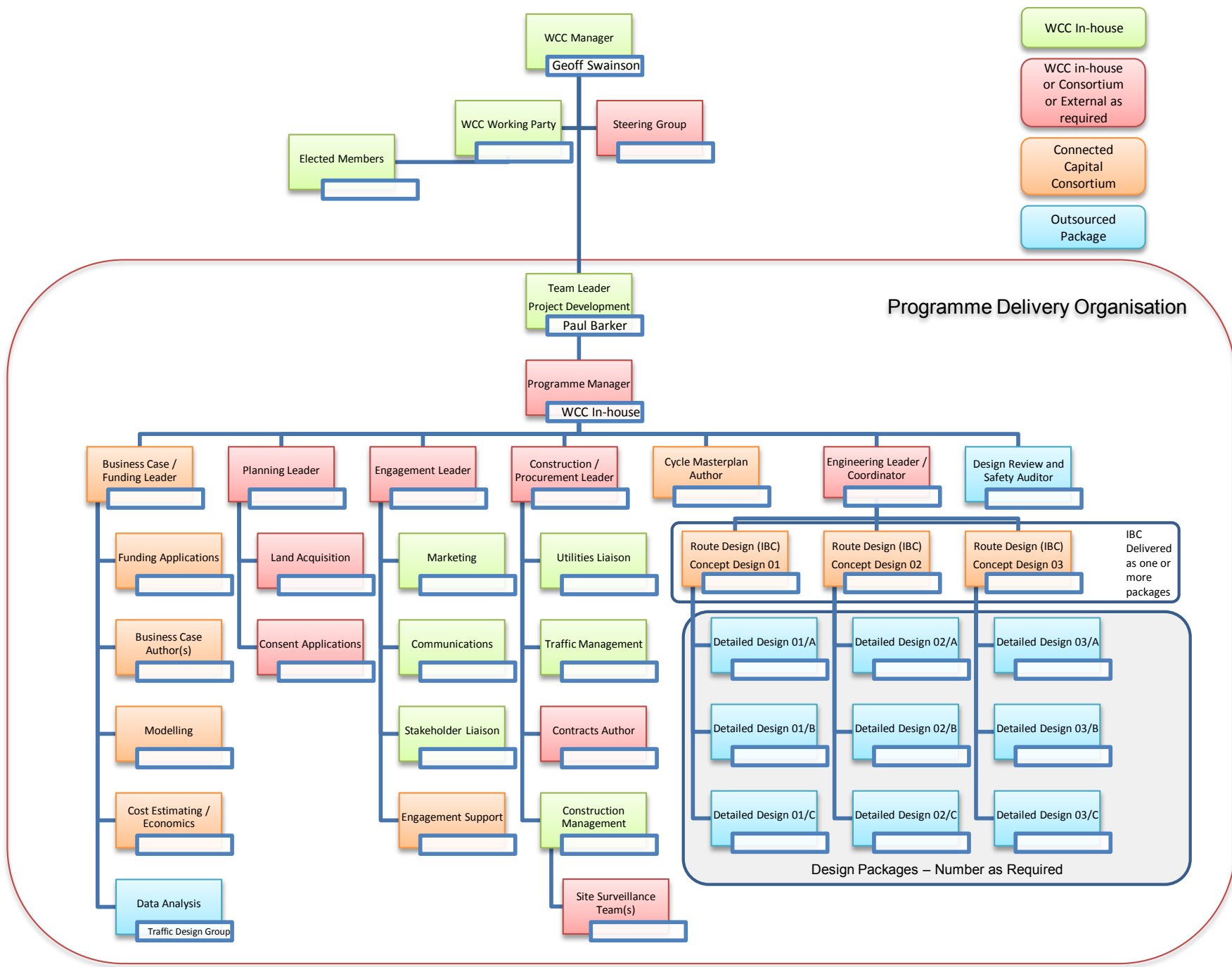


Figure 18 Potential Organisational Structure

11.2 Stakeholder Engagement and Communications Plan

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, 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 specialised consultation and stakeholder strategy is currently under development. This will also look at how engagement with key stakeholders and communities can extend to incorporate the promotional and educational elements of the programme.

The current list of project stakeholders includes:

- Cycle Aware Wellington;
- Cycle Advocates Network;
- Wellington Employers’ Chambers of Commerce;
- Wellington Residents Associations;
- Automobile Association;
- Iwi;
- Public Transport Users Association;
- Road Transport Forum (consideration of freight impacts); and
- Carpark owners/developers.

Table 22 below outlines the dates and activities that will interact with the community and stakeholder engagement.

Table 22 Summary of Stakeholder Interaction

Project Stage	Stakeholder / Community	Communication / Engagement
Indicative Business Case	Community Representatives	Engagement and inclusion in working groups to develop robust and supported route solutions and analysis of options
Detailed Business Case	All affected owners	Detailed consultations and community engagement
	Various	Varying levels depending on need
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
Po-Implementation (Monitoring)	User groups and general community	Ongoing communication to confirm if the activities undertaken have been successful or improved

11.3 Programme Performance and Review

The means of measuring some of the measures of benefit has not yet been determined. It may be that an appropriate proxy is agreed, or that a higher level regional statistic is used. This includes:

- Wellington’s attractiveness;

- Health and activity;
- Cycling contribution to quality of life; and
- Carbon emission produced from transport.
- Other measures of success have more established means of monitoring:
- Continuing Wellington City Council surveys for perception of level of service and customer satisfaction;
- Census data for cycling mode share;
- Ongoing traffic counts of numbers of cyclists crossing the Wellington City Centre cordon;
- Ongoing real time measurement of journey time reliability expressed as the ratio between peak and off peak travel times along key corridors;
- Crashes – current discussions are indicating the use of a balanced approach using CAS, ACC, hospital and police data to attempt to capture as many cycling accidents as possible to be used in the prioritisation and monitoring process; and
- Use of a Network Operating Plan tool to demonstrate changes in level of service deficiencies over time.

12. Commercial Case

The Commercial Case will be developed during the Indicative Business Case stage of the programme's development.

Appendices

Appendix A – Investment Logic Map

Appendix B – Benefits Map

Appendix C – Programme Options

Appendix D – Risk Assessment



